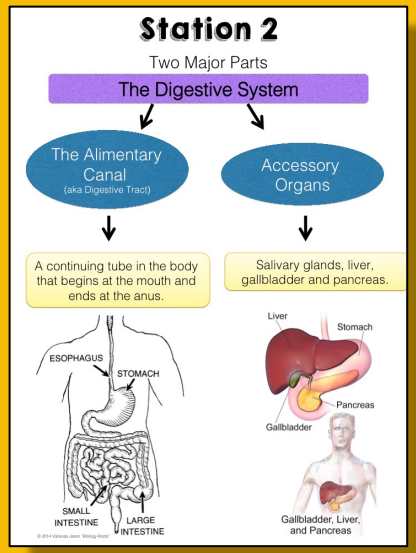
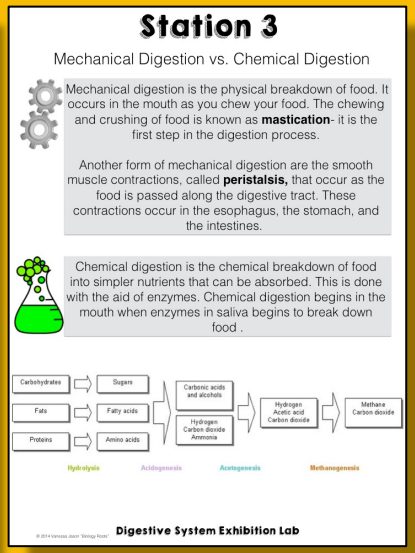
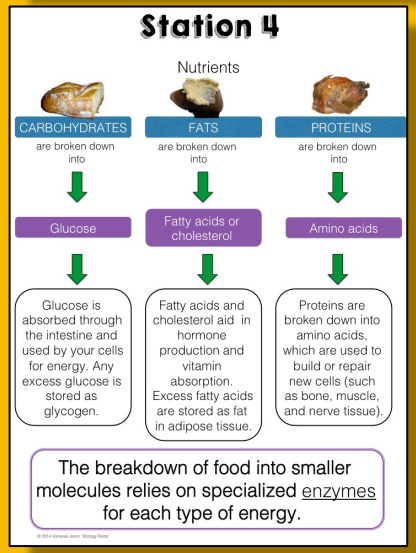
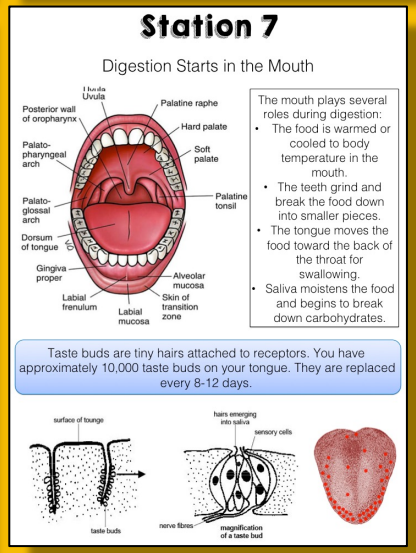
digestive system *stations*









*Stations are editable

What teachers are saying...

"I used this resource with my biology students as an exploration activity before introducing the digestive system. Students stayed engaged the entire class period."– *Sarida H.*

"My students loved this resource. Recommend for higher order thinking and critical thinking. Students were actively engaged."– *Kristin M.*

"There was so much thought and effort put into these stations. My students learned so much and it got them up and moving. The best money I have spent on TPT."– *Kimberly H.*

biology roots

digestive system *stations*

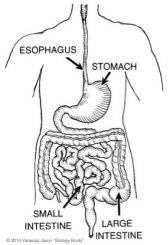
Station 2

Two Major Parts

The Digestive System

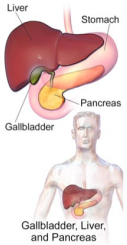
The Alimentary Canal (aka Digestive Tract)

A continuing tube in the body that begins at the mouth and ends at the anus.



Accessory Organs

Salivary glands, liver, gallbladder and pancreas.



