

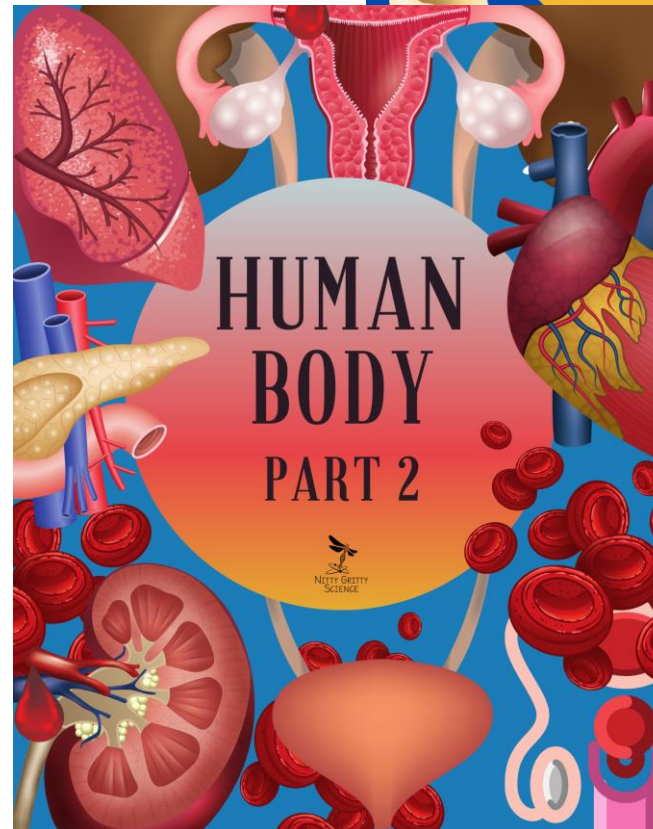
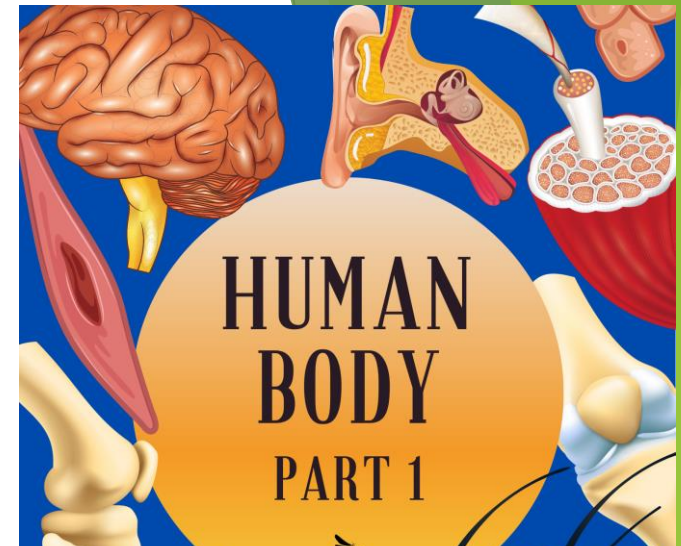
Human Body



Human Body Unit includes two units –
Human Body Part 1 & Human Body Part 2

Each unit includes:

- Print and digital Interactive Notebooks
- Editable Resources including notes, PowerPoints, and test
- Instructional Videos
- Teacher-led Demos & Guided Inquiry Labs
- Task Cards & Digital Task Cards
- Study Guides





Suggested Pacing Guide



The following is a **suggested pacing guide** for my COMPLETE COURSES (Earth, Life or Physical Science) which are based on 50-minute class periods. There are three variations below. Each variation is based on the **number of sections in your SCIENCE INTERACTIVE NOTEBOOK chapter**.

