Expert Pack: Body Systems

Submitted by: West Elementary, Gulfport School District, MS
Grade: 2-3 Date: October 2015

Topic/Subject

What are the roles of the human body systems?

Texts/Resources

Book(s)

1. *50 Body Questions: A Book that Spills its Guts*

Article(s)

2. "Head to Toe: Did You Know"
3. "A Kid's Guide to Life Sciences: The Human Body Systems"

Video

4. "So Many Systems"

Other Media

5. "Animal Systems" (Website)
6. "How the Body Works" (Website)

Each expert pack contains a variety of selections grouped to create as coherent and gradual a learning process for students as possible, generally beginning with lower levels as measured by quantitative and qualitative measures, and moving to more complex levels in the latter selections. This gradated approach helps support students' ability to read the next selection and to become 'experts' on the topic they are reading about.

Refer to annotated bibliography on the following pages for the suggested sequence of readings.

Rationale and suggested sequence for reading:

In the first video, **"So Many Systems,"** students are briefly introduced to each body system through song. The song defines each body system and its function. The next resource, **"A Kid's Guide to Life Sciences: The Human Body Systems"** defines the systems in student friendly terms. Students learn that body systems are made of smaller parts that work together. Students then begin to explore the human body systems by reading, "**Animal Systems"** furthering their understanding on how body systems depend on one another. Students then read excerpts from the book, ***50 Body Questions***, which provides a humorous twist on the systems encouraging students to seek more detailed information. **"Head to Toe: Did You Know,"** provides students with interesting trivia facts relating to the human body. The expert pack culminates with an interactive website **"How the Body Works"**, which immerses students in each body system with text, video, quizzes, and other activities.

The Common Core Shifts for ELA/Literacy:

1. Regular practice with complex text and its academic language
2. Reading, writing and speaking grounded in evidence from text, both literary and informational
3. *Building knowledge through content-rich nonfiction*

Though use of these expert packs will enhance student proficiency with most or all of the Common Core Standards, they focus primarily on Shift 3, and the highlighted portions of the standards below.

College and Career Readiness Anchor Standards for Reading Literary and/or Informational Texts *(the darkened sections of the standards are the focus of the Expert Pack learning for students)*:

1. ***Read closely to determine what the text says explicitly and to make logical inferences from it*;** cite specific textual evidence when writing or speaking to support conclusions drawn from the text.
2. ***Determine central ideas or themes of a text*** *and analyze their development*; summarize the key supporting details and ideas.

10. **Read and comprehend complex literary and informational texts independently and proficiently**

Annotated Bibliography
and suggested sequence for reading

N/A "So Many Systems"

Author: Unknown

Genre: Informational video; includes graphics, animation, song, and focus on vocabulary

Length: 3:26

Synopsis: This video teaches about the human body systems including circulatory, digestive, endocrine, nervous, skeletal, muscular, reproductive, and respiratory.

Citation: So Many Systems [Video file]. (April, 2012). Retrieved from

https://www.youtube.com/watch?v=0yjLJfz6saU

Cost/Access: $0.00

Recommended Student Activities: Quiz Maker

950L "A Kid's Guide to Life Sciences: The Human Body Systems"

Author: Accuterm

Genre: Informational; article

Length: N/A

Synopsis: This abstract provides a student friendly definitions of each body system.

Citation: Accuterm (2015). "A Kid's Guide to Life Sciences: The Human Body Systems."

http://www.accuterm.com/life-sciences.html

Cost/Access: $0.00

Recommended Student Activities: Pop Quiz

900L "Animal Systems"

Author: Unknown

Genre: Website; clear subject headings, focus on vocabulary, infographics

Length: N/A

Synopsis: Each section answers the following questions for each system: “what does this system do?” and “how does this system interact with other systems?” This website includes a quiz for each body system and provides detailed information on each system.

Citation: Animal Systems (2015). Retrieved September 9, 2015, from

http://www.biology4kids.com/files/systems_main.html

Cost/Access: $0.00

Recommended Student Activities: Interactive online quizzes

N/A ***50 Body Questions: A Book That Spills Its Guts***

Author: Tanya Lloyd Kyi

Genre: Informational; this title provides answers to 50 questions through seven cleverly titled chapters.

