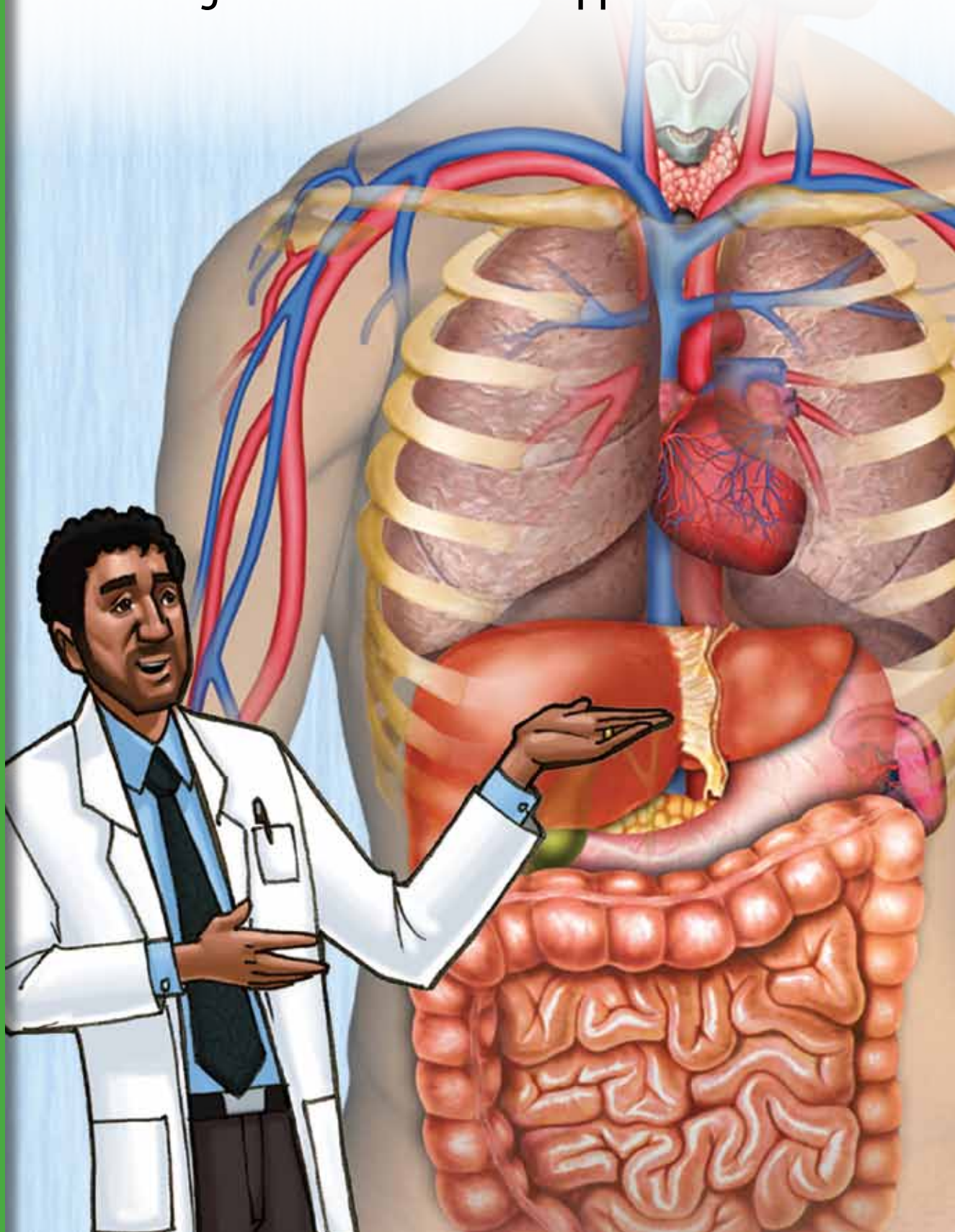
The Human Body

BUILDING BLOCKS AND NUTRITION

Tell It Again!™ Read-Aloud Supplemental Guide



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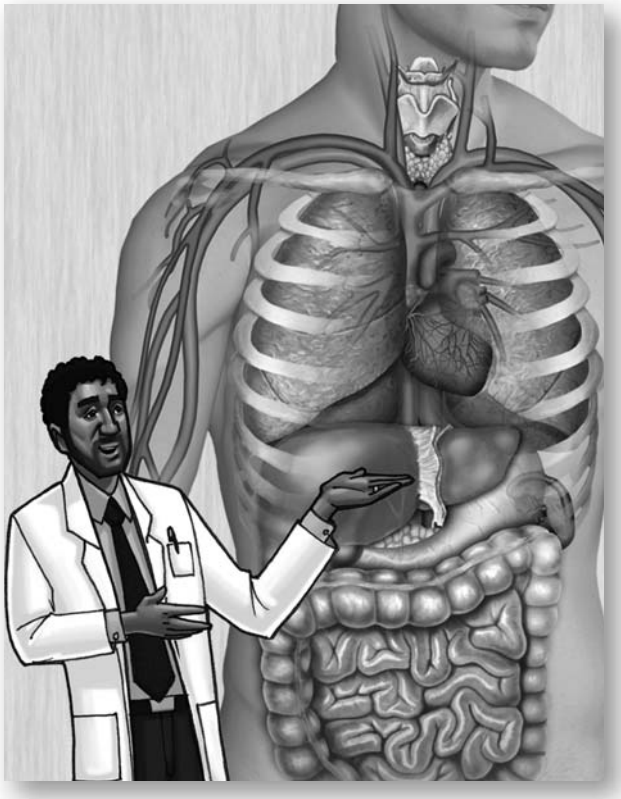

The Human Body

BUILDING BLOCKS AND NUTRITION

Transition Supplemental Guide to the Tell It Again!™ Read-Aloud Anthology

Listening & Learning™ Strand

GRADE 2

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The Human Body

BUILDING BLOCKS AND NUTRITION

Transition Supplemental Guide to the Tell It Again!™ Read-Aloud Anthology

Preface to the Transition Supplemental Guide

This preface to the *Transition Supplemental Guide* provides information about the guide's purpose and target audience, and describes how it can be used flexibly in various classroom settings.

Please note: The *Supplemental Guides* for the first three domains in Grade 2 contain modified read-alouds and significantly restructured lessons with regard to pacing and activities. These early *Supplemental Guides* provided step-by-step, scaffolded instruction with the intention that students receiving instruction from teachers using the *Supplemental Guide* for the first part of the year would be ready to participate in regular Listening & Learning lessons, and that teachers who have used the *Supplemental Guide* for the first part of the year would be equipped with the instructional strategies to scaffold the lessons when necessary. This shift from the full *Supplemental Guide* to the *Transition Supplemental Guide* affords teachers more autonomy and greater responsibility to adjust their execution of the lessons according to the needs of their classes and individual students.

Transition Supplemental Guides for the remaining domains will still contain Vocabulary Charts and *Supplemental Guide* activities such as Multiple Meaning Word Activities, Syntactic Awareness Activities, and Vocabulary Instructional Activities. However, the *Transition Supplemental Guides* do not have rewritten read-alouds and do not adjust the pacing of instruction; the pacing and read-aloud text included in each *Transition Supplemental Guide* is identical to the pacing and read-aloud text in the corresponding *Tell It Again! Read-Aloud Anthology.* We have, however, augmented the introductions and extensions of each lesson in the *Transition Supplemental Guides* so teachers have additional resources for students who need greater English language support. As a result, there are often more activities suggested than can be completed in the allotted time for the introduction or extension activities. Teachers will need to make informed and conscious decisions in light of their particular students' needs when choosing which activities to complete and which to omit. We strongly recommend that teachers preview the Domain Assessment prior to teaching this domain; this will provide an additional way to inform their activity choices.

Intended Users and Uses

This guide is intended to be used by general education teachers, reading specialists, English as a Second Language (ESL) teachers, special education teachers, and teachers seeking an additional resource for classroom activities. This guide is intended to be both flexible and versatile. Its use is to be determined by teachers in order to fit the unique circumstances and specific needs of their classrooms and individual students. Teachers whose students would benefit from enhanced oral language practice may opt to use the *Transition Supplemental Guide* as their primary guide for Listening & Learning. Teachers may also choose individual activities from the *Transition Supplemental Guide* to augment the content covered in the *Tell It Again! Read-Aloud Anthology*. For example, teachers might use the Vocabulary Instructional Activities, Syntactic Awareness Activities, and modified Extensions during small-group instruction time. Reading specialists and ESL teachers may find that the tiered Vocabulary Charts are a useful starting point in addressing their students' vocabulary learning needs.

The *Transition Supplemental Guide* is designed to allow flexibility with regard to lesson pacing and encourages education professionals to pause and review when necessary. A number of hands-on activities and graphic organizers are included in the lessons to assist students with learning the content.

Transition Supplemental Guide Contents

The *Transition Supplemental Guide* contains tiered Vocabulary Charts, Multiple Meaning Word Activities, Syntactic Awareness Activities, and Vocabulary Instructional Activities. The Domain Assessments and Family Letters have been modified. In some instances, the activities in the Extensions as well as the activities in the Pausing Point, Domain Review, and Culminating Activities have been modified or rewritten. Please refer to the following sample At a Glance Chart to see how additional support is communicated to the teacher.

Exercise	Materials	Details
Introducing the Read-Aloud (10 minutes)		
Introductory Content	[Additional materials to help support this part of the lesson will be listed here.]	[A brief explanation about how the material can be used.]
Vocabulary Preview	[There will be one or two vocabulary preview words per lesson.]	
Purpose for Listening		
Presenting the Read-Aloud (15 minutes)		
Note: It is highly recommended that teachers preview the read-aloud, Flip Book images, and comprehension questions to determine when to pause during the read-aloud and ask guiding questions, especially before a central or difficult point is going to be presented (e.g., While we are reading this part of the read-aloud, I want to you think about . . .) and supplementary questions (e.g., Who/What/Where/When/Why literal questions) to check for understanding.		
Title of Read-Aloud	[Materials that may help scaffold the read-aloud will be listed here.]	
Discussing the Read-Aloud (15 minutes)		
Comprehension Questions		
Word Work		
Complete Remainder of the Lesson Later in the Day		
Extensions (20 minutes)		
Extension Activities	[Additional Extension activities may include a Multiple Meaning Word Activity, a Syntactic Awareness Activity, a Vocabulary Instructional Activity, and modified existing activities or new activities.]	

The additional materials found in the *Transition Supplemental Guide* afford students further opportunities to use domain vocabulary and demonstrate knowledge of content. The lessons of this guide contain activities that create a purposeful and systematic setting for English language learning. The read-aloud for each story or nonfiction text builds upon previously taught vocabulary and ideas and introduces language and knowledge needed for the next more complex text. The *Transition Supplemental Guide's* focus on oral language in the earlier grades

addresses the language learning needs of students with limited English language skills. These students—outside of a school setting—may not be exposed to the kind of academic language found in many written texts.

Vocabulary Charts

Vocabulary Chart for [Title of Lesson]			
Core Vocabulary words are in **bold**. Multiple Meaning Word Activity word is underlined. Vocabulary Instructional Activity words have an asterisk (*). Suggested words to pre-teach are in *italics*.			
Type of Words	**Tier 3** Domain-Specific Words	**Tier 2** General Academic Words	**Tier 1** Everyday-Speech Words
Understanding			
Multiple Meaning			
Phrases			
Cognates			

Vocabulary Charts at the beginning of each lesson categorize words into three tiers which are generally categorized as follows:

- Tier 1 words are words that are likely to appear in the basic repertoire of native English-speaking students—words such as *stomach, food,* and *body*.
- Tier 2 words are highly functional and frequently used general academic words that appear across various texts and content areas—words such as *systems, observations,* and *functions*.
- Tier 3 words are content-specific and difficult words that are crucial for comprehending the facts and ideas related to a particular subject—words such as *excretory system, proteins,* and *calories*.

English Language Learners and students with limited oral language skills may not necessarily know the meanings of all Tier 1 words, and may find Tier 2 and Tier 3 words confusing and difficult to learn. Thus, explicit explanation of, exposure to, and practice using Tier 1, 2, and 3 words are essential to successful mastery of content for these students (National Governors Association Center for Best Practices, Council of Chief State School Officers 2010 32–35).

In addition, the Vocabulary Chart indicates whether the chosen words are vital to understanding the lesson (labeled *Understanding*); have multiple meanings or senses (labeled *Multiple Meaning*); are clusters of words

that often appear together (labeled *Phrases*); or have a Spanish word that sounds similar and has a similar meaning (labeled *Cognates*). Words in the Vocabulary Chart were selected because they appear frequently in the text of the read-aloud or because they are words and phrases that span multiple grade levels and content areas. Teachers should be aware of and model the use of these words as much as possible before, during, and after each individual lesson. The Vocabulary Chart could also be a good starting point and reference for keeping track of students' oral language development and their retention of domain-related and academic vocabulary. These lists are not meant to be exhaustive, and teachers are encouraged to include additional words they feel would best serve their students.

Multiple Meaning Word Activities

Multiple Meaning Word Activities help students determine and clarify the different meanings of individual words. This type of activity supports a deeper knowledge of content-related words and a realization that many content words have multiple meanings associated with them. Students with strong oral language skills may be able to navigate through different meanings of some words without much effort. However, students with limited English language proficiency and minimal vocabulary knowledge may be less likely to disambiguate the meanings of words. This is why it is important that teachers have a way to call students' attention to words in the lesson that have ambiguous meanings, and that students have a chance to explore the nuances of words in contexts within and outside of the lessons.

Syntactic Awareness Activities

Syntactic Awareness Activities focus on sentence structure. During the early elementary grades, students are not expected to read or write lengthy sentences, but they might be able to produce complex sentences in spoken language when given adequate prompting and support. Syntactic Awareness Activities support students' awareness of the structure of written language, interrelations between words, and grammar. Developing students' oral language through syntactic awareness provides a solid foundation for written language development in the later elementary grades and beyond.

Vocabulary Instructional Activities

Vocabulary Instructional Activities are included to build students' general academic, or Tier 2, vocabulary. These words are salient because they appear across content areas and in complex written texts. These activities support students' learning of Tier 2 words and deepen their knowledge of academic words and the connections of these words to other words and concepts. The vocabulary knowledge students possess is intricately connected to reading comprehension, the ability to access background knowledge, express ideas, communicate effectively, and learn about new concepts.

English Language Learners and Students with Disabilities

The *Transition Supplemental Guide* assists education professionals who serve students with limited English language skills or students with limited home literacy experience, which may include English Language Learners (ELLs) and students with special needs. Although the use of this guide is not limited to teachers of ELLs and/or students with special needs, the following provides a brief explanation of these learners and the challenges they may face in the classroom, as well as teaching strategies that address those challenges.

English Language Learners

The *Transition Supplemental Guide* is designed to facilitate the academic oral language development necessary for English Language Learners (ELLs) and to strengthen ELLs' understanding of the core content presented in the domains.

When teaching ELLs, it is important to keep in mind that they are a heterogeneous group from a variety of social backgrounds and at different stages in their language development. There may be some ELLs who do not speak any English and have little experience in a formal education setting. There may be some ELLs who seem fluent in conversational English, but do not have the academic language proficiency to participate in classroom discussions about academic content. The following is a chart showing the basic stages of second language acquisition; proper expectations for student behavior and performance; and accommodations and support strategies for each stage. Please note that ELLs may have extensive language skills in their

first language and that they advance to the next stage at various rates depending on their acculturation, motivation, and prior experiences in an education setting.

Language Development Stage	Comprehension and Production	Accommodations and Support Strategies
Entering	• Produces little or no English • Responds in nonverbal ways • Has a minimal receptive vocabulary in English	• Use predictable phrases for set routines • Use manipulatives, visuals, realia, props • Use gestures (e.g., point, nod) to indicate comprehension • Use lessons that build receptive and productive vocabulary, using illustrated pre-taught words • Use pre-taught words to complete sentence starters • Use simply stated questions that require simple nonverbal responses (e.g., "Show me . . . ," "Circle the . . . ") • Use normal intonation, emphasize key words, and frequent checks for understanding • Model oral language and practice formulaic expressions • Pair with another ELL who is more advanced in oral language skills for activities and discussions focused on the English language • Pair with same-language peers for activities and discussions focused on content

Emerging (Beginner)	• Responds with basic phrases
	• Includes frequent, long pauses when speaking
	• Has basic level of English vocabulary (common words and phrases)
		• Use repetition, gestures, and visual aids to facilitate comprehension and students' responses
		• Use manipulatives, visuals, realia, props
		• Use small-group activities
		• Use lessons that expand receptive and expressive vocabulary, especially Tier 2 vocabulary
		• Use illustrated core vocabulary words
		• Use pre-identified words to complete cloze sentences
		• Use increasingly more difficult question types as students' receptive and expressive language skills improve:
		  • Yes/no questions
		  • Either/or questions
		  • Questions that require short answers
		  • Open-ended questions to encourage expressive responses
		• Allow for longer processing time and for participation to be voluntary
		• Pair with another ELL who is more advanced in oral language skills for activities and discussions focused on the English language
		• Pair with same-language peers for activities and discussions focused on content

Transitioning (Intermediate)	• Speaks in simple sentences
	• Uses newly learned words appropriately
	• With appropriate scaffolding, able to understand and produce narratives
	• Has a much larger receptive than expressive vocabulary in English
		• Use more complex stories and books
		• Continue to focus on Tier 2 vocabulary
		• Introduce academic terms (e.g., making predictions and inferences, figurative language)
		• Use graphic organizers
		• Use increasingly difficult question types as students' receptive and expressive language skills improve:
		  • Questions that require short sentence answers
		  • *Why* and *how* questions
		  • Questions that check for literal and abstract comprehension
		• Provide some extra time to respond
		• Pair with high-level English speakers for activities and discussions focused on the English language

Expanding (Advanced)	• Engages in conversations • Produces connected narrative • Shows good comprehension • Has and uses expanded vocabulary in English	• Continue work with academic terms (e.g., making predictions and inferences, figurative language) • Use graphic organizers • Use questions that require opinion, judgment, and explanation • Pair with native English speakers
Commanding (Proficient)	• Uses English that nearly approximates the language of native speakers • Can maintain a two-way conversation • Uses more complex grammatical structures, such as conditionals and complex sentences. • Has and uses an enriched vocabulary in English	• Build high-level/academic language • Expand figurative language (e.g., by using metaphors and idioms) • Use questions that require inference and evaluation • Pair with students who have a variety of skills and language proficiencies

(Adapted from Hirsch and Wiggins 2009, 362–364; New York Department of Education 2013; Smyk et al. 2013)

Students with Disabilities and Students with Special Needs

Students with disabilities (SWDs) have unique learning needs that require accommodations and modifications to the general education curriculum. When using the *Transition Supplemental Guide* with SWDs and students with special needs, it is important to consider instructional accommodations, tools, strategies, and Universal Design for Learning (UDL) Principles, which promote learning for all students through the use of multiple forms of representation, expression, and engagement (Hall, Strangman, and Meyer 2003).

Pacing

Pacing is the purposeful increase or decrease in the speed of instruction. Educators can break lessons into manageable chunks depending on needs of the class and follow the section with a brief review or discussion. This format of instruction ensures that students are not inundated with information. Additionally, you may want to allow students to move around the room for brief periods during natural transition points. When waiting for students to respond, allow at least three seconds of uninterrupted wait time to increase correctness of responses, response rates, and level of thinking (Stahl 1990).

Goals and Expectations

Make sure students know the purpose and the desired outcome of each activity. Have students articulate their own learning goals for the lesson. Provide model examples of desired end-products. Use positive verbal praise, self-regulation charts, and redirection to reinforce appropriate ways for students to participate and behave.

Directions

Provide reminders about classroom rules and routines whenever appropriate. You may assign a partner to help clarify directions. When necessary, model each step of an activity's instructions. Offering explicit directions, procedures, and guidelines for completing tasks can enhance student understanding. For example, large assignments can be delivered in smaller segments to increase comprehension and completion (Franzone 2009).

Instruction Format and Grouping

Use multiple instruction formats (e.g., small-group instruction, individual work, collaborative learning, and hands-on instruction). Be sure to group students in logical and flexible ways that support learning.

Instructional Strategies

The following evidence-based strategies can assist students with disabilities in learning content (Scruggs et al. 2010):

- **Mnemonic strategies** are patterns of letters and sounds related to ideas that enhance retention and recall of information. They can be used as a tool to encode information.
- **Spatial organizers** assist student understanding and recall of information using charts, diagrams, graphs, and/or other graphic organizers.
- **Peer mediation,** such as peer tutoring and cooperative learning groups, can assist in assignment completion and enhance collaboration within the classroom.
- **Hands-on learning** offers students opportunities to gain understanding of material by completing experiments and activities that reinforce content.
- **Explicit instruction** utilizes clear and direct teaching using small steps, guided and independent practice, and explicit feedback.
- **Visual strategies** (e.g., picture/written schedules, storymaps, task analyses, etc.) represent content in a concrete manner to increase focus, communication, and expression (Rao and Gagie 2006).

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Alignment Chart for The Human Body: Building Blocks and Nutrition

The following chart contains core content objectives addressed in this domain. It also demonstrates alignment between the Common Core State Standards and corresponding Core Knowledge Language Arts (CKLA) goals.

Alignment Chart for The Human Body: Building Blocks and Nutrition	**Lesson**								
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Core Content Objectives									
Identify the five senses and associated body parts	✓								
Identify the skeletal, muscular, circulatory, nervous, digestive, and excretory systems as important systems in the human body	✓								✓
Describe the significant contributions of Anton van Leeuwenhoek		✓							
Explain that all living things are made of microscopic cells			✓						
Describe the relationship among cells, tissues, organs, and systems			✓	✓					✓
Identify important components of the digestive system and their functions					✓				
Describe the process of nourishing the body from the time food is taken into the mouth until waste is removed from the body					✓				
Identify important components of the excretory system and their functions						✓			
Describe how the digestive and excretory systems work together						✓			
Explain the importance of vitamins and minerals to the body							✓		
Explain the importance of eating a balanced diet								✓	
Classify foods as healthy or unhealthy								✓	
Plan a daily balanced diet								✓	

Alignment Chart for The Human Body: Building Blocks and Nutrition		**Lesson**								
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Note: The Language Arts Objectives in the Lessons may change depending on teacher's choice of activities.										
Reading Standards for Literature: Grade 2										
Key Ideas and Details										
STD RI.2.1	Ask and answer such questions as *who, what, where, when, why*, and *how* to demonstrate understanding of key details in a text.									
CKLA Goal(s)	Ask and answer questions (e.g., *who, what, where, when, why, how*), orally or in writing, requiring literal recall and understanding of the details and/or facts of a nonfiction/informational read-aloud					✓				
	Answer questions that require making interpretations, judgments, or giving opinions about what is heard in a nonfiction/informational read-aloud, including answering *why* questions that require recognizing cause/effect relationships					✓				
STD RI.2.3	Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.									
CKLA Goal(s)	Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a nonfiction/ informational read-aloud	✓	✓	✓	✓	✓	✓	✓		
Craft and Structure										
STD RI.2.4	Determine the meaning of words and phrases in a text relevant to a Grade 2 topic or subject area.									
CKLA Goal(s)	Determine the meaning of unknown words and phrases in nonfiction/informational read-alouds and discussions					✓				
Integration of Knowledge and Ideas										
STD RI.2.7	Explain how specific images (e.g., a diagram showing how a machine works) contribute to and clarify a text.									
CKLA Goal(s)	Interpret information from diagrams, charts, timelines, graphs, or other organizers associated with a nonfiction/informational read-aloud and explain how these graphics clarify the meaning of the read-aloud	✓			✓	✓	✓	✓	✓	
STD RI.2.8	Describe how reasons support specific points the author makes in a text.									
CKLA Goal(s)	Describe how reasons or facts support specific points the author makes in a nonfiction/ informational read-aloud									✓
STD RI.2.9	Compare and contrast the most important points presented by two texts on the same topic.									
CKLA Goal(s)	Compare and contrast (orally or in writing) similarities and differences within a single nonfiction/informational read-aloud or between two or more nonfiction/informational read-alouds	✓					✓	✓		

Alignment Chart for The Human Body: Building Blocks and Nutrition		**Lesson**								
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Range of Reading and Level of Text Complexity										
STD RI.2.10	By the end of year, read and comprehend informational texts, including history/social studies, science, and technical texts, in the Grades 2–3 text complexity band proficiently, with scaffolding as needed at the high end of the range.									
CKLA Goal(s)	Listen to and demonstrate understanding of nonfiction/informational read-alouds of appropriate complexity for Grades 2–4					✓				
Writing Standards: Grade 2										
Research to Build and Present Knowledge										
STD W.2.8	Recall information from experiences or gather information from provided sources to answer a question.									
CKLA Goal(s)	Make personal connections (orally or in writing) to events or experiences in a fiction or nonfiction/informational read-aloud and/or make connections among several read-alouds	✓	✓							✓
	With assistance, categorize and organize facts and information within a given domain to answer questions			✓	✓	✓	✓	✓	✓	
Speaking and Listening Standards: Grade 2										
Comprehension and Collaboration										
STD SL.2.1	Participate in collaborative conversations with diverse partners about Grade 2 topics and texts with peers and adults in small and large groups.									
STD SL.2.1a	Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).									
CKLA Goal(s)	Use agreed-upon rules for group discussions, e.g., look at and listen to the speaker, raise hand to speak, take turns, say "excuse me" or "please," etc.					✓				
STD SL.2.1b	Build on others' talk in conversations by linking their comments to the remarks of others.									
CKLA Goal(s)	Carry on and participate in a conversation over at least six turns, staying on topic, linking their comments to the remarks of others, with either an adult or another child of the same age					✓				
STD SL.2.1c	Ask for clarification and further explanation as needed about the topics and texts under discussion.									
CKLA Goal(s)	Ask questions to clarify information about the topic in a fiction or nonfiction/informational read-aloud					✓				

Alignment Chart for The Human Body: Building Blocks and Nutrition		**Lesson**								
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Presentation of Knowledge and Ideas										
STD SL.2.4	Tell a story or recount an experience with appropriate facts and relevant, descriptive details, speaking audibly in coherent sentences.									
CKLA Goal(s)	Recount a personal experience with appropriate facts and relevant, descriptive details, speaking audibly in coherent sentences	✓								✓
STD SL.2.5	Create audio recordings of stories or poems; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings.									
CKLA Goal(s)	Create audio recordings of stories or poems; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings							✓		
STD SL.2.6	Produce complete sentences when appropriate to task and situation in order to provide requested detail or clarification. (See Grade 2 Language.)									
CKLA Goal(s)	Produce complete sentences when appropriate to task and situation in order to provide requested detail or clarification					✓				
Language Standards: Grade 2										
Vocabulary Acquisition and Use										
STD L.2.4	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on Grade 2 reading and context, choosing flexibly from an array of strategies.									
STD L.2.4b	Determine the meaning of the new word formed when a known prefix is added to a known word (e.g., *happy/unhappy, tell/retell*).									
CKLA Goal(s)	Use word parts to determine meanings of unknown words in fiction or nonfiction/informational read-alouds and discussions					✓				
STD L.2.5	Demonstrate understanding of word relationships and nuances in word meanings.									
STD L.2.5a	Identify real-life connections between words and their use (e.g., describe foods that are *spicy* or *juicy*).									
CKLA Goal(s)	Identify real-life connections between words and their use (e.g., describe foods that are *spicy* or *juicy*)					✓				
	Determine the meaning of unknown and multiple meaning words and phrases in fiction or nonfiction/informational read-alouds and discussions			✓					✓	

Alignment Chart for
The Human Body: Building Blocks and Nutrition

		Lesson 1	2	3	4	5	6	7	8	9
STD L.2.6	Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using adjectives and adverbs to describe (e.g., *When other kids are happy that makes me happy*).									
CKLA Goal(s)	Learn the meaning of common sayings and phrases	✓								✓
	Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using adjectives and adverbs to describe (e.g., *When other kids are happy that makes me happy*)					✓				
Additional CKLA Goals										
Prior to listening to a read-aloud, identify (orally or in writing) what they know and have learned that may be related to the specific story or topic to be read aloud							✓		✓	✓
Sequence five pictures illustrating the digestive process						✓				

✓ These goals are addressed in all lessons in this domain. Rather than repeat these goals as lesson objectives throughout the domain, they are designated here as frequently occurring goals.

The Human Body: Building Blocks and Nutrition
Transition Supplemental Guide Introduction

This introduction includes the necessary background information to be used in teaching *The Human Body: Building Blocks and Nutrition* domain. The *Transition Supplemental Guide* contains nine daily lessons, each of which is composed of two distinct parts, so that the lesson may be divided into smaller chunks of time and presented at different intervals during the day. Each entire lesson will require a total of sixty minutes.

This domain includes a Pausing Point after Lesson 4 when students have covered the topic of organs. At the end of the domain, a Domain Review, a Domain Assessment, and Culminating Activities are included to allow time to review, reinforce, assess, and remediate content knowledge. **You should spend no more than thirteen days total on this domain.**

Week One				
Day 1 #	**Day 2** #	**Day 3** #	**Day 4** #	**Day 5** ⑩#
Lesson 1A: "The Amazing Human Body" (40 min.)	Lesson 2A: "Anton van Leeuwenhoek" (40 min.)	Lesson 3A: "Cells and Tissues" (40 min.)	Lesson 4A: "Organs" (40 min.)	Pausing Point (60 min.)
Lesson 1B: Extensions (20 min.)	Lesson 2B: Extensions (20 min.)	Lesson 3B: Extensions (20 min.)	Lesson 4B: Extensions (20 min.)	
60 min.	60 min.	60 min.	60 min.	60 min.

Week Two				
Day 6 #	**Day 7** #	**Day 8** #	**Day 9** #	**Day 10** #
Lesson 5A: "The Digestive System" (40 min.)	Lesson 6A: "The Excretory System" (40 min.)	Lesson 7A: "Nutrients" (40 min.)	Lesson 8A: "A Well-Balanced Diet" (40 min.)	Lesson 9A: "A Healthy Human Body" (40 min.)
Lesson 5B: Extensions (20 min.)	Lesson 6B: Extensions (20 min.)	Lesson 7B: Extensions (20 min.)	Lesson 8B: Extensions (20 min.)	Lesson 9B: Extensions (20 min.)
60 min.	60 min.	60 min.	60 min.	60 min.

Week Three		
Day 11 #	**Day 12** ⑩	**Day 13** #
Domain Review (60 min.)	Domain Assessment (60 min.)	Culminating Activities (60 min.)
60 min.	60 min.	60 min.

⑩ Lessons include Student Performance Task Assessments.

Lessons require advance preparation and/or additional materials; please plan ahead.

Lesson Implementation

It is important to note that the interactive activities in the *Transition Supplemental Guide* count on the teacher as the "ideal reader" to lead discussions, model proper language use, and facilitate interactions among student partners.

It is highly recommended that teachers preview the read-aloud, Flip Book images, and comprehension questions to determine when to pause during the read-aloud and ask guiding questions. To check for understanding—especially before a difficult point is to be presented—you might say, "While we are reading this part of the read-aloud, I want you to think about . . .," or you could ask supplementary questions, such as Who/What/When/Where/Why literal questions.

Student Grouping

Teachers are encouraged to assign partner pairs prior to beginning a domain, and partners should remain together for the duration of the domain. If possible, English Language Learners should be paired with native English speakers, and students who have limited English oral language skills should be paired with students who have strong English language skills. Keep in mind that in some instances beginning English Language Learners would benefit from being in a group of three. Also, pairing an older student or an adult volunteer with a student who has a disability may prove to be an advantage for that student. Partnering in this way promotes a social environment where all students engage in collaborative talk and learn from one another.

In addition, there are various opportunities where students of the same home-language work together, fostering their first-language use and existing knowledge to construct deeper meanings about new information.

Graphic Organizers and Domain-Wide Activities

Several different organizers and domain-wide activities are included to aid students in their learning of the content in the *The Human Body: Building Blocks and Nutrition* domain.

- *The Human Body: Building Blocks and Nutrition* Response Cards—Several Response Cards are provided in this domain:
  - Anton van Leeuwenhoek [LAY-van-huke] (Instructional Master 2A-1)
  - Organs (Instructional Master 4A-1)
  - Digestive System (Instructional Master 5A-1)
  - Excretory System (Instructional Master 6A-1)
  - Nutrients (Instructional Master 7A-1)
  - A Healthy Human Body (Instructional Master 9A-1)

  Students can use these Response Cards to preview, review, and discuss content from the read-alouds. Students may also hold up these Response Cards to answer class questions or point to specific parts of their Response Cards for their answer.
- *My Human Body Journal*—This is the informational writing project for this domain. Individual journal pages are provided as Instructional Masters in the Appendix. Students will draw and write about read-aloud content. Students are encouraged to write three or four sentences for each journal page.
- Healthy Habits Checklist (Instructional Master 9B-1)—The second part of this domain focuses on nutrition and encourages healthy eating habits. Use this checklist to encourage students to think about their own healthy habits and how they practice these healthy habits. In addition, you may wish to bring in several food labels and show students how to read the labels for nutritional content, such as calories, fat, sugar, sodium, vitamins, and minerals.

Anchor Focus in The Human Body: Building Blocks and Nutrition

This chart highlights two Common Core State Standards as well as relevant academic language associated with the activities in this domain.

Anchor Focus	CCSS	Description of Focus and Relevant Academic Language
Writing	W.2.2	*My Human Body Journal*—Students will make a journal that shows what they learned from the read-alouds. Relevant academic language includes the following words: *journal, record, sentences, details.*
Language	L.2.1e	Use adjectives and adverbs, and choose between them depending on what is to be modified.

Domain Components

Along with this *Transition Supplemental Guide*, you will need:

- *Tell It Again! Media Disk* or the *Tell It Again! Flip Book** for *The Human Body: Building Blocks and Nutrition*
- *Tell It Again! Image Cards* for *The Human Body: Building Blocks and Nutrition*

*The *Tell It Again! Posters* and *Multiple Meaning Word Posters* for *The Human Body: Building Blocks and Nutrition* are found at the end of the *Tell It Again! Flip Book.*

Recommended Resource:

- *Core Knowledge Grade 2 Teacher Handbook,* edited by E. D. Hirsch, Jr. and Souzanne A. Wright (Core Knowledge Foundation, 2005) ISBN 978-1890517748

Why The Human Body: Building Blocks and Nutrition is Important

This domain covers a number of topics regarding the human body. This domain first covers concepts regarding cells and how cells form the building blocks of life on Earth. Students are then taught how collections of cells form tissues, and tissues form organs, and finally how organs work within the various body systems. In addition, students are taught about Anton van Leeuwenhoek [LAY-van-huke] and his work with the microscope and his discovery of tiny, one-celled bacteria.

Students will then hear about the digestive and excretory systems. They will learn the fundamental parts and functions of these two body systems. The narrator of these read-alouds is a nutritionist named Nick Nutri, who reinforces basic facts that students will be learning.

The remainder of this domain focuses on the importance of good nutrition and how to make good choices in order to eat a well-balanced diet. Students will be taught five keys to good health—eat well, exercise, sleep, keep clean, and have regular checkups.

What Students Have Already Learned in Core Knowledge Language Arts During Kindergarten and Grade 1

The following domains, and the specific core content that was targeted in those domains, are particularly relevant to the read-alouds students will hear in *The Human Body: Building Blocks and Nutrition.* This background knowledge will greatly enhance students' understanding of the read-alouds they are about to enjoy:

The Five Senses (Kindergarten)

- Identify and describe the five senses: sight, hearing, smell, taste, and touch
- Identify the body parts associated with the five senses
- Provide simple explanations about how the eyes, ears, nose, tongue, and skin work
- Describe how the five senses help people learn about their world
- Describe some ways the five senses help protect people from harm

- Describe ways people take care of their bodies and protect them from harm
- Describe the experiences and challenges of someone who is blind or deaf

The Human Body (Grade 1)

- Explain that the human body is a network of systems
- Identify the skeletal, muscular, digestive, circulatory, and nervous systems
- Recall basic facts about the skeletal, muscular, digestive, circulatory, and nervous systems
- Identify the heart as a muscle that never stops working
- Explain the importance of exercise and a balanced diet for bodily health
- Identify the brain as the body's control center
- Explain that germs can cause disease in the body
- Identify Edward Jenner as the man who developed the first vaccine
- Identify Louis Pasteur as the man who discovered pasteurization
- Explain the importance of exercise, cleanliness, a balanced diet, and rest for bodily health
- Explain the importance of regular checkups
- Explain how vaccinations can prevent disease
- Explain that the food pyramid is one way to depict a balanced diet
- Identify the component food groups in a balanced diet

Core Vocabulary for The Human Body: Building Blocks and Nutrition

The following list contains all of the core vocabulary words in *The Human Body: Building Blocks and Nutrition* in the forms in which they appear in the domain. These words appear in the read-alouds or, in some instances, in the "Introducing the Read-Aloud" section at the beginning of the lesson. The inclusion of the words on this list does not mean that students are immediately expected to be able to use all of these words on their own. However, through repeated exposure throughout all lessons, they should acquire a good understanding of most of these words and begin to use some of them in conversation.

Lesson 1

nutrients
nutrition
nutritionist
organs
systems
vaccinations

Lesson 2

bacteria
lens
magnifies
microscope
observations

Lesson 3

cells
functions
microscopic
stimulus
tissue

Lesson 4

collapse
liver
nourish

Lesson 5

absorb
esophagus
filtering
saliva
villi

Lesson 6

bladder
excrete
kidneys
regulate
sweat
toxic

Lesson 7

carbohydrates
essential
fats
minerals
proteins

Lesson 8

fiber
moderation
scan
variety
well-balanced diet

Lesson 9

calories
network
recovery
terms
windpipe

In addition to this core vocabulary list, every lesson includes its own Vocabulary Chart. Words in this chart either appear several times in the Read-Aloud or are words and phrases that support broader language growth, which is crucial to the English language development of young students. Most words on the chart are part of the General Service list of the 2000 most common English words or part of the Dale-Chall list of 3000 words commonly known by Grade 4. Moreover, a conscious effort has been made to include words from the Primary Priority Words according to Biemiller's (2010) *Words Worth Teaching*. The words on the Vocabulary Chart are not meant to be exhaustive, and teachers are encouraged to add additional words they feel would best serve their group of students.

Vocabulary Chart for Anton van Leeuwenhoek

Core Vocabulary words are in **bold**.
Multiple Meaning Word Activity word is underlined.
Vocabulary Instructional Activity words have an asterisk (*).
Suggested words to pre-teach are in *italics*.

Type of Words	Tier 3 Domain-Specific Words	Tier 2 General Academic Words	Tier 1 Everyday-Speech Words
Understanding	animalcules ***bacteria*** germs **lens**/lenses ***magnifies*** ***microscope***	curious*/curiosity object **observations***	cloth eye glass hundred life nature small years
Multiple Meaning		discovered	slides water wing
Phrases	Anton van Leeuwenhoek magnifying glass	building blocks	close up human body up close
Cognates	***bacteria*** gérmenes ***microscopio***	curioso*/curiosidad objetos **observaciones***	

References

1. Beck, Isabel L., Margaret G. McKeown, and Linda Kucan. 2008. *Creating Robust Vocabulary: Frequently Asked Questions and Extended Examples*. New York: Guilford.
2. Biemiller, Andrew. 2010. *Words Worth Teaching.* Columbus, OH: SRA/McGrawHill.
3. Dale, Edgar, and Jeanne Chall. 1995. *Readability Revisited: The New Dale-Chall Readability Formula.*
4. West, Michael. 1953. *A General Service List of English Words.* London: Longman, Green and Co.

Comprehension Questions

In the *Transition Supplemental Guide* for *The Human Body: Building Blocks and Nutrition,* there are three types of comprehension questions. *Literal* questions assess students' recall of key details from the read-aloud; these questions are text dependent, requiring students to paraphrase and/or refer back to the portion of the read-aloud in which the specific answer to the question is provided. These questions generally address Reading Standards for Literature 2.1 (RL.2.1) and Reading Standards for Informational Text 2.1 (RI.2.1).

Inferential questions ask students to infer information from the text and think critically; these questions are also text dependent, but require students to paraphrase and/or refer back to the different portions of the read-aloud that provide information leading to and supporting the inference they are making. These questions generally address Reading Standards for Literature 2.2–2.5 (RL.2.2–RL.2.5) and Reading Standards for Informational Text 2.2–2.4 and 2.6 (RI.2.2–RI.2.4; RI.2.6).

Evaluative questions ask students to build upon what they have learned from the text using analytical and application skills; these questions are also text dependent, but require students to paraphrase and/or refer back to the portion(s) of the read-aloud that substantiate the argument they are making or the opinion they are offering. *Evaluative* questions might ask students to describe how reasons or facts support specific points in a read-aloud,

which addresses Reading Standards for Informational Text 2.8 (RI.2.8). *Evaluative* questions might also ask students to compare and contrast information presented within a read-aloud or between two or more read-alouds, addressing Reading Standards for Literature 2.9 (RL.2.9) and Reading Standards for Informational Text 2.9 (RI.2.9).

The *Transition Supplemental Guides* include complex texts, thus preparing students in these early years for the increased vocabulary and syntax demands that aligned texts will present in later grades. As all of the readings incorporate a variety of illustrations, Reading Standards for Literature 2.7 (RL.2.7) and Reading Standards for Informational Text 2.7 (RI.2.7) are addressed as well.