Based on a **4-Section Chapter**

Day	Lesson/Activity	Engage	Explain	Explore	Elaborate	Evaluate
1	• Teacher Demo	x				
	• Section 1 Notes – INB input		x			
	• INB Activity – INB output (homework if not completed in class)			x		
2	• Mini-quiz					x
	• Section 2 Notes – use PowerPoint		x			
	• INB Activity			x		
3	• Mini-quiz					x
	• Guided Inquiry Lab – Student Led			x		
4	• Section 3 Notes – use PowerPoint		x			
	• INB Activity			x		
5	• Mini-quiz					x
	• Section 4 Notes – use PowerPoint		x			
	• INB Activity			x		
6	• Mini quiz					x
	• Science Stations				x	
7	• Science Stations				x	
8	• Final draft and testing for Creation Station (STEM)				x	x
9	• Task Card Review (game-style, full class, partner)				x	
10	• Chapter Test					x
	• Have students complete notes for next chapter*	x				

* **Note-taking option:** Once students are done with chapter test, they get the next set of notes and work quietly on completing them while other students finish up. All notes are to be completed when they return to class. Have students glue each page of notes into the next few pages of their INB (right side only). This way, when you go over the PowerPoint each day, they have already reviewed topic and are ready for class.

5 E Model

Engage – Teacher-led demos foster wonder and classroom discussion and serve as the hook for the lesson. Videos and images of natural phenomena also foster questioning and communication. NGSS phenomena are aligned to middle school NGSS standards.

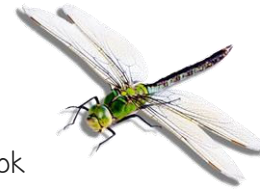
Explain – PowerPoints, instructional videos, and guided notes (input side of interactive notebooks) provide definitions, explanations, and information through mini-lecture, text, internet, and other resources which encourages students to explain concepts and definitions in their own words.

Explore – Students investigate problems, events, or situations. As a result of their mental and physical involvement in these activities, students question events, observe patterns, identify and test variables, and communicate results.

Elaborate – It is important to involve students in further experiences that apply, extend, or elaborate the concepts, processes, or skill they are learning. Elaborate activities provide time for students to apply their understanding of concepts and skills. They might apply their understanding to similar phenomena or problems.

Evaluate – Use a variety of assessment to gather evidence of student's understanding and provide opportunities for them to assess their own progress.

Student Interactive Notebook



Each concept shares:

- Actual photos of both the INPUT and OUTPUT pages of Science Interactive Notebook
- Instructions on how to create/use/complete activity for OUTPUT side
- Mini-Quizzes for each concept to check students' understanding
- Answer Keys for all mini-quizzes
- Appendix with Teacher Notes for Interactive Notebook in LARGE print.

Section 2: Muscular System

Directions: Cut out the following pockets and flashcards. For color in the muscle that is named at the top of each card. Then paste the "Anterior Muscles" pocket and "Posterior Muscles" into the Science Interactive Notebook and place completed flashcards in appropriate pocket.

Muscular System

Directions: Cut out the following pockets and flashcards. For color in the muscle that is named at the top of each card. Then paste the "Anterior Muscles" pocket and "Posterior Muscles" into the Science Interactive Notebook and place completed flashcards in appropriate pocket.

Anterior Muscles

Posterior Muscles

Name _____ Date _____

Quiz: Muscular System

1. List the three types of muscle tissue.
2. To the diagram to the right, fill in the anterior or posterior location?
3. What is the difference between voluntary and involuntary muscles?
4. Label the muscle, labeled "A".
5. Label the muscle labeled "B".
6. Label the muscle labeled "C".

The Skeleton

Directions: Please help - the computer shut down unexpectedly before the labeled skeleton was saved. Use the word bank to label the skeleton. Then cut and paste the "laptop" into your Science Interactive Notebook. Make sure to cut out the vertical line so the laptop stays open.

