### The Digestive System

**Introduction**: The foods that we eat contain the nutrients that our body cells need to do their daily jobs, grow, and multiply. Nutrients such as carbohydrates, proteins, lipids, vitamins, minerals, and water are bound up in our food, though. How do we get these important nutrients out of our food and into our cells? That is the job of the digestive system! **Digestion** is the process of breaking down food into smaller molecules

that the body can use.

The digestive system is broken down into two groups of organs: organs that food enters and organs that food does not enter. Organs that food physically passes through make up the **gastrointestinal tract**. The gastrointestinal tract is often referred to as the GI tract, digestive tract, or alimentary canal. This long, winding tube starts at the mouth and coils through the body, ending at the anus. In a living adult, this tract is usually between 16 and 23 feet! Think about how tall you are. Your gastrointestinal tract is more than three times your height! Organs included in the gastrointestinal tract are the mouth, pharynx, esophagus, stomach, small intestine, large intestine, rectum, and anus.

Organs that do not have food enter them (but help with digestion) are known as **accessory organs**. These organs *help* with the breakdown of food, but do not hold or contain food at any time. They aid digestion by creating chemicals or applying force to help break down food. The accessory organs include the teeth, tongue, salivary glands, liver, gallbladder, and pancreas.

Both accessory organs and the gastrointestinal tract are responsible for **chemical digestion** and **mechanical digestion**. In mechanical digestion, physical force is used to break down food. Examples of mechanical digestion include the teeth chewing or the stomach churning. In chemical digestion, enzymes are used to break down food. Many of these enzymes are produced in the accessory organs, such as the liver or pancreas. An example of chemical digestion would be salivary amylase (an enzyme in saliva) breaking down carbohydrates as you chew.

After food has been broken down into smaller units by chemical and mechanical digestion, **absorption** is able to occur. In the process of absorption, nutrients pass through the wall of the gastrointestinal tract into the bloodstream.

Lastly, **defecation** or **elimination** occurs when unabsorbed materials are eliminated from the body as feces. It takes food between 1 and 5 days to pass through the GI tract from mouth to anus.

1.	What are 6 examples of nutrients that our cells need to grow, multiply, and complete their daily		
	functions?		
2.	What exactly is digestion?		
3.	What are the two groups of organs within the digestive system?		
4.	What is an example of mechanical digestion?		

5.	What is an example of chemical digestion?
6.	After chemical and mechanical digestion have occurred, which process is able to happen?
7.	Where do nutrients and other small molecules pass to as they are absorbed through the wall of
8.	the gastrointestinal tract?

<u>Matching</u>: Each statement describes either the **gastrointestinal tract** or the **accessory organs** of the digestive system. Put a checkmark in the box that each statement is describing.