Student Performance Task Assessments

In the *Transition Supplemental Guide* for *The Human Body: Building Blocks and Nutrition,* there are numerous opportunities to assess students' learning. These assessment opportunities range from informal observations, such as *Think Pair Share* and some Extension activities, to more formal written assessments. These Student Performance Task Assessments (SPTA) are identified with this icon: ⑩. There is also an end-of-domain summative assessment. Use the Tens Conversion Chart located in the Appendix to convert a raw score on each SPTA into a Tens score. On the same page, you will also find the rubric for recording observational Tens Scores.

Supplemental Guide Activities

The *Supplemental Guide* activities that may be particularly relevant to any classroom are the Multiple Meaning Word Activities and accompanying Multiple Meaning Word Posters; Syntactic Awareness Activities; and Vocabulary Instructional Activities. Several multiple-meaning words in the read-alouds are underlined to indicate that there is a Multiple Meaning Word Activity associated with them. These activities afford all students additional opportunities to acquire a richer understanding of the English language. *Supplemental Guide* activities are identified with this icon: ⇆.

Recommended Resources for The Human Body: Building Blocks and Nutrition

Trade Book List

The *Transition Supplemental Guide* includes a number of opportunities in the Extensions, the Pausing Point, and the Culminating Activities for teachers to select trade books from the following list to reinforce domain concepts through the use of authentic literature. In addition, teachers should consider other times throughout the day when they might infuse authentic, domain-related literature.

If you recommend that families read aloud with their child each night, you may wish to suggest that they choose titles from this trade book list to reinforce the domain concepts. You might also consider creating a classroom lending library, allowing students to borrow domain-related books to read at home with their families.

1. *Bones: Our Skeletal System,* by Seymour Simon (HarperCollins, 2000) ISBN 978-0688177218
2. *The Bones Book and Skeleton,* by Stephen Cumbaa (Workman Publishing Company, 2006) ISBN 978-0761142188
3. *The Brain: Our Nervous System,* by Seymour Simon (HarperCollins, 2006) ISBN 978-0060877194
4. *Cells, Tissues, and Organs*, by Richard Spilsbury (Heinemann Library, 2008) ISBN 978-1432909048
5. *The Digestive System*, by Rebecca L. Johnson (Lerner Publications Company, 2005) ISBN 978-0822512479
6. *The Digestive System,* by Kirstin Petrie, MS, RD (ABDO Publishing Company, 2007) ISBN 978-159679710
7. *The Digestive System,* by Christine Taylor-Butler (Scholastic Inc., 2008) ISBN 978-0531207314
8. *Dinosaurs Alive and Well!: A Guide to Good Health,* by Marc Brown and Laurie Krasny Brown (Little, Brown Books for Young Readers, 1992) ISBN 978-0316110099

9. *The Dynamic Digestive System: How Does My Stomach Work?,* by John Burnstein (Crabtree Publishing Company, 2009) ISBN 978-0778744290
10. *The Edible Pyramid: Good Eating Every Day,* by Loreen Leedy (Holiday House, 1994) ISBN 978-0823420742
11. *Food and Digestion,* by Andrew Solway (Sea-to-Sea Publications, 2011) ISBN 978-1597712644
12. *Good Enough to Eat: A Kid's Guide to Food and Nutrition,* by Lizzy Rockwell (HarperCollins, 2009) ISBN 978-0064451741
13. *Greg's Microscope,* by Millicent E. Selsam, illustrated by Arnold Lobel (HarperCollins, 1990) ISBN 978-0064441445
14. *Gurgles and Growls: Learning About Your Stomach,* by Pamela Hill Nettleton (Picture Window Books, 2004) ISBN 978-1404805040
15. *Guts: Our Digestive System,* by Seymour Simon (HarperCollins Publishers, 2005) ISBN 978-0060546519
16. *The Human Body,* by Seymour Simon (Collins, 2008) ISBN 978-0060555412
17. *The Magic School Bus: Inside the Human Body,* by Joanna Cole, illustrated by Bruce Degen (Scholastic Audio Books, 2011) ISBN 978-0545240833
18. *Muscles: Our Muscular System,* by Seymour Simon (HarperCollins, 2000) ISBN 978-0688177201
19. *My Food Pyramid: Eat Right. Exercise. Have Fun.,* by Alisha Niehaus (Dorling Kindersley Limited, 2007) ISBN 978-0756629939
20. *My Organ Buddies*, by Lee Downing and Felice Downing (Organ Buddies, Inc., 2010) ISBN 978-0615329406
21. *Parts,* by Tedd Arnold (Puffin, 2000) ISBN 978-0140565331
22. *The Race Against Junk Food (Adventures in Good Nutrition),* by Anthony Buono and Roy Nemerson (HCOM Inc., 1997) ISBN 978-0965810807
23. *The Quest to Digest,* by Mary K. Corcoran (Charlesbridge, 2006) ISBN 978-1570916649

24. *Ultra-Organized Cell Systems,* by Rebecca L. Johnson (Millbrook Press, 2008) ISBN 978-0822571384

25. *What Am I Made Of?*, by David Bennett, illustrated by Stuart Trotter (Aladdin Paperbacks, 1991) ISBN 978-0689714900

26. *Where Does Your Food Go?*, by Wiley Blevins (Scholastic Inc., 2003) ISBN 978-0516258607

Websites and Other Resources

Student Resources

1. How the Human Body Works (various systems)
   http://kidshealth.org/kid/htbw/htbw_main_page.html

2. Human Body Systems Game
   http://sciencenetlinks.com/media/filer/2011/10/13/allsystems.swf

3. I Know That
   http://www.iknowthat.com/com/L3?Area=Science%20Lab

4. Mission Nutrition
   http://kidshealth.org/kid/games/mission_nutrition.html#cat20918

5. A Ride Through the Human Body
   http://www.healthexplorationstation.com/fun/hes2.htm

6. Science Interactive Body
   http://www.bbc.co.uk/science/humanbody/body/interactives/3djigsaw_02/index.shtml?muscles

Teacher Resources

7. Discovery Kids: Your Digestive System
   http://kids.discovery.com/tell-me/science/body-systems/your-digestive-system

8. Enchanted Learning
   http://www.enchantedlearning.com/subjects/anatomy/digestive

9. Ducksters: Science for Kids
   http://www.ducksters.com/science/digestive_system.php

10. History of the Microscope
    http://www.history-of-the-microscope.org/anton-van-leeuwenhoek-microscope-history.php

11. Scholastic: Human Body
    http://www.scholastic.com/teachers/unit/human-body-everything-you-need

The Amazing Human Body 1

☑ *Lesson Objectives*

Core Content Objectives

Students will:

- ✓ Identify the five senses and associated body parts
- ✓ Identify the skeletal, muscular, circulatory, nervous, digestive, and excretory systems as important systems in the human body

Language Arts Objectives

The following language arts objectives are addressed in this lesson. Objectives aligning with the Common Core State Standards are noted with the corresponding standard in parentheses. Refer to the Alignment Chart for additional standards addressed in all lessons in this domain.

Students will:

- ✓ Describe the connection between parts of the body and the five senses, as well as the parts of the body and the five major bodily systems in "The Amazing Human Body" (RI.2.3)
- ✓ Interpret information from a chart of the human body to identify various body parts and organs in "The Amazing Human Body" (RI.2.7)
- ✓ Compare and contrast the human body with a machine in "The Amazing Human Body" (RI.2.9)
- ✓ Make personal connections by identifying parts of their own bodies discussed in the read-aloud (W.2.8)
- ✓ Recount a personal experience involving the saying "keep your fingers crossed" with appropriate facts and relevant, descriptive details, speaking audibly in coherent sentences (SL.2.4)
- ✓ Explain the meaning of the saying "keep your fingers crossed" and use in appropriate contexts (L.2.6)

Core Vocabulary

nutrients, *n.* Things in the food we eat that help us live and grow; protein, carbohydrates, fats, vitamins, and minerals
Example: Children need to eat foods that have enough nutrients to help them grow.
Variation(s): nutrient

nutrition, *n.* Nourishment; something needed for life and growth
Example: Fruits and vegetables have the nutrition young children need to grow and to stay healthy.
Variation(s): none

nutritionist, *n.* Someone who studies nutrition and learns what the body needs to stay healthy
Example: When I was a baby, a nutritionist helped my mother know what foods to feed me so that I would grow into a strong and healthy child.
Variation(s): nutritionists

organs, *n.* Body parts that perform specific jobs within body systems
Example: Your heart, lungs, and kidneys are examples of organs.
Variation(s): organ

systems, *n.* Sets of connected parts that work together to perform a job
Example: The digestive and excretory systems are both systems in our body that help get rid of our body's waste.
Variation(s): system

vaccinations, *n.* Shots that are given to help the body protect itself against diseases
Example: Children can go to their pediatrician to get vaccinations that keep them from getting certain diseases, such as measles.
Variation(s): vaccination

Vocabulary Chart for The Amazing Human Body			
Core Vocabulary words are in **bold**. Multiple Meaning Word Activity word is underlined. Vocabulary Instructional Activity words have an asterisk (*). Suggested words to pre-teach are in *italics*.			
Type of Words	**Tier 3** Domain-Specific Words	**Tier 2** General Academic Words	**Tier 1** Everyday-Speech Words
Understanding	germs infections ***nutrients*** ***nutrition*** ***nutritionist*** skeleton **vaccinations** vaccines/ vaccinated	diseases health/healthy machine **systems***	bones brain ears/hearing eyes/sight/see food human important mouth/taste muscles nose/smell skin/touch stomach
Multiple Meaning	digest infected **organs** senses	control help part	body heart
Phrases	digestive system excretory system muscular system nervous system respiratory system skeletal system	breaks down fights off figures out	
Cognates	gérmenes infecciones infectado ***nutrición*** ***nutriente***	**sistemas*** control/controla parte	humano importante músculos

Note: Introducing the Read-Aloud and Extensions may have activity options that exceed the time allocated for that part of the lesson. To remain within the time periods allocated for each portion of the lesson, you will need to make conscious choices about which activities to include based on the needs of your students.

Exercise	Materials	Details
Introducing the Read-Aloud (10 minutes)		
Domain Introduction	Poster 1 (Chart of the Human Body)	
What Do We Know?	Poster 2 (Human Body Systems)	
Vocabulary Preview: Nutrition/Nutrients, Nutritionist	Image 8A-5, Image 1A-1	
Purpose for Listening		
Presenting the Read-Aloud (15 minutes)		
The Amazing Human Body	world map	Point out the Netherlands.
Discussing the Read-Aloud (15 minutes)		
Comprehension Questions	Poster 2 (Human Body Systems)	Before asking Question 1, have students repeat the name of each system after you as you point to it. You may wish to allow students to come up to the poster and point to the correct system if they have difficulty answering verbally.
Word Work: Systems	Image 1A-7: The circulatory, nervous, respiratory, skeletal, and muscular systems	
 **Complete Remainder of the Lesson Later in the Day**		
Extensions (20 minutes)		
Sayings and Phrases: Keep Your Fingers Crossed		
My Human Body Journal	Instructional Master 1B-1	
Domain-Related Trade Book	trade book about the human body in general; drawing paper, drawing and writing tools	Trade book suggestions: Items 16 and 17.

Exercise	Materials	Details
Take-Home Material		
Family Letter	Instructional Masters 1B-2–4	

Advance Preparation

Make a copy of Instructional Master 1B-1 for each student. This will be the first page of their *My Human Body Journal*. Students will write sentence about each of their five senses. Save students' completed journal pages to assemble them into individual student journals at the end of the domain.

Find a trade book about the human body in general to read aloud to the class.

Notes to Teacher

The read-aloud for this lesson is especially long and is likely to take longer to present than the time allotted. You may wish to pause after reading the following sections and briefly review read-aloud content:

After reading the section for Image 1A-5, briefly review the five senses.

After reading the section for Image 1A-9, briefly review the body systems.

After reading the section for Image 1A-12, briefly review the importance of healthy habits.

The Amazing Human Body 1A

Note: Introducing the Read-Aloud may have activity options which exceed the time allocated for this part of the lesson. To remain within the time periods allocated for this portion of the lesson, you will need to make conscious choices about which activities to include based on the needs of your students.

Introducing the Read-Aloud *10 minutes*

Domain Introduction *5 minutes*

Note: Students who participated in the Core Knowledge Language Arts program in Kindergarten and Grade 1 may recall discussing the five senses from *The Five Senses* domain in Kindergarten, and the five major body systems (skeletal, muscular, digestive, circulatory, and nervous) from *The Human Body* domain in Grade 1.

Point to Poster 1 (Chart of the Human Body) and ask students what it depicts. (human body) Ask students to identify anything they recognize on the chart (from body parts to organs) and use one sentence to tell something about it. (for example, "The lungs help us breathe.") If students have participated in the Core Knowledge Language Arts program in Kindergarten and Grade 1, remind them that they have already learned some things about how the body works, but that they are going to learn much more over the next several weeks.

Ask students to raise their hands if they like to eat. Tell them that what we eat makes a big difference to the health of our bodies. Explain that this domain will focus on the best foods to eat and how the body processes those foods to keep us healthy.

What Do We Know? *5 minutes*

[Show Poster 2 (Human Body Systems).] Point to the poster and ask students to name any of the different body systems or parts they can. Allow for students to respond.

Have students repeat the name of each system after you. (skeletal system, muscular system, circulatory system, nervous system, digestive system and excretory system)

Ask students what the word *healthy* means. *Healthy* describes someone who is shows good health. *Healthy* is also used to describe foods or items that help people have good health.

Tell students that you will name a way that each of the systems help a healthy body. Ask students to tell you which system you are describing.

- This system keeps blood flowing through our veins. (the circulatory system)
- This system allows us to move. (the muscular system)
- This system keeps nutrients and gets rid of waste. (the digestive system)
- This system gives us strong bones. (the skeletal system)
- This system gets rid of waste. (the excretory system)
- This system communicates with the brain. (the nervous system)

Vocabulary Preview *5 minutes*

Nutrition/Nutrients

Show image 8A-5: Other carbohydrates

1. In today's read-aloud, you will hear about *nutrition* and how our bodies get *nutrients* from food.
2. Say the word *nutrition* with me three times.
   Say the word *nutrients* with me three times.
3. Nutrition is nourishment or something needed for life and growth.
   Nutrients are the things in the food we eat that help us live

and grow. Protein, carbohydrates, fats, vitamins and minerals are all nutrients.

4. The girl in the picture practices good nutrition by eating healthy foods with nutrients.
5. Tell your partner one way that you practice good nutrition. Tell your partner what healthy foods you eat that have nutrients in them.

Nutritionist

Show image 1A-1: Nick Nutri presents

1. Today's read-aloud is narrated by someone who is a *nutritionist*; his name is Nick Nutri.
2. Say the word *nutritionist* with me three times.
3. A nutritionist is a person who studies what foods our bodies need to be strong and healthy.
4. When I was a baby, a nutritionist helped my mother know what foods to feed me so that I would grow into a strong and healthy child.
5. I will name several things. If what I say is something that a nutritionist does, say, "A nutritionist does that." If what I say is not something that a nutritionist does, say, "A nutritionist does not do that."
   - helps people choose healthy foods to eat
   - studies what our bodies need to get proper nutrition
   - encourages children to eat a lot of candy
   - learns about what is in different foods and if it is good for our bodies
   - tells people to eat whatever they like

Purpose for Listening

Tell students they are going to review the functions of these body systems today and learn ways they can help to make sure that their body systems continue to run smoothly. Ask them to listen carefully to find out why the human body is sometimes called the human machine.

Presenting the Read-Aloud — *15 minutes*

The Amazing Human Body

Show image 1A-1: Nick Nutri presents

Hello, everybody. My name is Nick Nutri, and I am a **nutritionist**. Does anyone know what that means? Nutritionists study **nutrition,** or in other words, the ways in which our bodies get the food they need to grow and stay healthy. Nutritionists learn what is in our food and how our bodies use it. I work with doctors to help children understand what they need to do to take care of their bodies.

One of the first things a nutritionist studies is the human body. It's important to understand how the body works in order to know how to keep it healthy. Dr. Welbody tells me that you already know a lot about the human body.

Stand up and let's take a look at the body parts that we can see.

Show image 1A-2: Skin is for feeling

Where's your skin? It's all over you, isn't it? Skin covers your head, your face, your neck, your chest, your tummy, your bottom, arms, legs, hands, and feet—everything! Your skin is a stretchy, waterproof covering that protects you from germs and helps control your body temperature. Just beneath your skin are tiny little receptors, part of your nervous system, that travel to your brain. [1] You can't see them, but they tell your brain what is touching your skin and your brain reacts to the touch. Some touches, like petting a dog, can be very positive, while others, like touching a hot stove, can be quite painful.

Touch is one of your five senses. Who can name the other four senses that help you get information about your surroundings? [2] Oh, Dr. Welbody was right. You do know a lot!

1 These receptors or nerve endings react to changes, like heat and cold in the body, and send messages to the brain.

2 [Pause for suggestions: taste, smell, sight, hearing]

Show image 1A-3: Nose and mouth are for smelling and tasting

Touch, taste, smell, sight, and hearing are your five senses. Let's sit down and find out what you already know about your body. Where is your sense of taste located? Right—in your mouth! Your tongue is covered with taste buds that allow you to taste the differences between sweet, salty, bitter, and sour foods. They also warn you of danger from hot foods or other things that may harm your body.

Did you know that your sense of smell is connected to your sense of taste? That's why some things don't taste the same to you when you have a cold. What part of your body is affected the most when you have the sniffles? Yes, your nose! And look how close your nose is to your mouth. It makes sense that they are connected, doesn't it?

Show image 1A-4: Eyes are for seeing

Just above your nose are your eyes. Which of your senses do they control? Sight, of course! Your eyes are responsible for what you see. Vision[3] lets you know the size and shape of an object, how near or far it is, and how fast it is moving. That's a lot of information. Some people have problems seeing correctly, but fortunately they are able to have many of their problems corrected by wearing glasses or contact lenses.

3 or your ability to see

Show image 1A-5: Ears are for hearing

Okay, we've named four of the five senses—touch, taste, smell, and sight. The last one is hearing. What do you use to hear? Your ears, of course! Your ears catch and change sound waves into nerve signals that travel to your brain. Your ears not only help you hear, but they also help you keep your balance. Some people are born deaf,[4] and some others develop deafness later in life. Hearing aids often help them hear better.

4 or unable to hear

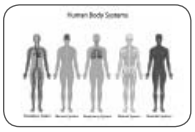
Show image 1A-6: We all have bodies

Look around you. You all have skin. You all have eyes and noses and mouths and ears. But do you all look the same? Certainly not! You may look different on the outside—different colors of skin, hair, and eyes; different heights and weights—but what lies underneath your skin is all pretty much the same.

You have already learned that your body is a collection of many different **systems,** [5] each with its own job to do. Does anyone remember the names of any body systems? [6] What is your skin wrapped around? What gives your body its shape? Your skeleton!

5 or sets of connected parts that work together

6 [Pause for suggestions.]



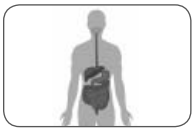
Show image 1A-7: The circulatory, nervous, respiratory, skeletal, and muscular systems

Your skeleton is a part of the skeletal system, including your bones and joints. It supports your body and protects your body's internal, or inside, **organs.** [7] Can you find your ribs? Your tough rib bones cover your soft heart and lungs. Together with your muscular system, your skeletal system helps your body move. The respiratory system is in charge of how your body breathes air into your lungs to supply your body with oxygen. The circulatory system pumps blood from the heart and carries it to all parts of your body. The nervous system is the body's main control center, carrying messages to and from the brain. [8] Do any of these **systems** sound familiar to you? [9]

7 Organs are body parts that do specific jobs for the body, such as the heart, lungs, brain, liver, and so on.

8 The word *nervous*—when it's used to talk about the body's systems—means having to do with nerves. It can also mean worried or anxious, but it does not mean that when we're talking about the nervous system.

9 [Have student volunteers point to the various systems under discussion.]



Show image 1A-8: The digestive system

Although all of the body systems are important, the two that interest me the most are the digestive system and the excretory system. That's because they are the ones most responsible for the food that enters and leaves your body. You get **nutrients** [10] from the food you eat, and I want to make sure that your body gets the nutrients it needs. The digestive system carries food to your stomach and small intestines, where it breaks down food into fuel to give the body the energy it needs to live. Food that your body can't

10 or substances that are necessary for your body to grow

digest moves into the large intestine and is released as solid waste. The excretory system removes liquid waste from the body. We are going to talk about these two systems a lot more another day.

Show image 1A-9: The human machine

People often compare the human body to a machine with lots of movable parts working together. [11]

11 Do you think the human body is like a machine? If so, how is it like a machine, and how is it different?

Show image 1A-10: The human machine breaks down

Most of the time your body **systems** work well together but, just like machines, sometimes things break down. Germs may get inside your body and cause illnesses. The body fights off germs within the body, but sometimes the body's defenses are not enough. As a baby, you may have received **vaccinations** to help prevent diseases that were once common among children. [12] Vaccines, or the medicine in a vaccination, are inactive or weakened germs, harmless to people, that are often injected [13] into your body. These dead or weakened germs trick the body into thinking that it is becoming infected, or getting sick, so the body figures out how to fight off that infection. The body then knows how to fight off any infections of that kind in the future. If you were vaccinated against diseases like measles or mumps, you will likely not get those diseases.

12 Vaccinations are often called shots.

13 or pumped

Show image 1A-11: Taking care of your body

The human body is truly an amazing machine. You carry your body with you wherever you go. Whether you are reading, eating, playing ball, or sleeping, your body continues to work to keep you healthy. It is important for you to do your part, too. What are some of the things that you can do to take care of your body? [14]

Germs are everywhere. How can you help your body fight off germs? Washing your hands with soap and water is one of the most important things that you can do. Make sure that you wash often, throughout every day and especially before you eat. Clean

14 [Pause for suggestions.]

the rest of your body with regular baths and shampoos, too. Cleanliness [15] is very important to your body's health.

15 or keeping a clean body

How often have you heard an adult say, "Eat your fruits and veggies?" I told you that I am a nutritionist. That means that good nutrition is very important to me. [16] Eating the right foods is important for good health and that means eating lots of fruits and veggies. It is so important that your body gets the proper **nutrients** to keep its marvelous machine running smoothly.

16 What is nutrition again? (providing the body with the food it needs to grow and stay healthy)

Show image 1A-12: The importance of exercise

Exercise goes hand-in-hand with healthy eating. The food you eat supplies your body with the energy it needs to exercise its muscles. By walking, running, and playing ball, you help your body stay lean and fit.

Getting enough rest and having regular checkups with health care professionals [17] are both important, as well. In the following lessons, we will talk about all of these things. Taking care of your body is more than just keeping your fingers crossed and hoping you will be healthy. By the time you finish these lessons, you will know a lot of ways you can help your body stay strong and healthy.

17 like doctors and nurses

Show image 1A-13: Anton van Leeuwenhoek

Next time we're together I'm going to tell you about one of my heroes—a man named Anton van Leeuwenhoek [*LAY*-van-huke]. Anton van Leeuwenhoek [*LAY*-van-huke] is from a country called Holland, and he was Dutch, which is what you call someone from Holland, which today is part of the country known as the Netherlands. [18] Anton was named for where he lived in Holland. The name of his street was Lion's Gate and his house stood on the corner. The word for *lion* in Dutch is *leeuw* [*LAY*] and the word for *corner* is *hoek* [huke]*;* thus, his name is Anton who lives on the corner of Lion's Gate. Naming people in such a way was not uncommon when Anton was born, nearly four hundred years ago. I can't wait to tell you why he is my hero, but I'll save that for next time.

18 [Point to the Netherlands on a world map.]

Discussing the Read-Aloud — *15 minutes*

Comprehension Questions — *10 minutes*

If students have difficulty responding to questions, reread pertinent passages of the read-aloud and/or refer to specific images. If students give one-word answers and/or fail to use read-aloud or domain vocabulary in their responses, acknowledge correct responses by expanding students' responses using richer and more complex language. Ask students to answer in complete sentences by having them restate the question in their responses.

1. *Inferential* [Point to Poster 2 (The Human Body Systems) to assist students with this question.] What is the name of the body system that processes the food that you eat? (digestive) What is the name of the system that removes liquid waste from your body? (excretory) What are the other body systems? (skeletal, muscular, circulatory, and nervous systems)
2. *Inferential* Why does a nutritionist need to understand the human body? (Answers may vary. Students should understand that the body is a complex machine that needs certain foods for the maintenance of its parts; a nutritionist needs to understand the relationship between the two.)
3. *Inferential* When you eat a sandwich, which body senses do you use, and what are the body parts associated with each sense? (Sight: eyes see the sandwich; smell: nose smells the sandwich; taste: mouth or tongue tastes the sandwich; hearing: ears hear the sandwich being eaten; touch: hands feel the sandwich.)
4. *Inferential* Sometimes when you have a cold, you lose your appetite. What other sense, working together with your sense of taste, could affect your appetite? (sense of smell)
5. *Literal* Many people have their eyes examined by an eye doctor if they have trouble seeing correctly. What might the eye doctor suggest to help them? (He/she might prescribe corrective glasses or contact lenses.)

6. *Literal* Washing your hands is an important way to fight germs, but sometimes doctors inject weakened germs into your body on purpose. Why do they do this and what is it called? (These weakened germs, or vaccines, are not harmful and will protect the body from disease. These injections are called vaccinations.)

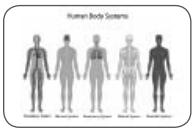
[Please continue to model the *Think Pair Share* process for students, as necessary, and scaffold students in their use of the process.]

I am going to ask a question. I will give you a minute to think about the question, and then I will ask you to turn to your neighbor and discuss the question. Finally, I will call on several of you to share what you discussed with your partner.

7. *Evaluative* *Think Pair Share:* Nick Nutri is a nutritionist. He helps people learn about nutrition, making the right food choices to keep their bodies working well. Do you think this is an important job? Why or why not? (Answers may vary.)
8. After hearing today's read-aloud and questions and answers, do you have any remaining questions? [If time permits, you may wish to allow for individual, group, or class research of the text and/or other resources to answer these questions.]

Word Work: Systems *5 minutes*

1. In the read-aloud you heard, "You have already learned that your body is a collection of many different *systems,* each with its own job to do."
2. Say the word *systems* with me.
3. Systems are sets of interconnecting parts working together.
4. The muscular and skeletal systems work together to help your body move.



Show image 1A-7: The circulatory, nervous, respiratory, skeletal, and muscular systems

5. [Have students say the name of each body system as you point to it in the image.] Which one of the human body systems do you think is the most important? Use the word *system* when you tell us why you chose that particular system. [Ask two or three students. If necessary, guide and/or rephrase students' responses: "I think the _____ system is the most important because . . . "]
6. What's the word we've been talking about?

Use a *Fill-in-the-Blank* activity for follow-up. Directions: I am going to read five sentences, each one describing a different body system. You will have to listen closely for clues and then complete each sentence by filling in the blank with the name of the correct body system.

- Hundreds of bones make up the _____. (skeletal system)
- Blood circulates, or travels, through the body as part of the _____. (circulatory system)
- Food is digested, or broken down, in the _____. (digestive system)
- They system that works together with the skeletal system to help you move is the _____. (muscular system)
- Nerves that travel through your body to the brain are part of the _____. (nervous system)

Complete Remainder of the Lesson Later in the Day

The Amazing Human Body 1B

Note: Extensions may have activity options that exceed the time allocated for this part of the lesson. To remain within the time periods allocated for this portion of the lesson, you will need to make conscious choices about which activities to include based on the needs of your students.

Extensions — *20 minutes*

Sayings and Phrases: Keep Your Fingers Crossed — *5 minutes*

Proverbs are short, traditional sayings that have been passed along orally from generation to generation. These sayings usually express general truths based on experiences and observations of everyday life. While some proverbs do have literal meanings—that is, they mean exactly what they say—many proverbs have a richer meaning beyond the literal level. It is important to help your students understand the difference between the literal meanings of the words and their implied or figurative meanings.

- Ask students if they have ever heard anyone say about an event to "keep your fingers crossed" or "I'm keeping my fingers crossed"?
- Have students repeat the proverb "keep your fingers crossed." Explain that this proverb is another way of saying you hope for a good result from some future event.
- Ask students if they have ever hoped for good weather for a special event, like field day or some outdoor activity. Tell students that instead of saying, "I hope it doesn't rain on field day," they could say, "I'm keeping my fingers crossed that it doesn't rain on field day." Give students the opportunity to share their hopes, and encourage them to use the saying.

- Remind students that in today's read-aloud, Nick Nutri says, "Taking care of your body is more than just keeping your fingers crossed . . ." Ask: "What does Nick Nutri mean when he says this?" (Nick Nutri means that it takes more than luck to keep your body healthy.) Look for more opportunities to use this saying in the classroom.

My Human Body Journal (Instructional Master 1B-1) 20 *minutes*

- Tell students that they are going to create their own *My Human Body Journal*. Tell them that they will use the journal pages to record what they know and what they learn about the human body.
- Distribute a copy of Instructional Master 1B-1 (Journal Page 1) to each student. Have students write a sentence about each of their five senses. You may wish to write some sentence starters on the board for students to use. (*I use my eyes to* . . . , or *My sense of sight helps me* . . .) Remind students to try to include details in their sentences.
- Save the journal pages to assemble them into individual student journals at the end of the domain.

Domain-Related Trade Book 20 *minutes*

- Refer to the list of recommended trade books in the Introduction at the front of this *Supplemental Guide,* and choose one trade book about the human body in general to read aloud to the class. [Suggested trade books are Items 16 and 17.]
- Explain to students that the person who wrote the book is called the author. Tell students the name of the author. Explain to students that the person who makes the pictures for the book is called an illustrator. Tell students the name of the illustrator. Show students where they can find this information on the cover of the book or on the title page.
- As you read, use the same strategies that you have been using when reading the read-aloud selections—pause and ask occasional questions; rapidly clarify critical vocabulary within the context of the read-aloud; etc.

- After you finish reading the trade book aloud, lead students in a discussion as to how the story or information in this book relates to the read-alouds in this domain.
- Provide students with drawing paper, drawing tools, and writing tools. Have students draw one detail or idea from the trade book that is new or different from the read-aloud they heard. Then have students write two or three sentences to go along with their drawings. Have students share their drawings and writing with their partners or home-language peers.

Take-Home Material

Family Letter

Send home Instructional Masters 1B-2–4.

Anton van Leeuwenhoek 2

☑ *Lesson Objectives*

Core Content Objectives

Students will:

✓ Describe the significant contributions of Anton van Leeuwenhoek

Language Arts Objectives

The following language arts objectives are addressed in this lesson. Objectives aligning with the Common Core State Standards are noted with the corresponding standard in parentheses. Refer to the Alignment Chart for additional standards addressed in all lessons in this domain.

Students will:

✓ Describe the connection between the discovery of bacteria and Anton van Leeuwenhoek's use and improvement of the microscope in "Anton van Leeuwenhoek" (RI.2.3)

✓ Make personal connections in documenting observations made examining things with a magnifying glass (W.2.8)

Core Vocabulary

bacteria, *n.* Very small, living things not visible with the naked eye, some of which may cause disease

Example: Washing your hands with soap helps prevent harmful bacteria from attacking your body.
Variation(s): bacterium

lens, *n.* A curved piece of glass used in magnifying glasses and microscopes

Example: Thomas was able to see the tiny veins of the fly's wings when he looked at them through the lens of the microscope.
Variation(s): lenses

magnifies, *v.* Makes something look larger than it really is

Example: My grandmother's magnifying glass magnifies the print in her book so that she can read more easily.

Variation(s): magnify, magnified, magnifying

microscope, *n.* A scientific tool that makes extremely small objects look larger

Example: The students took turns looking through the microscope to see the ant's antennae.

Variation(s): microscopes

observations, *n.* Information gathered by closely watching someone or something

Example: Carly watched the birdfeeder, writing down her observations of the birds that came to feed.

Variation(s): observation

Vocabulary Chart for Anton van Leeuwenhoek

Core Vocabulary words are in **bold**.
Multiple Meaning Word Activity word is underlined.
Vocabulary Instructional Activity words have an asterisk (*).
Suggested words to pre-teach are in *italics*.

Type of Words	Tier 3 Domain-Specific Words	Tier 2 General Academic Words	Tier 1 Everyday-Speech Words
Understanding	animalcules ***bacteria*** germs **lens**/lenses ***magnifies*** ***microscope***	curious*/curiosity object **observations***	cloth eye glass hundred life nature small years
Multiple Meaning		discovered	slides water wing
Phrases	Anton van Leeuwenhoek magnifying glass	building blocks	close up human body up close
Cognates	***bacteria*** gérmenes ***microscopio***	curioso*/curiosidad objetos **observaciones***	

Note: Introducing the Read-Aloud and Extensions may have activity options which exceed the time allocated for that part of the lesson. To remain within the time periods allocated for each portion of the lesson, you will need to make conscious choices about which activities to include based on the needs of your students.

Exercise	Materials	Details
Introducing the Read-Aloud (10 minutes)		
What Do We Know?	Instructional Master 2A-1 (Response Card 1: Anton van Leeuwenhoek)	Students may refer to the Response Card as you discuss the lesson.
Vocabulary Preview: Bacteria, Microscope/ Magnifies	Image 2A-2; image(s) of bacteria	
Purpose for Listening		
Presenting the Read-Aloud (15 minutes)		
Anton van Leeuwenhoek	Image Card 1	**Note:** Pause after image 2A-8, and briefly review Anton's childhood and what a microscope does.
Discussing the Read-Aloud (15 minutes)		
Comprehension Questions		
Word Work: Observations		
 **Complete Remainder of the Lesson Later in the Day**		
Extensions (20 minutes)		
Multiple Meaning Word Activity: Slides	Poster 1M (Slides)	
Syntactic Awareness Activity: Adjectives and Adverbs		
Vocabulary Instructional Activity: Curious		
Using a Magnifying Glass (Hand Lens)	Instructional Master 2B-1; a magnifying glass; a patterned fabric swatch for each student; drawing tools	
Under a Microscope	images of microscopic items; writing or drawing tools (optional)	
My Human Body Journal	Instructional Master 2B-2	

Advance Preparation

Find image(s) of bacteria to show the class.

Make a copy of Instructional Master 2A-1 (Response Card 1: Anton van Leeuwenhoek) for each student. Students may refer to the Response Card as you discuss the content of the lesson.

For *Using a Magnifying Glass (Hand Lens)* activity, bring in several magnifying glasses (at least one per small group) and fabric swatches. Make a copy of Instructional Master 2B-1 for each student.

For *Under a Microscope*, you will need to obtain microscopes and various slides showing a variety of objects. Alternatively, you can find images of various items as seen under a microscope. Some ideas include slides of skin, onion membrane, an insect, a drop of blood, or pond water.

Make a copy of Instructional Master 2B-2 for each student. This will be the second page of their *My Human Body Journal*. Students will write two facts about Anton van Leeuwenhoek.

Anton van Leeuwenhoek 2A

Introducing the Read-Aloud *10 minutes*

What Do We Know? *5 minutes*

What country was Anton van Leeuwenhoek [*LAY*-van-huke] from and how long ago was he alive? (Anton was from Holland and he lived four hundred years ago.) What does Anton van Leeuwenhoek's name mean in Dutch? (Anton who lives on the corner of Lion's Gate) What else did Nick Nutri say about Anton? (Anton is one of Nick's heroes.)

Vocabulary Preview *5 minutes*

Bacteria

1. In today's read-aloud, you will hear that Anton van Leeuwenhoek was the first person to observe and describe *bacteria*.
2. Say the word *bacteria* with me three times.
3. [Show image(s) of bacteria you have prepared in advance.] Bacteria are very small living things that cannot be seen with the naked eye. Some bacteria may cause disease or make you sick.
4. Washing your hands with soap helps prevent harmful bacteria from attacking your body.
5. Describe the bacteria you see in this image. What shape is it? Does it have color? Is it made up of many parts? Is bacteria big or small?

Microscope/Magnifies

Show image 2A-2: Student microscope

1. In today's read-aloud, you will hear about how a *microscope magnifies* very small objects.
2. Say the word *microscope* with me three times.
   Say the word *magnifies* with me three times.
3. Magnifies means makes something look larger than it really is. A microscope is a tool that scientists use to make very small objects look much bigger.
4. My grandmother's magnifying glass magnifies the print in her book so that she can read more easily.
   The students took turns looking through the microscope to see the ant's antennae.

Show image 2A-12: A microscope today and Anton's microscope

5. [Point to each microscope as you talk about it.] Look at this image of a microscope we would use today and Anton van Leeuwenhoek's microscope. Describe how they are different from one another. (Anton's is held in his hand, whereas today's is placed on a flat surface; Anton's must be held up to the object, but today's has a piece of glass, or slide, that the object is placed on; Anton's is much smaller than today's; Anton's had one small area to look through, whereas today's has a long tube to look through.)

Purpose for Listening

Tell students that you are going to give them a hint about why Anton van Leeuwenhoek is Nick Nutri's hero. Tell them that four hundred years ago, Anton made an important discovery that helps present-day scientists like Nick Nutri. Ask them to listen carefully to find out what Anton discovered.

Presenting the Read-Aloud — *15 minutes*

Anton van Leeuwenhoek

Show image 2A-1: Nick Nutri and Leeuwenhoek

Hi, boys and girls. Last time we were together, I said that I would tell you about Anton van Leeuwenhoek [*LAY*-van-huke] today. I do plan to do that, but first I want to tell you a story about me.

When I was about your age, one day my father came home with a present for me under his arm. When I first opened it, I wasn't sure what it was.

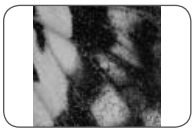
Show image 2A-2: Student microscope [1]

It looked like this. Do you know what this is called or what it does? My father explained that it was a **microscope**.[2] That was nothing I had ever dreamed of wanting. I spent most of my time playing outside and could barely sit still to read a book. Why would I want this funny looking instrument?

"You are so curious about everything. I thought perhaps you'd like to see what a butterfly wing looks like close up," my father said.

1 [If there is a microscope in the classroom, direct students' attention to it.]

2 Who knows what a microscope is? [Pause for students' answers.] A microscope is a type of scientific equipment that uses pieces of curved glass to make very small things look bigger.



Show image 2A-3: Butterfly wing under a microscope

I peered through the **lens**[3] of the microscope and saw the tiny veins and hairs of a butterfly's wing. I looked at insect eyes and blades of grass. I looked at oak leaves and dead bumblebees and toy soldiers. It was the best present I had ever received.

3 or curved piece of magnifying glass

Show image 2A-4: What does a magnifying glass do? [4]

Have you ever used a magnifying glass? Who can tell me what a magnifying glass is used for? Yes, it **magnifies** objects. It makes objects look hundreds of times larger than they really are. It shows things that are too small to see with the human eye alone. Sometimes people use magnifying glasses to read really small print or to find splinters buried deep in the skin. Well, a microscope is a lot like that but much more powerful.

4 [Point out to students the magnifying glass in your classroom.]

So, what does that have to do with Anton van Leeuwenhoek? Well, just like me at seven years old, the year I received my first microscope, Anton was very curious. He also had a fascination with magnifying objects. Although Anton was not a scientist, his work with microscopes changed the way people thought about the human body and how it works.

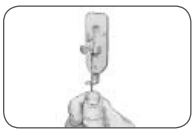
Show image 2A-5: Threads of cloth under a magnifying glass

At sixteen, Anton began working in the textile[5] business. His shop sold cloth, buttons, sewing supplies, ribbons, and lace. His customers were very particular, expecting the very best textiles, or cloth, for their suits and dresses. Anton used a magnifying glass to make sure the threads of the cloth were straight and tightly woven. His customers appreciated Anton's careful **observations.**[6]

When he was about thirty years old, Anton took a trip from his home in Holland to nearby England. There he discovered a book called *Micrographia,* meaning small images.[7]

Show image 2A-6: Lice

Written by Robert Hooke, the book was full of drawings and descriptions of objects seen through a microscope. Anton was fascinated by how large and detailed the micro, or small, objects looked when seen through the lenses of a microscope.[8] It was a little like someone with poor eyesight putting on eyeglass lenses for the first time and discovering that the blurry tree in the distance was actually made up of individual leaves. He couldn't wait to get home to experiment with his own objects.



Show image 2A-7: Anton's microscope

Upon his return to Holland, Anton began to build his own single-lens microscopes.[9] He shaped his lenses very carefully, grinding them down with sand and polishing them smooth with putty.[10] Anton's simple microscopes magnified objects from fifty to two hundred times their natural size.

5 or cloth

6 Observations are made when you look closely at the details of something.

7 Do you have any ideas of what these images, or pictures, were about?

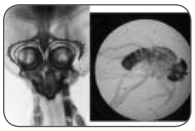
8 or pieces of curved glass that magnified what he could see

9 or a type of microscope having only one lens

10 or polishing powder

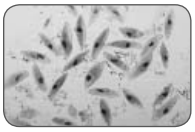
Anton had been interested in science and nature ever since he was a boy, and now he had the opportunity to study nature at a much closer range. He carried squiggly wormlike insect larvae around in his pocket, eager to watch the entire life cycles of insects with the aid of a microscope. [11]

11 Who remembers what insect larvae are? (early stage of insects' life between egg and pupa)



Show image 2A-8: Mosquitos under a microscope

Using the microscopes he made himself, he studied people's skin, mosquito wings, and sheep hairs. He observed duck hearts, fish scales, cow eyes, and water bugs. What a strange man, others thought. But this patient man was driven by his curiosity, and he wanted to learn more. He never lost interest in the scales on a gnat's wing or the hairs on a fly. He looked at the same things again and again—comparing, measuring, and recording his findings.