Name _____ Date _____

Quiz: The Skeleton

Matching

1. skeleton
2. red marrow
3. joints
4. perosteum
5. pivot joint
6. hinge joint
7. sliding joint
8. cartilage

a. soft connective tissue that produces blood cells
b. joint with back and forth motion
c. one bone rotates around another
d. rubbery layer of tissue found where two bones meet
e. these joints are found in the wrist
f. tough membranes covering a joint
g. any place where two or more bones meet
h. made up of all the bones in the body

Name _____ Date _____

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Section 4: Nervous System

Instructions: This is a great activity to get students thinking about the nervous system and their brain. They will love determining which side of their brain is more dominant, which will lead to discussions among group members about other possible personality traits or actions that may be controlled by the right and left brain. A short reading is included, along with the task table, brain diagram, and a mini-quiz.

Right or Left Brain Dominant?

Introduction: Human brains are like a complex computer system that is divided into two hemispheres. Each hemisphere controls different skills or ways of thinking. The right hemisphere of the brain is referred to as the analog brain. It controls the sense, creativity and artistic senses, processing information from the "big picture" then looking at the details. The left brain is sometimes referred to as the digital brain since it controls logical thinking, reading and writing and processes information in an analytical and sequential way.

The funny thing about our brain, however, is that our right and left hemispheres control the opposite side of our bodies. For instance, the right hemisphere controls our left side movements and what our left eye sees, whereas our right hemisphere controls the right side of our body and processes what our right eye sees.

Even though humans tend to have a more dominant side, both sides of the brain are used and thought processes shift between the two sides since they have different skills and different ways of thinking. So next time you're working with your group, try to be aware that he or she may be using a different brain hemisphere than you. It's also important to be aware that they may process information differently. It's also important to be aware that they may process information differently. It's also important to be aware that they may process information differently.

LEFT BRAIN FUNCTIONS	RIGHT BRAIN FUNCTIONS
uses logic	uses logic
detail oriented	detail oriented
fact rule	fact rule
words and language	words and language
present and past	present and past
math and science	math and science
knowing	knowing
acknowledges	acknowledges
pattern perception	pattern perception
knows object name	knows object name
reality based	reality based
forms strategies	forms strategies
safe	safe

Directions: Identify which of your brain hemispheres may be more dominant for each task in the data table. Mark whether the task was right-dominant or mark both if the task could be done easily with both your left and right sides. When you are finished with the tasks, cut out the table and fold it with the opening in the center. Paste brain diagram on the front of shuttle with the opening in the center, and then color the hemisphere that was your dominant side in your Science Interactive Notebook.

The Intestines Cut-out

Labels: Stomach, Large Intestine (Colon), Small Intestine, Rectum, Anus, Sigmoid Colon.

Student Digital Notebook

The student notebook is on Google Drive and ready for you to share with your students. Here's a quick overview of the features:

Set up like a traditional interactive notebook with input and output sides.

Hyperlinked tabs so student can easily move through chapter for review

Students watch video < 6 min to complete notes.

Directions: Click the heart icon below to access the PDF, open in Kami. Follow the directions and complete the activity described. Label the heart diagram using the vocabulary words below. You may choose to do this in Kami as well and insert completed heart.

inferior vena cava
superior vena cava
pulmonary artery
right ventricle
left ventricle
aorta
right atrium
pulmonary vein
left atrium

THE HEART: WHAT A MUSCLE!

CARDIOVASCULAR SYSTEM

Cardiovascular System -

The heart -

- > Has four chambers - _____ are the two upper chambers; _____ are the two lower chambers
- > _____ is the wall that separates the right side from the left side
- > _____ is a group of cells located in the _____ atrium that sends out a signal to make the heart _____
- > _____ separates _____ atria from the ventricles and prevents _____ from flowing backward (lub-dub is opening and closing of valves)

Blood Vessels -

- > Arteries -
- > Veins -
- > Capillaries -

Pattern of blood flow → through two "loops" with heart at center

Loop one -

Loop two -

The Cardiovascular System (Aka The Circulatory System)

Digital Textbook

For further exploration, click button(s) below:

Heart, Structure, and Function

Encouraging independent learners. Directions for output side are here along with what they need to complete the activity.