Length: 108 pages

Synopsis: Each chapter is dedicated to a different topic, such as "That Takes Guts" for digestion, "Blood Ties" for the brain and lung, and "Gray Matters" for the brain. While answers are brief and succinct, readers will find themselves amused by the witty illustrations and inspired to seek more detailed sources. Text boxes disguised as blood spatter "Body Bytes" and band aid–covered areas expand upon the answers and give information on key people and events. Each chapter concludes with a related "Body Busters" activity that can be completed with basic supplies, including making synthetic snot and testing balance and reflexes. A fun and quirky romp through human anatomy.—Meaghan Darling, Plainsboro Public Library, NJ

Citation: Kyi, Tanya Lloyd (2014). *50 Body Questions: A Book that Spills It’s Guts.* Annick Press.

Cost/Access: $14.95

Recommended Student Activities: Body Buster Activities at the end of chapters or Picture of Knowledge

890L **“Head to Toe: Did You Know”**

Author: Unknown

Genre: Informational; facts are presented in list format

Length: 2 pages; 492 words

Synopsis: This article provides useful and interesting facts that spark student interest in the body systems.

Citation: “Head to Toe: Did You Know.” *Old Farmer’s Almanac for Kids.* 2013. Vol. 5, p186-187. 2p.

http://www.almanac.com/blog/everything-almanac-blog/head-toe-did-you-know

Cost/Access: $0.00

Recommended Student Activities: Quiz Maker

N/A "How the Body Works"

Author: Kids Health

Genre: Website; interactive

Length: N/A

Synopsis: This website provides articles, movies, activities, quizzes, and word finds for each individual body system. The site is interactive and animated.

Citation: How the Body Works (2015). Retrieved September 9, 2015, from

http://kidshealth.org/kid/htbw/

Cost/Access: $0.00

Recommended Student Activities: Quizzes, Activities, and word finds found on the website

Supports for Struggling Students

By design, the **gradation of complexity** within each Expert Pack is a technique that provides struggling readers the opportunity to read more complex texts. Listed below are other measures of support that can be used when necessary.

- Provide a brief **student-friendly glossary** of some of the academic vocabulary (tier 2) and domain vocabulary (tier 3) essential to understanding the text
- Download the Wordsmyth widget to classroom computers/tablets for students to access student-friendly definitions for unknown words. http://www.wordsmyth.net/?mode=widget
- Provide brief **student friendly explanations** of necessary background knowledge
- Include **pictures or videos** related to the topic within and in addition to the set of resources in the pack
- Select a small number of texts to **read aloud** with some discussion about vocabulary work and background knowledge
- Provide **audio recordings** of the texts being read by a strong reader (teacher, parent, etc.)
- **Chunk the text** and provide brief questions for each chunk of text to be answered *before* students go on to the next chunk of text
- Pre-reading activities that focus on the **structure and graphic elements** of the text
- Provide **volunteer helpers** from the school community during independent reading time.

Why Text Sets Support English Language Learners

Those acquiring English as a second language have to learn many words in English to catch up with their English-only peers. Vocabulary builds at a much quicker pace when reading a set of connected texts. Text sets are an adaptable resource perfect for building knowledge and vocabulary. Student use of text sets can vary in terms of independence or teacher supports based on the individual needs of the students in the room. Activities found within the text set resources reflect several best practices for English Language Learner instruction including:

- Providing brief, engaging texts that provide a high volume of reading on a topic.
- Providing web-based resources and/or videos that are tied to the content of the texts students are reading.
- Providing opportunities for students to learn new vocabulary through the use of student-friendly definitions in resource-specific glossaries.
- Allowing for options to reinforce newly learned vocabulary and/or content through graphic organizers.
- Providing opportunities for students to reinforce new vocabulary through multi-modal activities including written work, group discussion, viewing visual content, and reading texts that feature the vocabulary.

Teachers of ELLs may use the protocols on the following pages to provide additional support to students who are struggling to access the content within text sets because they are new to English.