Show image 2A-9: Pond water under a microscope

Anton conducted many experiments with water—drinking water from his well, water from lakes and from the sea, rain, and melted snow. He discovered what looked to him like tiny "little animals" in lake water. He called these "little animals" animalcules. Anton claimed he saw even more animalcules swimming about in rainwater. They were everywhere, he said. He estimated [12] that one thousand of these tiny creatures could fit on the head of a pin. [13] People called him a liar and a magician, thinking him quite mad. [14]

But, in fact, Anton was not mad at all. His "little animals" were not really animals, but they were definitely alive. He was the first to observe and describe many tiny living things in nature not visible with the naked eye, including **bacteria,** or germs. [15] Many scientists believe that these tiny life forms have been on Earth for more than 3 billion years. They surround us in air, water, and on land, but no one was aware of their existence before Anton recorded what he saw. He discovered a whole new world!

12 or guessed

13 [Show Image Card 1 (Pins).] What do you use a pin for? (sewing) The head of the pin is the flat top part.

14 or crazy

15 When something cannot be seen with the naked eye, it means you can't see the object with just your eyes. You need a tool such as a microscope, telescope, or magnifying glass in order to see it. In other words, bacteria cannot be seen with the naked eye.

Show image 2A-10: Close-up of a smile

Ever curious, Anton began studying the saliva from inside his mouth. He discovered even more bacteria. He found that the sticky coating on the outside of his teeth was crawling with millions of tiny organisms.[16] You have them too, but don't worry. They won't hurt you. We'll learn more about them another day.

16 or living things

Show image 2A-11: Engraving of Anton from the Royal Society

Anton kept a journal[17] to record his detailed observations. He made friends with two English doctors who belonged to England's Royal Society of London. They told him that their fellow English scientists kept similar journals to share their scientific discoveries, and they invited Anton to share his work with them. And so, for the next fifty years, Anton sent hundreds of letters to England. His letters described in great detail the tiny structures that he saw through his homemade microscopes. He described fungus on stale bread; the stingers, eyes, and mouths of bees; even tiny lice. Because he could not draw well, Anton hired someone to illustrate his writing. The English society loved everything he sent and published his letters for others to read.

17 or writing book

Show image 2A-12: A microscope today and Anton's microscope

Anton van Leeuwenhoek did not invent the microscope, nor was he the first to use one, but he used his own simple microscope more than most people of his day. Compared to modern microscopes, Anton's was very simple indeed. It was even more simple than other microscopes used in his day. The entire instrument was only three to four inches long and had to be held up close to the eye.

Anton's microscope used only one lens. Modern microscopes have two or more lenses—one in the eyepiece that you look through; and at least one lens at the bottom of the tube, or barrel, to enlarge things even more.

Today, objects are put on glass slides to be viewed. These objects remain in one place. It is the lens that moves, not the objects. Instead of keeping the objects in one place, Anton mounted his objects on the end of a sharp pointed pin sticking up in front of the lens and moved the objects instead of the lens. Anton's invention required good lighting and great patience to use. His lenses were the clearest and most powerful lenses of his day, but he never shared his secret for creating them. No one came close to matching the quality of Anton van Leeuwenhoek's microscopes for more than one hundred years after his death. Of the four to five hundred microscopes that Anton is believed to have made, no more than nine exist today.

Show image 2A-13: Pond water under a microscope

Anton is one of my heroes because he was the first person to describe bacteria, tiny living things not visible with the naked eye. And his discovery of bacteria made it possible to see other small living things, such as the small building blocks of all life on Earth. As a nutritionist, I am fascinated by how the human body works and the tiny building blocks that make up the human body. The next time we meet, I look forward to teaching you about the amazing body's amazing building blocks.

Discussing the Read-Aloud **15** *minutes*

Comprehension Questions **10** *minutes*

If students have difficulty responding to questions, reread pertinent passages of the read-aloud and/or refer to specific images. If students give one-word answers and/or fail to use read-aloud or domain vocabulary in their responses, acknowledge correct responses by expanding students' responses using richer and more complex language. Ask students to answer in complete sentences by having them restate the question in their responses.

1. *Literal* What was Anton van Leeuwenhoek's important discovery? (bacteria, tiny living things not visible with the naked eye)
2. *Inferential* What instrument made Anton's discovery possible? How? (He used a microscope with its magnifying lens to magnify drops of water, his own saliva, and many other things.)
3. *Evaluative* If you could choose one word to describe Anton van Leeuwenhoek, what would it be? Why? (Answers may vary. Possibilities include: *curious, patient, hardworking, smart, observant, brave*)
4. *Evaluative* Anton had a name for the living things he saw under his microscope's lens. What did he call these living things? (animalcules or "little animals") Do you think that was a good name? Why or why not? (Answers may vary, but may include that he named them from his own experience, and they probably looked more like animals than anything else he had ever seen.)
5. *Inferential* Anton lived a very long time ago, so how do we know so much about his discoveries? (He kept detailed journals, many of which were published in England.)

[Please continue to model the *Think Pair Share* process for students, as necessary, and scaffold students in their use of the process.]

I am going to ask a couple of questions. I will give you a minute to think about the questions, and then I will ask you to turn to your neighbor and discuss the questions. Finally, I will call on several of you to share what you discussed with your partner.

6. *Evaluative* Some people say "seeing is believing," meaning they can't believe something exists unless they see it themselves. Before the microscope was discovered, or people had the opportunity to look into a microscope themselves, they didn't believe tiny things impossible to see without a microscope, like bacteria, could exist. Remember how crazy people thought Anton was when he told them about the animalcules? Our microscopes are very powerful now, and we can see many, many things even smaller than bacteria. Do you think it's possible, that there may still be things too small to see even with our powerful microscopes? Do you think "seeing is believing"? Why or why not? (Answers may vary.)
7. After hearing today's read-aloud and questions and answers, do you have any remaining questions? [If time permits, you may wish to allow for individual, group, or class research of the text and/or other resources to answer these questions.]

Word Work: Observations *5 minutes*

1. In the read-aloud you heard, "His customers appreciated Anton's careful *observations.*"
2. Say the word *observations* with me.
3. Observations are information gathered by closely watching someone or something.
4. When drawing a flower, Rusty made detailed observations of its petals.
5. When is it important to make observations? When is it important to closely watch someone or something to get information? [Ask two or three students. If necessary, guide and/or rephrase students' responses: "It is important to make observations when . . . "]
6. What's the word we've been talking about?

Use a *Making Choices* activity for follow-up. Directions: I am going to read some sentences from the read-aloud. If the sentence describes one of Anton's observations, say, "Anton made an observation." If it does not describe one of Anton's observations, say, "Anton did not make an observation." Remember to answer in complete sentences.

Note: You may wish to point out to students that all of the statements are true, but only some of them are observations.

1. At sixteen, Anton began working in the textile business. (Anton did not make an observation.)
2. Anton used a magnifying glass to make sure that the threads of the cloth were straight and tightly woven. (Anton made an observation.)
3. Anton found that the sticky coating on the outside of his teeth was crawling with millions of tiny organisms. (Anton made an observation.)
4. Anton discovered what looked to him like tiny "little animals" in lake water. (Anton made an observation.)
5. Anton made friends with two English doctors who belonged to England's Royal Society of London. (Anton did not make an observation.)

Complete Remainder of the Lesson Later in the Day

Anton van Leeuwenhoek 2B

Note: Extensions may have activity options that exceed the time allocated for this part of the lesson. To remain within the time periods allocated for this portion of the lesson, you will need to make conscious choices about which activities to include based on the needs of your students.

Extensions — *20 minutes*

Multiple Meaning Word Activity — *5 minutes*

Definition Detective: Slides

Note: You may choose to have students hold up one, two, or three fingers to indicate which image shows the meaning being described, or have a student walk up to the poster and point to the image being described.

1. In the read-aloud you heard the word *slides* in this sentence: "Today, objects are put on glass *slides* to be viewed [using a microscope]."
2. With your partner, think of as many meanings for *slides* as you can, or discuss ways you can use the word *slides*.
3. [Show Poster 1M (Slides).] Which picture on the poster shows how the word *slides* is used in the lesson?
4. *Slides* also means other things. *Slides* means moves smoothly along a surface. Which picture shows this meaning of *slides*?
5. *Slides* can also mean play structures with a slippery surface that children slide down. Which picture show this meaning of *slides*?
6. Did you or your partner think of any of these definitions?
7. Now quiz your partner on the different meanings of *slides*. For example you could say, "My father slides the door open so the dog can go in the yard. Which *slides* am I?" And your partner should point to the boy sliding on the ice to show you that you meant that kind of *slides*.

Syntactic Awareness Activity 5 *minutes*

Adjectives and Adverbs

Note: The purpose of these syntactic activities is to help students understand the direct connection between grammatical structures and the meaning of text. These syntactic activities should be used in conjunction with the complex text presented in the read-alouds. There may be variations in the sentences created by your class. Allow for these variations, and restate students' sentences so that they are grammatical.

1. We know that some words describe other words.
   Words that describe nouns—or people, places or things—are called adjectives.
   Words that describe verbs—or action words—are called adverbs. Today we will practice using adjectives and adverbs.
2. The word *careful* is an adjective that describes a person who is safe and cautious.
   For example: My mother is a very *careful driver*.
   Careful is an adjective that describes the noun—driver.
3. In today's read aloud, you heard that when Anton began to build his own microscopes, he *shaped* his lenses very *carefully*.
   The word *carefully* is an adverb that describes how he shaped his lenses.
   Carefully is an adverb that describes the verb—shaped.
4. I will ask some questions. If my question asks you to describe a noun, use the adjective *careful* in your answer. If my question asks you to describe a verb or an action, use the adverb *carefully* in your answer. [Emphasize the italicized words.]
   - How should you *cut* with scissors? (You should cut carefully.)
   - How would you describe a *firefighter* who checked to make sure that no one was left in the burning house? (a careful firefighter)
   - How should a mother *hold* a little baby? (The mother should hold the baby carefully.)

- How would you describe a *child* who looks both ways before she crosses the street? (a careful child)
- How should you *carry* a full glass of milk? (You should carry it carefully.)
- How would you describe a *student* who always double-checks his work to make sure there are no mistakes? (a careful student)

5. What are words that describe nouns called? (Adjectives describe nouns.)
   What are words that describe verbs, or action words, called? (Adverbs describe verbs.)

Vocabulary Instructional Activity *5 minutes*

Word Work: Curious

1. In the read-aloud you heard Anton's father tell him, "You are so *curious* about everything. I thought perhaps you'd like to see what a butterfly wing looks like close up,"
2. Say the word *curious* with me three times.
3. *Curious* means interested in learning or knowing about something.
4. The curious puppy knocked over the box because he wanted to know what was inside of it.
5. Tell about a time that you were curious about something. What were you curious about? What did you do to find out more about it? Try to use the word *curious* when you tell about it. [Ask two or three students. If necessary, guide and/or rephrase the students' responses: "I was curious about . . ."]

Use an *Antonyms* activity for follow-up. Directions: I will say several sentences. If what I say is an example of someone being curious, say, "He/She is curious." The antonym or opposite of *curious* is *uninterested*, meaning *not interested*. If what I say is an example of someone who is uninterested, say, "He/She is uninterested."

- My friend returned his book to the library because he didn't want to finish it. (He is uninterested.)

- The girl asked her teacher questions about the Cherokees because she wanted to know more about them. (She is curious.)
- My little sister went looking in my room to see what toys she could find. (She is curious.)
- Our classmate did not want to play the game because he thought it was boring. (He is uninterested.)
- The boy went to the library to find books about trains so he could learn more about them. (He is curious.)

Using a Magnifying Glass (Hand Lens) (Instructional Master 2B-1) — 20 *minutes*

- Begin by talking about tools that help people experience the world in new ways, referring back to Lesson 1 and the use of hearing aids and glasses. Other items include canes, crutches, wheelchairs, prosthetic limbs, microscopes, telescopes, etc. You may choose to extend this discussion to include bikes, cars, planes, as well as technological tools like cameras and computers.

Observations

- Have students look at an object far away from them, perhaps on the other side of the room. Ask them how they might see the object better without moving closer to it. They may suggest a variety of tools to make the object appear larger—glasses, magnifiers, binoculars, microscopes, and telescopes.
- Hand out magnifying glasses, one per student if possible. Tell students what they are, and ask if anyone has ever used one or knows anything about it. Provide a simple explanation of how they work: the lens is curved outward like a dome on both sides (convex). This curved lens makes objects appear larger.
- Encourage students to experiment with the magnifying glasses, looking at each other and at objects around the room. Have them look through the lenses with both eyes open and then with one eye closed. Have them hold the lenses at various distances from their eyes to see what works best for them. Students will

probably see best with the non-viewing eye closed and with the magnifying glass held five or six inches away from their faces. They should understand that the closer they hold the glass to an object, the larger the object appears.

Draw What You See

- Once students have had the opportunity to experiment with the hand lenses, give each student Instructional Master 2B-1, a fabric swatch, and a pencil. Ask them to make two drawings. On the top part of the page, ask them to draw patterns from their fabric swatches without the aid of the magnifying glasses. When their first drawings are complete, ask them to each select a section of their fabrics to observe more closely. Using their magnifying glasses, they should then draw the magnified view of what they see.

Under a Microscope — 10 *minutes*

- Set up several microscopes with various slides showing a variety of objects. Some ideas include slides of skin, onion membrane, an insect, a drop of blood, or pond water. If microscopes are unavailable, present images of these various items as seen under a microscope.
- Have students view the slides, and then ask them to describe what they see either orally, or by writing or drawing about the various items. If students write about or draw what they see, have students share their work with the class.

My Human Body Journal (Instructional Master 2B-2) — 15 *minutes*

- Distribute a copy of Instructional Master 2B-2 (Journal Page 2) to each student. Encourage students to write three complete sentences about Anton van Leeuwenhoek. The first sentence should introduce Anton, and the following two sentences should be two facts or two interesting things that students learned about Anton.

Cells and Tissues

3

☑ *Lesson Objectives*

Core Content Objectives

Students will:

- ✓ Explain that all living things are made of microscopic cells
- ✓ Describe the relationship among cells, tissues, organs, and systems

Language Arts Objectives

The following language arts objectives are addressed in this lesson. Objectives aligning with the Common Core State Standards are noted with the corresponding standard in parentheses. Refer to the Alignment Chart for additional standards addressed in all lessons in this domain.

Students will:

- ✓ Describe the connection between cells and tissues in "Cells and Tissues" (RI.2.3)
- ✓ With assistance, categorize and organize facts about cells and tissues to complete an activity that demonstrates the relationship between cells and tissues (W.2.8)
- ✓ Determine the meaning of the multiple-meaning word *tissue* in "Cells and Tissues" (L.2.5a)
- ✓ Identify a new meaning for the word *tissue* and apply it accurately (L.2.5a)

Core Vocabulary

cells, *n.* The smallest units or parts of living things; the body's building blocks
Example: Our bodies are made up of billions of tiny, microscopic cells.
Variation(s): cell

functions, *n.* Roles, jobs, or purposes
Example: One of your heart's functions is to pump blood into other parts of your body.
Variation(s): function

microscopic, *adj.* Too small to be seen without the help of a microscope
Example: Bacteria are microscopic.
Variation(s): none

stimulus, *n.* Something that starts other actions
Example: The sunlight is a stimulus that causes you to wake up in the morning.
Variation(s): stimuli

tissue, *n.* Tissue is a collection of the same kinds of cells working together to do the same job.
Example: Muscle tissue makes up muscles that help our bodies move.
Variation(s): tissues

Vocabulary Chart for Cells and Tissues			
Core Vocabulary words are in **bold**. Multiple Meaning Word Activity word is <u>underlined</u>. Vocabulary Instructional Activity words have an asterisk (*). Suggested words to pre-teach are in *italics*.			
Type of Words	**Tier 3** Domain-Specific Words	**Tier 2** General Academic Words	**Tier 1** Everyday-Speech Words
Understanding	connective epithelial microscope/ microscopes **microscopic** nutrients **stimulus**	area connect/connects job message/ messenger protect tiny	big/small blood body bone brain life living muscle together working
Multiple Meaning	***cells*** nervous ***<u>tissue</u>***	divided form **functions*** groups layer types	move skin work/works
Phrases	Anton Van Leeuwenhoek human body nerve cells red blood cells Robert Hooke		
Cognates	conectivo **microscópico** microscopio/ microscopios nutrientes	área conectar/conecta mensaje/ mensajero dividido formar funciones grupos tipos	músculo mover

Note: Introducing that the Read-Aloud and Extensions may have activity options which exceed the time allocated for that part of the lesson. To remain within the time periods allocated for each portion of the lesson, you will need to make conscious choices about which activities to include based on the needs of your students.

Exercise	Materials	Details
Introducing the Read-Aloud (10 minutes)		
Essential Background Information or Terms		
Vocabulary Preview: Cells, Tissue	Image 3A-5	
	Image 3A-9, Image Card 5 (Muscle Tissue)	
Purpose for Listening	Image Cards 2, 3	
Presenting the Read-Aloud (15 minutes)		
Cells and Tissues	Image Cards 2, 3	
Discussing the Read-Aloud (15 minutes)		
Comprehension Questions		
Word Work: Functions		
Complete Remainder of the Lesson Later in the Day		
Extensions (20 minutes)		
Multiple Meaning Word Activity: Tissue	Poster 2M (Tissue)	
Making Connections: Cells—The Body's Building Blocks	small cubes in four different colors; resealable plastic bags; tubs to hold cubes	
My Human Body Journal	Instructional Master 3B-1	

Advance Preparation

Bring in small cubes in four different colors, resealable bags, and tubs to hold the cubes.

Make a copy of Instructional Master 3B-1 for each student in advance. This will be the third page of their *My Human Body Journal*. Students will write about cells and tissues.

Notes to Teacher

The read-aloud for this lesson is especially long and is likely to take longer to present than the time allotted. You may wish to pause after reading the following sections and briefly review read-aloud content:

After reading the section for image 3A-4, briefly review what cells are.

After reading the section for 3A-6, briefly review the different types of cells.

At the end of the read-aloud, briefly review different types of tissues.

For Presenting the Read-Aloud, you may wish to associate a physical action when introducing each type of tissue. Model the action as you name the type of tissue. Have students repeat the action and say the name of the tissue after you.

For connective tissue, link your fingers together.

For muscle tissue, use a gesture that shows movement or flex your arm muscles.

For nervous tissue, point to your head (brain).

For epithelial [ep-uh-*THEE*-lee-uhl] tissue, place one hand flat on top of the other.

Practice these motions with students, and have students do these physical actions each time you mention a particular type of tissue, which will help to reinforce the meaning of each new term.

Cells and Tissues

3A

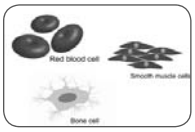
Introducing the Read-Aloud — *10 minutes*

Essential Background Information or Terms — *5 minutes*

Show students Image Card 4 (Human Cell). Ask students if any of them can identify what they are seeing. Tell them it is a human cell. Explain that cells are the tiny building blocks that make up the human body; Nick Nutri mentioned cells at the end of the last read-aloud. Tell students that cells are the smallest units of all living things, not just of the human body. Cells are so small they cannot be seen without a microscope. Ask students if they remember what a microscope does. (makes tiny, almost invisible things appear much larger)

Refer students to the name of today's read-aloud, "Cells and Tissues." Tell them they are going to learn about cells and groups of cells. These groups of cells are called tissues.

Vocabulary Preview — *5 minutes*



Cells

Show image 3A-5: Blood, muscle, and bone cells

1. In today's read-aloud, Nick Nutri is going to tell you about *cells*.
2. Say the word *cells* with me three times.
3. Cells are the smallest units, or parts, of living things.
4. Our bodies are made up of billions of tiny, microscopic cells.
5. [Point to each type of cell, and have students repeat the names of the cells after you. Ask for volunteers to describe each type of cell.] What do you notice is the same about all of the different cells? What is different?

Tissue

Show image 3A-9: Muscle tissue

1. In today's read-aloud, you will hear about the four main types of *tissue* in our bodies.
2. Say the word *tissue* with me three times.
3. Tissue is a collection of the same kinds of cells working together to do the same job.
4. Muscle tissue makes up muscles that help our bodies move.
5. [Show Image Card 5 (Muscle Tissue).] What do you think muscle tissue makes? Can you see muscles in this picture? This is a closer image of muscle tissue. Can you see the cells that make up the tissue? Why not?

Purpose for Listening

Ask students to listen carefully to find out the relationship between cells and tissues in the human body, as well as about the four different types of tissues in the human body.

Presenting the Read-Aloud — *15 minutes*

Cells and Tissues

Today we are going to talk about **cells.** When you hear the word *cell,* what is the first thing that comes to your mind?

Show image 3A-1: Nick Nutri holding a cell phone

It may be that you think of a cell phone like this. Telephone companies divide cities, towns, and countrysides into lots of separate areas in order to provide the best service. Each area is called a cell. That's why mobile [1] phones are called cell phones. They use signals from lots of different cells.

1 or moveable

2 [Show Image Card 2 (Bee Hive).]

What do you remember about the hives of honeybees? [2] Their hives are made up of lots of different areas called cells, too. Different activities occur in each cell. Another example that might help us understand cells would be a large multi-floor school building that has many classrooms. A teacher is in each classroom, similar to cells lined up one after the other inside beehives. The word *cell* describes one of many small parts that form a much larger area. One classroom is like one cell of many cells or rooms in a school, like a honeybee's cell is one of many cells in a hive. [3]

3 But unlike the cells of a beehive, the cells of living things are too small to be seen without the aid of a microscope.

Because you're learning about the human body, you may have guessed that we're not going to be talking about cell phones or honeybees today! Instead, we will focus on human body cells. These cells were a mystery to people for thousands of years. No one even knew they existed. The invention of the microscope changed all of that. Microscopes magnify cells, making them big enough for the human eye to see.

Last time, I mentioned a man whose book of **microscopic** organisms, or living things, influenced the work of Anton van Leeuwenhoek.

Show image 3A-2: A view of Hooke's cork cells

The man was an Englishman named Robert Hooke. In one of Hooke's first experiments with a microscope, he sliced open the stem of a cork plant and placed it under his lens.[4] What he saw amazed him. The cork was made up of tiny walled spaces. These little boxes reminded him of the cells in a honeycomb. Hooke was the first to use the term *cell* to describe what he saw through the microscope. We still use the word *cell* today when referring to these tiny little boxes of which all living things, both plants and animals, are made.

4 [Show Image Card 3 (Cork Tree and Cork Board).] You are probably familiar with corkboards or bulletin boards made with cork. Cork comes from cork trees.

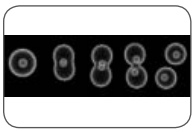
Show image 3A-3: Giraffe with an oxpecker

All living things, no matter how big or how small, are made up of microscopic units called cells. Cells are the body's building blocks, the smallest units of life that can carry out the **functions**[5] of a living thing. They are so small that they cannot be seen without the aid of a microscope. That is why we call them microscopic.[6]

5 or jobs

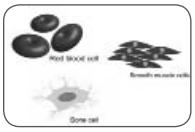
6 Who remembers what *microscopic* means? (can only be seen using a microscope)

The bacteria that Anton van Leeuwenhoek discovered are one-celled organisms, but most living things on Earth have more than one cell. In fact, some have billions of cells. You are one of those creatures. *You* have millions and billions, maybe even trillions, of cells.



Show image 3A-4 Cell division

You began life as a single cell formed by the joining of two cells, one cell from your mother and one cell from your father. Your parents' two cells merged, and become one joint cell, called a fertilized egg. Then, that one cell divided into two cells that divided into two more. The cells divided again and again until pretty soon there were billions of cells. Your whole body is made up of these tiny building blocks.



Show image 3A-5: Blood, muscle, and bone cells

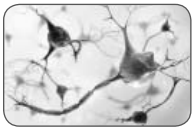
The human body is a collection of more than two hundred different types of cells. Cells come in all shapes and sizes, depending upon the jobs[7] they must perform. Blood cells build

7 or functions

blood. Bone cells build bone. And guess what muscle cells build? Muscles!

The shape of a cell usually reflects the role it plays in the day-to-day working of the human body. For example, red blood cells are shaped somewhat like shallow bowls. Just like bowls that can be used to hold things like cereal, milk, or ice cream, the bowl-shaped red blood cells hold and carry nutrients through your blood. [8]

8 What are nutrients?



Show image 3A-6: Nerve cell

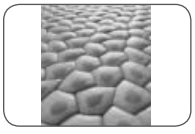
Nerve cells have really long tails to send and receive messages quickly. See all the little branches on this nerve cell? [9]

9 [Point to image 3A-6 and the branches of the nerves.]

Cells are like tiny chemical factories. [10] Because they are living organisms, they need nutrients and air to stay alive. Your heart pumps blood to cells throughout your body, carrying food and oxygen to each cell. Your cells use these nutrients to form muscles, nerves, skin, and bone, and to help protect your body from disease.

10 Factories are buildings or places where things are made. Some examples are toy factories, book factories, car factories, and so on.

Living things do not last forever. Body cells have limited lives. Some cells get damaged when you get hurt. Others wear out over time. As cells die, the dead cells are replaced with new cells on a daily basis. Isn't that amazing?



Show image 3A-7: Microscopic section of skin

Let's look closely at a microscopic section of skin. Skin cells are packed tightly together to form a protective boundary [11] between you and your environment. Do you see the layers of cells, stacked one on top of the other? The old, dead cells flake off and form a protective layer for the new cells that are constantly growing beneath. They grow, split, make new cells, and die. Some cells live for only a few days. Others live for years.

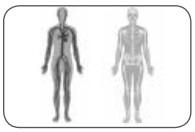
11 or dividing line

Cells work together. They are organized into groups of cells that all perform the same function. [12] These groups of cells are called **tissue.** Tissue is a collection of the same kinds of cells working together to do the same job. [13]

12 What does *function* mean? (job or purpose)

13 *Tissue* can also be a piece of soft and very thin paper that is used especially for blowing your nose.

There are four main types of tissue, and each type serves a different function. The four types of tissue are connective, muscle, nervous, and epithelial [ep-uh-*THEE*-lee-uhl].



Show image 3A-8: Skeleton and circulatory system

What do you think connective tissue does? It connects. Connective tissue supports the body and binds other tissue together like glue. Your skeleton is made up of bone, a connective tissue that provides the structure or framework for your body. It contains cells that make the tissue strong and flexible. [14] Fat is a connective tissue, padding your body and supplying it with energy. You may be surprised to learn that blood is also a connective tissue, but think about it. This liquid tissue flows throughout your entire body and connects all of its many parts.

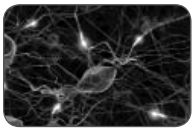
14 or able to bend easily without breaking

Show image 3A-9: Muscle tissue

Muscle tissue helps your body move. It is the softest and most abundant tissue in your body. [15] There are different kinds of muscle tissue. Your stomach walls are lined with smooth muscle tissue that helps digest your food. You would not be alive without cardiac muscle tissue. What does the cardiac muscle do? It is found only in your heart, and its job is to pump your blood. Skeletal muscle tissue moves your bones. The long, thin strands of muscle tissue stretch and shrink in response to messages from your brain. As they shorten, they move the parts of your body.

15 [Point to the image.] You can see how much muscle tissue there is throughout the whole human body.

So, connective tissue connects and muscle tissue moves your body parts.

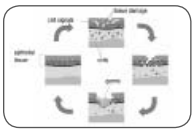


Show image 3A-10: Nervous tissue

The third type of body tissue is nervous tissue. Maybe you can figure out what it does based on its name. What does it do? Nervous tissue runs through your body and connects to your brain. Nervous tissue serves as the messengers between your brain and body. Nerve cells within the nervous tissue sense a **stimulus** and carry electrical signals to and from the brain. [16] Nervous tissue acts as the body's most important communication

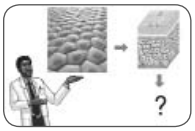
16 A stimulus is a thing that starts other actions. Examples of a stimulus include a light, a sound, a touch, etc.

system. One example of how nervous tissue works would be when you touch something that is so hot you would burn yourself. Your nervous tissue receives the stimulus of extreme heat, the message is sent to your brain, and your brain sends a message back to the nervous tissue to tell your muscle tissue to jerk your hand away from the hot stimulus. This happens almost automatically without you having to think about it.



Show image 3A-11: Bacteria repelled by epithelial tissue

What about epithelial tissue? Let's try to pronounce it first. Ep-uh-*THEE*-lee-uhl. What a big word for tissue that covers and protects us! Sheets of cells, packed closely together, make up epithelial tissue. Does this picture look familiar? Remember, those are the skin cells that form the outer layer of your skin. You're looking at the epithelial tissue that prevents bacteria from entering your body. This thin, tough covering protects your body and its organs. Epithelial tissue is also found inside your body. It forms barriers to protect the inside of your mouth, nose, throat, and stomach.



Show image 3A-12: Cells, tissue, and ?

Everything you do, from breathing to eating to running, requires lots of working cells. They are truly the building blocks of your body. Cells are organized into tissues, grouped by the similar jobs that they do. Tissues are organized into groups that work together to do similar jobs as well. You will learn all about these groups of tissues the next time we're together.

Discussing the Read-Aloud **15** *minutes*

Comprehension Questions **10** *minutes*

If students have difficulty responding to questions, reread pertinent passages of the read-aloud and/or refer to specific images. If students give one-word answers and/or fail to use read-aloud or domain vocabulary in their responses, acknowledge correct responses by expanding students' responses using richer and more complex language. Ask students to answer in complete sentences by having them restate the question in their responses.

1. *Literal* What is the smallest microscopic building block of all living things? (a cell) What is a group of the same cells that perform the same job called? (tissue)
2. *Literal* Name all four types of body tissue. (connective, muscle, nervous, and epithelial)
3. *Literal* Your blood is a tissue, made up of many cells. What type of tissue is blood? (connective) Why? (It connects all parts of your body.)
4. *Inferential* Whenever you hear the word *cardiac* you may safely guess that it has something to do with the heart. Therefore, where is cardiac muscle tissue located? (in the heart)
5. *Literal* Why are cells called microscopic? (They are too small to be seen without the aid of a microscope.)
6. *Inferential* How do we know that cells are alive? (Just like other living organisms, cells need nutrients and air. They grow, split, make new cells, and die.)
7. *Inferential* What is the name of the body tissue that protects? (epithelial) Name some parts of the body where epithelial, or protective, tissue is found. (on your skin and inside your mouth, nose, throat, and stomach)

[Please continue to model the *Think Pair Share* process for students, as necessary, and scaffold students in their use of the process.]

I am going to ask a question. I will give you a minute to think about the question, and then I will ask you to turn to your neighbor and discuss the question. Finally, I will call on several of you to share what you discussed with your partner.

8. *Evaluative* ***Think Pair Share:*** Nerve cells form nervous tissue. You have already learned about the nervous system. Where do you think nerve cells and nervous tissues are found? (Answers may vary, but help students understand that nerves are located all over the body. The nervous system is the body's highway of communication.)

9. After hearing today's read-aloud and questions and answers, do you have any remaining questions? [If time permits, you may wish to allow for individual, group, or class research of the text and/or other resources to answer these questions.]

Word Work: Functions

5 *minutes*

1. In the read-aloud you heard, "Cells are the body's building blocks, the smallest units of life that can carry out the *functions* of a living thing."

2. Say the word *functions* with me.

3. Functions are the roles, jobs, or purposes that support particular activities.

4. Some of the functions that trees provide are releasing oxygen to the air we breathe, giving shade and cooling, serving as a habitat for animals, and supplying the resource of wood.

5. Think of some functions that schools serve. Tell your partner about two of them. Use the word *functions* when you tell about it.
   [Ask two or three students. If necessary, guide and/or rephrase students' responses: "Two functions that schools serve include _____ and _____."]

6. What's the word we've been talking about?

Use a *Terms* activity for follow-up. Directions: [Show Poster 2 (Human Body Systems). Have students say the name of each body system with you.]
I am going to describe the function, or job, of one of the body systems. Use a complete sentence to tell me which system performs this function; say, "That's the function of the _____ system."

- This system supports your body and gives it shape. (That's the function of the skeletal system.)
- This system circulates blood through the heart to every part of the body. (That's the function of the circulatory system.)
- This system breaks down food into nutrients that your body can use. (That's the function of the digestive system.)
- This system helps your body move. (That's the function of the muscular system.)
- This system sends messages back and forth between the body and the brain. (That's the function of the nervous system.)
- This system is in charge of how your body takes in air into your lungs to supply your body with oxygen. (That's the function of the respiratory system.)

Complete Remainder of the Lesson Later in the Day

Cells and Tissues

3B

Note: Extensions may have activity options that exceed the time allocated for this part of the lesson. To remain within the time periods allocated for this portion of the lesson, you will need to make conscious choices about which activities to include based on the needs of your students.

Extensions — *20 minutes*

Multiple Meaning Word Activity — *5 minutes*

Context Clues: Tissue

Note: You may choose to have students hold up one or two fingers to indicate which image shows the meaning being described, or have a student walk up to the poster and point to the image being described.

1. [Show Poster 2M (Tissue).] In the read-aloud you heard, "Tissue is a collection of the same kinds of cells working together to do the same job." Which picture of *tissue* matches the way *tissue* is used in the lesson?
2. *Tissue* can also mean other things, such as a piece of soft and very thin paper. Which picture matches this description of *tissue*?
3. I'm going to say some sentences with the word *tissue*. Hold up one finger if the word *tissue* in my sentence is the same as in picture one; hold up two fingers if the word *tissue* in my sentence is the same as in picture two.
   - When my nose is running I use a tissue to wipe it.
   - Nervous tissue acts as a messenger between the brain and the body.
   - Muscle tissue in our stomach helps our food digest.
   - The sales clerk wrapped the glass bowl in tissue paper so it wouldn't break.

Making Connections: Cells—The Body's Building Blocks 20 *minutes*

- Divide the class into groups of four. Give each group a tub of different colored cubes. Explain that each cube represents a cell, one of the body's building blocks, and that each color represents a different type of cell.
- Remind students that when individual cells of the same kind group together, they form tissue. Tell students that they are going to put the cubes in groups of the same kind (or color), just as cells of the same kind group together to form tissue.
- Have students sort the cubes by color. Then have students put each group of same-colored cubes into a plastic, resealable bag. [Or if the cubes can be connected, have students connect the same-colored cubes together.]
- Ask students: "What does each individual cube represent?" (a cell) "What does each bag of single-colored cubes represent?" (tissue)
- Review the four types of body tissue: connective, muscle, nervous, and epithelial.
- Have each student take one bag of same-colored cubes. Ask students to regroup, according to the color of their cubes. All of the students with yellow cubes will form one group; all of the students with blue cubes will form another group; etc. There should now be a total of four groups.
- Assign each color a type of tissue: connective, muscle, nervous, or epithelial. Have the students in each group practice the motion for their type of tissue and describe to the rest of the class what their tissue does.

My Human Body Journal (Instructional Master 3B-1) 15 *minutes*

- Distribute a copy of Instructional Master 3B-1 (Journal Page 3) to each student. Have students write two sentences, one about cells and another about tissue. Then have students draw a picture about something they learned about cells and tissue from the read-aloud.

Organs

4

☑ *Lesson Objectives*

Core Content Objectives

Students will:

- ✓ Describe the relationship among cells, tissues, organs, and systems

Language Arts Objectives

The following language arts objectives are addressed in this lesson. Objectives aligning with the Common Core State Standards are noted with the corresponding standard in parentheses. Refer to the Alignment Chart for additional standards addressed in all lessons in this domain.

Students will:

- ✓ Describe the connection among cells, tissues, and organs in "Organs" (RI.2.3)
- ✓ Interpret information from a model of a cross-section of the stomach to demonstrate the relationship among cells, tissues, and organs in "Organs" (RI.2.7)
- ✓ With assistance, categorize and organize facts about cells, tissues, and organs to construct a paper model of the tissues that comprise the stomach (W.2.8)

Core Vocabulary

collapse, *v.* To fall or cave in
Example: A large wave caused my sand castle to collapse.
Variation(s): collapses, collapsed, collapsing

liver, *n.* A large organ that produces juices to help with the digestion of food
Example: Your liver works closely with other organs near your stomach to break down food.
Variation(s): livers

nourish, *v.* Provide with food or other substances necessary for growth
Example: The school cafeteria serves a variety of foods that help nourish our growing bodies.
Variation(s): nourishes, nourished, nourishing

Vocabulary Chart for Organs

Core Vocabulary words are in **bold**.
Multiple Meaning Word Activity word is underlined.
Vocabulary Instructional Activity words have an asterisk (*).
Suggested words to pre-teach are in *italics*.

Type of Words	Tier 3 Domain-Specific Words	Tier 2 General Academic Words	Tier 1 Everyday-Speech Words
Understanding	**liver**	healthy located **nourish*** system/systems*	blood brain different food job live muscles stomach together working
Multiple Meaning	cells *organs* tissue	**collapse** form function help layers part perform type	body move skin work
Phrases	circulatory system connective tissue digestive system epithelial tissue muscle tissue muscular system nervous system nervous tissue skeletal system		break down depend upon
Cognates	células	sistema/sistemas formar función part tipo	diferente músculos estómago depende de

Note: Introducing the Read-Aloud and Extensions may have activity options that exceed the time allocated for that part of the lesson. To remain within the time periods allocated for each portion of the lesson, you will need to make conscious choices about which activities to include based on the needs of your students.

Exercise	Materials	Details
Introducing the Read-Aloud (10 minutes)		
What Have We Already Learned?	Image Cards 4, 5	
What Do We Already Know?	Image Card 7	
Vocabulary Preview: Organs	Images 4A-8 and 4A-10	
Purpose for Listening	Instructional Master 4A-1 (Response Card 2: Organs)	Students may refer to the Response Card as you discuss the lesson.
Presenting the Read-Aloud (15 minutes)		
Organs	Response Card 2; writing tools	Pause after reading the section with Image 4A-2, and have students label the organs on their response cards.
	Poster 3 (Cells, Tissues, Organs, Systems)	
Discussing the Read-Aloud (15 minutes)		
Comprehension Questions	Image 4A-9	
Word Work: Nourish		
 **Complete Remainder of the Lesson Later in the Day**		
Extensions (20 minutes)		
Syntactic Awareness Activity: Adjectives and Adverbs		
Vocabulary Instructional Activity: Systems	Poster 2 (Human Body Systems)	
Cells, Tissues, Organs, Systems	Instructional Master 4B-1	
Domain-Related Trade Book	trade book about cells, organs, or systems; drawing paper, drawing and writing tools	Trade book suggestions: Items 3, 4, 20, 24 and 25.

Advance Preparation

Make a copy of Instructional Master 4A-1 (Response Card 2: Organs) for each student. Tell students that the images on the Response Card are hints about what comes after cells and tissues. During the read-aloud, pause after reading the section with Image 4A-2, and have students label the organs on their response cards.

Make a copy of Instructional Master 4B-1 for each student. Use this worksheet to review cells, tissues, organs, and systems.

Find a trade book about cells, organs, or body systems to read aloud to the class.

Notes to Teacher

The read-aloud for this lesson is especially long and is likely to take longer to present than the time allotted. You may wish to pause after reading the following sections and briefly review read-aloud content:

After reading the section for Image 4A-3, briefly review cells, tissues, and organs.

After reading the section for Image 4A-8, briefly review the different organs.

After reading the section for Image 4A-9, review how systems work together.

Introducing the Read-Aloud — *10 minutes*

What Do We Already Know? — *5 minutes*

Show students Image Card 7 (Human Heart). Point to the image of the heart, and ask students if they recognize it. Tell them it is one of the most important organs in their bodies. It is the heart. A person cannot live for very long when the heart stops functioning.

Vocabulary Preview — *5 minutes*

Organs

1. In today's read-aloud, you will hear about parts of our bodies called *organs*.
2. Say the word *organs* with me three times.
3. Organs are body parts that are made up of groups of tissues and perform specific jobs for the body.

Show image 4A-8: Nick Nutri pointing out the liver

4. Your liver is one of your body's organs. It produces juices to help with the digestion of food. The liver also helps to clean your body's blood.

Show image 4A-10: Kidneys

Your kidneys are also organs in your body. They are a pair of organs in your abdomen that help clean the body's blood.

5. Can you name any other organs in your body? [Students may refer to Response Card 2 and name the organs they see. (heart, stomach, eye, lungs)]

Purpose for Listening

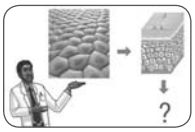
Tell students that so far they have learned that cells form tissue, and that today they are going to hear about what tissue forms. Ask students to listen carefully to find what comes next.

Organs

4A

Presenting the Read-Aloud

***15** minutes*



Organs

➧ **Show image 4A-1: Nick Nutri showing photos of the progression of cells, tissues, and ?** [1]

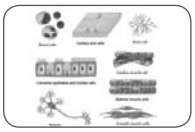
1 [Review the progression with students and ask them to predict what will be the next category in this progression.]

In the last read-aloud you learned about cells and tissues. Similar cells join together in groups to form tissues. In the same way, similar tissues join together to form organs. Organs are parts of the human body that perform special jobs for the body. Organs are made up of groups of tissues. All organs are made up of different kinds of tissues that help them do their jobs well.

Can anyone name one of your body organs?

➧ **Show image 4A-2: Eye, heart, lungs, and stomach**

Your eyes and ears are organs. Your heart and lungs are organs. Your stomach is an organ, too. Which of your body organs is the largest? It's your skin! Does that surprise you? You've looked at skin cells through the microscope, and we've talked about the epithelial tissue that these cells form. So, while it may seem odd to think of skin as an organ, it does make sense, doesn't it? Many, many tiny cells make up the epithelial tissue that forms your skin, which is an organ that covers your whole body.