Notes are chunked into manageable sections with large spaces for textboxes

Some pages have links so students can go deeper into the topic if they need.

Demos, Labs, & Science Stations

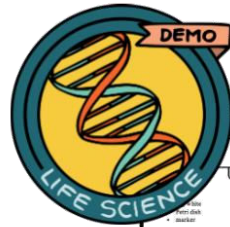
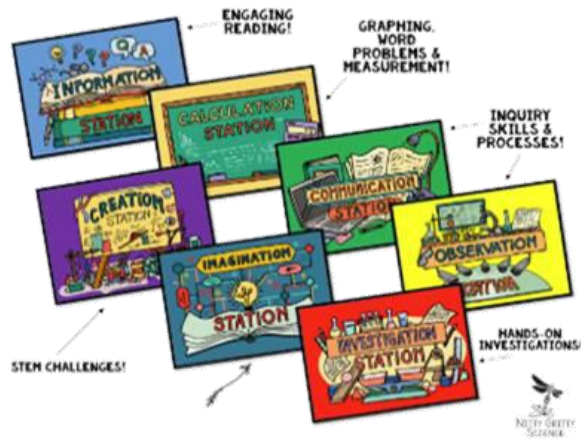


Working in the lab and being engaged in science experiments is the most exciting part of science.

Demo, Labs, and Science Stations Includes:

1. **SCIENCE STATION SIGNAGE** for all 7 stations is provided in color and in black and white (see preview) and all student answer sheets have icons that correspond with each station for ease of use.
2. **DEMONSTRATION** (teacher-led) allows teachers to invite scientific discussions and can help uncover misconceptions and, most importantly, lead to heightened curiosity and interest in the topic being studied.
3. **GUIDED INQUIRY LAB** which is a traditional lab that allows students to perform an investigation in order to solve a problem. Students will hypothesize, collect and analyze data and communicate their results.
4. **TEACHER GUIDES to DEMOS & SCIENCE STATIONS** help get you started and give you background information to make your science lessons engaging.
5. **7 SCIENCE STATIONS** which are designated locations in the classroom with activities that challenge students to extend their knowledge and elaborate on their science skills by working independently of the teacher in small groups or pairs. Stations included are:
 - **INFORMATION STATION** – Group members will read an interesting and relevant science passage then complete a task to help increase science literacy and deepen their understanding of the science concept.
 - **OBSERVATION STATION** – Group members will have images, illustrations, or actual samples at this station that show applications or processes of the science topic. Using what they've learned, they will need to apply their observation skills to complete the questions attached to each.
 - **CALCULATION STATION** – Group members use their math skills to complete the station challenge. Skills may include graphing, analyzing data, using models, measurement, and calculating formulas or word problems.
 - **INVESTIGATION STATION** – Group members will work with one another to explore the concept through hands-on activities so they may practice specific inquiry process skills as they learn.
 - **COMMUNICATION STATION** – There are three different options for this station: interviews, video, group essay. Depending on the option you choose, group members will communicate what they know by answering questions in creative ways.
 - **CREATION STATION** – Group members will work together to solve a STEM (Science, Technology, Engineering, Math) challenge by creating models or designs that demonstrate their understanding of the science topic being taught.
 - **IMAGINATION STATION** – This station makes science concepts relevant for students by asking them to imagine scenarios that will bring about discussion and critical thinking.
6. **INQUIRY PROCESS SKILLS CHECKLIST** is provided with each set to show teachers and administrators the inquiry skills used by students in each activity. These skills include, but are not limited to, communicating, creating models, inferring, classifying, identifying variables, measuring, observing, predicting, gathering and organizing data, comparing and contrasting, interpreting data, and manipulating materials.