ELL Text Set Protocol Grades K-2

The protocol below assumes that students will be engaged in reading text sets with the support of the teacher and/or another adult staff member. This can be done full class, or in small groups, but will likely require adult support in this grade band.

Please note that this protocol includes options for teachers. This includes the order in which various activities (steps) take place. Individual decisions should be made considering the needs of the students and the demands of the content, keeping in mind that the goal of each scaffold is to allow students to meaningfully access each text and move toward independent, knowledge-building reading.

Step one: Build knowledge and vocabulary as you build student interest and engagement in the topic.

Introduce students to the overall topic/content of the text set, including knowledge demands needed to engage in the content, and domain-specific vocabulary necessary for comprehension. This should be done prior to engaging with the texts themselves – time allotted to this activity should reflect student needs (anywhere from 5 minutes prior to reading, to a full day's lesson is appropriate).

Options for this step include:

- Engage students in reading and discussing auxiliary texts and resources (illustrations, photographs, video clips) on the topic of the text set.
- Pre-teach a few key content-specific terms prior to students engaging with a text set. (Ideas for text-focused vocabulary instruction can be found here.)
- Provide a student-friendly glossary prior to reading each text, with picture support where possible.

If pairing the text set with a Read Aloud lesson, giving students access to the resources in the text set can help build their knowledge and vocabulary prior to engaging with the anchor or primary text, as can access to the resources alongside subsequent reads of the anchor text. The "juicy sentence" discussion is a strategy developed by Dr. Lily Wong Fillmore to help students learn to deconstruct and reconstruct sentences, and to understand how different language features contribute to meaning. Teachers should use the juicy sentence guidance to dig deeply into a sentence or phrase within the read aloud book, to build vocabulary, deepen content knowledge, and support understanding of syntax and grammar. Juicy sentence work should not be done for the other texts in the text set, since the purpose is for students to work rapidly through a high volume of reading to build knowledge.

Step two: Read text orally.

Focusing on one resource at a time, allow students to listen to a fluent read of the resource.

Options for this step include:

- Have the teacher model the first read of a text or resource.
- Use recordings of the text to provide additional opportunities to hear expert reading.

Step three: Engage in group discussion about the content.

Allow students time in partnerships or small groups to discuss the content of the resource.

Options for this step include:

- Allow for discussion/conversation (in the students' home language if possible) with a small group of students reading the same text set prior to writing or provide heterogeneous language groupings to talk about content and discuss what students are learning.
- Provide opportunities to practice using newly acquired vocabulary in the context of discussion.
- Have students refer to the student-friendly glossary included with each passage to identify meanings for new vocabulary necessary for comprehension.

Step four: Write about what was read.

Options for this step include:

- Use the "Rolling Knowledge Journal" and/or "Rolling Vocabulary Journal" as a shared writing routine.

- ∇ Have students complete the "Rolling Knowledge Journal" and/or "Rolling Vocabulary Journal" as independent graphic organizers that help to scaffold the writing process and capture student knowledge over time. Encourage students to use a combination of writing and drawing.
- ∇ Provide students with several supports to help students engage in writing/drawing about what they read:
    - o Use mentor texts about which students can pattern their writing.
    - o Allow them to write collaboratively.
    - o Show students visual resources as prompts, etc.
    - o Provide language supports such as strategically chosen sentence starters.

Repeat steps one through four with each resource in the text set as appropriate.

ELL Text Set Protocol Grades 3-12

The goal of text sets is to help students build knowledge through a volume of independent reading, and it is important that educators provide scaffolds to allow English Language Learners to be successful in engaging meaningfully with the texts, even as students are still developing English language skills. The protocol below can be used for teaching with text set resources as a full class. Students can also be trained on the protocol so that they can utilize text sets in small groups or partnerships as a resource for independent or reciprocal reading and study.

Please note that this protocol includes options for teachers. Individual decisions should be made considering the needs of the students and the demands of the content, keeping in mind that the goal of each scaffold is to allow students to meaningfully access the text and move toward independent, knowledge-building reading.

Step one: Build knowledge and vocabulary.