➧ **Show image 4A-3: Four types of tissue (epithelial, connective, muscle, and nervous tissue)**

You've learned about four different types of body tissues. What are the names of all four types of body tissues? One is epithelial, the tissue that forms your skin. What are the other three? The other three are connective, muscle, and nervous tissue. Each different type of tissue is made up of similar cells that do the same

jobs. All body tissues are made up of cells. And all body organs are made up of tissues. Cells. Tissues. Organs. [2]

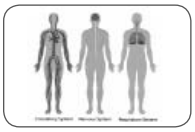
The systems of the human body are organ systems. [3] An organ is a part of the body with a clearly defined function, or job, to perform. Most organs are involved in just one body system. There are ten major organ systems in the human body.

2 [Illustrate this concept for your students by drawing three concentric circles. On the innermost circle, write the word *cells.* On the middle circle, write the word *tissues.* And on the outer circlem write the word *organs.*

3 What are *systems*? (sets of connected parts that work together to perform a job)

Show image 4A-4: Skeleton system and muscular system

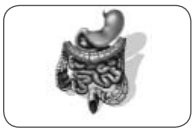
What body systems are in charge of helping you move? Last year, you learned about the skeletal and muscular systems. Your skeletal system is made up of bones and other organs. Its skeletal tissues work together with the smooth muscle tissues in your muscular system to make your body move.



Show image 4A-5: Circulatory system, respiratory system, and nervous system

What does the circulatory system do? It circulates, or moves, your blood around to all parts of your body.

Your heart and blood, made up of cells and tissues, are the organs of your circulatory system. The respiratory system includes your lungs—organs made up of cells and tissues—that control your breathing. What does the nervous system do? It sends messages along the spinal cord to the brain. These two organs, the spinal cord and the brain, are both made up of nervous tissues, full of tiny nerve cells.



Show image 4A-6: Digestive system

Which organ system includes your stomach? Yes, it is the digestive system. Your stomach works closely with other organs, each made up of different types of tissues and different types of cells to perform different types of jobs. Soon, you will be able to name all of the other organs that work together with your stomach to help digest, or break down, your food.

Sometimes your organs are a combination of different types of tissue.[4] The stomach is one of those organs. It is made up of many layers, including all four main types of tissue. These tissues play a very important role in the digestion of your food. We'll take a quick peek at part of your digestive system now. Let's look at the inside of your stomach to see where these four types of stomach tissue live.

4 [You may want to review all four again— connective, muscle, nervous, epithelial.]

Show image 4A-7: Cross-section of the stomach

The first layer of tissue that you see is epithelial tissue.[5] Remember what epithelial tissue does? It is tightly packed, arranged in a layered sheet to cover and protect the organ. The epithelial tissue is connective tissue, primarily blood that carries—or connects—nutrients to the cells.[6] Smooth muscle tissue lies underneath the connective tissue and helps to move food around in the stomach. Stomach muscles squeeze together about three times per minute, continuing to squeeze whether there is food in your stomach or not. It is the squeezing of these muscles that produces the loud rumbling noise you sometimes hear when your stomach is nearly empty. The fourth type of body tissue, nervous tissue, is located in the stomach wall. It constantly sends signals to the brain and makes sure that all other parts are working smoothly.

5 [Point to the relevant layers in the image as you read about them, moving from the outside to the inside of the stomach.]

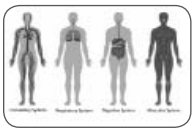
6 What are nutrients? (nourishing substances, necessary for growth and the maintenance of life)

Every organ in your body depends upon other organs to work in the right way. When you study the digestive system more thoroughly in the next lesson, you will see that the stomach could not perform the job of the entire system on its own. It needs help.

Show image 4A-8: Nick Nutri pointing out the liver

Have you ever heard of the **liver?** Your liver is an organ located above your stomach.[7] Your stomach depends on your liver to do its job. The liver produces digestive juices to help break down your food. Your liver is one of the largest organs of the body, and it is part of several different systems to perform different body functions. You cannot live without your liver. Next time, you will learn more about the very important role that the liver plays in the digestive system.

7 [Point to the liver.]



Show image 4A-9: The circulatory, respiratory, digestive, and muscular systems

Organs depend on one another. So do the body's systems. Each system depends upon the other systems to make sure that your body works properly.

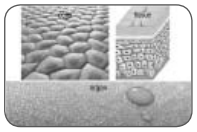
For example, blood is carried to all parts of your body through the circulatory system. The circulatory system depends upon the respiratory system to get oxygen into the bloodstream. Your blood would have no nutrients in it without the help of the digestive system to break down your food. Working together, these different systems provide your cells with the food and oxygen they need so that energy can be supplied to all your other systems. Without energy, your muscles couldn't move your bones; without energy, your brain could not think.

When organs stop working properly, body systems break down. The body stops functioning well and you become ill. If your lungs **collapse,** or are not able to work the way they should, there will not be enough oxygen to feed, or **nourish,** your cells. If your heart stops, it will no longer pump blood with the necessary nutrients to other parts of your body.[8]

8 [Reassure students that lung and heart failure are very uncommon among young people.]

It is important to remember to protect your organs, especially when you're doing things like riding your bike, or playing certain sports. What should you wear on your head when you ride a bike? It's very important to protect your head by wearing a helmet. A head injury might result in damage to your brain, and this might prevent messages from going back and forth between the brain, the nervous system, and other parts of your body.

NOTE: Please skip image 4A-10: Kidneys



➡ **Show image 4A-11: Progression: Cells, tissue, organ**

Cells. Tissues. Organs. Systems.[9] The human body is organized into four different levels. Cells are the building blocks of the body. Without cells, there would be no body tissue, no body organs, and no body systems. In fact, without cells there would not be a single living person or thing on Earth!

9 [Point to image and Poster 3 (Cells, Tissues, Organs, Systems). Show students the progression.]

➡ **Show image 4A-12: Nick Nutri pointing out the digestive system**

The next time we gather together, we'll discuss the organs that work together to digest, or break down, your food. Today we looked inside your stomach, but your stomach is only one part of the food's journey as it travels through your body.

Can you name any of the organs that belong to the digestive system?[10] Great suggestions. With your help, we'll put that puzzle together soon. See you next time.

10 [Pause for suggestions.]

Discussing the Read-Aloud — *15 minutes*

Comprehension Questions — *10 minutes*

If students have difficulty responding to questions, reread pertinent passages of the read-aloud and/or refer to specific images. If students give one-word answers and/or fail to use read-aloud or domain vocabulary in their responses, acknowledge correct responses by expanding students' responses using richer and more complex language. Ask students to answer in complete sentences by having them restate the question in their responses.

1. *Literal* Name one of the important body organs that you heard about today. (Answers may include: eyes, ears, heart, lungs, stomach, skin, bones, heart, spinal cord, brain, liver, pancreas, gallbladder, kidneys.) [When students name an organ, ask if they know its function.]
2. *Inferential* The heart, skin, and bones are all organs. What does that tell you about the size, shape, and texture of body organs? (They are all different. No two organs are the same.)

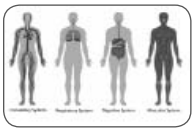
3. *Literal* Cells group together to form tissues; tissues group together to form organs. What do groups of organs form? (systems)

4. *Literal* Give some examples of organs, and the body system the organ belongs to. (Answers may vary. Most organs are involved in just one body system, but there are some exceptions.)

5. *Inferential* What happens when one of your organs, such as your heart, stops working properly? (body systems break down; you can become ill)

[Please continue to model the *Think Pair Share* process for students, as necessary, and scaffold students in their use of the process.]

I am going to ask a question. I will give you a minute to think about the question, and then I will ask you to turn to your neighbor and discuss the question. Finally, I will call on several of you to share what you discussed with your partner.



Show image 4A-9: The circulatory, respiratory, digestive, and muscular systems

6. *Evaluative* *Think Pair Share:* You learned that your body's systems work together. Each system depends upon the other systems to make sure that your body works properly. Can you think of an example of how two or more of your body systems work together?

7. After hearing today's read-aloud and questions and answers, do you have any remaining questions? [If time permits, you may wish to allow for individual, group, or class research of the text and/or other resources to answer these questions.]

Word Work: Nourish *5 minutes*

1. In the read-aloud you heard, "If your lungs collapse, there is not enough oxygen to feed, or *nourish,* your cells with the things they need to live and grow."
2. Say the word *nourish* with me.
3. *Nourish* means to provide with food or other substances necessary for growth.
4. The school cafeteria serves a variety of foods that help nourish our growing bodies.
5. Think of one of your favorite foods that you eat to nourish your body. Use the word *nourish* when you tell us about it. [Ask two or three students. If necessary, guide and/or rephrase students' responses: "I nourish my body by eating . . . "]
6. What's the word we've been talking about? What part of speech is the word *nourish*?

Use a *Making Choices* activity for follow-up. Directions: I am going to name some foods and drinks. If it is a food or drink with nutrients that will nourish your body, say, "That will nourish me." If it is not a food or drink that will nourish your body, say, "That will not nourish me." Remember to answer in complete sentences.

1. soda (That will not nourish me.)
2. eggs (That will nourish me.)
3. jelly beans (That will not nourish me.)
4. bananas (That will nourish me.)
5. green beans (That will nourish me.)

Complete Remainder of the Lesson Later in the Day

Organs

4B

Note: Extensions may have activity options that exceed the time allocated for this part of the lesson. To remain within the time periods allocated for this portion of the lesson, you will need to make conscious choices about which activities to include based on the needs of your students.

Extensions — *20 minutes*

Syntactic Awareness Activity — *5 minutes*

Adjectives and Adverbs

Note: The purpose of these syntactic activities is to help students understand the direct connection between grammatical structures and the meaning of text. These syntactic activities should be used in conjunction with the complex text presented in the read-alouds. There may be variations in the sentences created by your class. Allow for these variations, and restate students' sentences so that they are grammatical.

1. We know that some words describe other words.
   Words that describe nouns—people, places, or things—are called adjectives.
   Words that describe verbs—action words that tell how something is done—are called adverbs. Today we will practice using adjectives and adverbs.
2. The word *tight* is an adjective that describes a thing, such as a shoe or piece of clothing that is too small.
   For example: The *jacket* that I wore last year is too *tight* for me now because I have grown.
   Tight is an adjective that describes the noun—jacket.
3. In the read-aloud about Anton, you heard, "Anton used a magnifying glass to make sure the threads of the cloth were straight and *tightly* woven." The word *tightly* is an adverb that describes how something is woven.
   Tightly is an adverb that describes a verb—woven.

4. I will ask some questions. If my question asks you to describe a noun, use the adjective *tight* in your answer. If my question asks you to describe an action, or how something is done, use the adverb *tightly* in your answer.
    - What is a *belt* that is too small like? (The belt is tight.)
    - How does someone *hold* your hand if they squeeze it? (They hold my hand tightly.)
    - How does a hat that is too small for your head *fit*? (The hat fits tightly.)
    - What is the *skin* on a drum like? (The skin on a drum is tight.)
    - How can you *tie* your shoelaces if you don't want them to come undone? (You can tie your shoelaces tightly.)
    - What is the *lid* of a jar if it is too hard to open? (The lid is tight.)
5. What are words that describe nouns called? (Adjectives describe nouns.)
   What are the words that describe verbs—action words—called? (Adverbs describe verbs.)

Vocabulary Instructional Activity — 5 minutes

Word Work: Systems

1. [Show Poster 2 (Human Body Systems).] In the read-aloud you heard, "There are ten major organ *systems* in the human body."
2. Say the word *systems* with me three times.
3. Systems are sets of connected parts that work together to perform a job.
4. Some cities' transportation systems include buses, subways, and trains that take people where they need to go.
5. What are some things that function, or work as a system? (Possible responses include a school system, an alarm system, a buddy system, a library system, a medical system, a school bus system, the mechanical system of a car or other machine)

Use a *Sentence Completion* activity for follow-up. Directions: [Have students say the name of each body system with you as you point to it on Poster 2.] I will name a part or parts of one of the body systems. Complete the sentence, "_____ is/are part/s of the system." Fill in the first blank with the parts that I name, and the second blank with the name of the body system.

- muscles (Muscles are part of the muscular system.)
- bones (Bones are part of the skeletal system.)
- the heart and blood (The heart and blood are parts of the circulatory system.)
- lungs (Lungs are part of the respiratory system.)
- the spinal cord and brain (The spinal cord and brain are parts of the nervous system.)
- the stomach (The stomach is part of the digestive system.)

Cells, Tissues, Organs, Systems (Instructional Master 4B-1) — 10 *minutes*

- Distribute a copy of Instructional Master 4B-1 (Cells, Tissues, Organs, Systems) to each student. Have students complete the worksheet by writing the correct word in each blank to show the progression from cells to systems.

Domain-Related Trade Book — 20 *minutes*

- Refer to the list of recommended trade books in the Introduction at the front of this *Supplemental Guide*, and choose one trade book about cells, organs, or body systems to read aloud to the class. [Suggested trade books are Items 3, 4, 20, 24 and 25.]
- Explain to students that the person who wrote the book is called the author. Tell students the name of the author. Explain to students that the person who makes the pictures for the book is called an illustrator. Tell students the name of the illustrator. Show students where they can find this information on the cover of the book or on the title page.

- As you read, use the same strategies that you have been using when reading the read-aloud selections—pause and ask occasional questions; rapidly clarify critical vocabulary within the context of the read-aloud; etc.
- After you finish reading the trade book aloud, lead students in a discussion as to how the story or information in this book relates to the read-alouds in this domain.
- Provide students with drawing paper, drawing tools, and writing tools. Have students draw one detail or idea from the trade book that is new or different from the read-aloud they heard. Then have students write two or three sentences to go along with their drawings. Have students share their drawings and writing with their partners or home-language peers.

Pausing Point

PP

Note to Teacher

You should pause here and spend one day reviewing, reinforcing, or extending the material taught thus far.

You may have students do any combination of the activities listed below, but it is highly recommended you use the Mid-Domain Student Performance Task Assessment to assess students' knowledge of body systems and their organizational levels, including cells, tissues, and organs. The other activities may be done in any order. You may also choose to do an activity with the whole class or with a small group of students who would benefit from the particular activity.

Core Content Objectives Up to This Pausing Point

Students will:

- ✓ Identify the five senses and associated body parts
- ✓ Identify the skeletal, muscular, circulatory, nervous, digestive, and excretory systems as important systems in the human body
- ✓ Describe the significant contributions of Anton van Leeuwenhoek
- ✓ Explain that all living things are made of microscopic cells
- ✓ Describe the relationship among cells, tissues, organs, and systems

Student Performance Task Assessments

⑩ Cells, Tissues, Organs, and Systems

Materials: Instructional Master PP-1

Part I (front): Have students identify Anton van Leeuwenhoek's work and discovery.

Part II (back): Assess students' knowledge of the relationship among cells, tissues, organs, and systems. Read the words in the Word Bank with students. Tell students that words will be used more than once. Read each sentence to students.

Activities

Riddles for Core Content

Ask students riddles such as the following to review core content:

- I am one of your sense organs, the largest body organ. What am I? (skin)
- I am the system responsible for circulating, or moving, blood to all other systems. What am I? (circulatory system)
- I am an instrument used to view microscopic organisms. What am I? (microscope)
- I am the system responsible for carrying oxygen to your lungs so that you can respire, or breathe. What am I? (respiratory system)
- I work with your sense of taste to make eating pleasurable for you. What am I? (sense of smell)
- I am one of the body's building blocks, the smallest unit of life that can carry out functions of living things. What am I? (cell)
- I am a curved piece of glass used to magnify objects on a microscope. What am I? (lens)
- I am the softest and most abundant tissue in the human body. What am I? (muscle tissue)
- I am a tiny, one-celled organism that Anton van Leeuwenhoek discovered when looking at water through a microscope. What am I? (bacteria)
- I am made up of body tissues, groups of similar cells. What am I? (an organ)
- I am made up of different organs that work together to do a job. What am I? (a body system)

Image Review

You may show the Flip Book images from any read-aloud again and have students retell the read-aloud using the images.

Image Card Review

Materials: Image Cards 1–7

Hold Image Cards 1–7 in your hand, fanned out like a deck of cards. Ask a student to choose a card but to not show it to anyone else in the class. The student must then say a clue about the picture s/he is holding. For example, for tissues, a student may say that it is a group of similar cells. The rest of the class will guess what is being described. Proceed to another card when the correct answer has been given.

Cells, Tissues, Organs Image Cards Sequencing Activity

Materials: Image Cards 4–6

Hold Image Cards 4–6 in your hand, fanned out like a deck of cards. Ask three students to choose one card and hold it over his/her head so the rest of the class can see the card. Place the students in order from left to right: cells, to tissues, to organs.

Domain-Related Trade Book or Student Choice

Materials: Trade book

Read a trade book to review concepts covered thus far in this domain; refer to the books listed in the Introduction. You may also choose to have students select a read-aloud to be heard again.

Exploring Student Resources

Materials: Domain-related student websites

Pick appropriate websites from Websites and Other Resources in the Introduction for further exploration of cells, tissues, and organs.

Videos Related to The Human Body

Materials: Videos related to cells, tissues, and organs

Carefully peruse the Internet for short (5 minute), age-appropriate videos related to cells, tissues, and organs.

Prepare some questions related to the content presented in the videos.

Discuss how watching a video is the same as and different from listening to a storybook or read-aloud.

Have students ask and answer questions using question words *who, what, when, where,* and *why* regarding what they see in the videos.

Guest Presenter

Invite a scientist or science teacher to bring a microscope to class and demonstrate its use. Have them answer questions about the lenses and permit students to examine various things.

An Audio-Visual Biography of Anton van Leeuwenhoek

Materials: Internet connection; audio/visual equipment [May require advance preparation if needed equipment is not already present in the classroom.]

Present a short, informative biography of van Leeuwenhoek. The following link is provided to a video that provides a good reinforcement of today's lesson:

http://www.youtube.com/watch?v=NrgxvTnoo3A

The Digestive System 5

☑ *Lesson Objectives*

Core Content Objectives

Students will:

- ✓ Identify important components of the digestive system and their functions
- ✓ Describe the process of nourishing the body from the time food is taken into the mouth until waste is removed from the body

Language Arts Objectives

The following language arts objectives are addressed in this lesson. Objectives aligning with the Common Core State Standards are noted with the corresponding standard in parentheses. Refer to the Alignment Chart for additional standards addressed in all lessons in this domain.

Students will:

- ✓ Describe the series of steps in the digestive process presented in "The Digestive System" (RI.2.3)
- ✓ Interpret information from diagrams of the human body to understand the digestive process (RI.2.7)
- ✓ With assistance, categorize and organize facts and information within "The Digestive System" to determine the sequence of events in the digestive process (W.2.8)
- ✓ Determine the meaning of the new word *indigestion* formed when the prefix *in–* is added to *digestion*. (L.2.4b)
- ✓ Sequence five images illustrating the individual steps in the digestive process

Core Vocabulary

absorb, *v.* To take in or soak up a substance, little by little
Example: The ground will absorb most of the water when it rains.
Variation(s): absorbs, absorbed, absorbing

esophagus, *n.* A muscular tube that connects the throat to the stomach
Example: Gordon swallowed a piece of cheese, and the cheese passed down his esophagus into his stomach.
Variation(s): esophagi, esophaguses

filtering, *v.* Removing or straining out unwanted objects
Example: The water plant is filtering, or removing, unsafe elements from our drinking water.
Variation(s): filter, filters, filtered

saliva, *n.* A watery liquid in the mouth that helps soften food, making it easier to swallow
Example: My mouth filled with saliva while I ate my sandwich.
Variation(s): none

villi, *n.* The small finger-like threads inside the small intestine that reach out and soak up nutrients from food
Example: Villi [*VIL*-eye] absorb nutrients from food that passes through the small intestine.
Variation(s): villus

Vocabulary Chart for The Digestive System			
Core Vocabulary words are in **bold**. Multiple Meaning Word Activity word is underlined. Vocabulary Instructional Activity words have an asterisk (*). Suggested words to pre-teach are in *italics*.			
Type of Words	**Tier 3** Domain-Specific Words	**Tier 2** General Academic Words	**Tier 1** Everyday-Speech Words
Understanding	abdomen *digest* digestion digestive **esophagus** feces intestines liver nutrients **saliva** **villi**	**absorb*** solid/liquid squeeze substance system tube watery	blood body chew food important mouth muscles stomach taste teeth tongue
Multiple Meaning	organ/organs	**filtering** help part piece/pieces waste	water
Phrases	digestive juices *digestive system* large intestine small intestine		break down
Cognates	Abdomen nutrientes digestión *digestivo* intestino saliva órgano el sistema digestivo	**absorber*** sólido/líquido sistema	importante músculos parte

Note: Introducing the Read-Aloud and Extensions may have activity options that exceed the time allocated for that part of the lesson. To remain within the time periods allocated for each portion of the lesson, you will need to make conscious choices about which activities to include based on the needs of your students.

Exercise	Materials	Details
Introducing the Read-Aloud (10 minutes)		
What Do We Already Know?	Poster 3 (Cells, Tissues, Organs, Systems)	
Vocabulary Preview: Digest, Digestive System	Images 5A-4 and 5A-12	
Purpose for Listening	Instructional Master 5A-1 (Response Card 3: Digestive System)	Students may refer to the Response Card as you discuss the lesson.
Presenting the Read-Aloud (15 minutes)		
The Digestive System	1-cup measuring cup; large, transparent container	Prepare a clear container with six cups of water in it in advance to show students the volume of six liquid cups. Use at end of Image 5A-4.
Discussing the Read-Aloud (15 minutes)		
Comprehension Questions		
Word Work: Absorb	paper towel; small cup of water	Demonstrate how a paper towel absorbs spilled water.
 **Complete Remainder of the Lesson Later in the Day**		
Extensions (20 minutes)		
Sequencing the Digestive Process	Image Cards 8–13; Instructional Master 5B-1	
Digestive System Matchup	Instructional Master 5B-2	
My Human Body Journal	Instructional Master 5B-3	
Domain-Related Trade Book	trade book about the digestive system; drawing paper, drawing and writing tools	Trade book suggestions: Items 5–7, 9, 11, 14, 15, 23 and 26.
Take-Home Material		
Family Letter	Instructional Masters 5B-4 and 5B-5	

Advance Preparation

Make a copy of Instructional Master 5A-1 (Response Card 3: Digestive System) for each student. Students may refer to the response card as you discuss the content of the lesson.

For *Sequencing the Digestive Process*, make a copy of Instructional Master 5B-1 for each student.

For *Digestive System Match-up*, make a copy of Instructional Master 5B-2 for each student.

Make a copy of Instructional Master 5B-3 for each student. This will be the fourth page of their *My Human Body Journal*. Students will write three sentences about the digestive system.

Find a trade book about the digestive system to read aloud to the class.

Notes to Teacher

The read-aloud for this lesson is especially long and is likely to take longer to present than the time allotted. You may wish to pause after reading the following sections and briefly review read-aloud content:

After reading the section for Image 5A-4, briefly review the roles of the teeth and saliva in the digestive process.

After reading the section for Image 5A-5, briefly review the parts of the upper digestive system and their roles.

After reading the section for Image 5A-6, briefly review the role of the stomach in the digestive process.

After reading the section for Image 5A-7, briefly review the parts of the lower digestive system and their roles.

After reading the section for Image 5A-9, briefly review the role of the liver in the digestive process.

The Digestive System

5A

Introducing the Read-Aloud — *10 minutes*

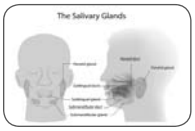
What Do We Already Know? — *5 minutes*

Point to Poster 3 (Cells, Tissues, Organs, Systems) and review cell progression.

Tell students that today they will learn about the organs that play a role in the digestive system. Ask students if they know one of the main organs of the digestive system. (stomach) Tell students they will learn about several more organs in addition to the stomach. Explain that most of the digestive system's organs are located in the abdomen, sometimes called the belly. Have students touch their bellies. Tell them that their abdominal organs, the primary digestive organs, are found in this area.

Vocabulary Preview — *5 minutes*

Digest



Show image 5A-4: Salivary glands

1. In today's read-aloud, you will hear about how our bodies *digest* the food we eat.
2. Say the word *digest* with me three times.
3. Digest means to change food that you have eaten into substances and nutrients that your body can use.
4. Our teeth break our food down into small pieces so it is easier to digest.
5. Which parts of our bodies do you think digest our food? What organs do you think help to digest food? Try to use the word *digest* when you answer. [Make a list of student responses. Tell students to listen carefully to the read-aloud to hear about the organs that work together to digest food.]

Digestive System

Show image 5A-12: The digestive system

1. The title of today's read-aloud is *The Digestive System*.
2. Say the phrase *digestive system* with me three times.
3. The digestive system is the body system that carries food to the stomach and small intestines and breaks it down into nutrients for your body to give your body the energy it needs to live.
4. Many organs make up the digestive system.
5. [Name a part of the digestive system, and have a volunteer come up to the image and point to it.] Say: "_____ is part of the digestive system." (stomach, liver, esophagus, small intestine, large intestine)

Purpose for Listening

Tell students that the process of breaking down, or digesting, food is a slow one. Muscular gates hold food back, as well as open to release digested food along the way. Ask students to listen carefully to learn where these gates, called sphincters, are.

Presenting the Read-Aloud — *15 minutes*

The Digestive System

Show image 5A-1: The digestive system

Ah, boys and girls, when I look at you I can't tell whether you are hungry or whether you have just had a meal. But one thing I do know is that everybody in this room has a digestive system and that all of your digestive systems are working right now. There is a lot going on inside those bodies of yours!

You each eat several hundred pounds of food in one year. It takes roughly twenty hours for food to travel through your gut, or digestive tract, a long, complicated series of tunnels with openings at both ends. Where does the journey begin? Yes, the process [1] of digestion begins when you put a piece of food in your mouth.

1 or series of steps

Show image 5A-2: Toothless baby

When you were born, most of your teeth were hiding under your gums. That's why babies start out with a liquid diet. [2] But once your first set of teeth came in, you were able to eat solid foods. You are at an age right now when you are probably losing some of those teeth and getting a new set. If so, maybe you are finding it hard to chew certain foods.

2 A liquid diet is nutrition you can drink. Babies start out drinking their food, which is mainly milk.

Your teeth help you break your food down into millions of tiny pieces. The longer you chew, the smaller the pieces become, and the easier it is to digest.

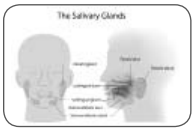
Show image 5A-3: Teeth

Human teeth come in different shapes and sizes, designed to eat both plants and animals. Let's take a look at the different types of teeth you have in your mouth. The flat, wedge-shaped teeth at the front of your mouth are called incisors. [3] The incisors, both top and bottom, work together like a pair of scissors to bite, slice, and cut up your food. Next to the incisors are sharp, fang-like teeth called canines, or dogs' teeth. These teeth tear and rip food apart,

3 The incisors are thicker at one end than the other, similar to a piece of pie. [Point to the incisors on the image.]

the way that dogs do with a piece of meat. Behind the canines, bicuspids help to crush the food. In the back of the mouth, wide teeth with bumpy tops known as molars help grind the food into mush.[4] Next time you bite into a piece of chicken, sample a piece of cheese, or chomp into an apple, see if you can tell which teeth help you the most.

4 With your tongue, touch the teeth in your mouth. Do you notice the different shapes your teeth have?



Show image 5A-4: Salivary glands

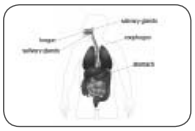
Have you ever heard someone call food "mouth-watering"? What do you think that means? When you smell your favorite food, perhaps spaghetti and meatballs, your mouth probably starts to water as you think about how good it will taste. That watery substance is called **saliva.** Saliva comes from small salivary glands in your cheek and under your tongue.[5] It helps keep your mouth damp and softens food as you chew, beginning to break food down for easy digestion. Saliva serves another important job as well, helping to wash away and kill bacteria.[6] Did you know that every day you produce as many as six cups of saliva in your mouth?[7] Can you feel it? Can you taste it?

5 [Point to the salivary glands in the image as well as inside your mouth (inside your cheeks and under your tongue).]

6 What is another word for unwanted bacteria? (*germs*) [Explain to students that germs are everywhere.]

7 [Show students a one-cup measure or a container with six cups of liquid.]

What else do you have in your mouth besides your teeth and saliva?

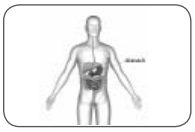


Show image 5A-5: Upper digestive system

What's the name of that fleshy muscle in your mouth that is covered in taste buds?[8] Your tongue, of course! Not only does your tongue help you taste your food, it also helps push the food around your mouth, rolling it into a mashed up, wet lump of food.

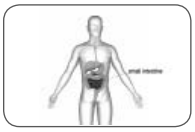
Your tongue pushes the lump of food to the back of your mouth and helps you swallow. Once food is swallowed, it passes into a food canal called the **esophagus.** This stretchy tube is only about ten inches long, leading from the back of your throat, through your neck and chest, to your stomach. Food passes through the esophagus quickly. Muscles squeeze together and push the food into the stomach in about ten seconds or less. It's a lot like squeezing toothpaste from its tube.

8 Taste buds are clusters of nerve endings.



Show image 5A-6: Middle digestive system

Put your hand on the left side of your upper abdomen, just below your chest and above your waist. That's where your stomach lives, behind your lower ribs. This human mixing machine is shaped a bit like the letter 'J'. Your stomach acts like a balloon, expanding to hold the food it receives. The stomach's gastric juices help break down the food into a paste-like substance. These digestive juices also kill any germs that may have been swallowed. Round and round food churns for three to four hours as muscles squeeze inside the stomach walls. Once it is the substance of a thick soup, the food continues its journey into the intestines.



Show image 5A-7: Lower digestive system

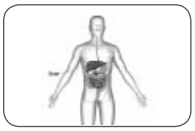
There are two types of intestines—the small intestine and the large intestine. The intestines are tubes located in the lower abdomen through which food and food waste travel. Even though there are two different kinds of intestines—the small and the large intestines, they are actually part of the same, long, single tube. A muscular gate, or sphincter, at the bottom of the stomach opens to allow food to flow from the stomach into the small intestine. The small intestine is about twenty-one feet long, or about as long as five seven-year-olds lying head to toe. Even though it's longer than the large intestine, it's called the small intestine because it's much thinner than the large intestine. This narrow tube, the small intestine, is coiled up like a snake below your belly button. Muscles squeeze together and push the mashed-up-soupy liquid along the curly, small intestine. The food is mixed once more with digestive juices from the liver, pancreas, and gallbladder, other organs that are part of your digestive system. The juices, called enzymes, break the food down and make it more and more watery along the way.

Show image 5A-8: Cross section of the small intestine

The small intestine, with its millions of **villi** [*VIL*-eye]**,** or finger-like threads, is where some of the most important work of the digestive system takes place.[9] The villi reach out and **absorb,** or soak up, usable nutrients and water, passing them through the bloodstream

9 [Point to the villi on the image.]

into all the cells of your body. Did you ever hear rumbling sounds coming from inside you? Chances are they are coming from your small intestine as muscles contract, or squeeze together, to break down food. They are the sounds of a healthy gut!



Show image 5A-9: The role of the liver in the digestive process

Most of the nutrients that are absorbed by the small intestine's many villi travel to the reddish-purplish liver, one of your body's important cleansing organs.[10] Your lower ribs on the right side of your body protect your liver. Its function is to clean the blood, **filtering,** or straining out any leftover waste. It turns this waste into bile, one of the juices used by the small intestine to help digest your food. The clean blood, with lots of nutrients, is carried to muscles to make them stronger, to bones to make them harder, and to every other part of your body to give you energy to help you grow. Since blood goes to every part of your body, the liver performs a very important function of making sure the blood circulating in your body is clean.

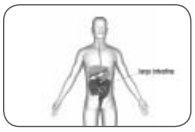
10 What does it mean when something is absorbed? (It is soaked up.)

Show image 5A-10: The appendix[11]

This finger-shaped organ is called the appendix. As far as anyone knows, it doesn't seem to be useful to the digestive system. From time to time, the appendix can become infected, or sick, and cause a disease called appendicitis. When people get appendicitis, they get a very sharp pain in the lower abdomen in the area surrounding the intestines. The pain comes from the appendix, located in the lower right side of your abdomen, near your hip bone. When it causes too much pain, doctors remove it. For many years, the appendix was considered a completely useless organ. Only recently have some doctors begun to think that the appendix may serve to fight infections.[12]

11 [Point to the image of the appendix.]

12 or kill germs



Show image 5A-11: Lower digestive system

The appendix is located right where the small intestine widens out into the large intestine. The large intestine is where the solid waste ends up.[13] Even though the large intestine is much, much shorter than the small intestine, it is called the large intestine because it is

13 When something is solid, it is not liquid, or a gas.

much wider. Parts of food not digested in the small intestine are squeezed out into the large intestine where they remain for up to two days. Water is absorbed from the waste into the walls of the large intestine and passed into the bloodstream. The waste becomes thicker and thicker, piling up into a solid mass known as feces. Feces are stored in the rectum, the final section of the large intestine, until another muscular gate, or sphincter, opens and allows the feces to pass through the anus, the body's exit point for solid waste.

Show image 5A-12: The digestive system[14]

That is the end of your food's journey—from mouth to esophagus to stomach to small intestine to large intestine to anus. The digestive system's organs are working all the time, day and night, to process food into substances that your body can use, providing you with the nutrients and energy you need.

14 [Point to each of the relevant digestive organs as you read about it.]

Discussing the Read-Aloud ***15*** *minutes*

Comprehension Questions ***10*** *minutes*

If students have difficulty responding to questions, reread pertinent passages of the read-aloud and/or refer to specific images. If students give one-word answers and/or fail to use read-aloud or domain vocabulary in their responses, acknowledge correct responses by expanding students' responses using richer and more complex language. Ask students to answer in complete sentences by having them restate the question in their responses.

1. *Literal* The human body has many muscular gates called sphincters. One is between the esophagus and the stomach. What other sphincters did you hear about today? (between the stomach and the small intestine; between the large intestine and the anus)
2. *Literal* What is the name of the long, stretchy tube that carries food from your throat to your stomach? (esophagus)
3. *Evaluative* You learned that both saliva and gastric juices work to kill germs. Why is that necessary? How do germs get into your body? (Germs are everywhere, and it is impossible not to breathe them through the air and ingest them with our food.)

4. *Inferential* If the intestines are one, long, coiled tube, why do you think we talk about them separately, using the terms *small intestine* and *large intestine*? (They perform different jobs. The small intestine is long and narrow, and its job is to break down food into nutrients, which are absorbed into the body through the villi. The large intestine is short and wider than the small intestine, and it houses waste for a time before passing the waste out through the anus.)

5. *Inferential* You learned that the liver filters waste from your blood. Why is it important to have clean blood? (Blood travels to all parts of your body, and it would not be good to have waste circulating through the body.)

6. *Literal* If you have appendicitis, the doctor may operate on you to remove one of your organs. What is the name of that organ? (appendix) Is it dangerous to remove the appendix? (No, doctors are not sure of its purpose, but some think it may help fight infections. You can live without the appendix.)

[Please continue to model the *Think Pair Share* process for students, as necessary, and scaffold students in their use of the process.]

I am going to ask a question. I will give you a minute to think about the question, and then I will ask you to turn to your neighbor and discuss the question. Finally, I will call on several of you to share what you discussed with your partner.

7. *Evaluative* *Think Pair Share:* After this read-aloud, you know what *digestion* means. If we put the prefix *in–* before a word, it changes the meaning of the word to *not* or *without.* If we put *in–* before the word *digestion,* we get the word *indigestion.* What do you think that means? What are some possible causes of indigestion? (Answers may vary, but let students know that indigestion causes pain or discomfort in the stomach. Causes may include swallowing food too quickly, before it has had time to break down in the mouth's saliva; eating too much so that it overloads the system; eating foods that irritate the stomach's lining.)

8. After hearing today's read-aloud and questions and answers, do you have any remaining questions? [If time permits, you may wish to allow for individual, group, or class research of the text and/or other resources to answer these questions.]

Word Work: Absorb *5 minutes*

1. In the read-aloud you heard, "The villi reach out and *absorb* usable nutrients and water, passing them through the bloodstream into all the cells of your body."
2. Say the word *absorb* with me.
3. *Absorb* means to soak in a substance.
4. The paper towel will absorb the spilled water.
5. Think of an absorbent material, something that will absorb—or soak up—a substance easily. Use the word *absorbs* when you tell about it. [Ask two or three students. If necessary, guide and/or rephrase students' responses: "_____ absorbs _____"]
6. What's the word we've been talking about?

Use a *Making Choices* activity for follow-up. Directions: I am going to name two words. You need to respond with a simple sentence, saying "_____ absorb _____," using the words in the correct order. For example, if I said, "pancakes" and "syrup," you would respond, "Pancakes absorb syrup," because syrup is soaked up by the pancakes, not the other way around. Remember to use the word *absorb:* "_____ absorb _____."

- trees/rainwater (Trees absorb rainwater.)
- liquid/paper towels (Paper towels absorb liquid)
- nutrients/villi (Villi absorb nutrients.)
- plant leaves/sunlight (Plant leaves absorb sunlight.)
- saliva/crackers (Crackers absorb saliva.)

Complete Remainder of the Lesson Later in the Day

The Digestive System

5B

Extensions — *20 minutes*

Sequencing the Digestive Process (Instructional Master 5B-1) — 15 *minutes*

- Hold Image Cards 8 (Mouth), 9 (Esophagus), 10 (Stomach), 11 (Small Intestine), 12 (Large Intestine), and 13 (Rectum and Anus) in your hand, fanned out like a deck of cards.
- Invite six students to each choose a different card. Students must then look at their cards and figure out the correct sequence for the digestive process. Ask them to stand in the proper order, facing the others so that they may give their input as well.
- Repeat the activity until all students have had a chance to participate.
- Have students complete Instructional Master 5B-1 (Sequencing the Digestive Process). If students have difficulty reading, you may wish to read aloud to them the descriptions of the steps of the process aloud to them.
- When students have completed the worksheet, have them check their work by comparing it to the Image Cards showing the correct sequence for the digestive process.

Digestive System Matchup (Instructional Master 5B-2) — 5 *minutes*

- Have students complete Instructional Master 5B-2 to label the parts of the digestive system with the correct terms from the word bank.

My Human Body Journal (Instructional Master 5B-3) — 20 *minutes*

- Have students draw the various parts of the upper and middle digestive system (i.e., mouth, esophagus, and stomach) inside the outline of the human body. Then have them write two or three sentences about the digestive system: one introductory sentence, and two sentences with details about the digestive system.

Domain-Related Trade Book — 20 *minutes*

- Refer to the list of recommended trade books in the Introduction at the front of this *Supplemental Guide*, and choose one trade book about the digestive system to read aloud to the class. [Suggested trade books are Items 5–7, 9, 11, 14, 15, 23 and 26.]
- Explain to students that the person who wrote the book is called the author. Tell students the name of the author. Explain to students that the person who makes the pictures for the book is called an illustrator. Tell students the name of the illustrator. Show students where they can find this information on the cover of the book or on the title page.
- As you read, use the same strategies that you have been using when reading the read-aloud selections—pause and ask occasional questions; rapidly clarify critical vocabulary within the context of the read-aloud; etc.
- After you finish reading the trade book aloud, lead students in a discussion as to how the story or information in this book relates to the read-alouds in this domain.
- Provide students with drawing paper, drawing tools, and writing tools. Have students draw one detail or idea from the trade book that is new or different from the read-aloud they heard. Then have students write two or three sentences to go along with their drawings. Have students share their drawings and writing with their partners or home-language peers.

Take-Home Material

Family Letter

Send home Instructional Masters 5B-4 and 5B-5.

The Excretory System 6

☑ *Lesson Objectives*

Core Content Objectives

Students will:

- ✓ Identify important components of the excretory system and their functions
- ✓ Describe how the digestive and excretory systems work together

Language Arts Objectives

The following language arts objectives are addressed in this lesson. Objectives aligning with the Common Core State Standards are noted with the corresponding standard in parentheses. Refer to the Alignment Chart for additional standards addressed in all lessons in this domain.

Students will:

- ✓ Describe the connection between a series of steps in the excretory process in "The Excretory System" (RI.2.3)
- ✓ Interpret information from diagrams of the human body to understand the excretory process (RI.2.7)
- ✓ Compare and contrast the digestive system and the excretory system (RI.2.9)
- ✓ With assistance, categorize and organize facts and information from "The Excretory System" to make a diagram of the excretory system (W.2.8)
- ✓ Prior to listening to a read-aloud, identify orally what students know and have learned about the digestive system

Core Vocabulary

bladder, *n.* A balloon-like bag in which urine is collected before it is released from the body
Example: When I drink lots of water, my bladder seems to fill up very quickly.
Variation(s): bladders

excrete, *v.* To force out or get rid of
Example: Our bodies excrete moisture in the form of sweat and urine.
Variation(s): excretes, excreted, excreting

kidneys, *n.* A pair of organs near the stomach that help clean the body's blood
Example: Our bodies' kidneys are shaped very much like small, red beans called kidney beans.
Variation(s): kidney

regulate, *v.* To control something
Example: My mom and dad regulate how much television I get to watch.
Variation(s): regulates, regulated, regulating

sweat, *n.* Liquid waste that leaves the body through the skin; it comes out due to exercise, heat, fever, or fear.
Example: Sweat ran down my face while I ran the race.
Variation(s): none

toxic, *adj.* Poisonous
Example: Cleaning sprays may contain toxic ingredients.
Variation(s): none

Vocabulary Chart for The Excretory System			
Core Vocabulary words are in **bold**. Multiple Meaning Word Activity word is underlined. Vocabulary Instructional Activity words have an asterisk (*). Suggested words to pre-teach are in *italics*.			
Type of Words	**Tier 3** Domain-Specific Words	**Tier 2** General Academic Words	**Tier 1** Everyday-Speech Words
Understanding	**bladder** ***excrete*** filtering **kidneys** muscle nutrient sphincter strainer **toxic***/toxins ureters urethra urine	liquid/solid maintain* **regulate** removal surface	amount blood food
Multiple Meaning	filter organ **sweat** tubes	part passes process releases waste	body skin water
Phrases	digestive system *excretory system* sweat glands	get rid of	
Cognates	filtrando músculo nutriente **tóxico**/toxina filtrar órgano tubos el sistema digestivo	líquido/sólido mantener parte pasa procesar	

Note: Introducing the Read-Aloud and Extensions may have activity options that exceed the time allocated for that part of the lesson. To remain within the time periods allocated for each portion of the lesson, you will need to make conscious choices about which activities to include based on the needs of your students.