SCIENCE STATIONS



Eye Safety

SCIENCE SKILLS AND LAB SAFETY

Name: _____ Date: _____

Procedure:

1. Draw an eye on the underside of the Petri dish and display for class using the projector.
2. Crack open the egg and place the egg white only in the Petri dish.
3. Explain that the proteins in egg whites are similar to those found in the protective layer of the eye.
4. Tell them that someone was not being cautious and has splashed acid into their eye - add drops of acid to the egg white.
5. Ask students to make observations of what is happening to the egg white.
6. Try adding water to reverse the effects. Have students make observations.

What's Happening?

The proteins in the egg white become cloudy when the acid is causing a denaturation of the proteins. This can't be reversed chemically because acid is added and is not removed that is chemical reactions occur around their eyes or skin if not used properly. Students must be made aware of the safety procedure associated with such as wearing goggles, gloves and aprons. Make sure they are aware of safety equipment - eye wash station, showers, fire blanket, etc.

Discussion:

Q: What happened to the "eye"?

A: The protective layer became cloudy and damaged the eye.

Q: What type of safety equipment must be worn when doing Lab?

A: goggles, apron, lab kit, gloves

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Discussion questions and teacher set-up included!

Teacher guide and answer key offered for every lab!

Easy-to-get materials!



Measure with SI Units

SCIENCE SKILLS AND LAB SAFETY

Name: _____ Date: _____

The standard system of measurement used by scientists around the world is known as the International System of Units, which is abbreviated as SI. SI units are easy to use because they are based on multiples of 10. Each unit is ten times larger than the next smallest unit and one-tenth the size of the next largest unit. The following table lists the prefixes used to name the most common SI units.

Prefix	Symbol	Abbreviation
kilo-	k-	1,000
hecto-	h-	100
deca-	da-	10
deci-	d-	0.1
centi-	c-	0.01
milli-	m-	0.001

Materials:

- scattered seeds
- tape
- balance
- postage scale
- capsaicin (strong) small milk cartons
- fertilizer solution
- metric ruler
- 50 mL graduated cylinder
- colored pencils

Safety:

Wear goggles and gloves.

USER-FRIENDLY PAGES:

Students easily recognize which answer sheet to use at each station by matching station icons located on each page!!

Drip, Drop, Splat!

How does the density of a liquid and drop height affect the size and shape of droplet splatters?

Materials:

- colored water (graduated cylinder A)
- colored syrup (graduated cylinder B)
- eye dropper
- paper
- metric ruler
- meter stick

Procedure:

1. Make a hypothesis of how density of a liquid will affect splatter size on your lab sheet.
2. Place the piece of paper down on the lab table in order to catch splatters.
3. Measure the heights listed in the data table using a meter stick. Place meter stick with end starting at zero on paper and move up stick when increasing height of drop.
4. Use the eye dropper to drop ONE drop of colored water and ONE drop of colored syrup. Make sure to drop on different places on paper.
5. Measure the size of the splatter in MILLIMETERS. Record in data table on answer sheet.
6. Repeat for each height.
7. Use the collected data to graph the splatter size versus drop height for each liquid.

Analyze and Conclude

1. Was your hypothesis correct? Explain.
2. What are two controls in your experiment that helped you collect the most accurate data possible?

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TEACHERS SAVE TIME:
Laminate station pages and reuse for each class and for years to follow!
Inquiry skills used are timeless!

Name: _____ Date: _____

Hypothesis

Drop Height (cm)

	3	25	50	75	100
Colored Water					
Colored Syrup					

Height of Drop vs. Splatter Size

Number of Drops (mm)

Size of Splatter (mm)	Water	Syrup
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		

Analyze and Conclude:

1. _____
2. _____

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Instructional Videos



The Intro to Life Science Instructional Videos and Digital Assessments are designed to help teachers move instruction from the group learning space to the individual learning space. Not only does this give students independence in their learning, but it also allows more time for dynamic and interactive learning when teachers meet with students in a group setting.