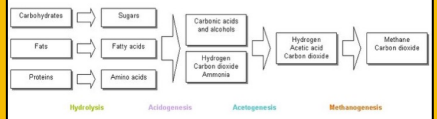
Station 3

Mechanical Digestion vs. Chemical Digestion

Mechanical digestion is the physical breakdown of food. It occurs in the mouth as you chew your food. The chewing and crushing of food is known as **mastication**- it is the first step in the digestion process.

Another form of mechanical digestion are the smooth muscle contractions, called **peristalsis,** that occur as the food is passed along the digestive tract. These contractions occur in the esophagus, the stomach, and the intestines.

Chemical digestion is the chemical breakdown of food into simpler nutrients that can be absorbed. This is done with the aid of enzymes. Chemical digestion begins in the mouth when enzymes in saliva begins to break down food .



Station 4

Nutrients



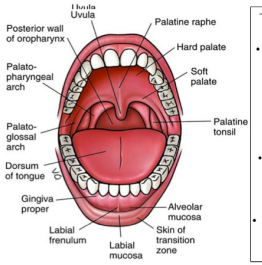


CARBOHYDRATES	FATS	PROTEINS
are broken down into	are broken down into	are broken down into
Glucose	Fatty acids or cholesterol	Amino acids
Glucose is absorbed through the intestine and used by your cells for energy. Any excess glucose is stored as glycogen.	Fatty acids and cholesterol aid in hormone production and vitamin absorption. Excess fatty acids are stored as fat in adipose tissue.	Proteins are broken down into amino acids, which are used to build or repair new cells (such as bone, muscle, and nerve tissue).

The breakdown of food into smaller molecules relies on specialized enzymes for each type of energy

Station 7

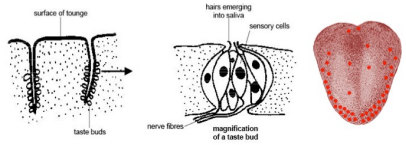
Digestion Starts in the Mouth



The mouth plays several roles during digestion:

- The food is warmed or cooled to body temperature in the mouth.
- The teeth grind and break the food down into smaller pieces.
- The tongue moves the food toward the back of the throat for swallowing.
- Saliva moistens the food and begins to break down carbohydrates.

Taste buds are tiny hairs attached to receptors. You have approximately 10,000 taste buds on your tongue. They are replaced every 8-12 days.



Station 11

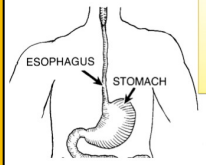
Heartburn

Heartburn is a burning sensation in the chest that is caused by the regurgitation of acid from the stomach into the esophagus. (It has nothing to do with your heart, though long ago people thought so). **Normally, a muscle known as a sphincter** located at the end of the esophagus will open to allow food into the stomach, and close after the food has been completely swallowed. If the muscle weakens, it may not close completely, which allows some of the stomach acid to seep up into the esophagus.



Some people may experience heartburn even if the sphincter muscle is not weak, usually from eating particularly spicy foods.

Pregnant women are also more susceptible to heartburn, but that is because hormones are released to relax the smooth muscle of the uterus, but it also effects other smooth muscles, such as the esophagus.



Medication such as TUMS and Rolaids are known as "antacids". They offer temporary relief from heartburn by using *calcium carbonate*, which neutralizes the stomach acid.



Station 12



length!
Called the "small" intestine because it is smaller in diameter.

The small intestine uses its own enzymes, as well as enzymes from the pancreas and bile produced in the liver to further break down nutrients. The role of the small intestine is to absorb nutrients.



Villi are finger-shaped folded projections from the wall of the small intestine. They are where nutrients are transferred to the bloodstream. Villi also increase the surface area of the small intestine so that it can absorb more nutrients.

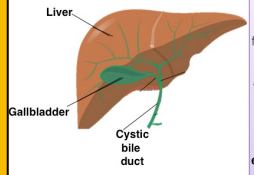
The Basic Nutrients are:

Simple sugars
Fatty acids
Amino acids

Station 13



Bile helps to break down fat into smaller components in a process known as **emulsification.**



The bile is stored in the **gall bladder.** The bile travels through ducts from the gallbladder to the small intestine. The digested food in the small intestine has a large water content from the food you eat or liquid you drink.