Exercise	Materials	Details
Introducing the Read-Aloud (10 minutes)		
What Have We Already Learned?	Image 5A-12	Show image to prompt students' responses as you review the digestive system.
Vocabulary Preview: Excrete, Excretory System	Image 6A-5; kidney beans	
Purpose for Listening	Instructional Master 6A-1 (Response Card 4: Excretory System)	Have students refer to the Response Card as you present and discuss the read-aloud.
Presenting the Read-Aloud (15 minutes)		
The Excretory System	strainer, cup of water with grains of rice or dried beans in it (optional)	You may wish to demonstrate how a strainer works.
Discussing the Read-Aloud (15 minutes)		
Comprehension Questions		
Word Work: Toxic	image of skull and crossbones symbol (optional)	
Complete Remainder of the Lesson Later in the Day		
Extensions (20 minutes)		
Vocabulary Instructional Activity: Maintain		
Excretory System Matchup	Instructional Master 6B-1	
My Human Body Journal	Instructional Master 6B-2	

Advance Preparation

Bring in several kidney beans; a strainer and a cup of water with grains of rice or dried beans in it; and an image of a skull and crossbones.

Make a copy of Instructional Master 6A-1 (Response Card 4: Excretory System) for each student. Students may refer to the response card as you discuss the content of the lesson.

For *Excretory System Matchup*, make a copy of Instructional Master 6B-1 for each student.

Make a copy of Instructional Master 6B-2 for each student. This will be the fifth page of their *My Human Body Journal*. Students will write three sentences about the excretory system.

Notes to Teacher

During the read-aloud, you may wish to pause after reading the following sections and briefly review read-aloud content:

After reading the section for Image 6A-2, briefly review how the body gets rid of liquid waste.

After reading the section for Image 6A-3, briefly review the location and function of the kidneys.

After reading the section for Image 6A-5, review the parts of the excretory system and their functions.

The Excretory System

6A

Introducing the Read-Aloud — *10 minutes*

What Have We Already Learned? — *5 minutes*

Ask students to list some of the purposes of the digestive system and its organs. Answers may include: processing food, breaking it down into nutrients that the body can use, and getting rid of waste that the body can't use. Tell students that their bodies produce both solid and liquid waste. Remind students that the digestive system deals with solid waste, eliminating it in the form of feces. Tell them that today they are going to learn about the excretory system, the system that processes liquid waste.

Vocabulary Preview — *5 minutes*

Excrete

1. In today's read-aloud, you will hear about how our bodies *excrete* liquids that it cannot use.
2. Say the word *excrete* with me three times.
3. *Excrete* means to force out or get rid of something that is not needed.
4. Our bodies excrete liquids in the form of sweat and urine.
5. I will ask some questions. Try to use the word *excrete* in your answers.
   When do you excrete sweat? When do you excrete urine? Do you think it is important that your body excretes sweat and urine?

Excretory System

Show image 6A-5: Diagram of kidneys, ureters, bladder, and urethra

1. Today's read-aloud is about the body system called the *excretory system*.
2. Say the phrase *excretory system* with me three times.
3. The excretory system is the body system responsible for getting rid of liquid waste. It excretes, or gets rid of, sweat and urine from our bodies.
4. Our excretory system helps us to stay healthy by getting rid of things that can be harmful to our bodies.
5. [Show students some kidney beans.] Does anyone know what these are called? They are kidney beans. They are called kidney beans because they have the same shape as our bodies' kidneys. The kidneys are very important organs in the excretory system.
   [Ask for a volunteer to point out the kidneys in the image. Name the other parts of the excretory system shown in the image, and have students repeat the names of those parts after you. (ureters [yoo-*REE*-ters], urethra [yoo-*REE*-thruh], bladder)]

Purpose for Listening

Ask students to name an organ of the digestive system that cleans the blood. (liver)

Then tell them that today they are going to learn about a pair of organs, part of the excretory system, that filter waste from the blood. Ask them to listen carefully to learn the name of this pair of organs.

Presenting the Read-Aloud — *15 minutes*

The Excretory System

Show image 6A-1: Nick Nutri and the lower digestive system

Humans are exposed to lots of toxins, or poisons, in the environment. Your body may take in toxins through the air or through the food that you eat. If these toxins hang around in your body too long, they may become **toxic,** or poisonous, to you. The amazing human body has ways of getting rid of these toxins before they become harmful.

Last time we met, you learned how your digestive system works to process food into usable nutrients, separating the nutrients from the sometimes-toxic waste materials.[1] At the end of the digestive process, some food is not completely broken down by the intestines.[2] This leftover solid waste, called feces, is pushed out of your anus at the end of the digestive tract.

1 What are nutrients?

2 What are the intestines?

Bowel movements contain your body's solid waste, but what happens to the body's liquid waste? Where does it go? Some waste leaves your body through your skin. Other waste is processed through a system like the digestive system. Just as the digestive system processes solid waste, there is a system that processes liquid waste. It is called the excretory system. To **excrete** means to expel, or get rid, of something that is not needed. Toxins, or poisons, are definitely not needed in your body.

Show image 6A-2: Sweat

Let's begin by talking about the liquid waste that leaves the body through your skin. We call it **sweat.** What is another name for sweat? It is also called perspiration. You already know that your skin is the largest body organ. It covers your entire body surface. Sweat glands below the surface of the skin help rid the body of waste through perspiration. When you perspire, water, salt, and other waste flows out through these microscopic sweat glands.[3] They are excreted from all parts of your body. If you do not bathe

3 So, are we able to see these sweat glands? (No, they are microscopic, too small to see without the aid of a microscope.)

for a while, you can begin to smell this waste as it builds up on the surface of your skin.

The body's main liquid waste is urine. Urine is cleaner than the saliva in your mouth. Unlike the saliva in your mouth, urine contains no bacteria.[4] It is about ninety-six percent water and four percent waste. This means that if urine were divided into one hundred parts, ninety-six parts would be water, and only four parts would be waste. Like feces, urine passes through several different organs as it makes its journey through your body. Today we will take a look at the organs that are a part of the excretory system.

4 What are bacteria?

Show image 6A-3: The kidneys

The kidneys are the primary organs of excretion. Everybody, stand up for a minute so that I can make sure that you know where your kidneys are located. Let your arms hang by your sides. Your kidneys are in line with your elbows, at your back above your waist. Reach around and place your hands just above your waist on either side of your backbone. Your two kidneys hang near your spine, one on either side of your backbone, in the middle of your back. Your bottom ribs and layers of fat protect the kidneys. Do you have a pretty good idea of where they live? Okay, let's sit down and see how they work.

Arteries, or muscular tubes, carry blood from other parts of your body to your kidneys. These two, dark red, bean-shaped organs act like washing machines for the blood, cleaning it of waste and toxins. As blood flows to your body cells, it passes through the kidneys where millions of tiny microscopic filter tubes capture the waste products and excess, or extra, water.

Show image 6A-4: Strainer

Think of a kitchen strainer or sieve.[5] Have you ever seen cooked pasta poured into a strainer? The liquid flows through and the strainer catches the pasta. Your kidneys act a little like that kitchen strainer. They filter, or separate, the liquid waste from the blood. Clean blood travels to your body's cells, while the liquid waste, called urine, is collected in each kidney.

5 [Point to the strainer/sieve in the image.]

Show image 6A-5: Diagram of kidneys, ureters, bladder, and urethra

Urine drains out of both kidneys through two tubes called ureters [yoo-*REE*-ters]. The ureters lead from the kidneys to your urinary **bladder.** The bladder is a muscular storage bag located in the lower part of your abdomen, which is below your waist. When it gets full, we can feel it. This stretchy, sac-like muscle stores urine. It is a little like a water balloon with three openings, the two ureters that connect to the kidneys, and a third opening at the other end of the bladder called the urethra [yoo-*REE*-thruh]. As urine passes into the bladder through the ureters, the walls stretch, and the rubbery balloon begins to fill.

Nerve endings in the muscular bladder walls send signals to the brain that the bladder is full and about to burst. That's when you know it is time to urinate. Urine passes out of your body through the urethra, the tube at the bottom of the bladder. Just like the anus, the urethra has a muscular gate, called the sphincter muscle, that opens and closes to let the urine pass. When the sphincter muscle is tightened, urine stays in the bladder. When it is relaxed, urine is released. This is a voluntary muscle, meaning that you are able to control its opening and closing, but you need to listen to your brain when it tells you that it is time to go to the bathroom. The excretory system works the same for both boys and girls. The only difference is in the length of the urethra. The urethra is longer in boys than it is in girls.

Show image 6A-6: Importance of drinking water

In addition to preparing liquid waste for removal from the body, the kidneys also **regulate,** or control, the amount of salt and nutrients in the blood. They help to maintain a state of balance in the body by controlling the amount of water your body loses, balancing the amount of water excreted with the amount of water kept in the body.[6] If you have too much water in the body, you may feel bloated or swollen because your body is full of water. If there is too little water in the body, you may become dehydrated, or dried out, because your body does not have enough water.

6 What does *excreted* mean?

Dehydration can cause serious damage to your body. That is why it is important to drink enough water, never letting your body dry out.

Let's name all of the different parts of the excretory system. The excretory system is made up of the kidneys, the bladder, the two tubes that connect them—the ureters—and the urethra, the final tube in the process. It may appear less complicated than the digestive system, but it is just as important for filtering the blood and helping your body get rid of toxic substances. You probably know that liquid waste is excreted from your body a bit more frequently than solid waste. That's because it does not stay in the bladder as long as solid waste stays in the rectum.

Show image 6A-7: Big and strong

We've been talking a lot about getting rid of the body's waste, but along the way you have learned that the body turns a lot of the food that you eat into nourishment and provides your body with the energy that it needs to grow and repair itself. What are the good parts that are carried through your blood and stored in your body called?[7] Next time, we'll find out just exactly what nutrients are and what you can do to make sure that you are getting enough of them.

7 (nutrients)

See you next time. Until then, make sure that you listen to your body and respond when it sends you messages. That's really important to maintaining good health.

Discussing the Read-Aloud **15** *minutes*

Comprehension Questions **10** *minutes*

1. *Literal* What are the names of the two red, bean-shaped organs that clean the blood of waste and toxins? (kidneys)
2. *Literal* Once the blood is filtered, two tubes called ureters carry the leftover liquid waste from the kidneys to a balloon-like storage bag. What is this stretchy bag called? (bladder or urinary bladder)
3. *Inferential* What does the word *urinate* mean? (to pass urine from the body; to pee)
4. *Literal* Urine is the body's main liquid waste. What is another form of the body's liquid waste? (sweat or perspiration)
5. *Literal* Solid waste passes out of the body through an opening called the anus. What is the name of the opening through which urine leaves the body? (urethra)
6. *Evaluative* How are the digestive and excretory systems similar? (The digestive system gets rid of waste, and the excretory system also gets rid of waste.) How are the digestive and excretory systems different? (The digestive system deals with solid waste, and the excretory system gets rid of liquid waste. The digestive system also processes food and liquids into nutrients for the body. The excretory system just processes waste.)

[Please continue to model the *Think Pair Share* process for students, as necessary, and scaffold students in their use of the process.]

I am going to ask a question. I will give you a minute to think about the question, and then I will ask you to turn to your neighbor and discuss the question. Finally, I will call on several of you to share what you discussed with your partner.

7. *Evaluative* *Think Pair Share:* You are watching a marathon race. One of the runners has not had anything to drink during the race and suddenly collapses. What is a logical explanation for his collapse? (Answers may vary, but lead students to the conclusion that the runner may be dehydrated. Discuss the importance of replenishing the body with liquids, especially during periods of exercise.)

8. After hearing today's read-aloud and questions and answers, do you have any remaining questions? [If time permits, you may wish to allow for individual, group, or class research of the text and/or other resources to answer these questions.]

Word Work: Toxic

***5** minutes*

1. In the read-aloud you heard, "If these toxins hang around in your body too long, they may become *toxic,* or poisonous, to you. "
2. Say the word *toxic* with me.
3. A toxic substance is poisonous; it will kill or injure living things.
4. Cleaning sprays may contain toxic ingredients.
5. If a container has a picture of a skull and crossbones on it, you should not use it without the assistance of an adult. Think of a time when you saw that symbol and tell us what product had it on the label. If you haven't seen something with a picture of a skull and crossbones on it, think of something else you know of that is poisonous. Use the word *toxic* when you tell about it. [Ask two or three students. If necessary, guide and/or rephrase students' responses: "_____ is toxic."]
6. What's the word we've been talking about?

Use a *Making Choices* activity for follow-up. Directions: I am going to name several common household products that may or may not be toxic, or poisonous, to humans. If the product is toxic, say, "That's toxic." If it is not harmful to humans, say, "That's not toxic."

- insect spray (That's toxic.)
- milk (That's not toxic.)
- gasoline (That's toxic.)
- dog food (That's not toxic.)
- drain cleaner (That's toxic.)
- cookies (That's not toxic.)

Complete Remainder of the Lesson Later in the Day

The Excretory System

6B

Note: Extensions may have activity options which exceed the time allocated for this part of the lesson. To remain within the time periods allocated for this portion of the lesson, you will need to make conscious choices about which activities to include based on the needs of your students.

Extensions — *20 minutes*

Vocabulary Instructional Activity — *5 minutes*

Word Work: Maintain

1. In the read-aloud today, you heard that the kidneys "help to *maintain* a state of balance in the body by controlling the amount of water your body loses, balancing the amount of water excreted with the amount of water kept in the body."
2. Say the word *maintain* with me.
3. The word *maintain* means to keep something the same way. So the kidneys maintain, or keep a state of balance in the body, by controlling the water your body uses.
4. You can maintain your health by eating healthy foods.
5. What is another way your can maintain your health? [Ask two or three students. If necessary guide and/or rephrase students' answers, "I can maintain my health by . . . "]
6. What's the word we've been talking about? What part of speech is *maintain?*

Use a *Sentence Completion* activity for follow-up. Directions: I will name several things that someone would maintain. In a complete sentence, tell me how that person would maintain what I say. For example, if I say, "student/good grades," you should say, "Students maintain good grades by doing their homework and studying." (Answer may vary. Suggested responses are provided.)

- farmer/field (A farmer would maintain a field by plowing the soil and planting seeds.)
- owner/a pet (An owner would maintain a pet by giving it food and water, washing it, and taking it to the vet.)
- students/a desk (Students would maintain a desk by keeping it organized and full of supplies.)
- city/a park (The city would maintain a park by picking up trash and repairing playground equipment.)
- athlete/skills (An athlete would maintain her skills by practicing and listening to her coach.)

Excretory System Matchup (Instructional Master 6B-1) — 5 *minutes*

- Have students complete Instructional Master 6B-1 by labeling the parts of the excretory system with the correct terms from the word bank.

My Human Body Journal (Instructional Master 6B-2) — 10 *minutes*

- Have students identify the various parts of the excretory system (i.e., the kidneys and bladder). Then have them write three sentences about the excretory system: one introductory sentence, and two sentences with details about the excretory system.

Nutrients

7

☑ *Lesson Objectives*

Core Content Objectives

Students will:

✓ Explain the importance of vitamins and minerals to the body

Language Arts Objectives

The following language arts objectives are addressed in this lesson. Objectives aligning with the Common Core State Standards are noted with the corresponding standard in parentheses. Refer to the Alignment Chart for additional standards addressed in all lessons in this domain.

Students will:

✓ Describe the connection between nutrients and good health as described in "Nutrients" (RI.2.3)

✓ Interpret information from a food groups chart to explain the nutrients that can be obtained from eating from certain food groups (RI.2.7)

✓ Make personal connections in understanding the specific nutrients consumed at breakfast (W.2.8)

✓ With assistance, categorize and organize facts and information about nutrients to answer questions (W.2.8)

✓ Add drawings about various foods to clarify ideas, thoughts, and feelings about proper nutrition (SL.2.5)

Core Vocabulary

carbohydrates, *n.* The nutrients in food that supply the human body with energy
Example: Sugar and starch are carbohydrates found in many plant foods.
Variation(s): carbohydrate

essential, *adj.* Absolutely necessary; extremely important
Example: Water is essential to the life of all plants and animals on Earth.
Variation(s): none

fats, *n.* The nutrients in food that help in the development of the brain and keep the body warm; it is only needed in small amounts
Example: Butter and oils are fats that we only need a little bit of.
Variation(s): fat

minerals, *n.* Nonliving substances found in nature
Example: If you eat different kinds of foods, your body will probably get all the minerals it needs.
Variation(s): mineral

proteins, *n.* The nutrients in food that are essential for growth
Example: Eggs and milk, both high in proteins, are part of a healthy breakfast.
Variation(s): protein

Vocabulary Chart for Nutrients			
Core Vocabulary words are in **bold**. Multiple Meaning Word Activity word is <u>underlined</u>. Vocabulary Instructional Activity words have an asterisk (*). Suggested words to pre-teach are in *italics*.			
Type of Words	**Tier 3** Domain-Specific Words	**Tier 2** General Academic Words	**Tier 1** Everyday-Speech Words
Understanding	***carbohydrates*** **fats** **minerals** nutrients ***proteins*** vitamins	**essential*** healthy maintain necessary provide source system	blood bone choice different eat food important
Multiple Meaning	cells grain tissue	<u>check</u> energy function	body good help need skin water
Phrases		break down	
Cognates	***carbohidratos*** **minerales** nutrientes ***proteínas*** vitaminas células	mantener necesario sistema chequear energía	diferente importante

Note: Introducing the Read-Aloud and Extensions may have activity options that exceed the time allocated for that part of the lesson. To remain within the time periods allocated for each portion of the lesson, you will need to make conscious choices about which activities to include based on the needs of your students.

Exercise	Materials	Details
Introducing the Read-Aloud (10 minutes)		
What Have We Already Learned?		
Vocabulary Preview: Carbohydrates, Proteins	Images 7A-6 and 7A-7	
Purpose for Listening	Instructional Master 7A-1 (Response Card 5: Nutrients)	Have students refer to the Response Card as you present and discuss the read-aloud.
Presenting the Read-Aloud (15 minutes)		
Nutrients	healthy samples of the different kinds of nutrients	You may wish to provide some food samples that contain the nutrients presented in the read-aloud.
Discussing the Read-Aloud (15 minutes)		
Comprehension Questions		
Word Work: Essential		
 **Complete Remainder of the Lesson Later in the Day**		
Extensions (20 minutes)		
Multiple Meaning Word Activity: Check	Poster 3M (Check)	
What Did You Eat for Breakfast?	Poster 4 (Carbohydrates); Poster 5 (Proteins); Poster 6 (Fats); Poster 7 (Water); 4" by 4" sheets of paper or sticky notes, several per student; drawing tools	
My Human Body Journal	Instructional Master 7B-1	
Domain-Related Trade Book	trade book about nutrition; drawing paper, drawing and writing tools	Trade book suggestions: Items 10, 12, 19, 22

Advance Preparation

Bring in healthy samples of food that contain the different kinds of nutrients presented in the read-aloud. **Note:** Be sure to check with your school's policy regarding food distribution and allergies.

Make a copy of Instructional Master 7A-1 (Response Card 5: Nutrients) for each student. Students may refer to the response card as you discuss the content of the lesson and point to it while answering questions about the read-aloud.

Make a copy of Instructional Master 7B-1 for each student. This will be the sixth page of their *My Human Body Journal*. Students will write three or four sentences about nutrients and how nutrients help their bodies.

Find a trade book about nutrients to read aloud to the class.

Notes to Teacher

The read-aloud for this lesson is especially long and is likely to take longer to present than the time allotted. You may wish to pause after reading the following sections and briefly review read-aloud content:

After reading the section for Image 7A-2, briefly review what nutrients are.

After reading the section for Image 7A-8, review the four main nutrients.

After reading the section for Image 7A-12, review what vitamins and minerals are.

Nutrients

7A

Introducing the Read-Aloud — *10 minutes*

What Have We Already Learned? — *5 minutes*

Share the title of the read-aloud with students, and ask them what they have already learned about nutrients. What are nutrients? (substances that provide nourishment; necessary for all life) How does the body get nutrients? (contained in food and drink) How do nutrients travel through the body? (through the blood)

Students may name specific foods as nutrients; tell them that the foods themselves are not nutrients, but that different nutrients are contained in different foods.

Vocabulary Preview — *5 minutes*

Carbohydrates

Show image 7A-6: Carbohydrates

1. In today's read-aloud, you will hear about important nutrients called *carbohydrates*.
2. Say the word *carbohydrates* with me three times.
3. Carbohydrates are nutrients in food that supply the human body with energy.
4. Sugar and starch are carbohydrates found in many plant foods.
5. All of the food items shown in this image are sources of carbohydrates. Can you name some foods that have carbohydrates? Use a complete sentence and the word *carbohydrates* when you tell about them.

Proteins

Show image 7A-7: Protein

1. In today's read-aloud, you will hear about another important nutrient called *proteins*.
2. Say the word *proteins* with me three times.
3. Proteins are nutrients, found in all body cells, that are necessary for growth and development.
4. Eating eggs and drinking milk for breakfast are good ways to give your body the proteins it needs.
5. All of the food items shown in this image are good sources of proteins. Can you name some foods that have proteins? Use a complete sentence and the word *proteins* when you tell about them.

Purpose for Listening

Tell students that most of the read-aloud will be about the four main nutrients their bodies need to grow. Tell them to listen carefully to learn about these four main nutrients. Tell students that they will also hear about two other important nutrients necessary for healthy bodies at the end of the read-aloud.

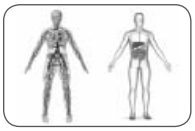
Presenting the Read-Aloud — *15 minutes*

Nutrients

Show image 7A-1: What do you eat?

Why do you eat? Is it because certain foods taste really good to you? That's surely one reason why I eat. I cannot imagine my world without the taste of a fresh bowl of vegetable soup or a peppermint stick ice cream cone on a summer's day. You also eat because you get hungry, right? But what is the main reason you eat?

Ah, at last—here is my chance to talk about my favorite topic: nutrients. You eat because you need the nutrients that food provides to stay healthy.



Show image 7A-2: Circulatory and digestive systems

We have talked a lot about nutrients in the previous lessons. You know that your blood carries nutrients to all parts of the human body through your circulatory system. Your digestive and excretory systems filter waste from the body and send nutrients back into the blood.[1] Your cells need nutrients to stay alive. Your tissues need nutrients to function properly. Your organs stop working without the right nutrients, and if your organs stop working, your body's systems might stop working, too![2]

You know that nutrients are good for you. But what exactly are nutrients? Nutrients are substances that provide nourishment necessary for the growth and health of living things. Providing the body with the nutrients it needs is an **essential**[3] part of staying healthy.

So, how do you get nutrients? Yes, from the food you eat. Nutritionists, like me, think of the body as a factory.[4] Everything you eat is made up of thousands of different substances. The substances that every healthy body needs to stay alive are called nutrients.

1 [Point to the circulatory and digestive systems.]

2 What are cells? (the smallest building block of life on Earth) What is tissue? (groups of cells that perform the same jobs in living things) What are organs? (groups of different types of tissue that do a particular job for the body) What is a body system? (a collection of organs that work together for the same purpose) They all need nutrients!

3 or necessary

4 What is a factory? (a place or building where things are made)

Show image 7A-3: Basic nutrients

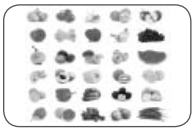
Everyone needs four basic nutrients—water, **carbohydrates, proteins,** and **fats.** These nutrients come from different food sources. It is up to you to choose the right foods to supply your bodies with the proper balance of water, carbohydrates, proteins, and fats. Today I am going to teach you how to make the best food choices for maintaining a healthy body.

Show image 7A-4: A glass of water

Let's start with the nutrient that is familiar to everybody: water. Water is perhaps the most important nutrient of all. It is necessary for all body functions.[5] You cannot live for more than about a week without water. Did you know that two-thirds of your body is made up of water? Water is part of your blood. It travels in and out of your cells and helps to dissolve other nutrients, carrying them to all your tissues. Water is a necessary part of the excretory system, making up most of your urine. Water helps break down your food so that solid waste can pass from your body. Water even helps maintain the right body temperature.

5 What's another word for *functions?* (jobs or purpose)

When given a choice of what to drink, water is always the healthiest choice you can make. It is up to you to constantly refill your body's supply of water. You need between three and six cups each day, but not all of your water needs to come from a cup.



Show image 7A-5: Sources of water in food

Did you know that many foods contain lots of water, too? Grapefruit, watermelon, tomatoes, cucumber, and lettuce are all good choices. One way to tell whether you are getting enough water is to check the color of your urine. It should be almost colorless.

Show image 7A-6: Carbohydrates

All nutrients supply your body with energy, but the body's main source of energy comes from carbohydrates.

Carbohydrates are found almost entirely in plant foods—fruits, vegetables, whole grains, peas, and beans. Potatoes, rice, and pasta are good choices for carbohydrates. Milk and milk products, like ice cream and yogurt, provide the body with carbohydrates and protein. Cheese has only a few carbohydrates.

Show image 7A-7: Protein

Protein is a body-builder, contained in all body cells. It is necessary for your body's growth and development, building muscle and helping to repair cells. It's easy to see how cells outside the body—like hair, skin, and nails—renew themselves, isn't it? Each time we cut them, they grow right back! The body makes its own protein, but it needs help from foods. Good sources of protein include meat, fish, chicken, eggs, milk, and beans.

Show image 7A-8: Fats

The fourth nutrient that your body needs is fat.[6] Butter, margarine, and oils are good sources of fat. Today, many people are overweight, so it may seem strange to you that I am telling you to include fat in your diet, but your body does need a certain amount of fat. Does anyone know why?

6 What are the other three nutrients we just discussed? (water, carbohydrates, and protein)

Well, for one thing, fat is necessary for the development of your brain, especially in the first few years of your life. When you looked at skin cells under a microscope, do you remember seeing the layer of fat cells? A thin layer of fat underneath your skin acts like a blanket, providing you with insulation[7] and warmth. Fat stores energy in your body and helps keep your skin healthy, too.

7 or protection

So, you see, fat is an important nutrient, but you only need very small amounts of it. Your body can make most of its building blocks from carbohydrates and proteins. After about age two, you need to be careful not to eat too much fat because that might cause you to gain too much weight.

So far, you've learned that the body needs four basic nutrients to grow and stay healthy. What are they?[8] Great—water, carbohydrates, proteins, and fats. These are not the only nutrients your body needs.

8 [Pause for response. Show image 7A-3 to review nutrients.]

Show image 7A-9: Vitamins and food

There are other important nutrients that are also essential—or necessary and important—to life. They are called vitamins[9] and **minerals.**[10] Your body needs less of them, but if you don't get enough vitamins and minerals, you can become sick.

9 made from living organisms

10 which are nonliving substances found in nature

Long ago, sailors lived on a diet of only biscuits and salty meat while they were out at sea. They began to suffer from bleeding gums, and their bones became weak. Once they added lemons and limes to their diet, the sailors became much better. Why do you think that is?

Citrus fruits, like lemons, limes, oranges, and grapefruits, gave the sailors the Vitamin C that they needed to keep their blood vessels, gums, and teeth healthy. Vitamin C also helps build tissue to fight germs. That's why your mom or dad might give you extra orange juice if you feel like you're catching a cold. If you aren't a fan of—or do not like—citrus fruits, broccoli and tomatoes are also good choices to make sure you are getting enough Vitamin C.

Show image 7A-10: Vitamin alphabet

Letters of the alphabet, like the letter 'C,' are used for many vitamins. There's Vitamin A, Vitamin B, Vitamins C, D, and E—and so many more! Vitamin A is important for healthy skin and helps you see more clearly at night. Dairy products, carrots, and dark, leafy greens contain lots of Vitamin A. There are many different B vitamins—Vitamin B1, Vitamin B2, Vitamin B3, and so on. The B vitamins, found mostly in meat, help the body perform lots of different functions. For example, B12 helps make red blood cells. Vitamin D, found in fish and egg yolks, helps build strong bones.

Most of the vitamins you need come from vegetables, fruits, and grains. All vitamins are essential in small doses, or amounts. If you have a healthy diet, you are probably getting all the vitamins you need.

Show image 7A-11: Fluoride

Fluoride is a mineral that is often added to public drinking water. It is contained in some toothpaste and mouthwash as well. This is because fluoride helps prevent tooth decay. Your body needs small amounts of different minerals, such as fluoride, to help perform specific body functions.

Besides fluoride, other minerals include calcium, sodium, and iron.

Show image 7A-12: Sources of minerals

You can help your teeth and bones stay strong by eating foods rich in calcium. Milk, broccoli, and almonds are good choices.

Sodium—found in table salt, bacon, and lots of soup broths—helps regulate the body's fluids. But too much salt is not good for you. It causes your body to hold on to too much liquid. This causes your heart to pump harder and your circulatory system to become overworked. This can lead to a serious health problem called high blood pressure.

If you feel weak, look pale, and get tired easily, you may need more iron. Eat more red meat, whole grains, and beans. Iron helps the blood carry oxygen throughout the body and helps the body fight infections.

Each one of these minerals provides important nutrients for your body. As with vitamins, you can get most of the minerals you need by eating a healthy diet. That's what we will talk about next time we meet—the best foods for you to eat!

Discussing the Read-Aloud **15** *minutes*

Comprehension Questions **10** *minutes*

1. *Literal* What are the four basic nutrients the body needs to grow? (water, carbohydrates, proteins, fats) What are two other nutrients needed by the body in lesser amounts? (vitamins and minerals)
2. *Inferential* In the read-aloud you learned that your body is two-thirds water. How much of your body then is not made up of water? (one-third, since two-thirds of the body is made up of water)
3. *Literal* Which one of the four basic nutrients supplies most of the body's energy? (carbohydrates)
4. *Literal* At what stage of life do humans need the most fats in their diets? (before the age of two)
5. *Evaluation* If your hair and nails stop growing, which essential nutrient are you most likely missing? Why? (Protein; because it helps repair cells and is responsible for new growth.)
6. *Literal* Which vitamin, supplied by citrus fruits like oranges, lemons, and limes, helps build tissue to fight germs? (Vitamin C)

[Please continue to model the *Think Pair Share* process for students, as necessary, and scaffold students in their use of the process.]

I am going to ask you a question. I will give you a minute to think about the question, and then I will ask you to turn to your neighbor and discuss the question. Finally, I will call on several of you to share what you discussed with your partner.

9. *Evaluative* ***Think Pair Share:*** Vitamin D is sometimes called "the sunshine vitamin" because sun is a better source of Vitamin D than most foods. If you apply sunblock when you go outdoors, your skin will not make Vitamin D, but the sunblock will protect you from some of the sun's harmful rays. How else do people get enough Vitamin D to build strong bones? (Answers may vary, but may include the fact that many people take vitamin supplements if they are not getting enough of one vitamin or another. Tell students that they should always discuss such matters with their family members or a doctor.)

10. After hearing today's read-aloud and questions and answers, do you have any remaining questions? [If time permits, you may wish to allow for individual, group, or class research of the text and/or other resources to answer these questions.]

Word Work: Essential *5 minutes*

1. In the read-aloud you heard, "Providing the body with the nutrients it needs is an *essential* part of staying healthy."
2. Say the word *essential* with me.
3. *Essential* means absolutely necessary.
4. When riding the school bus to school, it is essential to be at the bus stop before the scheduled pick-up time, or you may miss the bus!
5. Think of some things that are essential to our classroom. What is absolutely necessary to making our day run smoothly? Use the word *essential* when you tell us about it. [Ask two or three students. If necessary, guide and/or rephrase students' responses: "_____ is essential to our classroom."]
6. What's the word we've been talking about?

Use a *Making Choices* activity for follow-up. Directions: I am going to name some common daily activities. If what I say is essential, or necessary, to staying healthy, say, "That's essential." If it is not essential to staying healthy, say, "That's not essential." Remember to answer in complete sentences.

- drinking water (That's essential.)
- eating foods that provide nutrients (That's essential.)
- watching lots of television (That's not essential.)
- eating candy (That's not essential.)
- getting a good night's sleep (That's essential.)

Complete Remainder of the Lesson Later in the Day

Nutrients

7 B

Note: Extensions may have activity options that exceed the time allocated for this part of the lesson. To remain within the time periods allocated for this portion of the lesson, you will need to make conscious choices about which activities to include based on the needs of your students.

Extensions — *20 minutes*

Multiple Meaning Word Activity — *5 minutes*

Definition Detective: Check

Note: You may choose to have students hold up one, two, or three fingers to indicate which image shows the meaning being described, or have a student walk up to the poster and point to the image being described.

1. In the read-aloud you heard the word *check* as in, "One way to tell whether you are getting enough water is to *check* the color of your urine."
2. With your partner, think of as many meanings for *check* as you can or discuss ways you can, use the word *check*.
3. [Show Poster 3M (Check).] In the read-aloud, check means to look carefully at. Which picture shows this meaning of *check*?
4. *Check* also means other things. *Check* can mean a pattern of squares in different colors. Which picture shows this meaning of *check*?
5. *Check* also means a mark that is used to show that something (such as an item on a list) has been done. Which picture shows this meaning of *check*?
6. Did you or your partner think of any of these definitions?
7. Now quiz your partner on the different meanings of *check*. For example you could say, "I have a blanket with a blue and

gold check design on it. Which *check* am I?" And your partner should point to the pattern of black and white squares to show that you mean that kind of *check*.

What Did You Eat for Breakfast? 20 *minutes*

- Focus students' attention on the four nutrients posters: Poster 4 (Carbohydrates), Poster 5 (Proteins), Poster 6 (Fats), and Poster 7 (Water). Review the four basic nutrients that everybody needs (water, carbohydrates, proteins, and fats).
- Tell students that they are going to draw the foods that they ate for breakfast and attach the drawings to the most appropriate chart. Tell them that some foods may contain more than one nutrient and that they must make a decision about which one is more abundant, or is the main one. Tell them to draw only one item on each square piece of paper or sticky note. For example, if they had orange juice, cereal, and milk, they would use three separate sheets of paper or sticky notes to draw their breakfasts.
- Once everyone has completed the task, pair students to talk about which nutrients they consumed at breakfast (including vitamins and minerals), whether they think they made good breakfast choices, and what they need to include in their other meals today in order to get the daily nutrients they need.

My Human Body Journal (Instructional Master 7B-1) 20 *minutes*

- Have students draw foods that provide each of the four main nutrients in the appropriate boxes. Then have them write three or four sentences about nutrients and how they help our bodies. The first sentence should be an introductory sentence.

Domain-Related Trade Book 20 *minutes*

- Refer to the list of recommended trade books in the Introduction at the front of this *Supplemental Guide*, and choose one trade book about nutrition to read aloud to the class. [Suggested trade books are Items 10, 12, 19, and 22.]
- Explain to students that the person who wrote the book is called the author. Tell students the name of the author. Explain to

students that the person who makes the pictures for the book is called an illustrator. Tell students the name of the illustrator. Show students where they can find this information on the cover of the book or on the title page.

- As you read, use the same strategies that you have been using when reading the read-aloud selections—pause and ask occasional questions; rapidly clarify critical vocabulary within the context of the read-aloud; etc.
- After you finish reading the trade book aloud, lead students in a discussion as to how the story or information in this book relates to the read-alouds in this domain.
- Provide students with drawing paper, drawing tools, and writing tools. Have students draw one detail or idea from the trade book that is new or different from the read-aloud they heard. Then have students write two or three sentences to go along with their drawings. Have students share their drawings and writing with their partners or home-language peers.

A Well-Balanced Diet

8

☑ *Lesson Objectives*

Core Content Objectives

Students will:

- ✓ Explain the importance of eating a balanced diet
- ✓ Classify foods as healthy or unhealthy
- ✓ Plan a daily balanced diet

Language Arts Objectives

The following language arts objectives are addressed in this lesson. Objectives aligning with the Common Core State Standards are noted with the corresponding standard in parentheses. Refer to the Alignment Chart for additional standards addressed in all lessons in this domain.

Students will:

- ✓ Interpret information using a chart made of a paper plate to which photos of various types of food have been affixed in order to describe the nutrients in certain foods (RI.2.7)
- ✓ With assistance, categorize and organize facts and information about nutrition in order to make good food choices (W.2.8)
- ✓ Determine the meaning of the multiple meaning word *skip* in "A Well-Balanced Diet" (L.2.5a)
- ✓ Prior to listening to a read-aloud, orally identify what students know and have learned about nutrients

Core Vocabulary

fiber, *n.* Fiber is the part of plant foods that your body can't digest or absorb
Example: A diet rich in fiber makes you feel fuller and is helpful for proper digestion.
Variations: fibers

moderation, *n.* A way that is not extreme; not too much and not too little
Example: Foods that contain added sugar should be eaten in moderation, because too much of it is not good for you.
Variations: none

scan, *v.* To look around an area quickly
Example: Henry and Lucinda scan the parking lot, looking for their father's car.
Variations: scans, scanned, scanning

variety, *n.* Different kinds of the same general thing
Example: It is important to eat a variety of foods.
Variation(s): varieties

well-balanced diet, *n.* A variety of foods eaten so that you get all the nutrients you need
Example: A well-balanced diet includes lots of fresh vegetables and fruits.
Variation(s): none

Vocabulary Chart for A Well-Balanced Diet			
Core Vocabulary words are in **bold**. Multiple Meaning Word Activity word is <u>underlined</u>. Vocabulary Instructional Activity words have an asterisk (*). Suggested words to pre-teach are in *italics*.			
Type of Words	**Tier 3** Domain-Specific Words	**Tier 2** General Academic Words	**Tier 1** Everyday-Speech Words
Understanding	carbohydrates fats **fiber** minerals nutrients proteins starch vitamins	amount contain healthy include **moderation*** source **variety***	bread breakfast choices/choose fruit meat pasta potato rice sugar vegetables
Multiple Meaning	diet	energy **scan**	body <u>skip</u>
Phrases	***well-balanced diet***		give up grocery store
Cognates	carbohidratos **fibra** minerales nutrientes proteínas vitaminas dieta	contener incluir **moderación*** **variedad*** energía	fruta vegetales

Note: Introducing the Read-Aloud and Extensions may have activity options that exceed the time allocated for that part of the lesson. To remain within the time periods allocated for each portion of the lesson, you will need to make conscious choices about which activities to include based on the needs of your students.

Exercise	Materials	Details
Introducing the Read-Aloud (10 minutes)		
What Have We Already Learned?	Response Card 5 (Nutrients)	Use this Response Card to review the four main nutrients.
Vocabulary Preview: Well-Balanced Diet	Images 8A-3, 8A-6, and 8A-7	
Purpose for Listening		
Presenting the Read-Aloud (15 minutes)		
A Well-Balanced Diet	some unusual fruits and vegetables (optional)	You may wish to show students some unusual fruits and vegetables that they may not be familiar with.
Discussing the Read-Aloud (15 minutes)		
Comprehension Questions		
Word Work: Variety	Image 8A-3	
 **Complete Remainder of the Lesson Later in the Day**		
Extensions (20 minutes)		
Multiple Meaning Word Activity: Skip	Poster 4M (Skip)	
Syntactic Awareness Activity: Adjectives and Adverbs		
Vocabulary Instructional Activity: Moderation		
Planning a Daily Balanced Diet	paper plates, three per student group; magazines with numerous pictures of food; scissors; glue or tape	

Advance Preparation

Bring in some unusual fruits and/or vegetables for students to taste. **Note:** Be sure to check with your school's policy regarding food distribution and allergies.

Notes to Teacher

The read-aloud for this lesson is especially long and is likely to take longer to present than the time allotted. You may wish to pause after reading the following sections and briefly review read-aloud content:

After reading the section for Image 8A-2, briefly review how *variety* and *moderation* apply to eating well.

After reading the section for Image 8A-4, briefly review good choices for starch and sugar.

After reading the section for Image 8A-8, review good choices for carbohydrates, fiber, protein, and fats.

A Well-Balanced Diet

8A

Introducing the Read-Aloud — *10 minutes*

What Have We Already Learned? — *5 minutes*

What are the four basic nutrients needed by the human body? (water, carbohydrates, protein, and fats) What other two nutrients does the body need in smaller amounts? (vitamins and minerals) Tell them that today they will learn more about each one of these nutrients so that they will be better able to plan healthy meals for themselves.

