

INTRODUCTION TO SNAPS LABS

A SNAPS laboratory includes station activities designed to develop students' science skills with hands-on activities and thought-proving exercises. The labs require students to use science, math, literacy, problem-solving and engineering skills so to expand their understanding scientific ideas and apply scientific concepts to the real world.

Science Skills Station

Students explore a concept using science and math skills. The skills may be procedural that a student must physically do. The skills may be mathematical or require scientific thinking and reasoning.

Narrative Station

Students employ literacy skills important to understanding scientific text as well as illustrations, tables and graphs. In many labs, students will explore multimedia sources, such as videos, audio files or animations.

Assessment Station

Students answer multiple choice questions, short answer questions and/or open-ended, thought-provoking questions. The questions progressively get "harder" and require students to employ lower, mid and higher order thinking.

Problem-Solving Station

Students utilize the engineering design process and problem-solving skills so to identify problems, test solutions and/or make improvements to solutions.

Synthesis Station

Students compose a CER report as a lab conclusion so to relate the observations, data and other information gathered in the lab to the objective(s) of the lab.

Synthesis Project

Students complete an activity or project that helps summarize information studied and learned in the lab. This facilitates "bringing it all together" while getting students to think harder and deeper about a concept.

SNAPs LAB STATIONS ACTIVITY

The screenshot displays a PDF document titled "MS-LS1-3 Human Body Systems Interactions Stations Lab.pdf" open in a web browser. The document is a comprehensive lab activity for students, organized into several sections:

- Introduction:** Explains the purpose of the lab, which is to understand how different body systems interact to maintain homeostasis.
- Stations:** A grid of 24 stations, each focusing on a different body system and its interactions. Each station includes a diagram, a list of questions, and a space for student answers. The stations are:
 - Stomach: Functionally and anatomically digests food.
 - Small Intestines: Absorbs nutrients from food and digests proteins and fats.
 - Trachea: A trachea that allows air to enter and exit the lungs.
 - Diaphragm: A muscle that contracts and relaxes to breathe in and out.
 - Heart: Pumps blood throughout the body.
 - Blood vessels: Transport blood around the body.
 - Circulatory System: Transports blood throughout the body.
 - Respiratory System: Absorbs oxygen from the air and releases carbon dioxide.
 - Nervous System: Coordinates and controls the body's actions.
 - Skeletal System: Provides structure and support for the body.
 - Large Intestines: Absorbs water from food and digests proteins and fats.
 - Lungs: Exchange oxygen and carbon dioxide with the blood.
 - Kidneys: Remove waste from the blood and regulate blood pressure.
 - Bladder: Stores urine until it is ready to be released from the body.
 - Brain: Processes information and sends signals to control and coordinate body functions.
 - Nerves: Transport messages from the brain and spinal cord to the rest of the body.
 - Endocrine System: Releases hormones that control and coordinate body functions.
 - Digestive System: Breaks down food into nutrients that the body can use.
 - Muscular System: Moves the body and provides support.
 - Excretory System: Removes waste from the body.
- Assessment:** A section with multiple-choice and short-answer questions to evaluate student understanding.
- Problem Solving Station:** A station designed to challenge students with a complex scenario involving multiple body systems.
- Research Paper:** A section where students are required to research and write a paper on a specific topic related to the lab.
- Answer Key:** A section providing the correct answers to all questions and activities.

Features:

- ✓ Connects Science, Math, ELA & Engineering (Problem-Solving) Skills
 - ✓ Requires easy-to-get and inexpensive materials
 - ✓ **Printable lab** for traditional classrooms included
 - ✓ Student Recording Sheets, Teacher Guide and Answer Key included
- Printable Lab downloaded as a PDF file. Teacher Guide and Key not shown.*

EDITABLE SNAPS LAB STATIONS ACTIVITY

AutoSave OFF MS-LS1-3 Human Body Systems Interactions Editable Lab Stations

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Human Body Systems Interactions Lab Stations

Objective: Explain the role of the digestive system in the body. Identify the organs and structures that make up the digestive system. Describe the function of each organ and structure. Explain how the digestive system works together to break down food into nutrients that can be used by the body.

Key Concepts: Digestion is the process of breaking down food into smaller molecules that can be absorbed by the body. The digestive system consists of the mouth, esophagus, stomach, small intestine, large intestine, and rectum. Each organ has a specific function in the process of digestion.

Activities: 1. Label the organs and structures of the digestive system. 2. Describe the function of each organ and structure. 3. Explain how the digestive system works together to break down food into nutrients that can be used by the body.