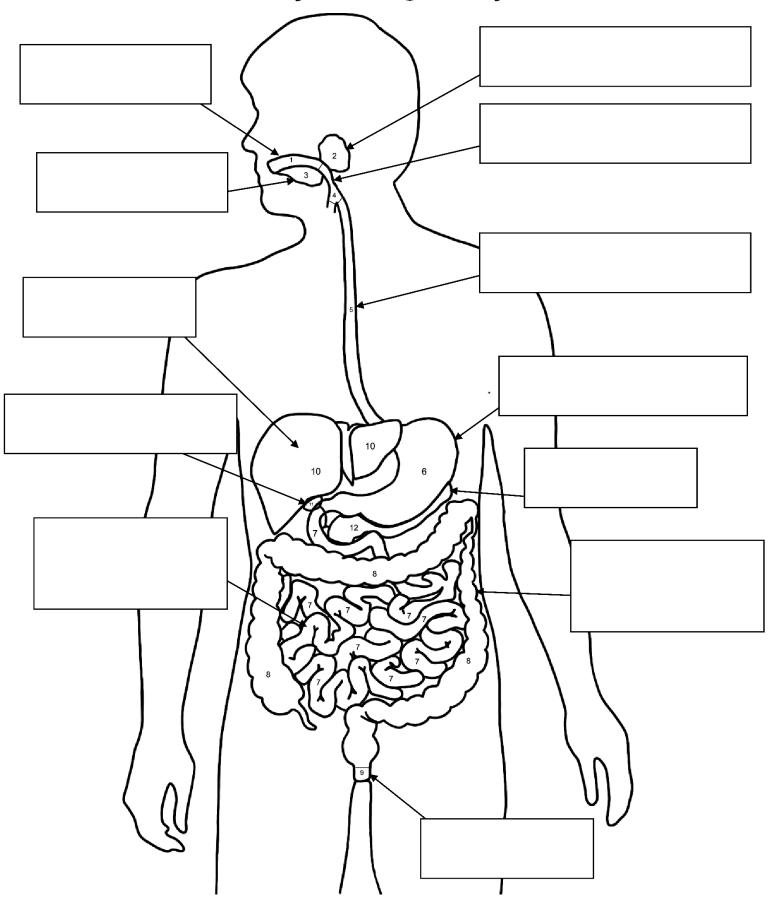
Description	Gastrointestinal tract	Accessory organ	Not part of the digestive system!
Also known as the alimentary canal			
Pathway of organs that food passes through			
Organs that food does not pass through			
Also known as the digestive tract			
Also known as the urinary tract			
16 to 23 feet			
5 to 10 feet			
Includes the pancreas			
Includes the gallbladder			
Includes the large intestine			
Includes the pharynx			
Includes the liver			
Includes the small intestine			
Includes the stomach			
Includes the teeth			
Includes the mouth			
Includes the esophagus			
Includes the tongue			
Includes the salivary glands			
Includes the rectum			
Includes the esophagus			
Includes the anus			

## **Coloring Page Instructions**

**Instructions**: On page 4, color and label each structure according to the key.

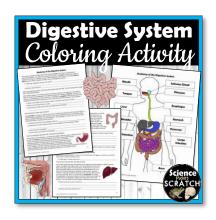
Structure #	Structure	Color
1	Mouth	Dark red
2	Salivary Glands	Light blue
3	Tongue	Dark orange
4	Pharynx	Yellow
5	Esophagus	Light green
6	Stomach	Dark blue
7	Small intestine	Purple
8	Large intestine	Brown
9	Anus	Light red
10	Liver	Black
11	Gallbladder	Dark green
12	Pancreas	Light orange

# **Anatomy of the Digestive System**



### Hi teachers!

This free resource is a smaller part of my larger resource, <u>Digestive</u> <u>System Coloring & Activity Packet</u>. What's different between the two resources? The paid version includes 5 additional pages that go in-depth on each organ of the digestive system! These easy-to-read pages will take your students on a journey through the digestive tract. For each organ (starting with the mouth) your students will read a short blurb on the organ, answer questions that show evidence that they actually read, and then color the organ on the coloring page. After they finish coloring, they will fill out a Conclusion Chart that will solidify their learning (and be useful for future test questions!)



Here's what you'll get from the full resource:

Anatomy of the Digestive System  The process of digestion begins when food enters the mouth. The mouth is responsible for mouther of grazient. You such out up and jumid like bod. The begain pushes look to where it glands produce state, a solution of where it and digestive enzymes.  2. What type of digestion occurs in the mouth?  10. What is salike mode of?	into two large intestries. The large is leaving person, but the remaining mast intodating for much barger than the own material from dispession stays in the large intestine is the final location where of pears, the occum, the colour other look cands. In a large infortier is \$A. 10 of proteins and produce where in sel which proteins and produce where in sel which the cands.	coun in the enroal intention before it is auchted floating a supproximately 5 list of rung in a resist from cigention rays, within the large run limitation of the rung rung and intention of the rung rung rung rung rung rung rung rung		Contains the duade rum Contains the funder rum Contains the fire rum Creates a fluid thair as distincts atomach and in the small feeting. Contains soften blandmontain Currup and grind food Dumps purcoacide, their run the small finds fire Filters of the bland delawation in restriction
Color the mouth dark red (#1). Color the salivary glands light blue (#2). Color the longue dark grange (#3). Labol thoso structures.	pens to allow the holus into the stomach colled?	maining material from digestion to pass through the large	:0?	Flep of tissue that covers the windpipe
Allor digestion bogins in the mouth and tood is chowed, mo stoned, and rolled into a ball called a bebut, it is ready to be see lowed it as the bob is swellowed, it interest the phanyme, or threat. The phanyme is a passeageway for both air and food. Thought, by the opligation is fine for dissease ahows the which only prevents food from going down to the lungs and directs food instead to the esophiague.	ob primarily rrace out of? Ide of the stomach?	ingo infostino in order?	dder dark green (#11). Label both organs. bladder, the small intestine a se receives accretions from stomach and creates paraceasts fluid.	Full of holpful becoris: Largest organ in the abdominal cavity Mechanical digestion consus here as altyme sloshes back and forth due to contractions called
What is food called once it has been chewed, moistened, and rolled into a ball?			o cancreas produces a basic uid neutralizes stomach acid estine from damace by	segmentations Passageway for air and food
13. How does your body prevent food from going down the windpipe?	illhin the stemach?	er from the remaining digestive material as it casses through.  Iter cause?	is many enzymes that break	Passes food from the mouth to the esophagus  Performs chemical digestion with secretions from the
Color the pharynx yellow (#4) and label if.	came a oclus as it was rolled in a ball. What is it called now lown and mixed it with gastro juice?	Iso label the large intestine.  e for it to be eliminated. The <b>anus</b> is a sphinater muscle that	ancica ic fluid .o? sfluid?	liver and pancreas  Prevents food from going down into the lungs
The esophague is a tube of smooth muscle which contracts and releases to push food down itself in a process known as perstrible?. This means you can not technically push food to your strands while coing a nooles and ((i) hough I down coommand it). The esophague is nearly a foot long. Once food receive the otto mit, it passes in the true stimute.	stomach?	s. 1?	salic fixie?	Produces site  Produces saliva  Pushes food to where it needs to be in the mouth for
14. What type of tissue is the esophagus made of?	ther sphinoter that opens after 2 to 4 small intestine. The small intestine is	f the anus. stive tract, digestion has been aided by multiple accessory.	l	chewing to accui
15. What are the smooth muscle contractions and relaxations of the esophagus called?	to small intestine is exproximately 16 but powerful duodenum comes first.  In The last portion of the small	in the human abdominal cavity. This tions, As absomption occurs in the	abel the pancreas.  usion Questions	Releases bile into the small intestine  Releases many enzymes that break down carbohydrates, proteins, and ligids in the small intestine
15. How long is the exoptlegue? 17. Which eigen comes after the seophagus?	m. The use portion of the small intersine selp of exerctions from the liver and accurate in the small intersine activine activine better of the small intersine activine collections of the small intersine activine.	s enter the bloodstream. The liver ines, breaking down drugs and ody to use. The liver also produces into the gallbladder for storage.	em is each statement describing? Pick from the following: nx, spiglottis, asophagus, stomach, smeil intestina, large Answers, can be used more than once.	Site of 80% of apsorption Stores bile
Color (he esophagus light green (#5). Also lakel the esophagus.  At the hottom of the esophagus, a muscular ring called a sphinder opens to allow the holus.	u has a major role in absorption, 90% of no as important molecules are passed through the well of the	of the fiver. When cliyme enters the sithe stored hije into the small	Description	The throat
to enter the stomach. Like the esconagus, the stomach is also made of smooth muscle. This amouth muscle allows the stemach to churn and perform	m.	ost no to offectively break down fats.	10 feet long in a living person	When foce caves this organ, it is called chyme Where food stoys for 35 hours
musero. Into amotion musero assister the stemant of contra at all operation mechanical digestion to break down food. The stomach also has a lining of epithefall iteruse which contains gentic glands. These glands can produce muser, slightly enginess, and even involved into a lining of engit engine and even involved into a facility have failed engit e	in a living poison?small intestine in order?	livor?	6 feet long in a liking person A tube of smooth muscle between the pharynx and stomach	Where food stays for three to five hours
include, agreement agreement of the commence o	secretions that enter the small intestine to help with chemical	и?	Absorbs remaining water, turning the remaining material from digestion into feces Allows chemical digustion in the mouth	Where food stays for two to four hours Where the process of digestion begins
Si Science (constitution State and a state of the seed	losh chyme back and forth in the small intestine called?	5	Behind the stomach	;