Vocabulary Preview — *5 minutes*

Well-Balanced Diet

1. In today's read-aloud, you will hear how a *well-balanced diet* is important to staying healthy.
2. Say the word *diet* with me three times.
   Say the phrase *well-balanced* with me three times.
3. A diet is the food and drink that a person or animal usually eats and drinks.
   Well-balanced means to have an equal selection or helpful amounts of different things.
   A well-balanced diet contains all the different nutrients you need to stay healthy.
4. A well-balanced diet includes grains, fruits, vegetables, dairy, proteins, and fats. [Write the words *grains*, *fruits*, *vegetables*, *dairy*, *proteins*, and *fats* on the board.]

Show image 8A-3: Grains

Show image 8A-6: Sources of fiber

Show image 8A-7: Sources of protein

5. [Show images one at a time, and tell students the following:] These are examples of healthy foods that are part of a well-balanced diet. What are some foods that are part of a well-balanced diet?

Purpose for Listening

Tell students to close their eyes and imagine their favorite grocery stores. Tell them to think about their favorite aisles and what foods they particularly like to put in their grocery carts. Ask them to listen carefully to find out in which area of the grocery store they should spend most of their time and why.

Presenting the Read-Aloud — *15 minutes*

A Well-Balanced Diet

Show image 8A-1: Favorite foods

If you could eat whatever you wanted, what would you choose? Would it be a breakfast meal of cereal, orange juice, and toast? Pancakes loaded with butter and syrup with a side of bacon or sausage? Perhaps you'd choose a juicy hamburger with French fries and slaw. What about pizza or shrimp lo mein? Maybe you'd favor enchiladas or souvlaki? Or would you choose a fish taco and tomato soup? You each have different favorites, I'm sure. Hopefully, as you learn more about nutrition and the nutrients your body needs, you will begin to think more about what you eat, making wise choices so that you can maintain a healthy body throughout your life.[1]

1 What is nutrition? (nourishing substances, necessary for growth and the maintenance of life)

Providing the body with the nutrients it needs is an essential part of staying healthy.[2] Have you ever heard someone say "Variety is the spice of life?" That usually means that you should spend your time doing lots of different things, but it holds true for your diet as well. You've learned that the body needs **variety**[3]—a variety of nutrients that come from a variety of foods. Your body makes most of its building blocks from proteins and carbohydrates, but it needs fats and lots of water, too. And don't forget about vitamins and minerals! They're nutrients, too.

2 What does *essential* mean? (necessary)

3 or a range of different things

The best way to make sure that you are getting all the nutrients you need is to eat a **well-balanced diet**. What do you suppose that means?

Show image 8A-2: Pizza and fried chicken

Well, for one thing, it means you don't have to give up your favorite foods, even if they may not be the healthiest ones on the planet. Just don't eat pizza or fried chicken at every meal. My dad used to say, "Eat in **moderation.**" He meant that I shouldn't eat too much or too little of any one thing. I love chocolate chip

cookies so much that I could easily eat a whole batch, but I had to learn to eat slowly and be satisfied with one or two.

Balancing your diet with lots of different foods is important. Think about all of the different nutrients your body needs. These nutrients come from a variety of foods. A well-balanced diet includes grains, fruits, vegetables, dairy, meats and fish, and fats.

Show image 8A-3: Grains

Do you remember which one of the four basic nutrients is contained in grains—carbohydrates or fats? Right—carbohydrates. Grains also contain small amounts of protein and fats, but carbohydrates make up the largest amount of nutrients in grains. There is a lot of variety when it comes to choosing a grain for dinner. Grains include rice, pasta, bread, and cereal. Think of all the many types of pasta alone—spaghetti, macaroni, penne, and rigatoni—the list goes on and on. If you have a choice between brown rice and white rice, brown contains more nutrients. The same is true of breads. Whole wheat bread is better for you than white bread. When choosing a cereal, find one that isn't loaded with extra sugar.

Show image 8A-4: Starch and sugar

You learned that the body needs energy and that most of its energy comes from carbohydrates. That's because the body breaks down large carbohydrates, like the starch in potatoes or spaghetti, into smaller carbohydrates like sugar, which contains a lot of energy that the body can use. Table sugar comes from the roots and stems of plants, like sugar beets and sugarcane, and will give you instant energy. But the kind of sugars found in potatoes and pasta are much better for you than digging into the sugar bowl or reaching for a candy bar. Both give you energy, but candy gives you a quick burst of energy that is soon gone, whereas the energy in potatoes and pasta lasts much longer because it is released into your body much more slowly. If you're hungry, a baked potato will satisfy your hunger much longer than a handful of chocolate candy.

Show image 8A-5: Other carbohydrates

What other foods are rich in carbohydrates? Yes, fruits and vegetables—apples, bananas, carrots, and broccoli. They all provide your body with energy. Just like grains, the natural breakdown of sugar from a fresh piece of fruit is far better for you than a hot-fudge sundae. Choose a naturally sweet-tasting beet or an ear of sweet corn over eating a teaspoonful of sugar from the sugar bowl. The next time you go to the grocery store, **scan,** or look quickly around, the produce section for some fruits and vegetables that you may not have tried. Have you ever tried kohlrabi or kiwi fruit?[4] Remember, variety is the spice of life.

4 [You may want to show students some of the more unusual fruits and vegetables with which they may not be familiar.]

Show image 8A-6: Sources of fiber

In the lesson on the digestive system, you learned that the body was not able to process some foods and so they leave the body as waste. **Fiber,** a very important carbohydrate, is one kind of waste. Fiber is the part of plant foods that your body can't digest or absorb. Since your body cannot digest it, fiber is not a nutrient, but a good diet should include lots of fiber to help keep things moving along the digestive tract. Oranges, pears, berries, peas, and nuts will give you the fiber that you need.

Show image 8A-7: Sources of protein

Meat, fish, eggs, and dairy are all good sources of protein and they are all animal products. Some people are vegetarians, meaning that they do not eat meat. And some people are vegans meaning they do not eat or use any animal products, such as eggs, cheese, milk, or meat. We know how important protein is for the growth and repair of our bodies, so are there other ways for vegetarians or vegans to get the protein they need? Yes, indeed! Certain combinations of grains, corn, and beans contain all the protein that your body needs. Good combinations include beans and brown rice, hummus and pita bread, or lentils with a green salad. Nuts are rich in protein, too, as are all soybean products, like tofu and soymilk. Yogurt is another good source of protein; just limit the sweetened, flavored varieties because of the added sugars.

Show image 8A-8: Fats

Let's not forget the fats in your well-balanced diet. Meat and dairy products contain lots of fat, and butter and oils are nearly a hundred percent fat. They are the back-up energy source when your body needs a boost, but most of the fat you need is already stored in your body. Each day, you only need the amount of fat contained in about one tablespoon of vegetable oil to keep your body healthy. Many of us eat much more than that. Fat is a little like sugar. It contains important nutrients, but they are very few compared to other foods. Foods rich in vitamins, like fresh fruits and vegetables, are a much better choice than greasy, fried foods made with lots of fat. Too much fat can make you overweight and cause damage to your heart and blood.

Show image 8A-9: Breakfast, the most important meal of the day

Have you ever heard that breakfast is the most important meal of the day? Do you know why? The word *breakfast* means to break the fast. You fast, or don't eat, every night when you sleep. That's a long time to go without food. Both your body and your brain need to be recharged in the morning, so you need to break the fast with breakfast. Without food, you may feel tired and grumpy because you don't have all the energy you need to get going in the morning. You may stumble over math problems, thinking five plus seven equals twenty, or skip over a line in your reader so that your sentences are all mumbo-jumbo—or mixed up.[5] Think about starting every day with some healthy proteins and carbohydrates so that both your body and your brain are at their best.

5 The word *skip* as used in this sentence means to miss something. *Skip* can also mean to move forward in a light or playful way by taking short, quick steps and jumps.

Show image 8A-10: The produce aisle

Generally speaking, the fresher the food, the better it is for you. That is why it makes sense to spend more time in the produce aisle of the grocery store instead of stocking up on packaged foods like potato chips, canned spaghetti, and frozen chicken nuggets. These processed foods often have lots of added salts and sugars and are stripped of the vitamins and minerals that your body needs.

If you do choose packaged foods, make a habit of checking the labels on the outside wrappers before adding them to your cart. Food labels tell how big a serving is, which essential nutrients are provided, and the quantities of each nutrient per serving. It is important to limit the amount of food eaten that is high in sodium, sugar, or fat.

Show image 8A-11: Sugar

Check out the label from a can of soda. Did you know that there are ten teaspoons of sugar in one soda? Sodas have no nutritional value, cause tooth decay, and put on unhealthy pounds. What would be a better choice of beverage? Water is always best, but milk and fruit juices contain vitamins and minerals, so they are good choices, too.

Show image 8A-12: Macaroni and cheese or a salad?

The next time you go to the grocery store, look in your grocery cart and see if the foods you've chosen are part of a well-balanced diet. Remember to eat a variety of foods with more fruits and vegetables than anything else. Next time you eat a big plate of macaroni and cheese, think about adding twice as many dark leafy greens to your plate!

Discussing the Read-Aloud — *15 minutes*

Comprehension Questions — 10 *minutes*

1. *Literal* In which area of the grocery store will you find the healthiest foods? (produce section) Why are fresh foods better for you than processed foods? (Processed foods often have added salts and sugars, and are stripped of vitamins and minerals.)
2. *Inferential* Pretend that you just ate a meal that consisted of fried fish, a baked potato and butter, green beans, and a glass of milk. Which of the four basic nutrients did you consume and from which foods? (carbohydrates—potato and green beans; protein—fish and milk; fats—butter or oil used to fry the fish; water—milk, potatoes, and green beans)

3. *Literal* You learned that fiber—the part of fruits, vegetables, and grains that cannot be digested and becomes body waste—is an important carbohydrate. Why is fiber so important if the body cannot use it for nutrients? (Fiber helps food move more quickly through the digestive tract.)

4. *Literal* Vegetarians do not eat meat, and vegans do not eat any animal products, including meat, fish, eggs, and dairy products. These foods are all rich sources of protein, so how do vegetarians or vegans get the protein they need? (They learn how to combine grains and beans, nuts, and soy products to get all the protein they need.)

5. *Inferential* Athletes need lots of energy before sporting events. Which one of the four basic nutrients will provide them with most of the energy they need? (carbohydrates)

[Please continue to model the *Think Pair Share* process for students, as necessary, and scaffold students in their use of the process.]

I am going to ask a question. I will give you a minute to think about the question, and then I will ask you to turn to your neighbor and discuss the question. Finally, I will call on several of you to share what you discussed with your partner.

6. *Evaluative* ***Think, Pair, Share:*** Pretend that for an afterschool snack you are offered soda, a bag of chips, a cup of almonds, a strawberry-flavored carton of yogurt, and an apple. Which of these items is the healthiest for you and why? Which of these items is the least healthy for you and why? (the apple and almonds; The apple provides energy and fiber with natural sugars. The almonds are rich in protein and fiber. The soda and yogurt have added sugars, and the chips have added salt and fats.)

7. After hearing today's read-aloud and questions and answers, do you have any remaining questions? [If time permits, you may wish to allow for individual, group, or class research of the text and/or other resources to answer these questions.]

Word Work: Variety *5 minutes*

1. In the read-aloud, you heard, "There is a lot of *variety* when it comes to choosing a grain for dinner."
2. Say the word *variety* with me.
3. *Variety* means different kinds of the same general type of thing.
4. There is a variety of grains to choose from: rice, pasta, bread and cereal.
5. Think of things that come in a variety of different kinds. For example, bread comes in a variety of different kinds, such as white, whole wheat, sourdough, raisin bread, etc. Tell your partner what type of thing comes in a variety, and tell your partner if you have a favorite one among that variety. Use the word *variety* when you tell about it.
   [Ask two or three students. If necessary, guide and/ or rephrase students' responses: "_____ comes in a variety." (Possible responses: fruit, ice cream flavors, dogs, music, pizza)
   "My favorite variety of _____ is _____."]
6. What's the word we've been talking about?

Use a *Making Choices* activity for follow-up. Directions: I am going to group some items together that are all varieties of the same thing. You must name the group they have in common. For example, if I said, "peas, broccoli, and carrots," you would say, "That's a variety of vegetables." Remember to answer in complete sentences.

- almonds, pecans, walnuts (That's a variety of nuts.)
- apples, oranges, grapes (That's a variety of fruits.)
- yogurt, milk, cheese (That's a variety of dairy products.)
- fluoride, calcium, iron (That's a variety of minerals.)
- pork, beef, chicken (That's a variety of meats.)

Complete Remainder of the Lesson Later in the Day

A Well-Balanced Diet

8B

Note: Extensions may have activity options that exceed the time allocated for this part of the lesson. To remain within the time periods allocated for this portion of the lesson, you will need to make conscious choices about which activities to include based on the needs of your students.

Extensions — *20 minutes*

Multiple Meaning Word Activity — *5 minutes*

Definition Detective: Skip

Note: You may choose to have students hold up one, two, or three fingers to indicate which image shows the meaning being described, or have a student walk up to the poster and point to the image being described.

1. In the read-aloud you heard Nick Nutri say that if you do not eat breakfast, "You may stumble over math problems, thinking five plus seven equals twenty, or *skip* over a line in your reader so that your sentences are all mixed up."
2. With your partner, think of as many meanings for the word *skip* as you can, or discuss ways you can use the word skip.
3. [Show Poster 4M (Skip).] Which picture on the poster shows how the word *skip* is used in the lesson? [Hint: Someone is skipping his breakfast.]
4. *Skip* also means other things. *Skip* can mean to move forward in a light or playful way by taking short, quick steps and jumps. Which picture shows this kind of *skip*?
5. *Skip* also means to throw a flat stone along the surface of the water so that it bounces. Which picture shows this kind of *skip*?
6. Did you or your partner think of any of these definitions?

7. Now quiz your partner on the different meanings of *skip*. For example, you could say, "It's not a good idea to skip breakfast. Which *skip* am I?" And your partner should say, "Number '1.'"

Syntactic Awareness Activity — 5 minutes

Adjectives and Adverbs

Note: The purpose of these syntactic activities is to help students understand the direct connection between grammatical structures and the meaning of text. These syntactic activities should be used in conjunction with the complex text presented in the read-alouds. There may be variations in the sentences created by your class. Allow for these variations, and restate students' sentences so that they are grammatical.

1. We know that some words describe other words.
   Words that describe nouns—people, places, or things—are called adjectives.
   Words that describe verbs—action words—are called adverbs.
   Today we will practice using adjectives and adverbs.

2. The word *slow* is an adjective that describes a noun.
   For example: In the story "The Tortoise and the Hare," the *slow* tortoise won the race against the fast hare.
   Slow is an adjective that describes the noun—tortoise.

3. In today's read aloud, you heard, " . . . the energy in potatoes and pasta lasts much longer because it is released into your body much more *slowly*." The word *slowly* is an adverb that describes how energy is released into your body.
   Slowly is an adverb that describes the verb—released.

4. I will ask some questions. If my question asks you to describe a noun, use the adjective *slow* in your answer. If my question asks you to describe an action, or how something is done, use the adverb *slowly* in your answer. [Emphasize the italicized words.]

   - How did the pioneers *travel* up the steep mountainside? (They traveled slowly.)
   - How do you *write* if you take your time and do a neat job? (You write slowly.)

- What is a *train* that makes many stops and takes a long time to travel? (It is slow.)
- What is a *computer* if it takes a long time to work? (It is slow.)
- How do you *walk* when you are dragging your feet? (You walk slowly.)
- How did Nick Nutri's dad tell him to *eat* chocolate chip cookies? (Nick Nutri's dad told him to eat chocolate chip cookies slowly.)

5. What are words that describe nouns called? (Adjectives describe nouns.)
   What are the words that describe action words called? (Adverbs describe verbs.)

Vocabulary Instructional Activity — 5 minutes

Word Work: Moderation

1. In the read-aloud you heard that Nick Nutri's dad used to say, "Eat in *moderation*."
2. Say the word *moderation* with me three times.
3. *Moderation* means to act in a way that is not extreme; not too much and not too little.
4. Foods that contain added sugar should be eaten in moderation, because too much sugar is not good for you.
5. What other foods should you try to eat in moderation? Why? Use the word *moderation* when you tell about it.
   [Ask two or three students. If necessary, guide and/ or rephrase students' responses: "I should eat _____ in moderation because . . . "]
6. What's the word we've been talking about?

Use a *Making Choices* activity for follow-up. Directions: I will describe several actions. If what I describe is done in moderation, say, "That is not done in moderation." If what I describe is not done in moderation, say, "That is not done in moderation."

- eating pizza once a week (That is done in moderation.)

- playing video games for three hours a day (That is not done in moderation.)
- eating ice cream for a snack every day (That is not done in moderation.)
- eating ice cream every Sunday (That is done in moderation.)
- watching television for 30 minutes a day (That is done in moderation.)

Planning a Daily Balanced Diet — 20 *minutes*

- Divide students into small groups. Give each group three paper plates and a stack of food-oriented magazines with lots of pictures. Tell them that they are going to plan three meals together: breakfast, lunch, and dinner.

Students should complete the following activities:

1. independently look in the magazines for pictures of foods that they would like to include, and cut them out;
2. discuss food choices with one another, and make reasonable group decisions for each meal;
3. include a drink with each meal; and
4. using a different paper plate for each meal, glue or tape pictures to the plates.

- Once everyone has finished, gather the class together and have each group present its daily balanced diet to the class. Encouage them to use the words *nutrients*, *water*, *carbohydrates*, *proteins*, *fats*, *vitamins*, and *minerals* when talking about their food choices. Display their plates around the room, and use these visuals for further discussions of healthy foods.

A Healthy Human Body 9

☑ *Lesson Objectives*

Core Content Objectives

Students will:

- ✓ Describe the relationship between cells, tissues, organs, and systems
- ✓ Identify the skeletal, muscular, circulatory, nervous, digestive, and excretory systems as important systems in the human body

Language Arts Objectives

The following language arts objectives are addressed in this lesson. Objectives aligning with the Common Core State Standards are noted with the corresponding standard in parentheses. Refer to the Alignment Chart for additional standards addressed in all lessons in this domain.

Students will:

- ✓ Describe facts that support ways to live a healthy life (RI.2.8)
- ✓ Make personal connections in writing about how to begin the day, how to promote health, and how to end the day (W.2.8)
- ✓ Recount a personal experience involving the saying "get up on the wrong side of the bed" with appropriate facts and relevant, descriptive details, speaking audibly in coherent sentences (SL.2.4)
- ✓ Learn the meaning of common sayings and phrases such as to "get up on the wrong side of the bed" (L.2.6)
- ✓ Prior to listening to a read-aloud, orally identify what students know and have learned about the various body systems and how they keep us healthy

Core Vocabulary

calories, *n.* Units used to measure the amount of energy foods provide the body with; the energy in food
Example: The foods we eat provide calories to fuel our bodies.
Variation(s): calorie

network, *n.* A group of things that are connected to each other
Example: The human body is a network of complicated systems working together.
Variation(s): networks

recovery, *n.* A return to health
Example: Maria made a fairly quick recovery from the flu.
Variation(s): recoveries

term, *n.* A word or phrase used to describe a thing or an idea
Example: Another term for *sweat* is *perspiration.*
Variation(s): term

windpipe, *n.* The tube that carries air between the throat and the lungs
Example: The windpipe and the esophagus are located next to each other, but they have very different jobs.
Variation(s): windpipes

Vocabulary Chart for A Healthy Human Body			
Core Vocabulary words are in **bold**. Multiple Meaning Word Activity word is underlined. Vocabulary Instructional Activity words have an asterisk (*). Suggested words to pre-teach are in *italics*.			
Type of Words	**Tier 3** Domain-Specific Words	**Tier 2** General Academic Words	**Tier 1** Everyday-Speech Words
Understanding	bacteria ***calories*** lungs nutrients **windpipe** germs	amount healthy instead **recovery*** systems tubes	blood choose eat exercise food sleep use wash
Multiple Meaning	cells organs tissues	burn energy ***network*** part **terms** ways	body help skin
Phrases	circulatory system body systems		
Cognates	bacteria calorías células gérmenes nutrientes órganos	sistemas tubos energía parte	ejercicio usar/usa

Note: Introducing the Read-Aloud and Extensions may have activity options that exceed the time allocated for that part of the lesson. To remain within the time periods allocated for each portion of the lesson, you will need to make conscious choices about which activities to include based on the needs of your students.

Exercise	Materials	Details
Introducing the Read-Aloud (10 minutes)		
What Have We Already Learned?	Image 9A-1; Poster 2 (Human Body Systems)	
Vocabulary Preview: Calories, Network	Image 9A-1	
Purpose for Listening	Instructional Master 9A-1 (Response Card 6: A Healthy Human Body)	Have students refer to the Response Card as you present and discuss the read-aloud.
Presenting the Read-Aloud (15 minutes)		
A Healthy Human Body	Poster 2 (Human Body Systems); Poster 3 (Cells, Tissues, Organs, Systems)	
Discussing the Read-Aloud (15 minutes)		
Comprehension Questions		
Word Work: Recovery		
Complete Remainder of the Lesson Later in the Day		
Extensions (20 minutes)		
Sayings and Phrases: Get Up on the Wrong Side of the Bed		
Healthy Habits Checklist	Instructional Master 9B-1	
My Human Body Journal	Instructional Master 9B-2	

Advance Preparation

Make a copy of Instructional Master 9A-1 (Response Card 6: A Healthy Human Body) for each student. Students may refer to the response card as you discuss the content of the lesson and point to it while answering questions about the read-aloud.

Make a copy of Instructional Master 9B-1 for each student. This worksheet is their Healthy Habits Checklist. Students can use this checklist to help them write in their *My Human Body Journal*.

Make a copy of Instructional Master 9B-2 for each student. This will be the seventh and final page of their *My Human Body Journal*. Students will write a paragraph describing a day in which they practice many healthy habits.

Notes to Teacher

The read-aloud for this lesson is especially long and is likely to take longer to present than the time allotted. You may wish to pause after reading the following sections and briefly review read-aloud content:

After reading the section for Image 9A-4, briefly review body systems, cells, tissues, and organs.

After reading the section for Image 9A-6, briefly review a well-balanced diet.

After reading the section for Image 9A-8, briefly review the importance of exercise and how calories relate to exercise.

After reading the section for Image 9A-9, briefly review good hygienic practices.

A Healthy Human Body

9A

Introducing the Read-Aloud — *10 minutes*

What Have We Already Learned? — *5 minutes*

Show Image 9A-1: Diagram of the human body

What does it mean to be healthy? (not infected with disease; doing things that promote or indicate good health; strong; able) Point to Poster 2 (Human Body Systems) and ask students what it depicts. (human body systems) Ask students to identify the human body systems, and use one sentence to tell something about what each system does. (Answers may vary; skeletal—gives the body shape and helps the body move; muscular—allows the body to move and gives the body strength; circulatory—keeps blood flowing through our veins; nervous—sends messages between the brain and the body; digestive—keeps nutrients and gets rid of solid waste; excretory—gets rid of liquid waste)

Vocabulary Preview — *5 minutes*

Calories

1. In today's read-aloud, you will hear how the energy in food is counted in *calories*.
2. Say the word *calories* with me three times.
3. Calories are the units we use to measure how much energy food provides our bodies with. Each time we eat, the food we eat gives our bodies energy. The number of calories tells us how much energy our body gets from a particular food.
4. You should take in enough calories each day to have enough energy to do your daily activities.
5. I will name two activities. Which activity do you think uses up more calories? Answer with a complete sentence using the word *calories*: "_____ uses up more calories."

- riding a bike or sitting on a bench (Riding a bike uses up more calories.)
- sleeping or doing homework (Doing homework uses up more calories.)
- watching a movie or playing soccer (Playing soccer uses up more calories.)
- swimming or reading a book (Swimming uses up more calories.)

Network

Show image 9A-1: Nick Nutri pointing at a diagram of a human body

1. In today's read-aloud, you will hear that the body systems working together can be called a *network*.
2. Say the word *network* with me three times.
3. A network is a group of things that are connected to each other.
4. When one body system in our body breaks down or does not work the way it should work, it causes the other body systems to not work as well.
5. [Have students come up to the image and identify the different body systems shown. (circulatory system, respiratory system, nervous system, digestive system, excretory system)]
   Why do you think the body systems can be called a network? (They are all connected to each other; they overlap or cross each other.)
   Do the body systems work together or separately from one another? (They work together.)

Purpose for Listening

Tell students they are going to review the functions of these body systems today and learn ways that they can help to make sure that their body systems continue to run smoothly and stay healthy. Ask students to listen carefully to find out the four main things they can do to help take care of their bodies and stay healthy. Distribute a copy of Instructional Master 9A-1 (Response Card 6: A Healthy Human Body) to each student. Students may refer to the Response Card as you present and discuss the read-aloud.

Presenting the Read-Aloud — *15 minutes*

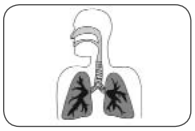
A Healthy Human Body

Show image 9A-1: Nick Nutri pointing at a diagram of a human body

Take a look at this, boys and girls. What are you looking at? Yes, you're looking inside a human body with all of its many complicated parts. Can you find the stomach and the intestines? Who sees the kidneys and the bladder? [1]

1 [Ask for volunteers to identify the various organs in the image.]

Today, we are going to review some of the things that you've learned about the human body and its **network,** or arrangement, of important systems. Let's start with the system you learned about last. Which system helps you sweat and urinate? Yes, the excretory system. And, who remembers another **term,** or word, for sweat? Yes, perspiration. Have you tried using this term with your family and friends?

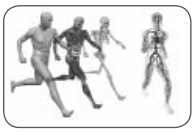


Show image 9A-2: Lung and windpipe

Which system is responsible for processing your food into nutrients that your body can use and getting rid of waste that it doesn't need? Yes, the digestive system. Raise your hand if you can tell me the name of the tube that carries food from the mouth to the stomach.

Great job—the esophagus is your food tube. We didn't talk about it, but there is another tube right beside it called the **windpipe.** It leads to your lungs. Can anyone guess what travels through your windpipe from your mouth to your lungs? It's something else that the body needs to live. Right—air! [2]

2 [Explain to students that the esophagus is not shown in this image. Explain that air travels down the windpipe through the nose or through the mouth.]

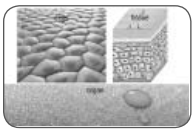


Show image 9A-3: Muscular, skeletal, and circulatory systems

Look at the picture of the human body in this image. Look at all the bones that make up the skeleton. What's that system called? Oh, that was an easy one, wasn't it? The skeleton is part of the skeletal system. Here's another easy one. What system do muscles belong to? Yes, the muscular system. The skeletal and muscular systems work together to help you move.

Nerves are part of your nervous system. Look at Poster 2 (The Body Systems). Which one is the nervous system? Do you see the nerves running like highways across every part of the body, traveling up the spinal column, all the way to the brain?

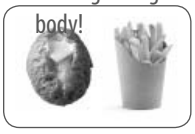
Find the circulatory system on Poster 2. Don't confuse the nerves with veins and arteries, the tubes that carry blood through the body. The nervous system and the circulatory system look similar in the pictures. That's because blood covers a lot of territory, too. We've talked about nutrients and the way they travel through your blood to support your body systems. Without blood, these important substances would have no way to nourish your body. The circulatory system circulates, or moves, your blood.



Show image 9A-4: Cells, tissue, and organ

You know that each body system performs a separate function, and that each system is made up of organs.[3] Organs are made up of tissues, and tissues are made up of cells. From largest to smallest, the order is organs, tissues, then cells, which are the smallest. Let's think about skin as an example. Moving from the smallest part to the largest, skin cells combine to form skin tissues, and those tissues combine to form the skin as we see it. That's the way the human body works.[4]

It is important to keep your cells, tissues, organs, and body systems all running smoothly. You can do that in many different ways.



Show image 9A-5: Baked potatoes and French fries

We've talked about the importance of making healthy food choices. Food gives you energy to grow, breathe, move, fight germs, and heal. Some foods have more nutrients in them than others. At the cafeteria, choose a variety of foods, especially those high in nutrients. Pick the fruit instead of the cookie; pick the baked potato chips instead of the french fries; or pick the low-fat milk instead of the milkshake.

Balance your daily diet with several servings of grains, fruits, and vegetables, and smaller portions of dairy, meat, and eggs.

3 [Point to the skin, then the tissue, and finally the cells as you read the following. Review Poster 3 (Cells, Tissues, Organs, and Systems) with students.]

4 [Encourage students to touch the skin of their arms and face.] The skin is an interesting organ because it covers the entire body, and it is the largest organ in the human body!

Show image 9A-6: Produce

Remember to eat only a few sweets and fats. And don't forget to eat a rainbow of vegetables and fruit. Eating a variety of vegetables and fruits will give your body the vitamins and minerals it needs. The next time you are at the grocery store, ask your parents about the different vegetables you see, such as brussels sprouts, kale, or frozen asparagus. See if you can spot fruits that make up the colors of the rainbow.[5]

5 Look at all the healthy fruits and vegetables in Nick Nutri's basket. Which is your favorite?

Besides eating a well-balanced diet, what other ways can you keep your body healthy?[6] Great suggestions!

6 [Pause for suggestions.]

Show image 9A-7: Exercise

Exercise, or staying active, can help you maintain a healthy body weight. When you exercise, your body uses energy from the food you eat. The amount of energy that food provides to the human body is measured by **calories.** Food labels list the number of calories, or the amount of energy, in packaged foods, telling you how much energy is stored in them. You should eat enough food each day to provide your body with about the same amount of energy that it uses up during the day. If you eat too much and don't exercise, your body will store the extra food energy as fat. If you don't eat enough to satisfy your body's needs, your body will use its stored energy and you may lose weight.

You are burning energy all the time, even when you are sleeping, but your body uses much more energy to exercise than it does to sleep. If you weighed a hundred pounds, you would burn about forty calories just by standing still for thirty minutes, but if you walked for thirty minutes, you would burn about 120 calories. You would use up three times more energy by walking as you would by standing still for the same amount of time.

Here's a puzzle for you to solve. There are about 160 calories in a snack-size bag of potato chips. If you burn 120 calories by walking for thirty minutes, about how much longer would you need to walk to burn up all the calories in that bag of chips?[7] What type of exercise do you think might burn the calories even faster than walking?

7 [You may want to record the numbers on chart paper and have students try to figure out the problem. (You would have to walk another ten minutes—forty minutes in all—to burn the additional forty calories in the bag of chips. 120/30=4 calories per minute)]

Show image 9A-8: More exercise

Exercise keeps your heart and lungs working well, fights off illness and disease, and builds strong bones. Make exercise a daily part of your life. Walk and cycle instead of getting in a car. Climb stairs instead of taking an elevator. Swim, play soccer, take karate, or gymnastics lessons, or shoot hoops with your buddies. All of these are good forms of exercise. Choose what you enjoy and have fun![8]

8 What kinds of exercise do you enjoy?

Show image 9A-9: Good hygiene

Keeping clean is another important part of staying healthy. There are many types of germs that can make you sick. Bacteria, the tiny, one-celled creatures that Anton van Leeuwenhoek studied, are one of the most common types of germs. Bacteria are everywhere. They are an important part of nature, and most bacteria are not your enemies. In fact, many bacteria live in your gut and help you digest your food.

But, millions more live on your skin, and some of them may be harmful. That's why it is important to wash your hands often and well. Wash them throughout the day, especially before eating. Besides hand washing, make sure that you clean every other part of your body, too. Take frequent showers and baths, shampoo often, and keep your fingernails short and clean. Brush your teeth regularly to get rid of old food and germs that feed on it. Use floss to keep your gums healthy and get rid of food stuck between your teeth.

Show image 9A-10: Regular habits

Regular toilet habits are signs of good health. Most of the time you don't have to think too hard about using the bathroom, but sometimes your body reacts and lets you know that you need to take extra care. If it hurts when you urinate, or if something seems out of the ordinary when you use the bathroom, let your teacher and parents know. Make sure to listen to your body and the nerve signals that it sends to your brain. Don't put off using the bathroom when you need to go.

Show image 9A-11: Sleep

How many of you wake up feeling tired in the morning? Has anyone ever asked you, "Did you get up on the wrong side of the bed?" If you're tired or grouchy when you wake up, that may mean that you are not getting all of the rest that your body needs. Most seven- or eight-year-olds need about ten or eleven hours of sleep each night. As you sleep, damaged body cells and tissues are repaired and replaced. If you are sick, sleep will help speed your **recovery,** or return to health.

Eating well, exercising, keeping clean, and getting enough rest are all good ways to keep your millions and billions and trillions of tiny cells working properly. You should also make sure to have regular checkups with a doctor or other health care professional.

I have loved sharing my knowledge of health and nutrition with you. Your body is yours alone, and you alone have the power to take care of it your whole life. Now that you know what to do to keep it in good condition, I hope you will treat it as well as you would any one of your favorite machines.

Show image 9A-12: The amazing human body

I'm sure you'll agree that you'll never find another machine quite as amazing as the human body!

Discussing the Read-Aloud **15** *minutes*

Comprehension Questions **10** *minutes*

1. *Literal* What are calories? (ways of measuring energy in foods) What does it mean to burn calories? (use up energy) How do you know how many calories are in the foods you eat? (Calories are often listed on food packages.)
2. *Inferential* If you eat about 2,500 calories a day every day for a month and only burn about 2,000 calories per day, will you be more likely to lose weight or gain weight? Why? (You will probably gain weight because your body is consuming far more energy than it is burning.)
3. *Literal* What are some ways that you can prevent germs from infecting your body? (wash hands often; good hygiene habits—bathing, brushing teeth)
4. *Inferential* If the cells of one of your organs are unhealthy, can you still have healthy tissues and a healthy organ? (No, if cells are unhealthy, tissues will also be unhealthy because they are made up of cells, and the organ will be unhealthy because it is made up of tissues.)
5. *Inferential* Sometimes people laugh and talk while eating, and they begin to choke on their food. They cough it up and say, "It went down the wrong way." What do they mean? (The food slipped into the windpipe instead of the esophagus.)

[Please continue to model the *Think Pair Share* process for students, as necessary, and scaffold students in their use of the process.]

6. *Evaluative* *Think Pair Share:* Pretend that you are sitting outside on a hot day reading a book. What body systems are at work as you read? (Answers may vary, but students should be aware that all body systems are working. Systems work together in a network, depending upon one another to keep the body healthy.)
7. After hearing today's read-aloud and questions and answers, do you have any remaining questions? [If time permits, you may wish to allow for individual, group, or class research of the text and/or other resources to answer these questions.]

Word Work: Recovery *5 minutes*

1. In the read-aloud you heard, "If you are sick, sleep will help speed your *recovery.*"
2. Say the word *recovery* with me.
3. *Recovery* means to return to health from an illness or injury.
4. Will made a complete recovery after breaking his leg.
5. Think of a time you made a recovery. What did you recover from? Use the word *recovery* when you tell us about it. [Ask two or three students. If necessary, guide and/or rephrase students' responses: "I made a recovery from . . . "]
6. What's the word we've been talking about?

Use a *Making Choices* activity for follow-up. Directions: I am going to give some examples. If it is an example describing a recovery, say, "That is a recovery." If it is not an example of recovery, say, "That is not a recovery." Remember to answer in complete sentences.

- Keisha missed several days of school, but she still had a fever when she woke up this morning so she missed another day. (That is not a recovery.)
- Felicity caught the flu, was home for a week, and returned to school after she was completely healed. (That is a recovery.)
- Even after seeing the doctor many times, Pierre's elbow still hurt. (That is not a recovery.)
- After a few weeks of rest, eating healthy food, and doctor visits, Marsha's mother felt much better after her surgery. (That is a recovery.)

Complete Remainder of the Lesson Later in the Day

A Healthy Human Body

9B

Note: Extensions may have activity options that exceed the time allocated for this part of the lesson. To remain within the time periods allocated for this portion of the lesson, you will need to make conscious choices about which activities to include based on the needs of your students.

Extensions — *20 minutes*

Sayings and Phrases: Get Up on the Wrong Side of the Bed — *5 minutes*

Proverbs are short, traditional sayings that have been passed along orally from generation to generation. These sayings usually express general truths based on experiences and observations of everyday life. While some proverbs do have literal meanings—that is, they mean exactly what they say—many proverbs have a richer meaning beyond the literal level. It is important to help your students understand the difference between the literal meanings of the words and their implied or figurative meanings.

- Ask students if they have ever heard anyone say "She got up on the wrong side of the bed," or "Did he get up on the wrong side of the bed?" Have students repeat the proverb "get up on the wrong side of the bed." Explain that this proverb is another way of saying that someone woke up in a bad mood and is acting grouchy or mean.
- Ask students if they have ever woken up in a bad mood and stayed grouchy for a while. Tell students that instead of saying "I'm in a really bad mood," they could say "I got up on the wrong side of the bed." Give students the opportunity to share their experiences, and encourage them to use the saying.
- Remind students that in today's read-aloud, one possible reason was given for why someone might get up on the wrong side of the bed. What might that reason be? (not getting enough sleep) Look for more opportunities to use this saying in the classroom.

Healthy Habits Checklist (Instructional Master 9B-1) 20 *minutes*

- Have students complete their own Healthy Habits Checklist. Students should first place a checkmark next to each healthy habit they practice. Then they should write a sentence describing how they practice that habit.
- For healthy habits that have not been checked off, encourage students to consider how they could practice those healthy habits.

My Human Body Journal (Instructional Master 9B-2) 15 *minutes*

- Have students write a paragraph describing a day in which they practice many healthy habits. Prompt students with the following questions:
  How would you begin the day?
  What would you do to keep your body healthy during the day?
  How would you end the day?
- Students may use their Healthy Habits Checklist to guide their writing. Encourage students to include sentences they have written on the checklist in their paragraphs.

Domain Review

DR

Note to Teacher

You should spend one day reviewing and reinforcing the material in this domain. You may have students do any combination of the activities provided, in either whole-group or small-group settings.

Core Content Objectives Addressed in This Domain

Students will:

- ✓ Identify the five senses and associated body parts
- ✓ Identify the skeletal, muscular, circulatory, nervous, digestive, and excretory systems as important systems in the human body
- ✓ Describe the significant contributions of Anton van Leeuwenhoek
- ✓ Explain that all living things are made of microscopic cells
- ✓ Describe the relationship between cells, tissues, organs, and systems
- ✓ Identify important components of the digestive system and their functions
- ✓ Describe the process of nourishing the body from the time food is taken into the mouth until waste is removed from the body
- ✓ Identify important components of the excretory system and their functions
- ✓ Describe how the digestive and excretory systems work together
- ✓ Explain the importance of vitamins and minerals to the body
- ✓ Explain the importance of eating a balanced diet
- ✓ Classify foods as healthy or unhealthy
- ✓ Plan a daily balanced diet

Activities

Riddles for Core Content

Ask students riddles such as the following to review core content:

- Many human organs are inside the body, but all of your sense organs (that's us) are visible. What are we? (eyes, ears, nose, tongue, skin)
- I lived many hundreds of years ago in a small Dutch village. My curiosity led me to the naming of microscopic cells. Who am I? (Anton van Leeuwenhoek)
- The urethra and two ureters carry urine out of your body. These three tubes are all part of my system. What am I? (the excretory system)
- What is the name of the tube, located near the windpipe, that takes food from the throat to the stomach? (esophagus)
- I am a particularly important nutrient in the first two years of life, but after that you need to limit how much of me you consume. What am I? (fats)
- We are two nutrients that are important to the body, but we are needed in smaller quantities than proteins, fats, and carbohydrates. What are we? (vitamins and minerals)
- I am a liquid that is vitally important to all life on Earth. What am I? (water)
- I am a favorite snack food made from potatoes and fried in oil. I am sold at many fast food restaurants, but it would be unhealthy to eat me every day. What am I? (French fries)
- We are made up of cells and tissues and work within body systems. We include both the heart and the brain. What are we? (organs)

Image Review

You may show the Flip Book images from any read-aloud again and have students retell the read-aloud using the images.

Image Card Review

Materials: Image Cards 8–13

Hold Image Cards 8–13 in your hand, fanned out like a deck of cards. Hand one card to each of six students. Students must then look at their cards and figure out the correct sequence for the digestive process. Ask them to stand in the proper order, facing the others so that they may give their input as well.

Audio-Visual Reinforcement of the Digestive System

Materials: Internet connection; audio/visual equipment. [May require advance preparation if needed equipment is not already present in the classroom.]

Present a video about the digestive process. The following link to a video on YouTube is a suggestion for an age-appropriate video that may be of interest.

http://www.youtube.com/watch?v=08VyJOEcDos

Class Book: Eating Our Way to Health—What Foods a Healthy Body Needs

Materials: Drawing paper, drawing tools

Tell the class or a group of students that they are going to make a class book to help them remember important nutritional information that they have learned in this domain. Have students brainstorm which nutrients humans need and which foods supply those nutrients. Have each student choose one food to draw a picture of and then write a caption for the picture, including which important nutrients that food supplies for the growth of a healthy human body.

Bind the pages to make a book to put in the class library for students to read again and again

- Above and Beyond: Those students who are ready to do so, may contribute multiple illustrations and captions, or they may plan an organized structure for the book (for example, categorized by food group, color, or important nutrients).

Domain Assessment

DA

This domain assessment evaluates each student's retention of domain and academic vocabulary words and the core content targeted in *The Human Body: Building Blocks and Nutrition.* The results should guide review and remediation the following day.