Introduce students to the overall topic/content of the text set, including knowledge demands needed to engage in the content, and domain-specific vocabulary necessary for comprehension. This should be done prior to engaging with the texts themselves; time allotted to this activity should reflect student needs (anywhere from 5 minutes prior to reading, to a full day's lesson is appropriate).

Options for this step include:

- Engage students in reading and discussing auxiliary texts (of lesser complexity) and resources (illustrations, photographs, video clips) on the topic of the text set.
- Pre-teach a few key content-specific terms prior to students engaging with a text set. (Ideas for text-focused vocabulary instruction can be found here.)
- Provide the student-friendly glossary included in the text set prior to reading each text.
- When possible, allow students to read texts in their home language about the topic under study.

Step two: Read text orally.

Focusing on one resource at a time, allow students to listen to a fluent read of the resource, while following along with their own copy of the text.

Options for this step include:

- Have a fluent reader model the first read of a text or resource.
- Have students engage in a buddy/partner read.
- Use recordings of the text to provide additional opportunities to hear expert reading.

Step three: Engage in group discussion about the content.

Allow students time in partnerships or small groups to discuss the content of the resource.

Options for this step include:

- Allow for discussion/conversation (in the students' home language if possible) with a small group of students reading the same text set prior to writing or provide heterogeneous language groupings to talk about content and discuss what students are learning.
- Have students refer to the student-friendly glossary included with each text set to identify meanings for new vocabulary necessary for comprehension.

Step four: Write about what was read.

Options for this step include:

- Use the "Rolling Knowledge Journal" and/or "Rolling Vocabulary Journal" as a shared writing routine/ graphic organizer to help to scaffold the writing process and capture student knowledge over time.
- Provide students with several supports to help students engage in writing/drawing about what they read:
    - Use mentor texts about which students can pattern their writing.
    - Allow them to write collaboratively.
    - Show students visual resources as prompts, etc.
    - Provide language supports such as strategically chosen sentence starters.

Repeat steps one through four with each resource in the text set as appropriate.

Text Complexity Guide

"Animal Systems" from Biology4Kids

1. **Quantitative Measure**
   Go to http://www.lexile.com/ and enter the title of the text in the Quick Book Search in the upper right of home page. Most texts will have a Lexile measure in this database. You can also copy and paste a selection of text using the Lexile analyzer.

900L

2-3 band	420 -820L
4-5 band	740 -1010L
6-8 band	925 - 1185L
9 -10 band	1050 – 1335L
11 – CCR	1185 - 1385

2. **Qualitative Features**
   Consider the four dimensions of text complexity below. For each dimension*, note specific examples from the text that make it more or less complex.

This text requires the reader to be able to put knowledge of individual body systems together to think about the system as a whole and how the individual systems are interconnected. The concept of regulation within a body system is complicated and somewhat difficult to understand.

Meaning/Purpose

Contains conventional structures such as headings and bolded vocabulary words. The text is supported by well-placed graphics. Includes a supporting video. Navigation on this site can be tricky. At the bottom of the first page students can choose between "next stop on site tour" or "next page on systems". You can also navigate using the side bar. There are a few distracting ads as well.

Structure

Language

There are many unfamiliar domain-specific vocabulary words within each of the systems such as homeostasis, acromegaly, actin, and myosin to name a few. While these are defined within the text there are so many that it makes reading this text difficult.

Knowledge Demands

The reader will need to hold on to information learned in each section and apply it to the next in order to understand how they all work together and are interconnected. The title of this site will require students to understand that this article is talking about humans.

3. **Reader and Task Considerations**
   What will challenge students most in this text? What supports can be provided?
   - Following the order of the text set will help students access this content rich text. After prior knowledge is gained through the other texts, students should be able to pull all of the learning together within this book.
   - There is a glossary provided in this book to help students with some of the more complex vocabulary.
   - Identifying complex sentence features could provide for needed additional instruction for the class.
   - Identifying text features such as captions, maps, and legends could also give needed support.