Usually, fats do not mix with water (like oil and water). **Bile emulsifies fats,** which alters the chemical composition of fats so that they can be mixed with water. This makes them easier for enzymes to break fats down into fatty acids.

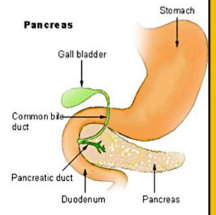
The liver also has several other roles. The liver stores vitamins, breaks down toxins from the body, breaks down old cells, produces proteins, and stores glycogen for energy.

Station 15

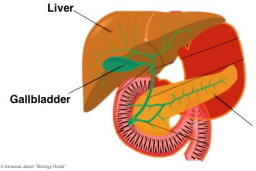
The Pancreas



The pancreas makes nearly one liter of enzymes each day! These are used to break down carbohydrates, fats and proteins. A duct from the pancreas leads to the duodenum of the small intestine.



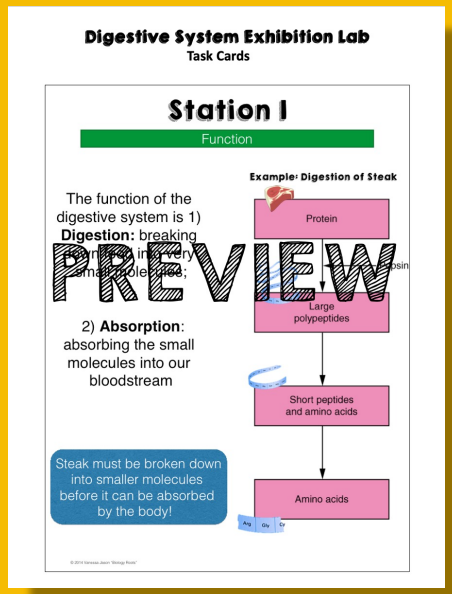
The pancreas also makes **insulin,** which is a hormone used to regulate blood sugar levels. Insulin does this by causing cells in the liver, muscles, and adipose (fat) tissue to take sugar (glucose) from the blood and convert it into glycogen. Glycogen is a modified version of glucose that can be stored in the liver and the muscles for energy.

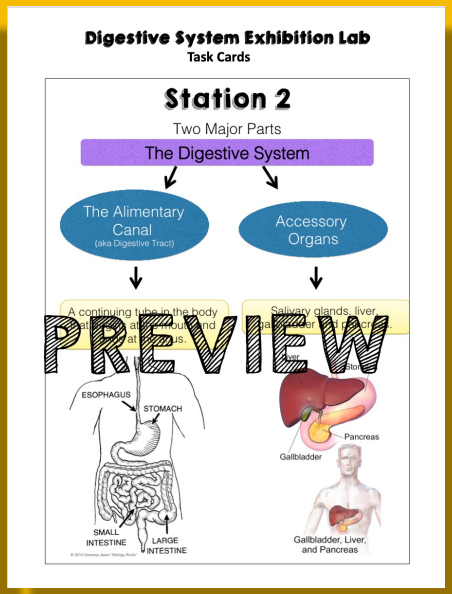


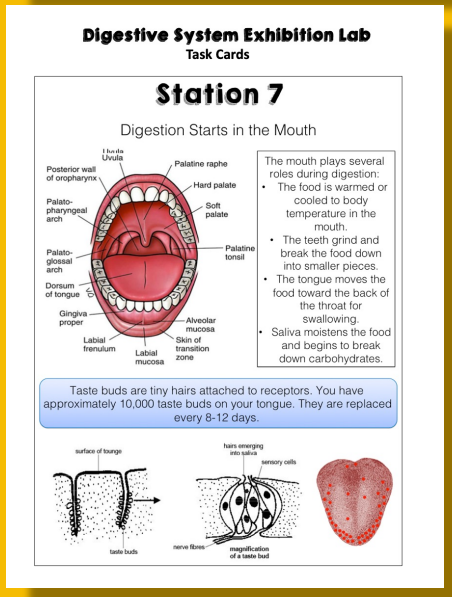
18 stations total (editable)