There are four parts to this assessment. You may choose to do the parts in more than one sitting if you feel this is more appropriate for your students. Part I (vocabulary assessment) is divided into two sections: the first assesses domain-related vocabulary, and the second assesses academic vocabulary. Parts II, III, and IV of the assessment address the core content targeted in *The Human Body: Building Blocks and Nutrition.*

⑩ Part I (Instructional Master DA-1)

Directions: I am going to say a sentence using a word you have heard in the read-alouds. First, I will say the word, and then I will use it in a sentence. If I use the word correctly in my sentence, circle the smiling face. If I do not use the word correctly in my sentence, circle the frowning face. I will say each sentence two times. Let's do number one together.

1. **Digestive System:** The digestive system is the body system responsible for getting rid of liquid water. (frowning face)
2. **Excretory System:** The excretory system is the body system that breaks down food into nutrients for your body. (frowning face)
3. **Cells:** Your body is made up of millions and millions of cells that are so small that they must be viewed through a microscope. (smiling face)
4. **Intestines:** Your large and small intestines are both part of the digestive system. (smiling face)
5. **Tissues:** All the tissues in your body are the same type of tissue. (frowning face)

6. **Body Systems:** Your body systems work separately and do not effect each other. (frowning face)
7. **Organs:** Organs are body parts that have specific jobs. Your body systems are made up of organs. (smiling face)
8. **Carbohydrates:** Carbohydrates are the main energy source for the body. (smiling face)
9. **Nutrition:** Getting plenty of rest and exercising are important to good health but nutrition is not. (frowning face)
10. **Minerals:** Milk provides calcium, an important mineral for the body. (smiling face) **Note:** Too much milk/dairy may deplete calcium.

Directions: I am going to read several sentences about the human body. If what I describe in the sentence is correct, circle the smiling face. If what I describe in the sentence is not correct, circle the frowning face.

11. **Observations:** You make observations by closely watching someone or something. (smiling face)
12. **Function:** Functions are the jobs or purposes that something has. One of the functions of the heart is to pump blood throughout your body. (smiling face)
13. **Moderation:** Eating french fries for breakfast, lunch, and dinner is an example of doing something in moderation. (frowning face)
14. **Variety:** To eat a variety of vegetables means that you eat only two kinds of vegetables. (frowning face)
15. **Recovery:** A recovery is a return to health from a sickness or injury. (smiling face)

⑩ Part II (Instructional Master DA-2)

For each row of pictures, you will be asked to look for specific things. Follow my directions carefully. In some instances, there may be more than one right answer and you should circle more than one picture. We will do the first one together.

1. Look at the pictures in the first row. How are these pictures alike? (They are all pictures of tools with lenses that magnify objects.) The first picture is a picture of a telescope. The next picture is a picture of a modern microscope. The third picture shows a hand lens or magnifying glass, and the fourth picture shows an early microscope. Anton van Leeuwenhoek made a special type of microscope to study living cells. Circle the picture that looks most like the microscopes he made over 400 years ago. Which picture should you circle? Draw a circle around the fourth picture, the simplest microscope shown. (4)
2. Van Leeuwenhoek described bacteria, tiny one-celled organisms that sometimes cause disease. Circle the picture(s) of places where bacteria live. You may circle more than one. (1, 2, 3, 4)
3. Circle the most important organ in your body. (3)
4. Your digestive system is made up of many organs. Circle the organs that are part of the digestive system. (1, 3, 4)
5. Your excretory system is made up of many organs. Circle the picture that shows the organs that are part of the excretory system. (2)
6. Circle the organs that have the important function, or job, of cleaning your blood. (1, 4)
7. Circle foods that have a large amount of carbohydrates (1, 2, 4)
8. Circle the foods that have a large amount of proteins. (1, 2, 3)
9. Your doctor has told you to eat fewer fats and less sugar. Which of the following foods should you choose to follow your doctor's advice? (2, 4)
10. Circle the pictures that show healthy habits you should have to help take care of your body and stay healthy (1, 2, 3, 4)

⑩ Part III (Instructional Master DA-3)

Choose the correct term from the word bank below that describes what the images are, and write the term in the blank provided.

1. These are _____ . (systems)
2. These are _____ . (tissues)
3. These are _____ . (cells)
4. These are _____ . (organs)

⑩ Part IV (Instructional Master DA-4)

Directions: Write a few words, phrases, or sentences to answer each question or statement.

Note: You may need to have some students respond orally if they are not able to respond in writing.

1. How are cells, tissues, organs, and body systems related?
2. Explain what the digestive system does.
3. What should you eat to keep a well-balanced diet?
4. What are some things you can do to stay healthy?

Culminating Activities

CA

Note to Teacher

Please use this final day to address class results of the Domain Assessment. Based on the results of the Domain Assessment and students' Tens scores, you may wish to use this class time to provide remediation opportunities that target specific areas of weakness for individual students, small groups, or the whole class.

Alternatively, you may also choose to use this class time to extend or enrich students' experience with domain knowledge. A number of enrichment activities are provided below in order to provide students with opportunities to enliven their experiences with domain concepts.

Remediation

You may choose to regroup students according to particular areas of weakness, as indicated from Domain Assessment results and students' Tens scores.

Remediation opportunities include:

- targeting Review Activities
- revisiting lesson Extensions
- rereading and discussing select read-alouds

Enrichment

Domain-Related Trade Book or Student Choice

Materials: Trade book

Read a trade book to review concepts covered in this domain; refer to the books listed in the Introduction. You may also choose to have students select a read-aloud to be heard again.

Exploring Student Resources

Materials: Domain-related student websites

Pick appropriate websites from Websites and Other Resources in the Introduction for further exploration of the digestive and excretory systems and healthy habits.

Videos Related to The Human Body

Materials: Videos related to the digestive and excretory systems and healthy habits

Carefully peruse the Internet for short (5 minute), age-appropriate videos related to the digestive and excretory systems and healthy habits.

Prepare some questions related to the content presented in the videos.

Discuss how watching a video is the same as and different from listening to a storybook or read-aloud.

Have students ask and answer questions using question words *who, what, when, where,* and *why* regarding what they see in the videos.

Guest Presenter

Invite a nutritionist to come talk to the class about healthy foods and healthy eating habits.

Making a Simple Magnifying Glass

Materials: Clear plastic bottle; dry marker pen; scissors; water

Directions:

1. Draw a circle shape at the neck of the bottle. It is important that it is at the neck so that it creates a disc shape.
2. Cut out the circle.
3. Pour a drop of water into the disc.
4. Hold it over a book and watch the letters get bigger.

The science simply explained:

The disc shape curves outward, forming a convex shape. By adding the water, the light that passes through it is refracted, or bent inwards, creating a lens effect and enlarging the size of the letters.

Reading Food Labels

Collect or have students bring packaged food labels to class. Divide students into groups, and give each group a handful of labels. Ask them to plan a well-balanced meal from the foods they are given. Have them record various findings: sodium content, added sugars, vitamins, calories, etc., and hold a discussion to see if they are indeed able to put together a well-balanced meal from packaged food.

Round-Robin Storytelling of Food's Journey

Display a chart or image of the digestive system. Have students sit in a circle, and tell them that they are going to make up the tale of a piece of food on its journey through the digestive tract. Ask for a volunteer to begin the tale, for example, "I opened my mouth and put a cube of cheese into its opening". Proceed around the circle, having each student add a sentence: "My teeth crushed the cheese . . . Saliva swirled around my mouth and softened the cheese . . . As I chewed the cheese formed a lump of food" and so on. You may want to hand out random cue cards with words written on them (*saliva, esophagus,* etc.) rather than going in order around the circle. This will facilitate the telling of the story—making sure every step in the process is included—and keep students more involved, awaiting their turns.

For Teacher Reference Only:

Instructional Masters for
The Human Body

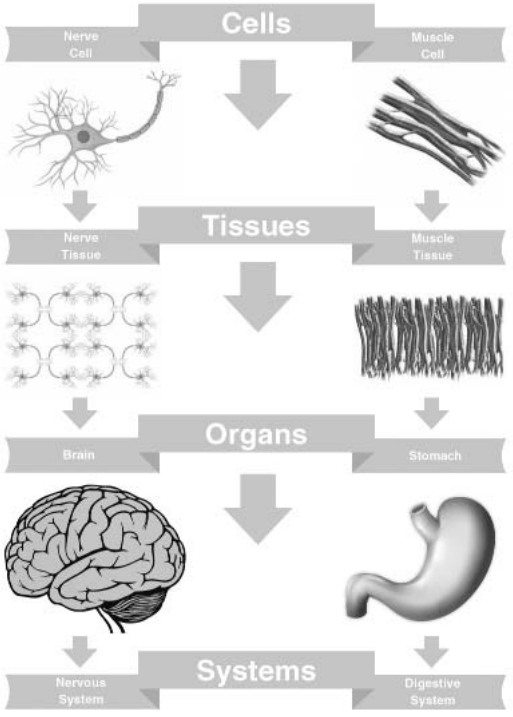
1B-1

Name _____

1

Dear Family Member,

During the next several days, your child will be learning about the human body. S/he will learn about the body's systems and their important parts—cells, tissues, and organs.



Below are some suggestions for activities that you can do at home to help your child continue to learn about the human body.

1. What Am I Sensing?

Take turns with your child using descriptive words to describe what you can smell, taste, see, feel, or hear. Try to guess the object the other person is describing by the descriptive words given as clues. Have your child record some of the objects on the Activity Page sent home with this letter.

2. Examining Objects Closely

If possible, provide your child with a magnifying glass and let your child explore his/her surroundings using the magnifying glass. Encourage him/her to examine and draw what the magnified items look like.

3. Sayings and Phrases: Keep Your Fingers Crossed

Your child will learn the saying "keep your fingers crossed" when learning about proper nutrition and taking care of his/her body. Try to help your child understand that to "keep your fingers crossed" is another way of saying that you hope or wish that something will turn out the way you want it to. Try to use this saying whenever it applies in your everyday lives.

4. Read Aloud Each Day

Set aside time each day to read to your child as well as to listen to your child read to you. A list of books about the human body and nutrition is attached to this letter.

Any opportunity your child has to tell you about what s/he is learning at school and to practice it at home is helpful.

Recommended Trade Books for The Human Body: Building Blocks and Nutrition

Trade Book List

1. *Bones: Our Skeletal System,* by Seymour Simon (HarperCollins, 2000) ISBN 978-0688177218
2. *The Bones Book and Skeleton,* by Stephen Cumbaa (Workman Publishing Company, 2006) ISBN 978-0761142188
3. *The Brain: Our Nervous System,* by Seymour Simon (HarperCollins, 2006) ISBN 978-0060877194
4. *Cells, Tissues, and Organs*, by Richard Spilsbury (Heinemann Library, 2008) ISBN 978-1432909048
5. *The Digestive System*, by Rebecca L. Johnson (Lerner Publications Company, 2005) ISBN 978-0822512479
6. *The Digestive System,* by Kirstin Petrie, MS, RD (ABDO Publishing Company, 2007) ISBN 978-159679710
7. *The Digestive System,* by Christine Taylor-Butler (Scholastic Inc., 2008) ISBN 978-0531207314
8. *Dinosaurs Alive and Well!: A Guide to Good Health,* by Marc Brown and Laurie Krasny Brown (Little, Brown Books for Young Readers, 1992) ISBN 978-0316110099
9. *The Dynamic Digestive System: How Does My Stomach Work?,* by John Burnstein (Crabtree Publishing Company, 2009) ISBN 978-0778744290
10. *The Edible Pyramid: Good Eating Every Day,* by Loreen Leedy (Holiday House, 1994) ISBN 978-0823420742
11. *Food and Digestion,* by Andrew Solway (Sea-to-Sea Publications, 2011) ISBN 978-1597712644
12. *Good Enough to Eat: A Kid's Guide to Food and Nutrition,* by Lizzy Rockwell (HarperCollins, 2009) ISBN 978-0064451741
13. *Greg's Microscope,* by Millicent E. Selsam, illustrated by Arnold Lobel (HarperCollins, 1990) ISBN 978-0064441445

14. *Gurgles and Growls: Learning About Your Stomach,* by Pamela Hill Nettleton (Picture Window Books, 2004) ISBN 978-1404805040

15. *Guts: Our Digestive System,* by Seymour Simon (HarperCollins Publishers, 2005) ISBN 978-0060546519

16. *The Human Body,* by Seymour Simon (Collins, 2008) ISBN 978-0060555412

17. *The Magic School Bus: Inside the Human Body,* by Joanna Cole, illustrated by Bruce Degen (Scholastic Audio Books, 2011) ISBN 978-0545240833

18. *Muscles: Our Muscular System,* by Seymour Simon (HarperCollins, 2000) ISBN 978-0688177201

19. *My Food Pyramid: Eat Right. Exercise. Have Fun.,* by Alisha Niehaus (Dorling Kindersley Limited, 2007) ISBN 978-0756629939

20. *My Organ Buddies*, by Lee Downing and Felice Downing (Organ Buddies, Inc., 2010) ISBN 978-0615329406

21. *Parts,* by Tedd Arnold (Puffin, 2000) ISBN 978-0140565331

22. *The Race Against Junk Food (Adventures in Good Nutrition),* by Anthony Buono and Roy Nemerson (HCOM Inc., 1997) ISBN 978-0965810807

23. *The Quest to Digest,* by Mary K. Corcoran (Charlesbridge, 2006) ISBN 978-1570916649

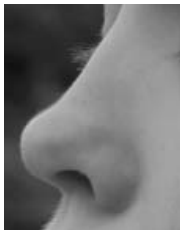
24. *Ultra-Organized Cell Systems,* by Rebecca L. Johnson (Millbrook Press, 2008) ISBN 978-0822571384

25. *What Am I Made Of?*, by David Bennett, illustrated by Stuart Trotter (Aladdin Paperbacks, 1991) ISBN 978-0689714900

26. *Where Does Your Food Go?*, by Wiley Blevins (Scholastic Inc., 2003) ISBN 978-0516258607

1B-3

Name _____

I see...	
	
I smell...	
	
I hear...	
	
I feel...	
	
I taste...	
	

1B-4

Name _____

Vocabulary List for The Human Body (Part 1)

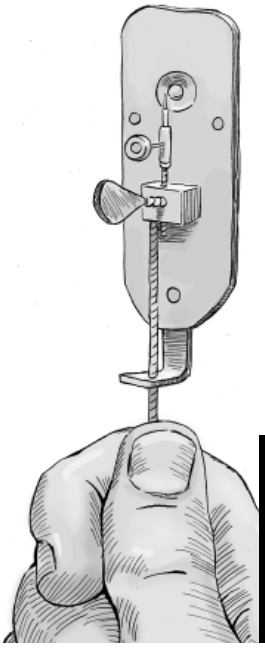
This list includes many important words your child will learn about in *The Human Body*. Try to use these words with your child in English and in your native language. Next to this list are suggestions of fun ways your child can practice and use these words at home.

- ❑ nutrients
- ❑ nutrition
- ❑ organs
- ❑ systems
- ❑ vaccinations
- ❑ bacteria
- ❑ lens
- ❑ magnifies
- ❑ observations
- ❑ functions
- ❑ tissue
- ❑ collapse
- ❑ nourish

Directions: Help your child pick a word from the vocabulary list. Then help your child choose an activity and do the activity with the word. Check off the box for the word. Try to practice a word a day in English and in your native language.

	**Draw it**
	**Write a sentence using it**
	**Find one or two examples**
	**Tell someone about it**
	**Act it out**
	**Make up a song using it**

2A-1



1

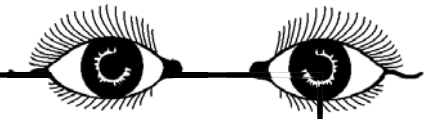
2B-1

Name _____

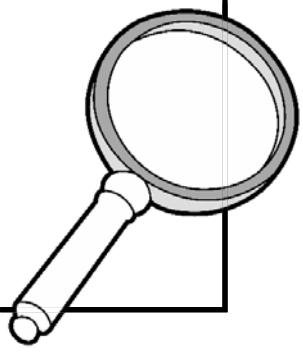
Using a Magnifying Glass

Directions: Look at the fabric swatch you have been given without using the magnifying glass. Draw what you see under the heading "What I See With My Eyes Alone." Then, look at the fabric swatch using the magnifying glass, and draw what you see under the heading "What I See Through the Magnifying Glass."

What I See With My Eyes Alone



What I See Through the Magnifying Glass



2B-2

Name _____

Anton van Leeuwenhoek _____

_____.

_____

_____.

_____

_____.

2

3B-1

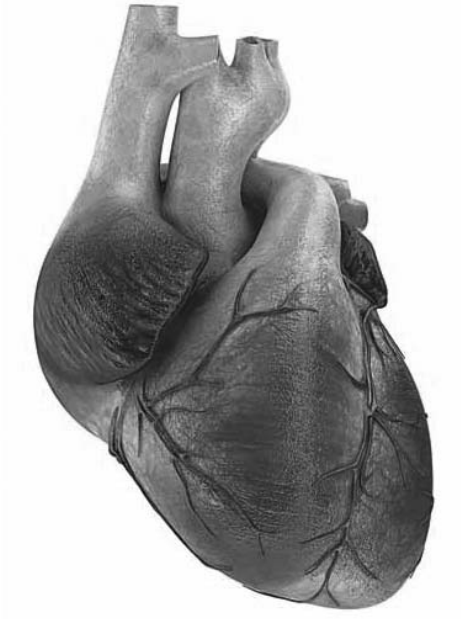
Name _____

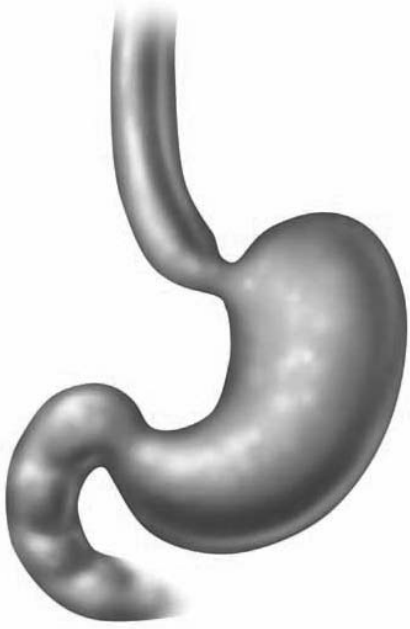
Cells and Tissue

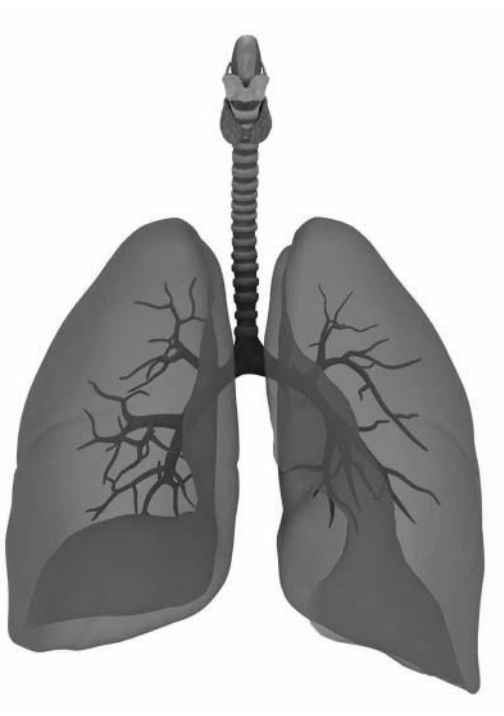
3

4A-1

Name _____





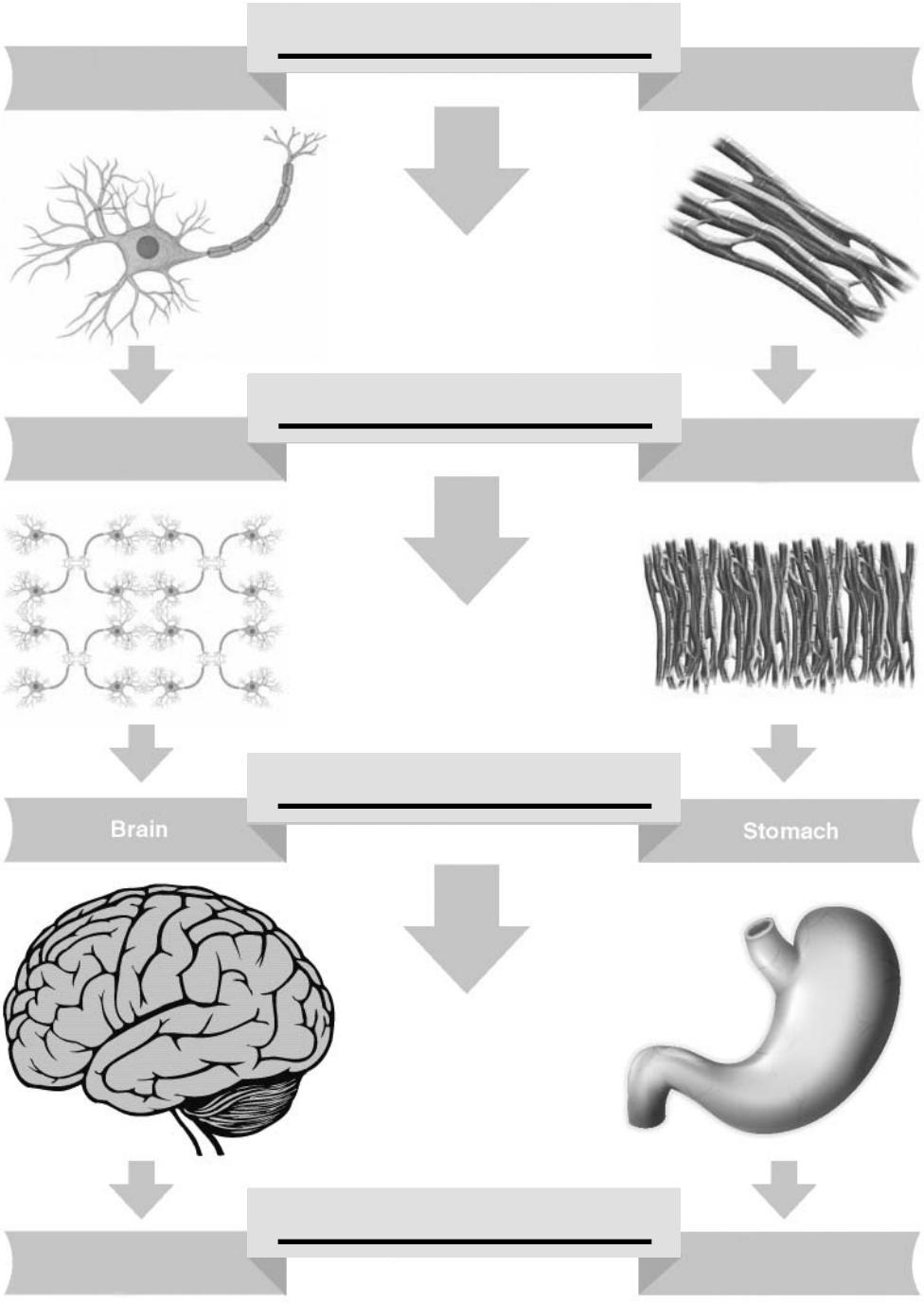


2

4B-1

Name _____

Word Bank:	systems	cells
	tissues	organs



Directions: Choose the correct word from the word bank to write in each blank

PP-1

Name _____

Anton van Leeuwenhoek

Directions: Read the statements below and put an X beside the statement that best describes Anton's contribution to the world.

___ He was the first to invent the microscope.

___ He was the first person to describe bacteria.

___ He built his own hand-held microscopes that were very powerful at his time.

___ He always worked as a scientist.

Cells, Tissues, Organs, Systems

Directions: Choose the word from the word bank that goes with the sentence, and write it in the blank. Words can be used more than one time.

cells	tissues	organs	systems

1. The smallest units of human life are called _____.
2. Tissues are made up of similar _____.
3. Organs are made up of _____.
4. Your body _____ are made up of organs.
5. Your heart is one of your most important _____.
6. Blood, bone, and fat are all _____.
7. Body systems are made up of different _____.
8. The skeletal and muscular _____ work together to help you move.

PP-1

Name Answer Key

Directions: Read the statements below and put an X beside the statement that best describes Anton's contribution to the world.

Anton van Leeuwenhoek

___ He was the first to invent the microscope.

_X_ He was the first person to describe bacteria.

_X_ He built his own hand-held microscopes that were very powerful at his time.

___ He always worked as a scientist.

Cells, Tissues, Organs, Systems

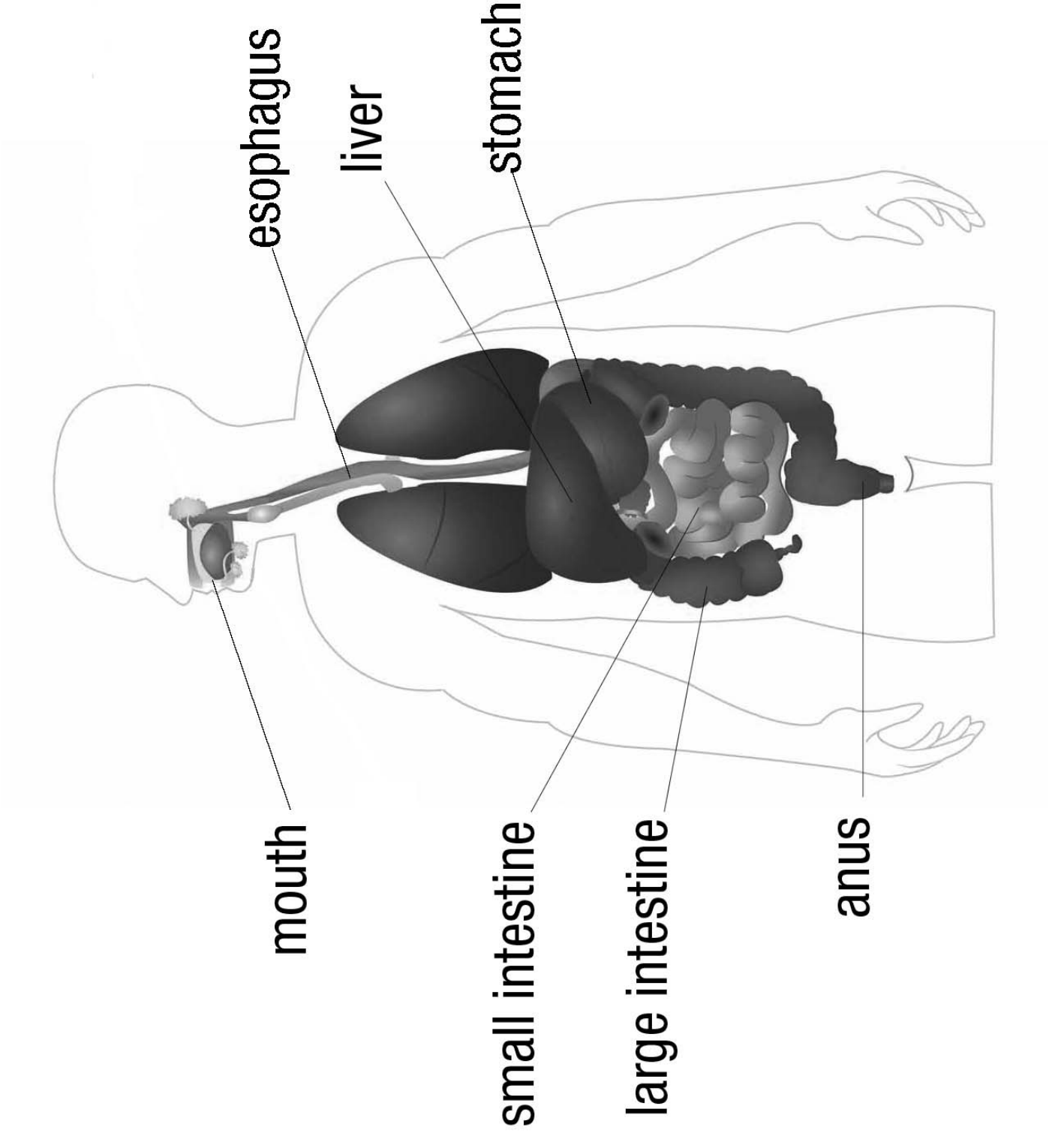
Directions: Choose the word from the word bank that goes with the sentence, and write it in the blank. Words can be used more than one time.

cells	tissues	organs	systems

1. The smallest units of human life are called **cells**.
2. Tissues are made up of similar **cells**.
3. Organs are made up of **tissues**.
4. Your body **systems** are made up of organs.
5. Your heart is one of your most important **organs**.
6. Blood, bone, and fat are all **tissues**.
7. Body systems are made up of different **organs**.
8. The skeletal and muscular **systems** work together to help you move.

5A-1

Name _____

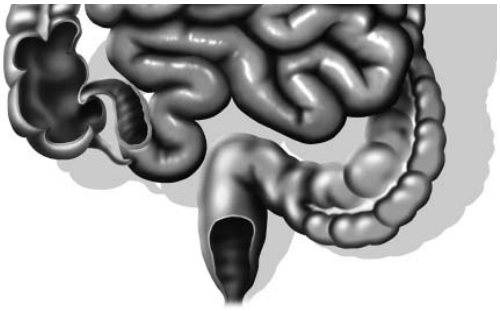


5B-1

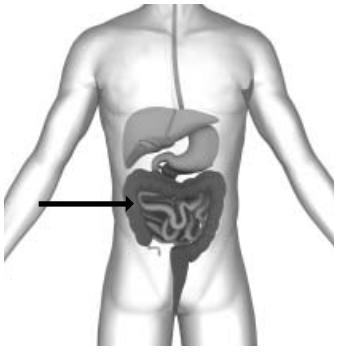
Name _____

Directions: The following pictures show the different steps in the process of digestion. Number each one in the correct order from 1–6, following food from the mouth to the anus.

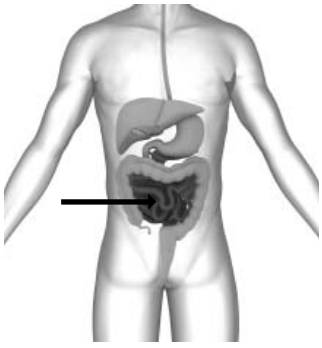
☐ Teeth crush the food, and saliva softens the food.



☐ Feces, or waste, is stored in the rectum until it is ready to be passed out of the body through the anus.

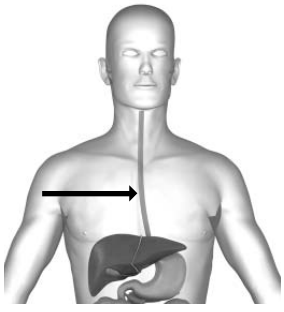


☐ Food enters the large intestine, where water is absorbed and solid waste is kept.



☐ Food enters the small intestine, where tiny villi absorb its nutrients.

☐ Food enters the stomach, where it is broken down into a thick liquid.



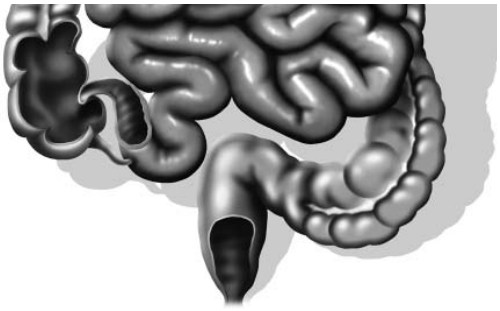
☐ The food travels down a tube called the esophagus.

5B-1

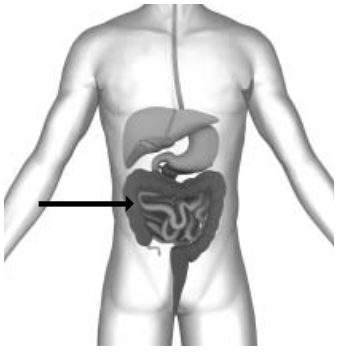
Name **Answer Key**

Directions: The following pictures show the different steps in the process of digestion. Number each one in the correct order from 1–6, following food from the mouth to the anus.

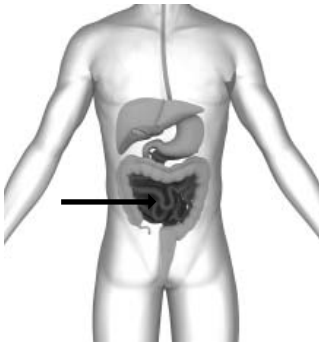
1 Teeth crush the food, and saliva softens the food.



6 Feces, or waste, is stored in the rectum until it is ready to be passed out of the body through the anus.

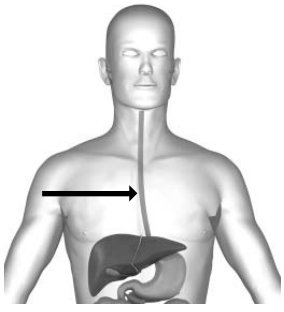


5 Food enters the large intestine, where water is absorbed and solid waste is kept.



4 Food enters the small intestine, where tiny villi absorb its nutrients.

3 Food enters the stomach, where it is broken down into a thick liquid.



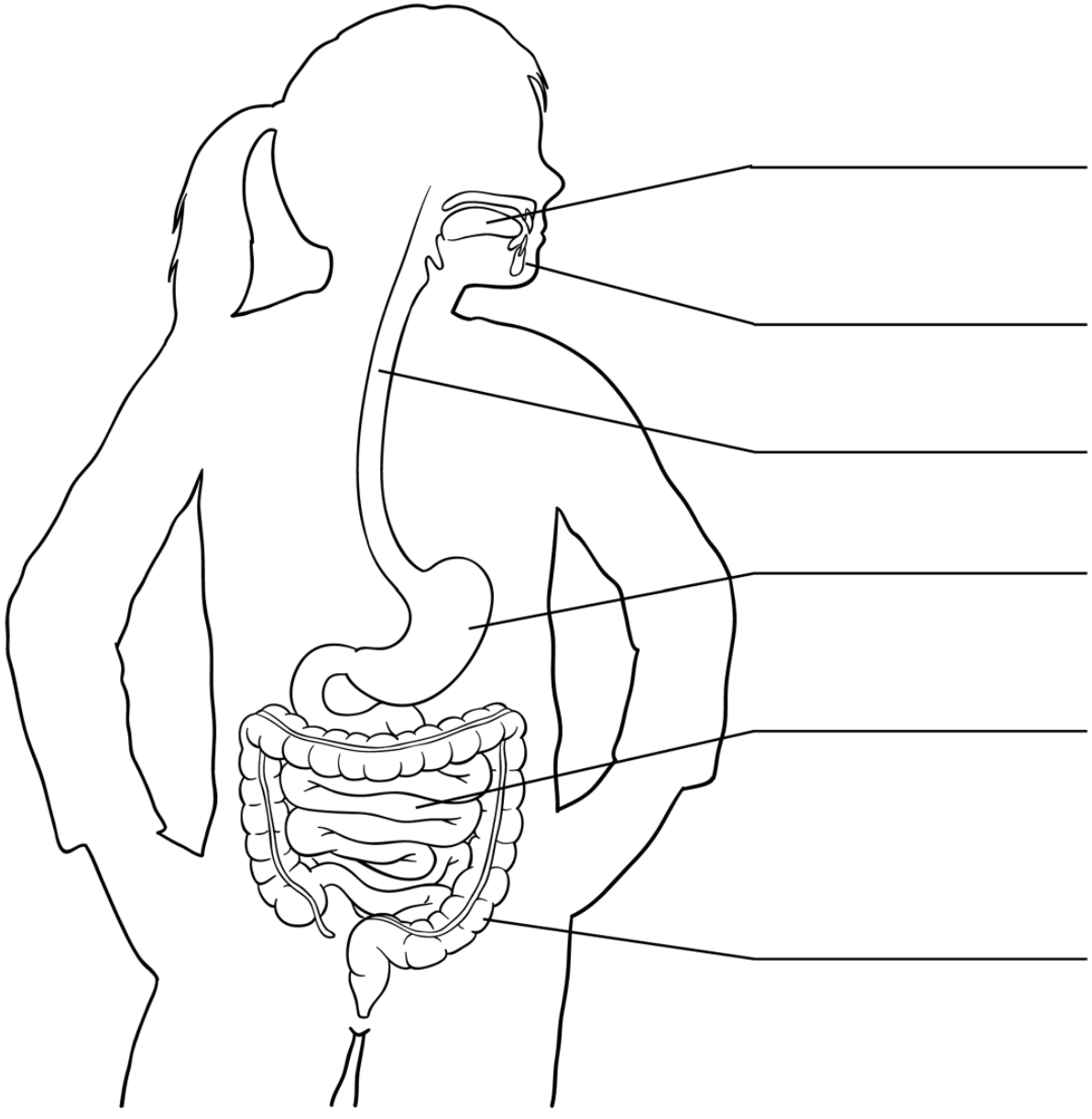
2 The food travels down a tube called the esophagus.

Name _____

Digestive System Matchup

stomach	large intestine	esophagus
tongue	small intestine	teeth

Directions: Label the parts of the digestive system using the terms provided in the word bank.



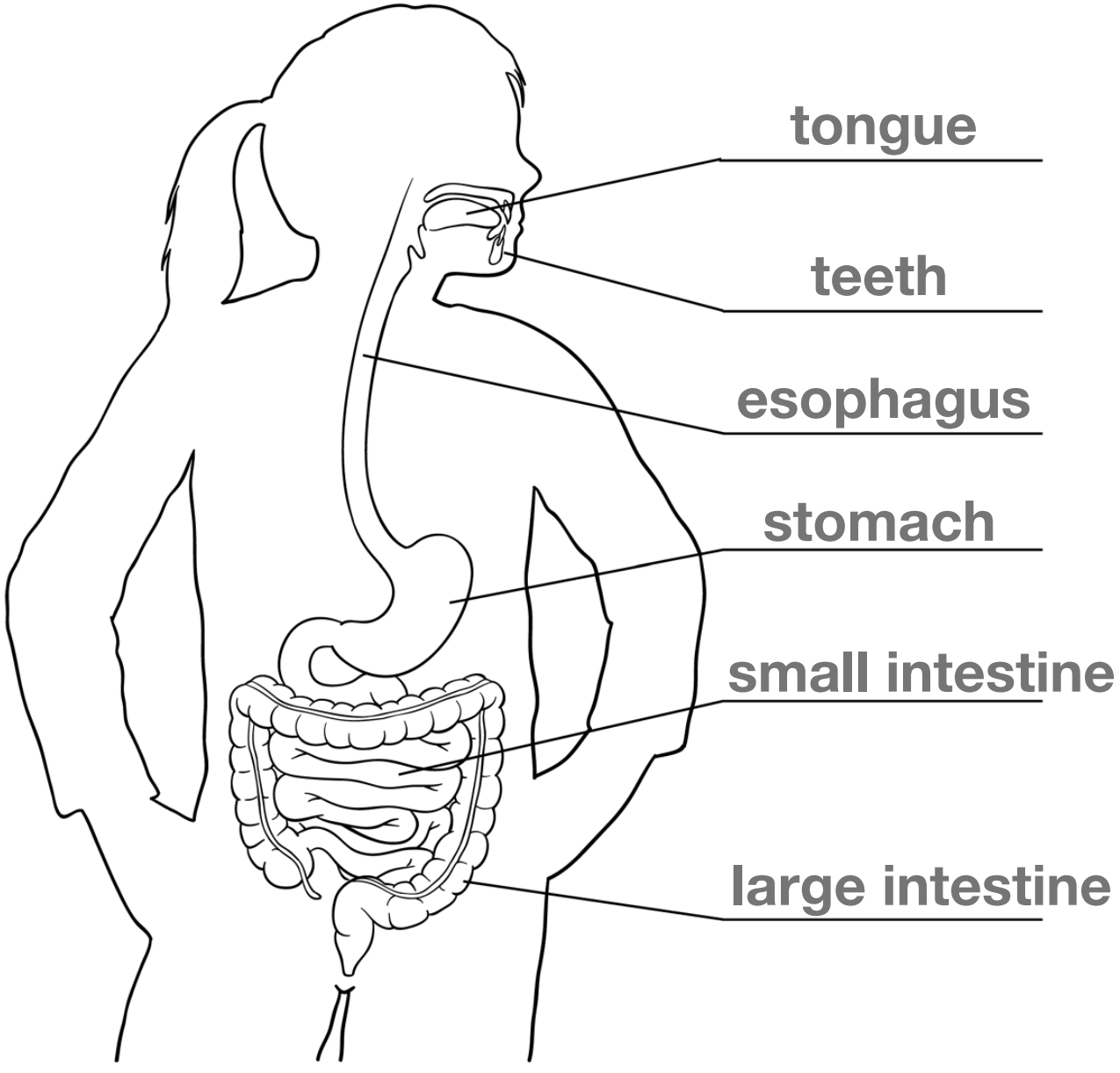
5B-2

Name **Answer Key**

Digestive System Matchup

stomach	large intestine	esophagus
tongue	small intestine	teeth

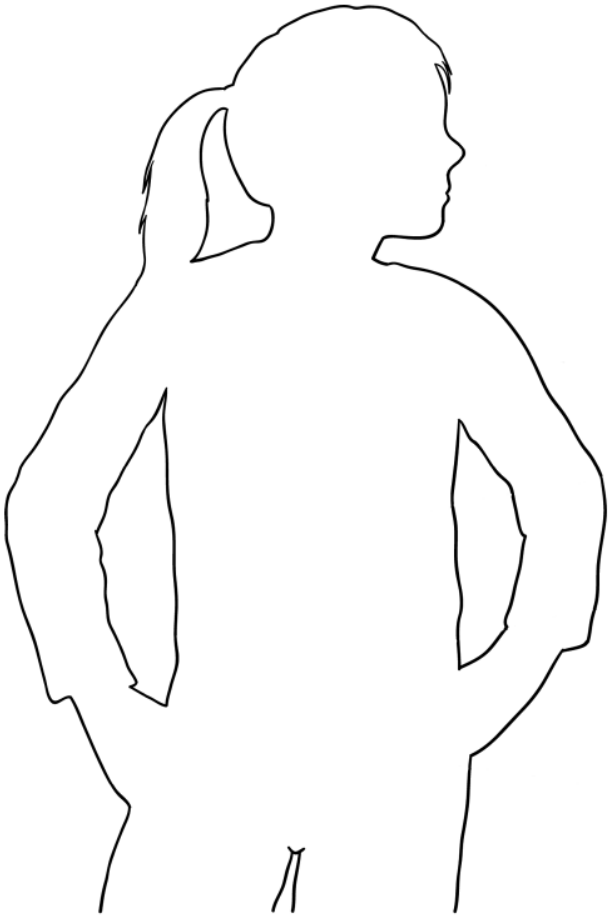
Directions: Label the parts of the digestive system using the terms provided in the word bank.