Expert Pack: Body Systems

Submitted by: West Elementary, Gulfport School District, MS
Grade: 2-3 Date: October 2015

Learning Worth Remembering

Cumulative Activities – The following activities should be completed and updated after reading each resource in the set. The purpose of these activities is to capture knowledge building from one resource to the next, and to provide a holistic snapshot of central ideas of the content covered in the expert pack. *It is recommended that students are **required** to complete one of the Cumulative Activities (Rolling Knowledge Journal or Rolling Vocabulary) for this Expert Pack.*

1. Rolling Knowledge Journal

1. Read each selection in the set, one at a time.
2. After you read *each* resource, stop and think what the big learning was. What did you learn that was new *and important* about the topic from *this* resource? Write, draw, or list what you learned from the text about (topic).
3. Then write, draw, or list how this new resource added to what you learned from the last resource(s).

Sample Student Response

Title	Write, Draw, or List	
	New and important learning about the topic	**How does this resource add to what I learned already?**
1. "So Many Systems"	The body is made up of many systems. They are endocrine - has a whole bunch of glands- to regulate hormones, excretory - gets rid of waste your body it sees as poison , nervous - controls what you do- when to eat, what you feel, your brain tells you, reproductive - allows us to make life, digestive - breaking down food so we can be healthy, bringing in nutrients and energy to help me, respiratory - breathing to keep my cells alive- got to get that oxygen so my cells can thrive, circulatory - moves blood throughout your body,	I knew that our bodies were made up of different systems, but I did not know exactly how many systems that was.

	muscular – tissues in our body contract and relax tied together with tendons on the bone , skeletal - connected by your joints in your arms and legs and neck, the skeleton's main job is to protect!, immune - protects your body- keeping out germs and infections Each system has a function to perform to make the body work.	
2. "A Kid's Guide to Life Sciences: The Human Body Systems"	Each system is made up of smaller parts like cells, tissues, and organs and together they form a system.	I learned why it is important to take care of our bodies because everything is connected and if one part is neglected, it has an effect on the rest of our body as well.
3. "Animal Systems"	A system is a group of organs that work together and provide an organism with an advantage for survival. It is the most complex organization in your body and the final level of the progression from cells to **tissues** to **organs** and then **systems. I also learned that systems can work alone or together.**	I learned how different body systems depend on each other to function every day.
4. 50 Body Questions: A Book that Spills Its Guts	Each system works together to help a normal healthy person function every day. If you were missing a system, you would not be able to complete some task that you currently do today.	I learned that each body system is vital for a human to function properly.
5. Head to Toe! Did you Know?	The funny bone isn't a bone at all. It's a nerve that runs from the elbow to the fingers. The ulnar nerve tingles when bumped against the humerus, the long bone that goes from the elbow to the shoulder.	Not only did I learn about the funny bone, I learned other interesting facts about the human body.
6. "How the Body Works"	Choose 5 items from this interactive lesson and tell which system it belongs to and why.	I learned what body systems are and how they work together. I can use characteristics to relate everyday body parts to the body system in which they belong to.

2. Rolling Vocabulary: "Sensational Six"

- Read each resource then determine the 6 words from each text that most exemplify the central idea of the text.
- Next use your 6 words to write about the most important idea of the text. You should have as many sentences as you do words.
- Continue this activity with EACH selection in the Expert Pack.
- After reading all the selections in the Expert Pack, go back and review your words.
- Now select the "Sensational Six" words from ALL the word lists.
- Use the "Sensational Six" words to summarize the most important learning from this Expert Pack.

	Six Vocabulary Words & Sentences
"So Many Systems"	**Words: systems, immune, nutrients, toxins, tissue, tendons** **Sentences:** 1. There are so many systems in the human body and each of those systems have a job. 2. The immune system protects the body from harmful illnesses. 3. The digestive system breaks down and brings in nutrients to make us healthy. 4. Systems pass on nutrients and take out toxins that are harmful to our bodies. 5. The muscular system is made of tissues. 6. Tissues are made of cells and tendons that are tied together to the bones to keep our skeletons intact.
"A Kid's Guide to Life Sciences: The Human Body Systems"	**Words: connectors, function, chemicals, substances, transport, expel** **Sentences:** 1. There are eight body systems and each of the body systems has a specific function. 2. The Nervous System has connector neurons (nerves) that communicate by sending messages throughout the body. 3. The endocrine system has glands that are in charge of moving chemicals and hormones through the body. Different chemicals are created and changed throughout the body by various systems. 4. The skin is an organ that is part of the immune system and it keeps harmful substances out of the body and holds helpful substances in. 5. The circulatory system works as the body's transport system and it is made up of a group of organs that transport blood throughout the body. T