Assessment Items: 1. Multiple choice questions about the organs and structures of the digestive system. 2. Short answer questions about the function of each organ and structure. 3. Diagram labeling activity.

Reflection: How do you think the digestive system works together to break down food into nutrients that can be used by the body? How do you think the digestive system is adapted to its function?

Stomach
Mechanical and chemical digestion

Small Intestines
Chemical digestion of food and absorption of nutrients

Large Intestines
Absorb water and electrolytes

Lungs
Where gas exchange takes place. Oxygen is taken in and carbon dioxide is released.

Trachea
A conduit that allows air to pass into and out of the lungs.

Diaphragm
A muscle that contracts during breathing to expand and contract the chest cavity.

Heart
Pumps blood throughout the body.

Blood vessels
Transport blood around the body.

Circulatory System
Transports oxygen, nutrients, and hormones throughout the body.

Respiratory System
Allows for the exchange of gases between the body and the environment.

Brain
Processes sensory information and controls voluntary and involuntary actions.

Nerves
Transmit nerve impulses to and from the brain and other parts of the body.

Endocrine System
Produces and releases hormones that regulate body functions.

Digestive System
Breaks down food into nutrients that can be used by the body.

Nervous System
Controls and coordinates functions throughout the body.

Skeletal System
Provides an axis for the body, protects internal organs, and stores minerals.

Muscular System
Provides for movement and helps maintain posture.

Excretory System
Removes waste from the blood.

Question #1
What is the primary function of the digestive system?

Question #2
What is the difference between an organ and an organ system?

Question #3
What are the following properties of matter most important to the function of the digestive system?

Question #4
What is the difference between a physical property and a chemical property of a substance?

Problem Solving
A student is unable to describe the function of the digestive system. The student is given a list of organs and structures and is asked to describe the function of each. The student is then asked to explain how the digestive system works together to break down food into nutrients that can be used by the body.

Reflection
How do you think the digestive system works together to break down food into nutrients that can be used by the body? How do you think the digestive system is adapted to its function?

Human Body Systems Interactions Lab Reflection

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Reflection: How do you think the digestive system works together to break down food into nutrients that can be used by the body? How do you think the digestive system is adapted to its function?

Features:

- ✓ **100% Editable** stations downloaded as a docx file
- ✓ Necessary diagrams, tables and graphs included
- ✓ Illustrative graphics and clipart NOT included

TEACHER GUIDE

PRINTABLE LAB SETUP AND PREPARATION

Each “traditional PDF file” includes directions and questions for each station. Print one copy of these materials for each station. Place copies of the letter-sized directions questions in sheet protectors or use self-laminating sheets to protect the documents. Position the materials at each station with the general supplies of that station.

TEACHING DURATION

Most SNAPs lab activities require **two class periods** or **90 to 120 minutes**. However, the time needed to require one lab can vary with grade level, student autonomy and difficulty of content. Allowing two class periods allows ample time – regardless of these factors – for students to finish the four in-class stations.

Suggestions for shortening the lab:

1. Assign the Narrative Station as pre-lab work. By doing this, you ensure your students have first-order knowledge of the concepts and ideas explored in the lab. If you are using this lab to introduce new concepts, using the narrative station as a pre-lab will increase student success at the other lab stations.
2. Assign the Assessment Station as post-lab work. By doing this, you ensure your students are evaluated on the concepts and ideas in this lab after completing ALL stations.

DOCUMENT DISTRIBUTION

1. Distribute student copies of the lab overview and pre-lab assignment the night before the laboratory. The pre-lab is a ½ page assignment. Staple the pre-lab to the lab overview before distributing these documents.
2. Distribute student copies of the recording sheet at the beginning of the laboratory.
3. Distribute copies of the post-lab, synthesis station and synthesis project at the end of the lab. The post-lab is a ½ page assignment. Staple the post-lab to the synthesis station and project before distributing these documents.
4. Assign a due date for the synthesis project. The post-lab reflection is a formative assessment and should not require a formal “due date.”

TEACHER GUIDE

DIGITAL VERSION OF SNAPs LAB ACTIVITIES

This download includes a digital lab/fillable slides that allow students to complete the laboratory on a computer or tablet. This file was created to work with a variety of online platforms and secure file-sharing platforms. The digital lab has been modified so students record answers directly following questions rather than in a student packet.