This resource is perfect for:

- Flipped Classroom
- Absent students
- 1:1 Classrooms
- Sub Plans
- Hybrid Schedules
- Teachers who want more time to guide students as they apply concepts and engage creatively in the subject matter

Features of this resource include:

- Instructional videos which are six minutes or less to keep students focus
- Videos and assessments can be completed independently
- Auto grading and reporting in Google Forms
- Share link with students through educational platforms or email
- Quizzes are editable with 5 – 8 questions per quiz
- Information in video pairs with Nitty Gritty Science Interactive Notebooks

Task Cards & Digital Task Cards

Task cards are a great tool for concept review that can be used in a variety of ways - pairs, small groups, team games, or individually. The reason they are so effective is there is only ONE task per card, allowing students to focus on that single task until they have successfully completed it. Answers sheet and answer key for teachers are included.

The digital, self-checking task cards are hosted at Boom Learning™ and are compatible with Google Classroom. These are perfect for displaying on your interactive whiteboard and leading class games or review sessions.

Print Task Cards

Print Task Cards

1. **DECIDE** The ___ system makes blood cells.
a. skeletal c. digestive
b. circulatory d. nervous

2. **EXPLAIN** The spaces in bones are filled with a soft connective tissue called ____.

3. **LIST** List the body's five senses.

4. **DECIDE** The passageway leading from the larynx to lungs is called the ____.
a. alveoli c. esophagus
b. trachea d. artery

5. **DECIDE** Which component of blood carries oxygen to the body cells?

6. **EXPLAIN** The ___ is part of the respiratory system AND the digestive system.
a. nose c. pharynx
b. trachea d. alveoli

7. **COMPLETE** In gas exchange, ___ pass the alveoli into the blood.

8. **IDENTIFY** Identify the structure of the respiratory systems where gas exchange occurs.

9. **COMPLETE** The blood components called ___ start a chain reaction that produces a blood clot.

10. **EXPLAIN** Explain the function of white blood cells.

Digital Task Cards

Digital Task Cards

Human Body Part 1

The ___ system makes blood cells.

Human Body Part 1

The ___ muscle is found ONLY in the heart.

Human Body Part 2

Which of the following is part of both the respiratory system AND the digestive system?

- trachea
- alveoli
- pharynx
- nose

Study Guides: Includes **print** or **digital** options

Nitty Gritty Science Study Guides are directly aligned to the notes and assessments offered by Nitty Gritty Science and include a variety of review strategies which meet the needs of your learners for independent study and indirect instruction.

Each study guide provides a combination of strategies which may include:

- Graphic organizers
- Vocabulary building
- Compare and contrast
- Problem solving
- Concept mapping
- Interpreting data
- Critical thinking
- Theme connection
- Matching
- Fill-in-the-blank
- Short answer
- Real world application
- QR videos with accompanying questions

STUDY GUIDE

THE HUMAN BODY PART 2

Name: _____ Date: _____

SECTION 1

Directions: Answer the questions below about the respiratory system.

1. Describe the purpose of the respiratory system.

2. What is the difference between breathing and respiration?

Breathing _____ Respiration _____

SECTION 2

Directions: Label the parts on the diagram that are used for respiration. Then pick *four* of them and explain their primary function below.

trachea nose pharynx
bronchi lungs epiglottis

SECTION 3

Directions: Fill in the table below with the correct description for each.

Purpose of the excretory system	Function of kidneys	Function of nephrons

SECTION 4

Directions: Label the heart using the word bank then answer the questions below.

1. _____ left atrium left ventricle
_____ right atrium right ventricle

2. Describe each of these parts of the heart.

Septum	Pacemaker

3. Fill in the blank with each of the correct terms.

Blood vessels Capillaries Blood vessels

a. _____ carry blood to every part of the body.
b. _____ are microscopic and do not have a pulse.
c. _____ is the force of blood pushing through the vessels.

SECTION 5

Directions: Explain the difference between arteries and veins. Then explain the two patterns of blood flow in the center.