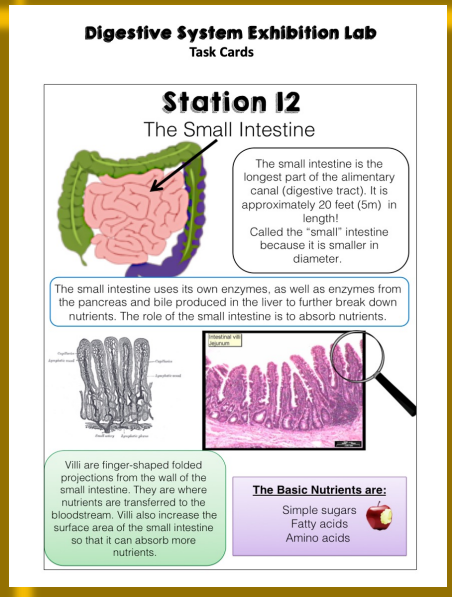
Zoom to read

digestive system *stations*







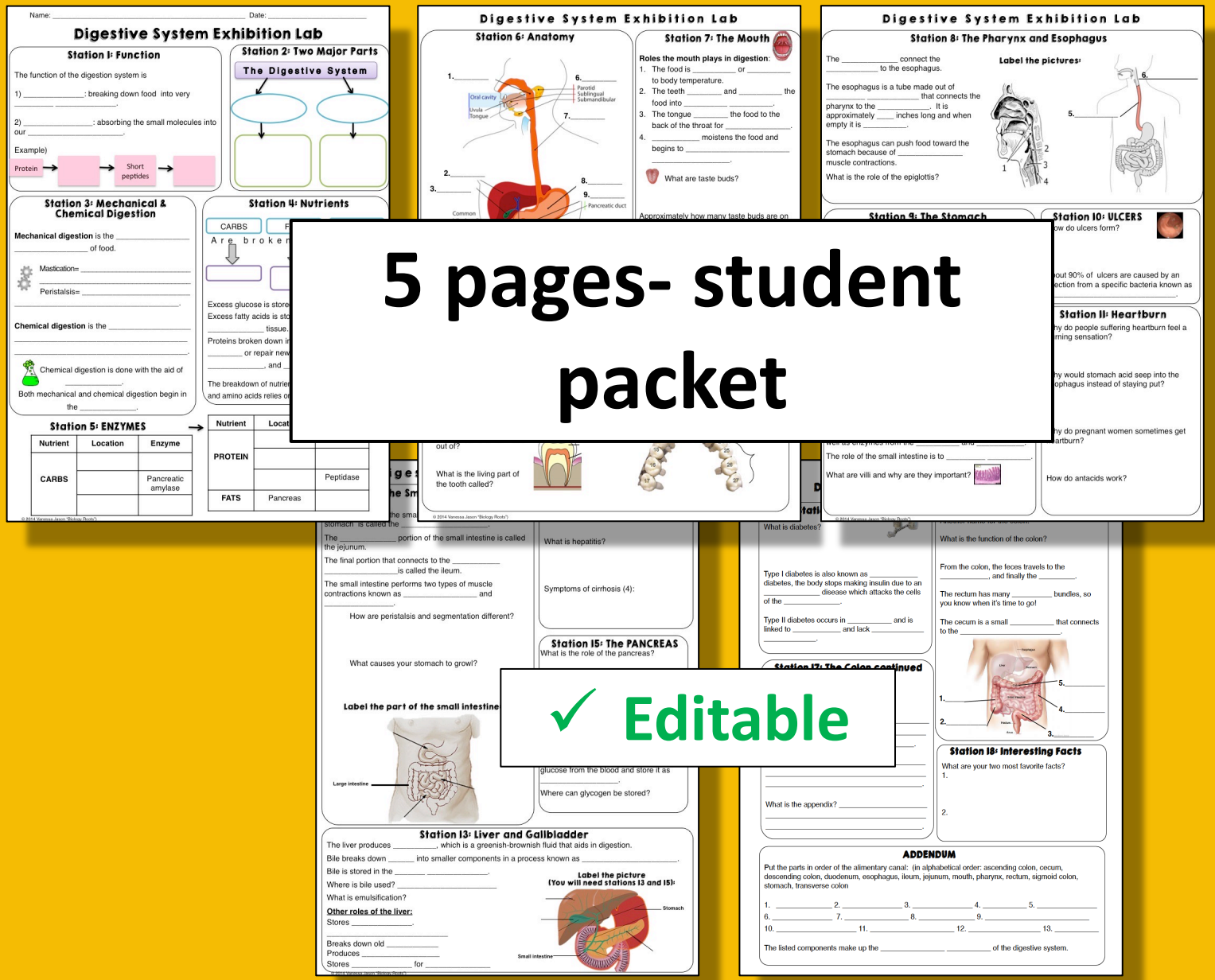


Topics covered:

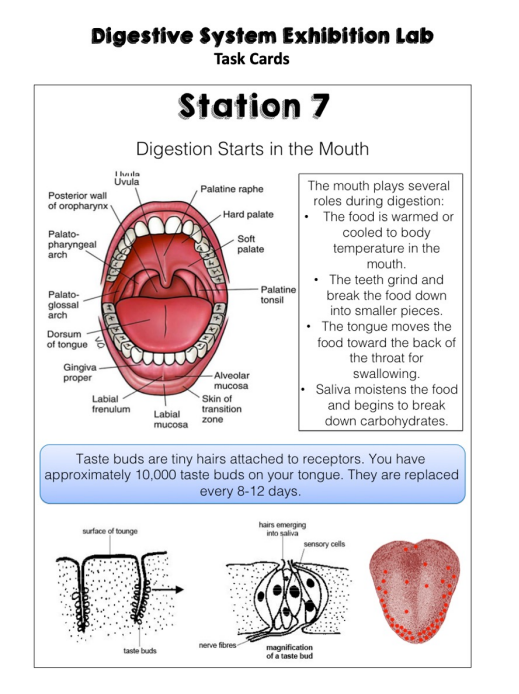
- Function and structure of the digestive system (digestive tract and accessory organs)
- Mechanical vs. chemical digestion
- Enzymes
- Specific organs: the mouth; pharynx; esophagus; stomach; small intestine; large intestine; liver; gallbladder; pancreas
- Disorders
- Interesting Facts