Important Notes

- The answer key is removed from the digital lab.
- The answer key is included in the traditional PDF file.
- The digital laboratory CANNOT be edited; only fillable areas can be manipulated.
- When applicable, videos are included to help students create digital graphs.

The digital laboratory can be used a variety of ways:

- Distribute paper-free laboratories as part of regular instruction
- Use to assign at-home work as part of a remote or distance learning plan
- Send work to acutely or chronically absent students
- Support tutoring or at-home instruction for homebound students

How can you distribute and share the digital laboratory with your students?

- The laboratory CAN be distributed directly to students through email.
- The laboratory CAN be distributed or assigned with Google Classrooms, Microsoft Teams, Blackboard, Canvas, Schoology and other like platforms that are password-protected or require a code to enroll.
- The laboratory CAN be distributed with secure file sharing platforms like Google Drive, OneDrive and DropBox that are password-protected or shared only with students with their email or student account.
- Printable SNAPs labs can be shared or distributed just like the digital labs.

TEACHER GUIDE

To use the digital laboratory with Microsoft Teams:

1. Upload an assignment to your One Drive.
2. Create a new assignment. Add the file as a "resource."
3. Assign to the appropriate class or students.

To use the digital laboratory with Google Classrooms:

1. Upload the assignment to your Google Drive. Add the file using the upload tool in a web browser or drag and drop the file into your Drive. Watch a demonstration of the process: <https://safesha.re/3h6n>
2. Create a new assignment and add the digital lab to it. Make a copy for each student.
3. Assign to the appropriate class or students.

GOOGLE FORM ASSESSMENT

To better support digital classrooms, I created a Google Form version of the assessment station. There are two ways the Google Form assessment station can be used:

1. If using the digital lab, you can remove slides for the assessment station and use the Google Form assessment station instead. This makes the assessment station "more formal" since it is separate from the rest of the lab station activities.
2. If looking for a way to shorten the in-class lab, remove the assessment station – including the assessment station student recording pages – and assign the Google Form assessment station as an at-home assessment. Alternatively, you can use the Google Form assessment station as an in-class quiz if students have their own digital personal learning device.

TEACHER GUIDE

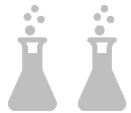
DISTANCE – INDEPENDENT LEARNING COMPATIBILITY

SNAPs lab activities are rated for their ease with distance – independent learning. Some lab activities are very hands-on and require a lot of materials whereas other lab activities are more thought-provoking and require minimal – or no – additional materials.

This lab has been rated the following:



The lab requires no modification to the required materials for distance – independent learning. All materials important to the lab are included in the digital lab. A calculator, colored pencils or a ruler may be needed.



The lab requires some modification to the required materials for distance – independent learning. Students can use household items, if needed, to complete hands-on activities.



The lab requires significant modification. Teacher should demonstrate or perform activities in a live session or prerecorded video and/or provide materials needed for the science skills or problem-solving station.

Suggestions

- No suggestions made for this lab.
- Students will have everything needed to complete this lab independently.

TEACHER GUIDE

EDITABLE COMPONENTS OF SNAPs LAB ACTIVITIES

This download includes an editable word document of all lab components. The stations are available as fully editable DOCX files., Diagrams, illustrations, tables and/or graphs that are essential to lab activities are included in the editable document. Illustrative clipart is NOT included in the editable document.

Some labs have a directed synthesis project. When applicable, the directed synthesis project is available as an editable word document as well. Editable documents and rubrics important to standard synthesis projects are included in the [SNAPs Lab Stations Setup Guide](#).

There are three important reasons for creating editable versions of these stations:

1. Most lab station activities utilize five or more stations with relatively simple and short activities. However, my SNAPs lab activities include four comprehensive stations. The science skills station and problem-solving station could be used independently as single class period laboratories. To better allow for this option, I have made these stations editable. Teachers can use the narrative station as "pre-lab" work and the assessment station as "post-lab" work.
2. The science skills and problem-solving stations are the only stations that will require materials other than computers or calculators. By providing these stations in an editable format, you can manipulate the materials required and/or the directions so the activities work for your classroom.
3. By making the science and problem-solving station editable, you can alter the scope of the activities to suit your students' needs. You can also edit the questions so to evaluate your students in a manner that is best for you and your classroom.

MAKE SURE YOU DOWNLOAD the FREE [SNAPs Lab Stations Setup Guide](#) for SIGNAGE, BEST PRACTICES & EDITABLE DOCUMENTS (<https://www.teacherspayteachers.com/Product/SNAPs-Lab-Stations-Guide-2953726>)