	6. The excretory system expels chemicals, toxins, and waste by using organs (kidney, liver, and skin).
"Animal Systems"	**Words: organ, organism, classified, aquatic, cells, collagen** **Sentences:** 1. An animal body system is a group of organs that work to help an animal or organism survive. 2. Organisms have body systems with certain cells or tissues that have specific functions or jobs. 3. There are many organ systems found in the animal kingdom and they are classified or placed into different groups. 4. Land and water mammals have organ systems that help them adapt and survive in their environment. For example, aquatic or water animals have special organs that remove salt from salt water. 5. Cells are the smallest part of body systems that hold biological equipment that organisms need to stay alive. 6. Connect tissues like collagen help the body heal broken bones and damaged tissue.
50 Body Questions: A Book that Spills Its Guts	**Words: bile, cerebral cortex, diaphragm, marrow, mucus, trachea** **Sentences:** 1. Bile is a thick yellow or greenish fluid produced by the liver to help the body digest fats in the small intestine. 2. The gray matter or cerebral cortex, is the brain's outer layer and it helps us process information. 3. When the diaphragm (dome shaped muscle that helps you breathe) gets irritated it forces air from your lungs in a funny way. 4. Bone marrow is a thick, spongy kind of jelly inside your bones and it makes all kinds of blood cells. 5. When you think of mucus or snot is that sticky stuff inside your nose but you will also find it in your mouth, lungs, stomach, and intestines. Mucus protects and lubricates mucous membranes in your body. 6. The trachea or windpipe carries air in and out of your lungs.
"Head to Toe: Did you Know"	**Words: trimmed, vessels, retina, mature, ulnar nerve, humerus** **Sentences:** These are some of the interesting facts about the human body systems 1. There are five million hairs of the human body and if a man never trimmed his facial hair or beard it would grow to be 30 feet.

	2. A human brain has 400 miles of blood vessels. 3. The retina (part of the eye) has 130 million light sensitive cells and it is only the size of a postage stamp. 4. Mature adults (grown-ups) have 200 bones but babies have 206 bones. 5. The funny bone is really a nerve called ulnar nerve that stretches from the elbow to the fingers. 6. It reaches across the humerus (long bone that goes from elbow to shoulder) and it tingles when it is bumped.
"How the Body Works"	**Words: diagram, flexible, anchored, microscopic, infections, bladder** **Sentences:** 1. The diagram shows each part of the body system. 2. The skeletal muscles make the bones flexible by allow us to flex and move our skeletal system. The tongue is also a flexible muscular organ in the mouth. 3. Skeletal muscles are firmly anchored to the skeleton. 4. There are visible and microscopic parts of each body system. Cells (building blocks) make up tissues which make up organs are microscopic and can only be seen with a microscope. 5. The immune system fights infection in the human body. 6. Smooth muscles are also found in your bladder and when they are relaxed they help you hold in urine until you can go to the bathroom.
Sensational Six	systems, function, chemicals, organs, cells, transport, expel

Summary:

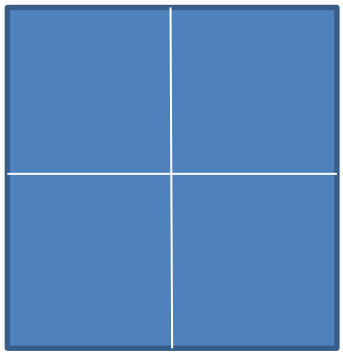
The human body is made of many systems. These body systems are constructed of cells which form tissues to create organs. The eight body systems have different functions. Body systems transport chemicals throughout the body to help it survive. Harmful chemicals are expelled by body systems.