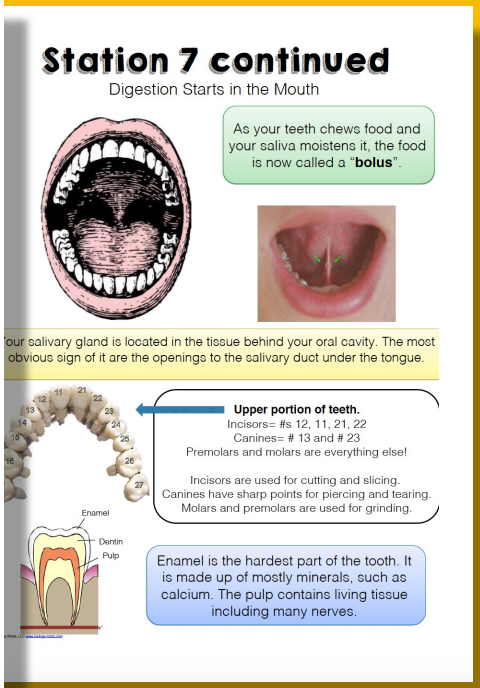
biology roots

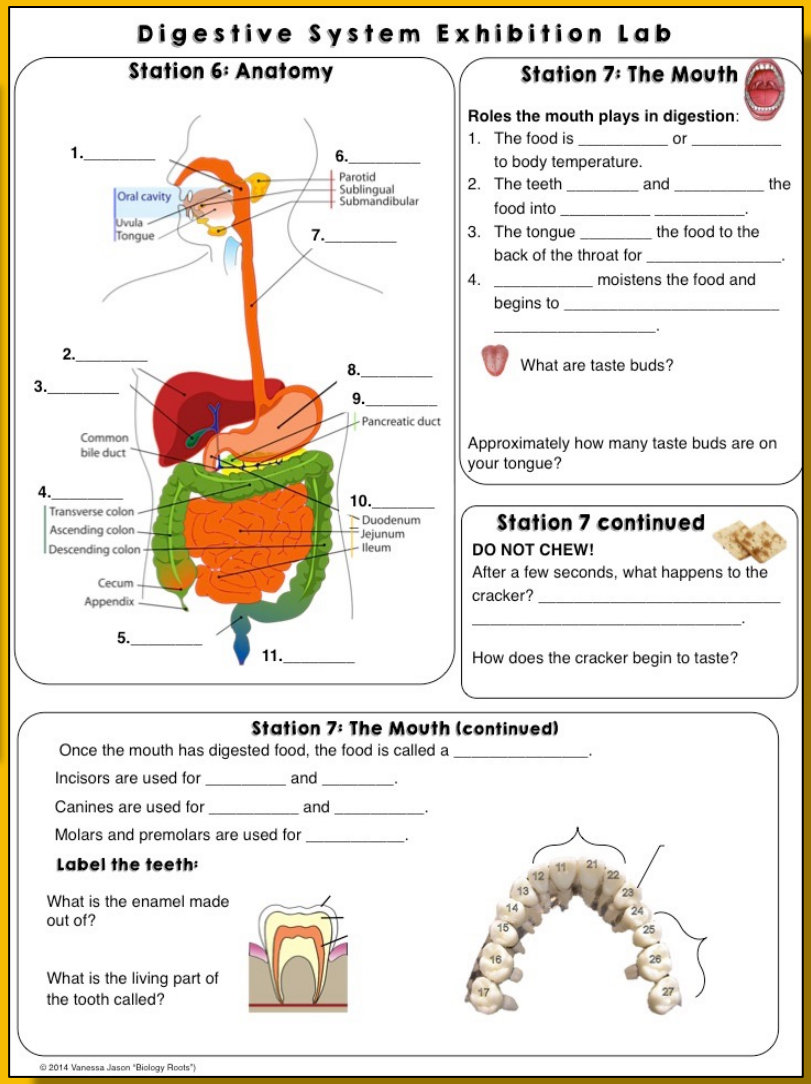
digestive system *stations*



digestive system *stations*







Example of how students use recording sheet: Station 7

human body systems

Classes this resource supports: This set of stations can be used in a general biology class to teach or reinforce body systems. This resource can also be used in an anatomy class.

How to Use this Product:
The stations are designed to be posted around a room or hallway. Students travel from station to station (in any order) while recording their answers on the student answer sheet provided.
Both the stations and student answer sheet are editable (in case you'd like to alter or delete stations.)

Reviewing the stations and making any changes before printing is recommended. Laminating the stations or placing them in sheet protectors will give them more life.

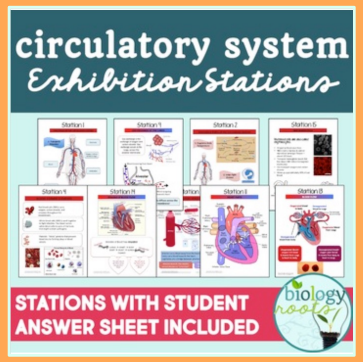
*These stations take approximately 2 class periods to complete. Depending on the level or grade of your class, you may need to adapt or shorten the stations.

Ties in with the following NGSS performance expectations:

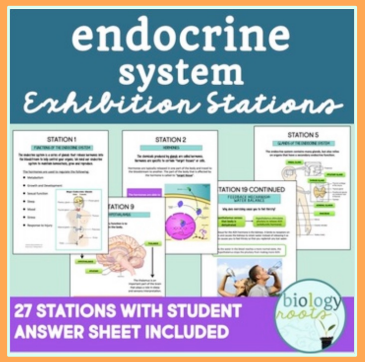
HS-LS1-2- Develop and use a model to demonstrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.
(Body systems are not directly a performance expectation of NGSS; but these stations can be adapted and used to support organization of life and homeostasis.)