5B-3

Name _____

The Digestive System



_____

_____

_____

_____

4

5B-4

Dear Family Member,

I hope your child is enjoying learning about the human body. Your child is learning about the digestive system and the excretory system. Over the next few days, s/he will learn about staying healthy by eating nutritious foods.

Below are some suggestions for activities that you can do at home to reinforce what your child is learning about the human body and nutrition.

1. A Well-Balanced Meal

In a few days, your child will learn about eating well-balanced meals. Having a well-balanced diet means eating a variety of foods that have nutrients the body needs. Eating a well-balanced diet also means not eating too much of one kind of food. Have your child draw a well-balanced meal on the back of this letter. Ask him/her to explain the food choices and tell you what nutrients—proteins, minerals, vitamins, fiber, or carbohydrates—the foods provide.

2. Reading Food Labels

When you are at the grocery store, help your child read the nutrition labels on some food packages. Help him/her use the information to make healthy choices based on good nutritional content—foods that are low in sodium, sugars, and fats, and high in vitamins and minerals. You can also do this with the food you have at home.

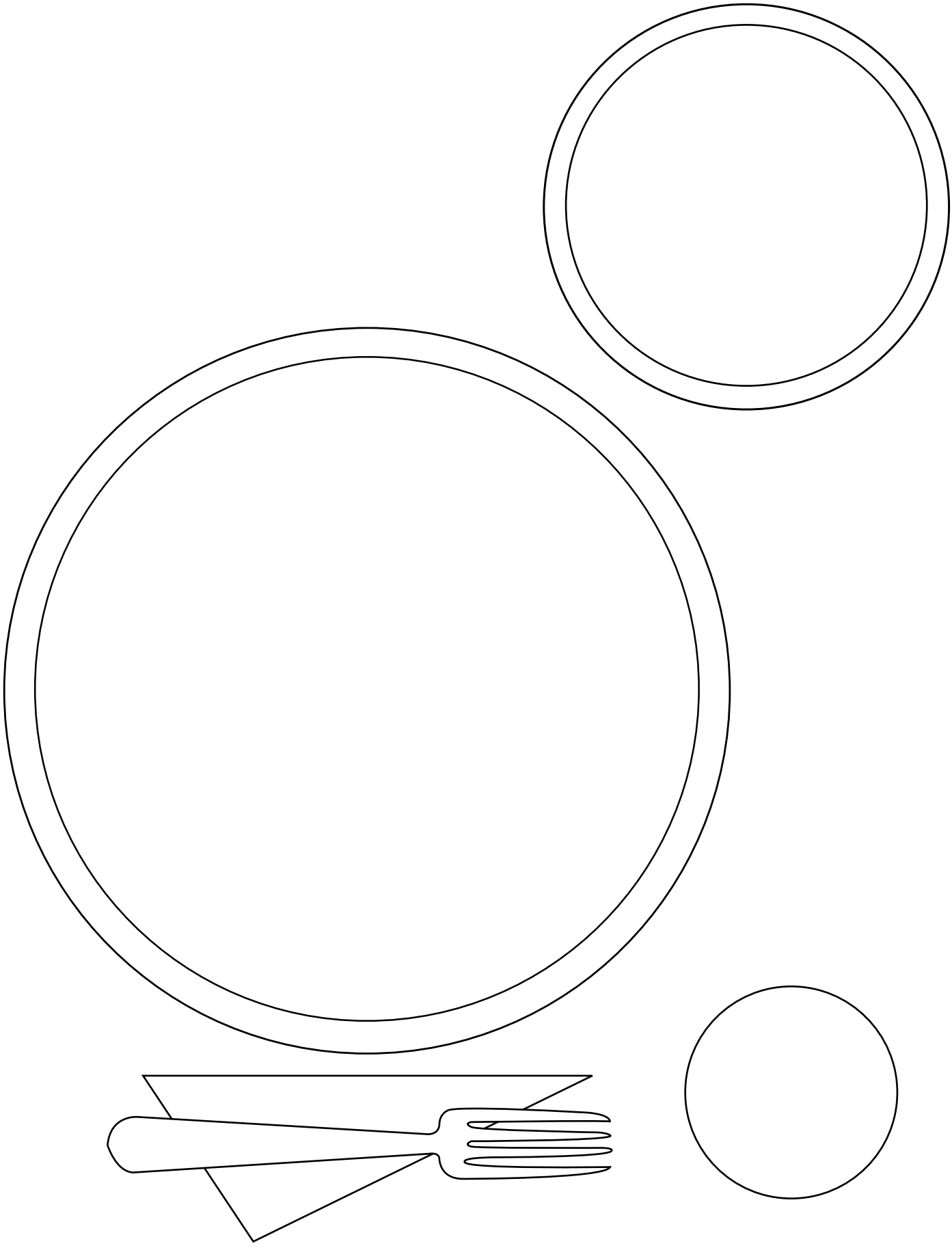
3. Sayings and Phrases: Get Up on the Wrong Side of the Bed

Your child will learn the saying "get up on the wrong side of the bed" when learning about the importance of getting enough sleep. Try to help your child understand that this is another way of saying that someone woke up in a bad mood and is acting grouchy. Find opportunities to use this saying in your everyday lives.

4. Read Aloud Each Day

Please continue to set aside time each day to read to your child as well as to listen to your child read to you.

I hope you and your child are having a great time learning about the human body and nutrition!



5B-5

Name _____

Vocabulary List for The Human Body (Part 2)

This list includes many important words your child will learn about in *The Human Body*. Try to use these words with your child in English and in your native language. Next to this list are suggestions of fun ways your child can practice and use these words at home.

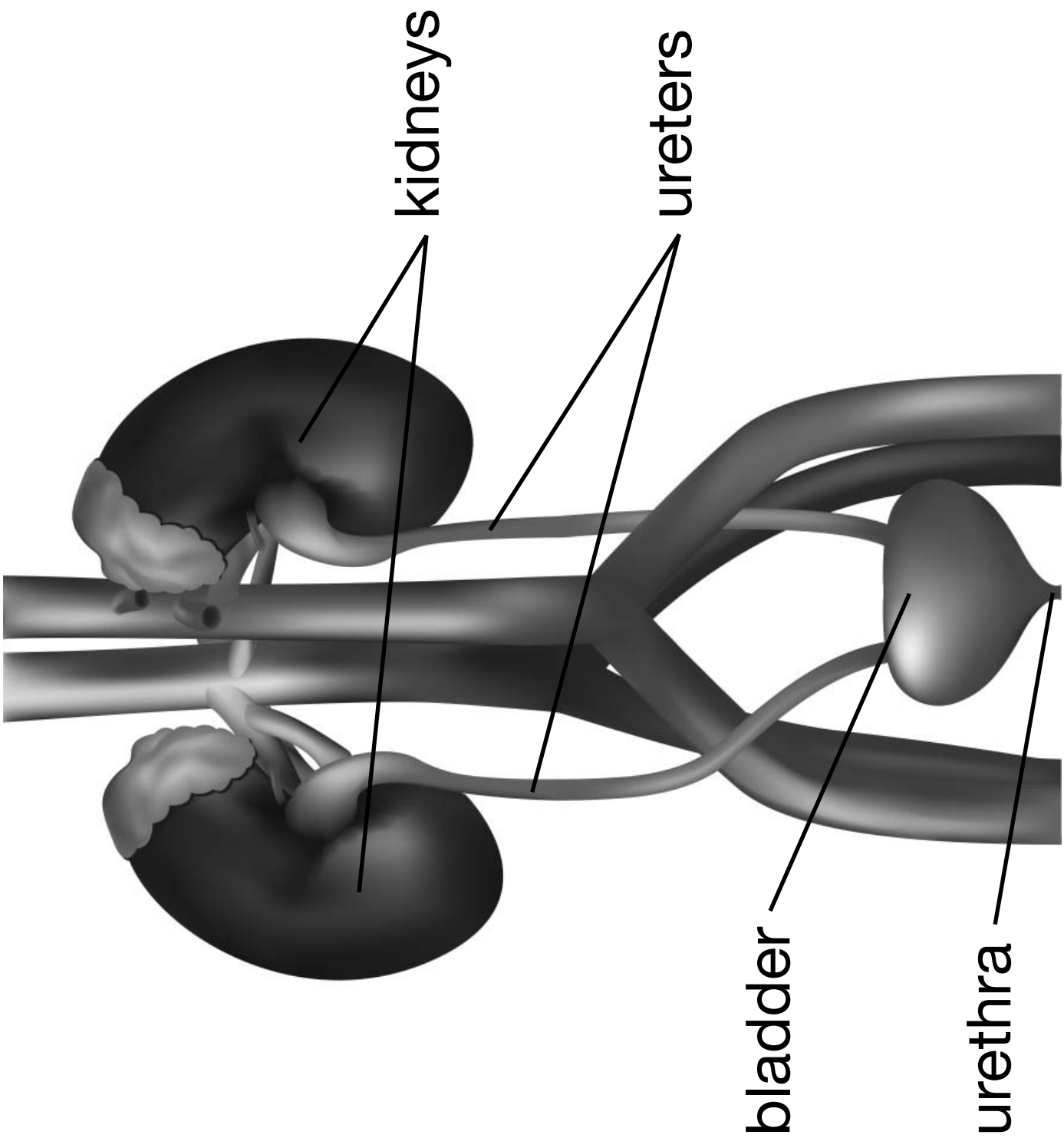
- ❑ absorb
- ❑ filtering
- ❑ sweat
- ❑ toxic
- ❑ carbohydrates
- ❑ essential
- ❑ fats
- ❑ minerals
- ❑ proteins
- ❑ fiber
- ❑ moderation
- ❑ variety
- ❑ well-balanced diet
- ❑ calories
- ❑ recovery

Directions: Help your child pick a word from the vocabulary list. Then help your child choose an activity and do the activity with the word. Check off the box for the word. Try to practice a word a day in English and in your native language.

	**Draw it**
	**Write a sentence using it**
	**Find one or two examples**
	**Tell someone about it**
	**Act it out**
	**Make up a song using it**

Name _____

4

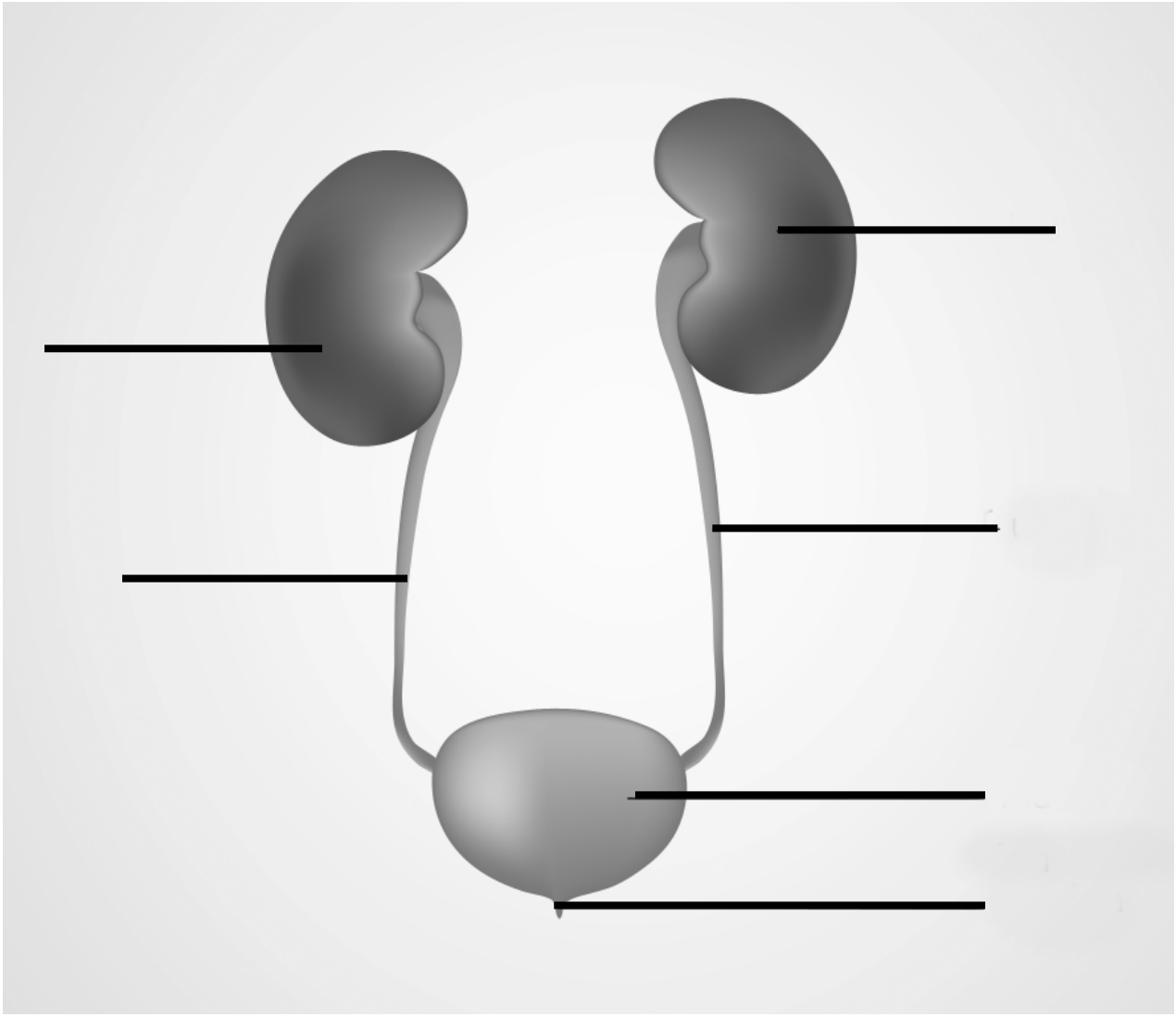


6B-1

Name _____

The Excretory System

Directions: Label the parts of the excretory system using the words in the word bank. The words kidney *and* ureter *are each used twice.*



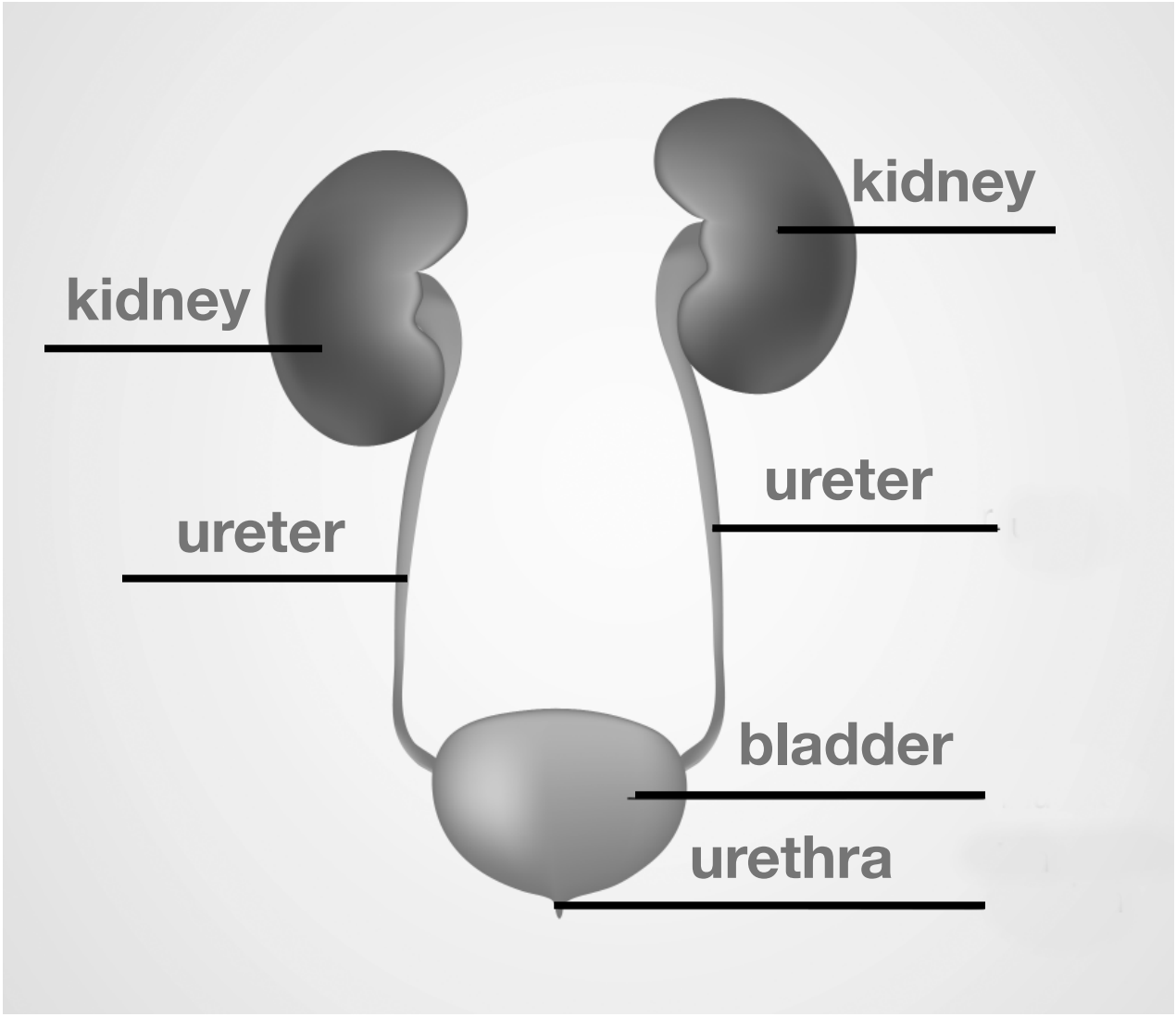
ureter	bladder
kidney	urethra

6B-1

Name **Answer Key**

The Excretory System

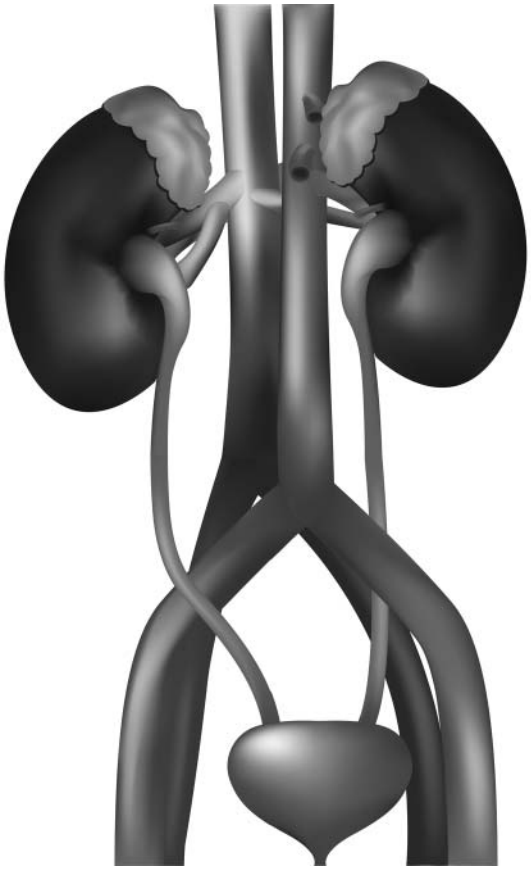
Directions: Label the parts of the excretory system using the words in the word bank. The words kidney *and* ureter *are each used twice.*



ureter	bladder
kidney	urethra

Name _____

The Excretory System



5

7A-1

Name _____

water

carbohydrates

proteins

fats

5

7B-1

Name _____

water	***proteins***
carbohydrates	***fats***

_____

_____

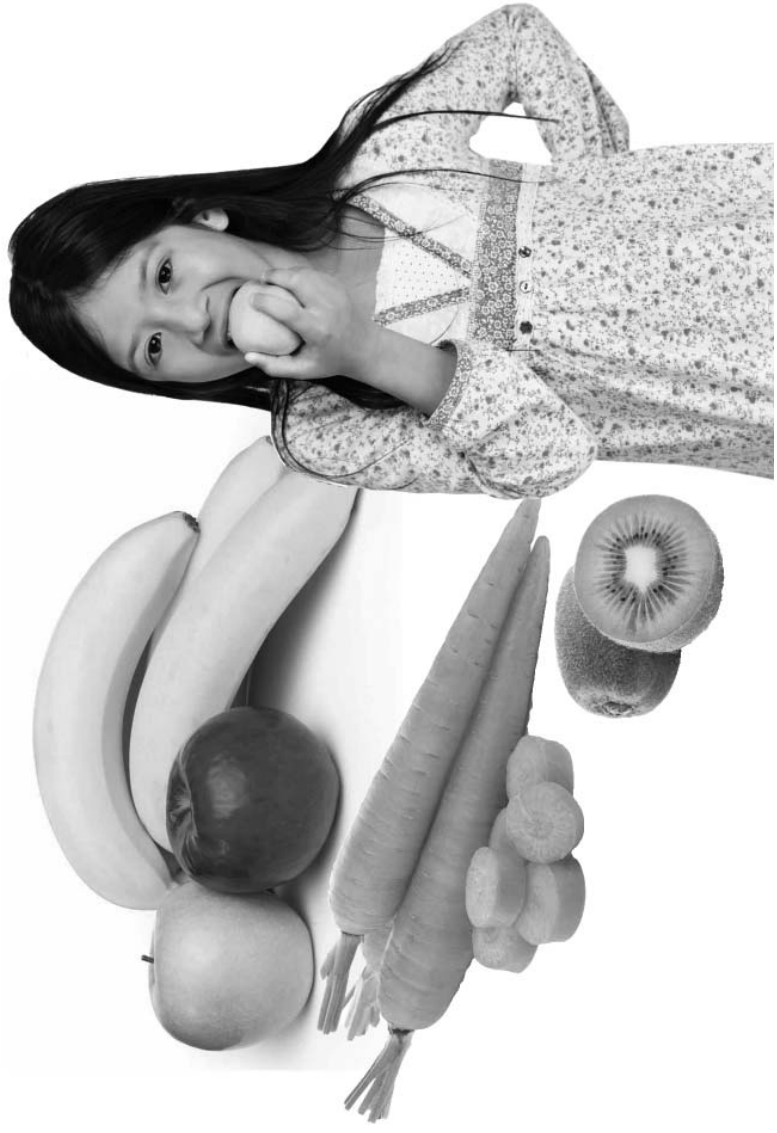
_____

_____

6

9A-1

Name _____



9B-1

Name _____

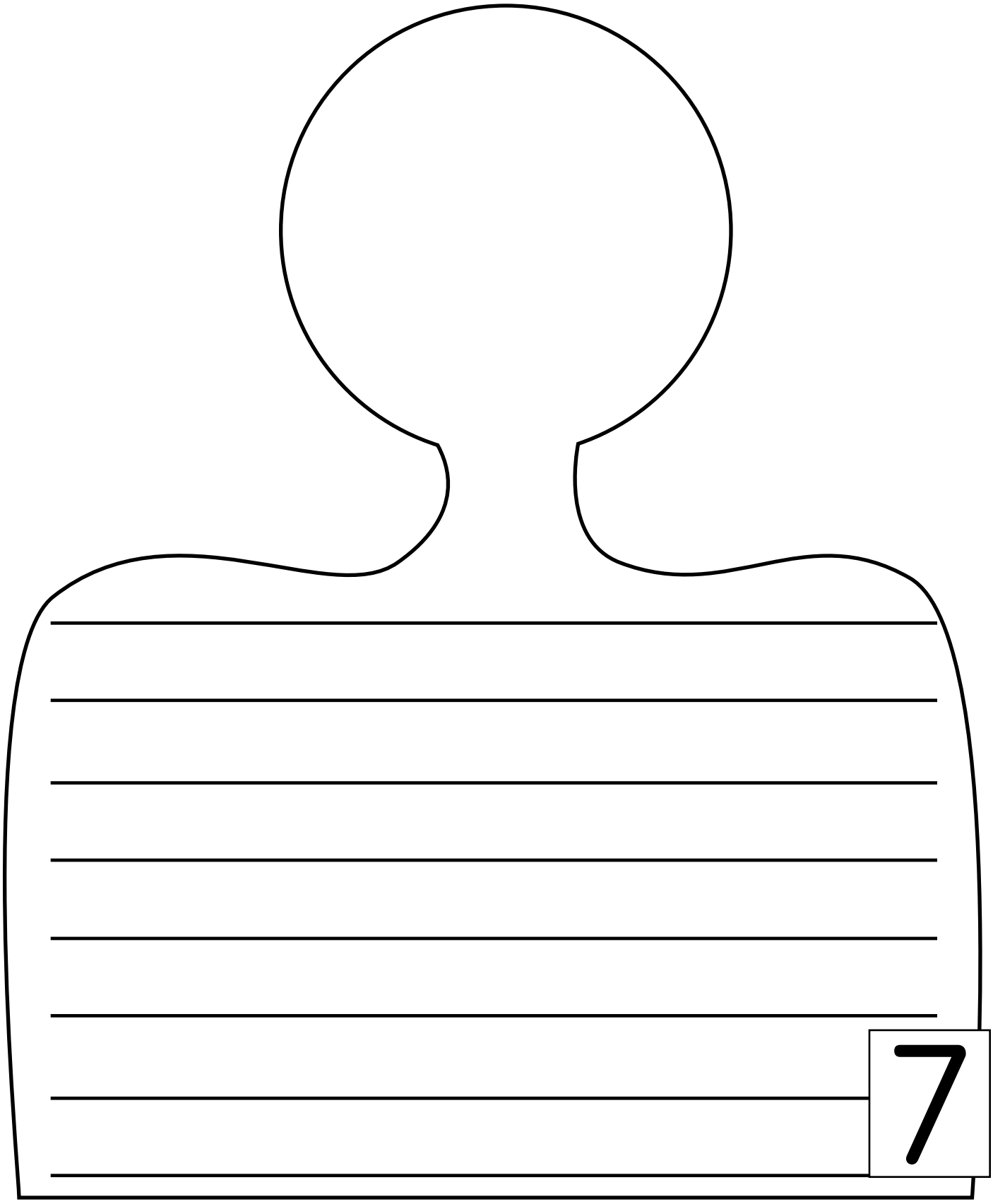
My Healthy Habits Checklist

Directions: Place a checkmark next to the picture of each healthy habit you practice. Then write a sentence next to each picture you checked describing what you do to practice that healthy habit.

☐		_____ _____ _____ _____
☐		_____ _____ _____ _____
☐		_____ _____ _____ _____
☐		_____ _____ _____ _____

9B-2

Name _____



DA-1

Name _____

1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

Directions: Listen to your teacher's instructions.

11.  

12.  

13.  

14.  

15.  

DA-1

Name **Answer Key**

Directions: Listen to your teacher's instructions.

1.  
2.  
3.  
4.  
5.  
6.  
7.  
8.  
9.  
10.  

11. 

12. 

13. 

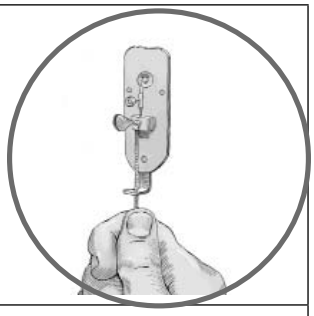
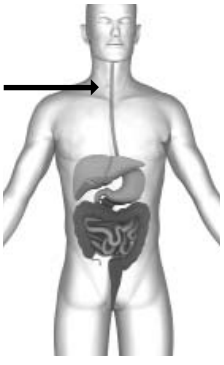
14. 

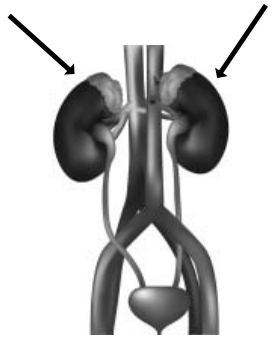
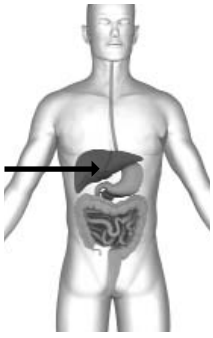
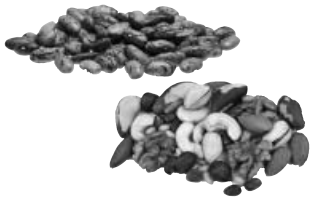
15. 

DA-2

Name _____

Directions: For each row of pictures you will be asked to look for specific things. Follow my directions carefully. In some instances there may be more than one right answer and you may circle more than one picture. We will do the first one together.

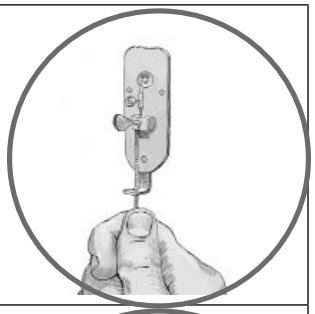
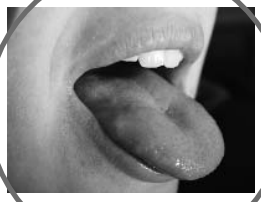
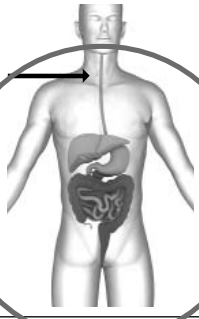
1.				
2.				
3.				
4.				
5.				

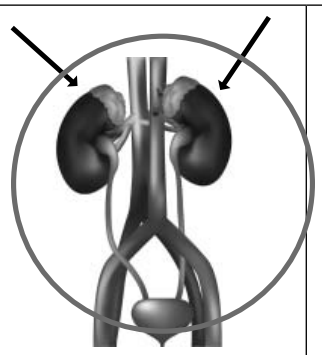
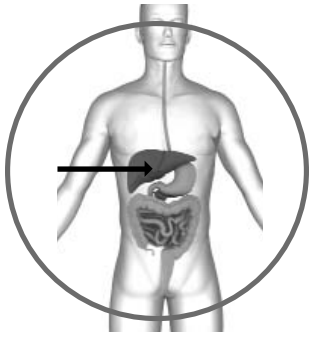
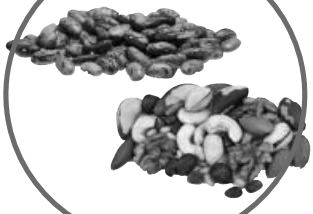
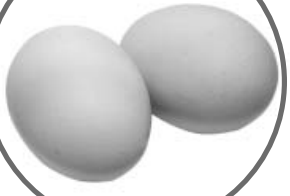
6.				
7.				
8.				
9.				
10.				

DA-2

Name **Answer Key**

Directions: For each row of pictures you will be asked to look for specific things. Follow my directions carefully. In some instances there may be more than one right answer and you may circle more than one picture. We will do the first one together.

1.				
2.				
3.				
4.				
5.				

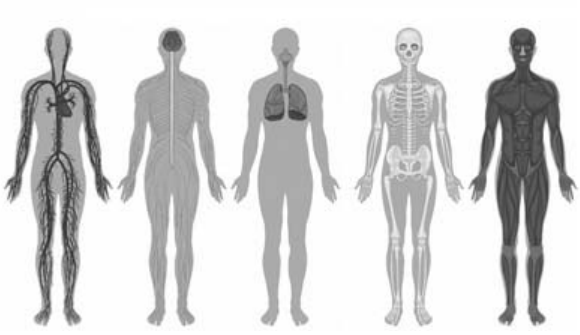
6.				
7.				
8.				
9.				
10.				

DA-3

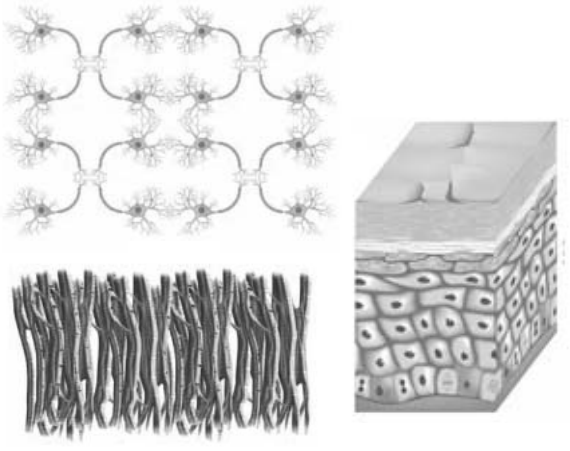
Name _____

Directions: Choose the correct term from the word bank that describes what the images are, and write the term in the blank.

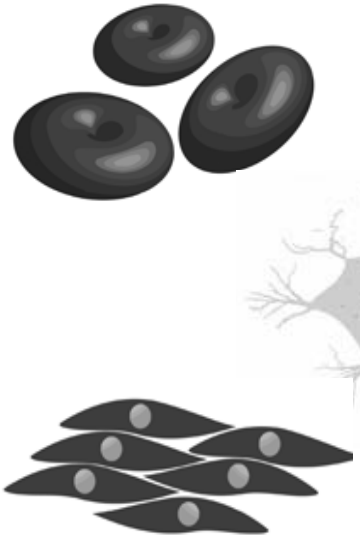
cells	tissues
organs	systems



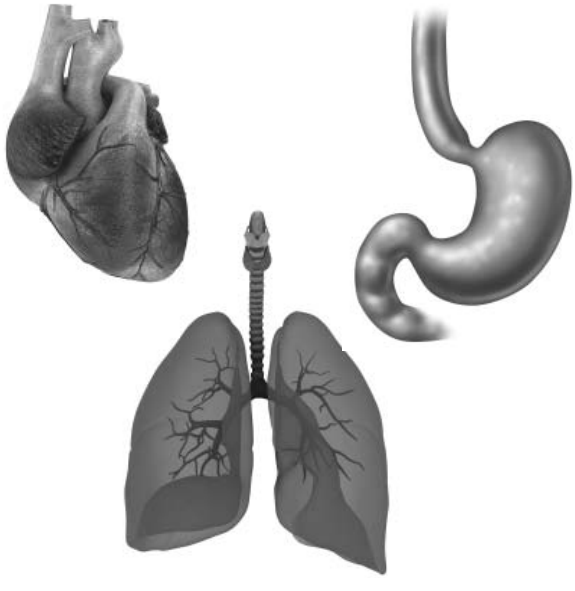
1. These are _____.



2. These are _____.



3. These are _____.



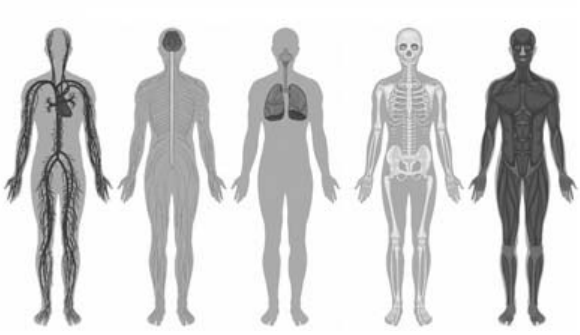
4. These are _____.

DA-3

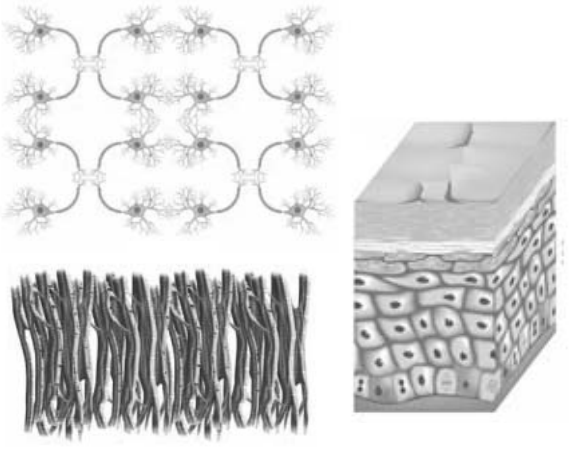
Name **Answer Key**

Directions: Choose the correct term from the word bank that describes what the images are, and write the term in the blank.

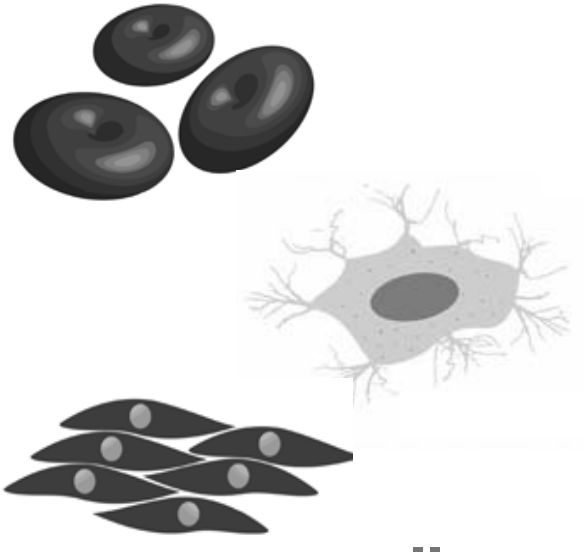
cells	tissues
organs	systems



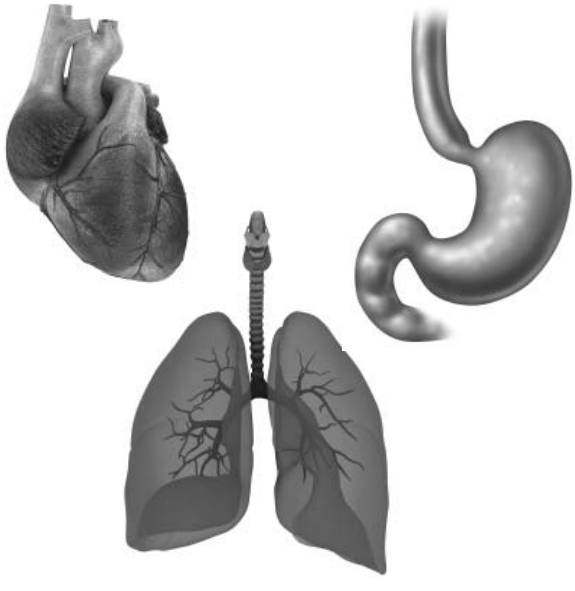
1. These are **systems**.



2. These are **tissues**.



3. These are **cells**.



4. These are **organs**.

DA-4

Name _____

1. How are cells, tissues, organs, and body systems related?

_____

_____

_____

_____

2. Explain what the digestive system does.

_____

_____

_____

_____

_____

_____

3. What should you eat to keep a well-balanced diet?

_____

_____

_____

_____

What are some things you can do to stay healthy?

_____

_____

_____

_____

_____

_____

Tens Recording Chart

Use this grid to record Tens scores. Refer to the Tens Conversion Chart that follows.

Name							

Tens Conversion Chart

Number Correct

Number of Questions	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	0	10																			
2	0	5	10																		
3	0	3	7	10																	
4	0	3	5	8	10																
5	0	2	4	6	8	10															
6	0	2	3	5	7	8	10														
7	0	1	3	4	6	7	9	10													
8	0	1	3	4	5	6	8	9	10												
9	0	1	2	3	4	6	7	8	9	10											
10	0	1	2	3	4	5	6	7	8	9	10										
11	0	1	2	3	4	5	5	6	7	8	9	10									
12	0	1	2	3	3	4	5	6	7	8	8	9	10								
13	0	1	2	2	3	4	5	5	6	7	8	8	9	10							
14	0	1	1	2	3	4	4	5	6	6	7	8	9	9	10						
15	0	1	1	2	3	3	4	5	5	6	7	7	8	9	9	10					
16	0	1	1	2	3	3	4	4	5	6	6	7	8	8	9	9	10				
17	0	1	1	2	2	3	4	4	5	6	6	7	7	8	8	9	9	10			
18	0	1	1	2	2	3	3	4	4	5	6	6	7	7	8	8	9	9	10		
19	0	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	
20	0	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10

Simply find the number of correct answers the student produced along the top of the chart and the number of total questions on the worksheet or activity along the left side. Then find the cell where the column and the row converge. This indicates the Tens score. By using the Tens Conversion Chart, you can easily convert any raw score, from 0 to 20, into a Tens score.

Please note that the Tens Conversion Chart was created to be used with assessments that have a defined number of items (such as written assessments). However, teachers are encouraged to use the Tens system to record informal observations as well. Observational Tens scores are based on your observations during class. It is suggested that you use the following basic rubric for recording observational Tens scores.

9–10	Student appears to have excellent understanding
7–8	Student appears to have good understanding
5–6	Student appears to have basic understanding
3–4	Student appears to be having difficulty understanding
1–2	Student appears to be having great difficulty understanding
0	Student appears to have no understanding/does not participate

Core Knowledge Language Arts

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