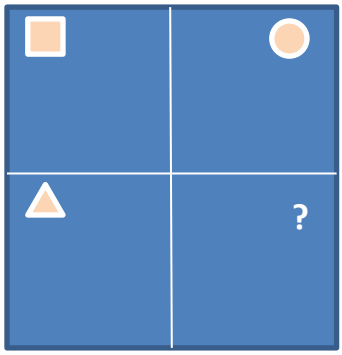
Learning Worth Remembering

Singular Activities – the following activities can be assigned for each resource in the set. The purpose of these activities is to check for understanding, capture knowledge gained, and provide variety of ways for students to interact with each individual resource. Students may complete some or none of the suggested singular activities for each text. Singular activities should be assigned at the discretion of the teacher.

1. **A Picture of Knowledge** (Recommended for *50 Body Questions: A Book that Spills Its Guts*)

- Take a piece of paper and fold it two times: once across and once top to bottom so that it is divided into 4 quadrants.
- Draw these shapes





1. Square
2. Triangle
3. Circle
4. Mark

- Write!

Square:	What one thing did you read that was interesting to you?
Triangle:	What one thing did you read that taught you something new?
Circle:	What did you read that made you want to learn more?
Question Mark:	What is still confusing to you? What do you still wonder about?

- Find at least one classmate who has read [selection] and talk to each other about what you put in each quadrant.

1. **Quiz Maker** (Recommended for "So Many Systems" and "Head to Toe: Did you Know")

- Make a list of # questions that would make sure another student understood the information.
- Your classmates should be able to find the answer to the question from the resource.

- Include answers for each question.
- Include where you can find the answer in the resource.

Question	**Answer**
1.	
2.	
3.	

2. **Pop Quiz** (Recommended for "A Kid's Guide to Life Sciences: The Human Body")
   Answer the following questions.

Question	**Possible Answer**
1. What is the largest function of the nervous system?	The brain.
2. Explain what a gland is.	A bunch of cells that release chemicals
3. Which organ keeps harmful substances out of the body and beneficial substances in?	The skin.
4. List the human body systems.	Nervous, Circulatory, Skeletal, Excretory, Muscular, Digestive, Immune, Endocrine, Respiratory.
5. Choose one body system and explain why it is important.	

Expert Pack: Body Systems

Submitted by: West Elementary, Gulfport School District, MS
Grade: 2-3 Date: October 2015

Expert Pack Glossary

"So Many Systems"

Word	*Student-Friendly Definition*
Systems	A group of related things or parts that work together as a whole. The human body **systems** work together to keep your body functioning properly.
Immune	To be protected from disease. I had chicken pox as a child, so I'm sure I'm **immune** to it now.
Nutrients	Things that nourish. **Nutrients** are found in food.
Esophagus	A muscular tube that takes food from our mouths to our stomach. The spicy food burns my **esophagus** on the way to my stomach.
Kidneys	A pair of organs located high in the abdominal cavity near the spine which remove waste products from the blood and excrete them in urine. The **kidneys** are an essential part of the excretory system.
Toxins	A group of poisonous substances secreted by microorganisms. These bacteria secrete **toxins** that can cause illness.
Oxygen	A colorless, odorless gas essential to the respiration of living things. We breathe **oxygen** into our lungs.
Tissue	A mass of like cells in an animal or plant body. Cells form a specific organ like heart **tissue**.
Tendons	A cord or band of tough white fibrous tissue that connects a muscle with a bone or other part. The runner pulled a **tendon** and will need weeks to recover.

"A Kid's Guide to Life Sciences: The Human Body Systems"

Word	*Student-Friendly Definition*
Connectors	To join together or link. Ligaments are **connectors** found in the body.
Neurons	A single nerve cell. **Neurons** send messages to the brain.
	To do some kind of work.