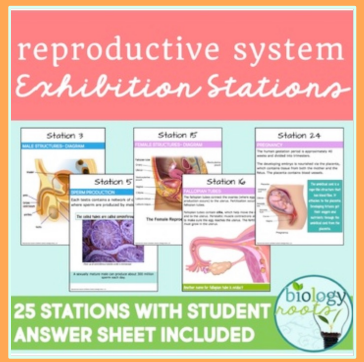
Cross-Content Connections		
SEP (Science and Engineering Practices)	**DCI (Disciplinary Core Ideas)**	**CC (Crosscutting Concepts)**
Develop and use models; construct explanations and design solutions	Structure and function	Structure and function

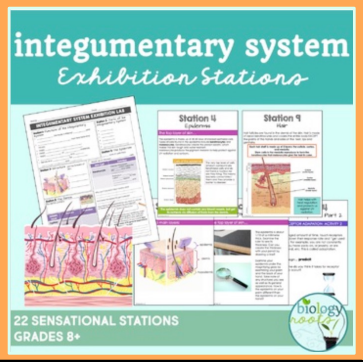
BUNDLE of my 11 body system stations:

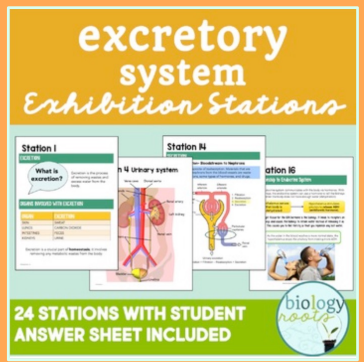


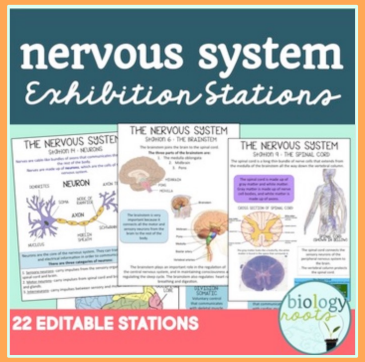


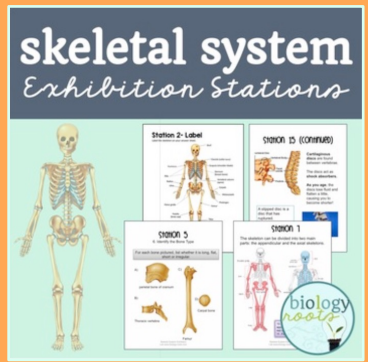








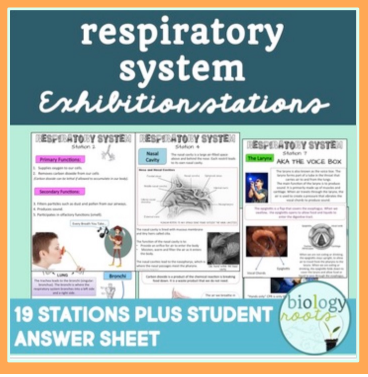




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Thank you so much for supporting biology roots

I hope you enjoy the resources and they benefit your students!

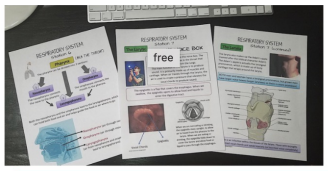
FEEDBACK

If you are happy with your purchase please consider leaving feedback as to what you enjoyed about the resource and how you used it in the classroom. Your feedback always motivates me and inspires me to keep creating content!

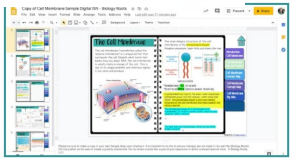
If you have negative feedback, please email me; I'm always happy to listen to your concerns so that I can improve the product and the description:
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Sample Body System Stations



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