Loop 1 _____

SECTION 6

Directions: Fill in the blanks with the correct term.

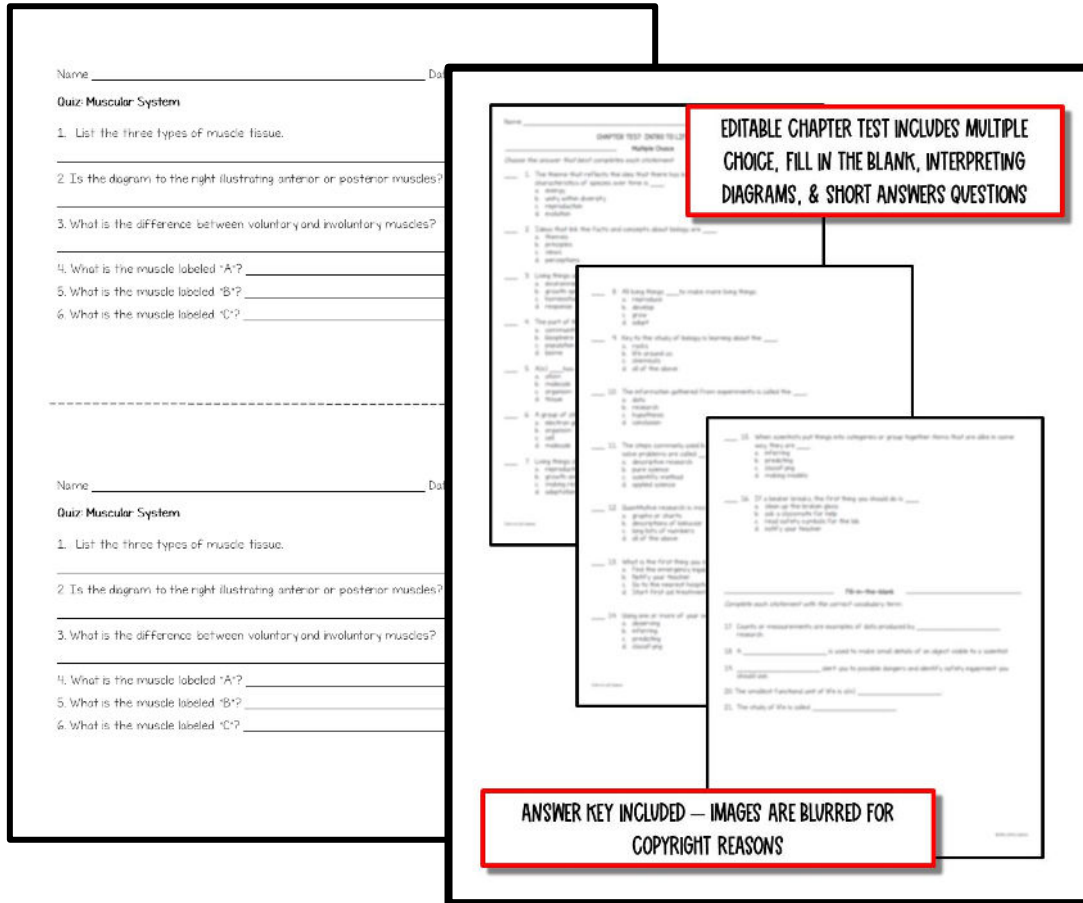
1. I help blood clot. _____
2. I'm made mostly of water and contain nutrients and minerals. _____
3. I contain hemoglobin and transport oxygen. _____
4. I help fight bacteria and viruses. _____

Directions: Explain the lymphatic system. Include in your description the terms *lymph* and *lymph nodes*.



Assessments:

Teachers can use a variety of assessments to evaluate student progress throughout the unit. The curriculum provides mini-quizzes for each Interactive Notebook chapter and an online assessments that goes with the instructional videos. The chapter test includes multiple choice, short answer, interpreting diagrams, and an essay.



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