Function	One body system cannot **function** without the others.
Glands	Various organs or cells that produce secretions in a living thing. Often when you are sick, your **glands** will swell.
Metabolism	The processes in plants and animals by which food is changed into energy or used to make cells and tissues. When we exercise, our rate of **metabolism** increases.
Chemicals	A substance used in or made by a chemical process. Smoke is a harmful **chemical** to the human body when inhaled over long periods of time.
Carbon Dioxide	A colorless, odorless, gas. Humans breathe in oxygen and exhale **carbon dioxide**.
Substances	What something is made of. Good and Bad **substances** can enter your body through food and germs.
Beneficial	Having a good or favorable affect; helpful. Eating fruits and vegetables is **beneficial** to the human body.
Transport	To carry from one place to another. Blood vessels **transport** blood throughout the body.
Expel	To drive out forcibly. The teacher **expelled** air when she sighed.
Secrete	To produce a fluid or other substance and release it into or out of the body. The skin **secretes** salt when you sweat.

"Animal Systems"

Word	*Student-Friendly Definition*
Organ	A group of tissues in a living organism that has a specific form and function. **Organs** are grouped together into **organ** systems.
Organism	A living thing that can function on its own. An **organism** includes your pet guppy, the tree in your backyard, and — of course — you.
Survival	A state of remaining alive. A living thing needs certain things for **survival.**
Classified	Arranging things in groups with similar things. Every known living organism on Earth is **classified** and named by a set of rules.
Aquatic	Living or found near water. **Aquatic** plants or animals live in ponds, lakes, and other bodies of water.
Pupils	The opening in the iris through which light enters the eye. Your **pupils** get larger in a dark room and smaller in a lighted room.

Absorb	To take in liquid in a gradual or natural way. Your body **absorbs** water. A towel **absorbs** water.
Cells	The basic structural and functional unit of all organisms. **Cells** may exist as independent units or in colonies or tissues.
Collagen	A fibrous protein found in bone, cartilage, tendons and other connective tissue. **Collagen** is the most abundant protein in the human body and is the substance that holds the whole body together.
Torso	Part of the body excluding the head, neck and limbs. Your **torso** is shaped like a rectangle.

50 Body Questions: A Book that Spills Its Guts

Word	*Student-Friendly Definition*
Alveoli	Tiny sacs inside your lungs, where red blood cells pick up oxygen and drop off carbon dioxide. **Alveoli** are found in the lungs of mammals.
Bile	A yellow brown goo produced by your liver. **Bile** helps the body digest fat.
Cerebral cortex	The top layer of your brain, and the outside layer of your cerebrum. Most of your thinking occurs in the **cerebral cortex.**
Diaphragm	The big muscle along the bottom of your rib cage. Your **diaphragm** contracts when you inhale.
Marrow	The soft tissue inside of bones. Blood cells are made inside the **marrow**.
Mucus	A slippery goo that coats the inside of your respiratory and digestive tracts to help protect the tissues underneath. **Mucus** comes out of your nose when you blow it.
scurvy, smallpox, polio	These are different diseases or illnesses. **Scurvy, smallpox, and polio** are very dangerous diseases.
Trachea	Your windpipe. The **trachea** carries air down your throat toward your lungs.

"Head to Toe: Did You Know"

Word	*Student-Friendly Definition*
Trimmed	To make neat, orderly, or manageable by cutting, clipping, or otherwise removing excess material. The man **trimmed** his beard to make it shorter.

Vessels	A tube-shaped structure through which blood and other bodily fluids are carried; artery; vein. The aorta is a large blood **vessel** that leads from the heart. Both veins and arteries are **vessels** through which blood flows.
Retina	The part of the eye at the back of the inside of the eyeball. The human **retina** has over 100 million photoreceptors.
Mature	Fully grown or developed, as a plant, animal, or human. As you grow parts of your body **mature** at different times.
Ulnar nerve	Bundles of fibers forming a system that carries stimuli and impulses to and from the brain and other parts of the body. A pinched ulnar nerve can cause a lot of pain for a person.

"How the Body Works"

Word	*Student-Friendly Definition*
Diagram	A drawing or plan that shows the parts of something or how the parts work together. He drew a **diagram** to show me how my eye works.
Flexible	Easily bent without breaking. Our bones are not very **flexible.**
Anchored	Held in place. Our tongue is **anchored** to our mouth.
Microscopic	Too small to be seen with the eye. Viruses are **microscopic.**
Infections	A germ or sickness that causes something to be infected. Everyone in school is sick from an **infection.**