# Here's a sample from page 4!

in the small intestine called?	•	Behind the stomach  Between the stomach and large intestine			
nours to allow chyr actually very long! eet! It is broken in After the duodenur ntestine is the ileu continue chemical pancreas). Mechar is sloshed back an segmentations. Th absorption happen	tomach there is another sphinctome to pass into the <b>small intest</b> In a living person, the small intest to 3 parts: the short, but powerfun comes the <b>jejunum</b> . The last tim. Together, these three portio digestion (with the help of secretical digestion also occurs in the d forth due to contractions of the e small intestine also has a majs in the small intestine as imporinto the bloodstream.	er that opens after 2 to 4 ine. The small intestine is estine is approximately 10 ol duodenum comes first. portion of the small ns of the small intestine etions from the liver and e small intestine as chyme e small intestine called or role in absorption. 90% of			
25. How long is	the small intestine in a living pe	erson?			
	e three parts of the small intesti				
	ssory organs make secretions th		to help with chemical		
28. What are th	e contractions that slosh chyme	back and forth in the small	intestine called?		
29. What type of digestion happens in the small intestine?					
30. What percer	ntage of absorption happens in	the small intestine?			
31. Where does the small intestine pass these newly absorbed nutrients to?					
Color the small intestine purple (#7). Also label the small intestine.					

I love using the Digestive System Coloring & Activity Packet for the first 1 or 2 days of the Digestive System Unit with my Anatomy & Physiology juniors and seniors because...

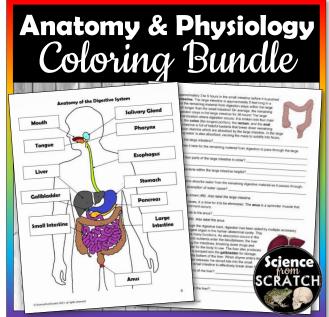
- Science literacy is important. These juniors and seniors are headed off to college soon, where
  they will be expected to read from a textbook and understand the text. My classroom always
  needs more opportunities for my students to practice these reading and comprehension skills.
- 2. My students love them! As much as lecture is a vital tool in my classroom, sometimes my students just need a break. (and honestly, I enjoy taking a break from lecturing too... this activity gives me time to catch up on grading or to check in with individual students).

3. By using this activity on the first day or two of the unit, my students build a strong foundation for the digestive system as we head into the more complex details of the anatomy and physiology of the digestive system during the rest of the unit. I love instilling my students with confidence prior to beginning a unit.

I have a full set of Coloring and Activity Packets within my store that are all fully prepped, easy-to-use, and require zero prior teaching. If you are looking for a great way to introduce a unit or take a break from lecture in the middle of a unit, these are the resources for you!

I also love having these activities available for **substitute plans**. The bundle includes 7 different activities, which means at least 7 different days of sub plans ready-to-go for your upcoming school year.

You can buy the Coloring Activities individually, or you can purchase my <a href="Anatomy & Physiology Coloring & Activity Packet Bundle">Activity Packet Bundle</a> that includes all activities at a discount!



Feel free to reach out with any questions! My email is <a href="mailto:rachel@sciencefromscratch.com">rachel@sciencefromscratch.com</a>.

Rachel