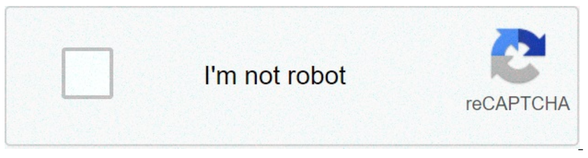

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Magic school bus digestive system worksheet

The digestive system turns the food you eat into parts it can use for energy and nutrients. It uses chemical and mechanical processes to break down food. The mechanical component involves chewing, which masticates food between the tongue and teeth. The chemical component involves saliva, gastric acid, and digestive enzymes. After the food's nutrients have been absorbed, the resulting waste product gets expelled.We mentioned that saliva is one of the crucial fluids that help to break down food. Did you know that there are between 800 and 1000 minor salivary glands? This number is on top of the three main pairs of salivary glands in the mouth. Saliva does not just digest food. It also plays a crucial role in the maintenance of dental health. One of the reasons it's important to brush your teeth before bed is our mouths don't produce as much saliva at night. This makes your teeth more vulnerable to cavities, as any bacteria left over from dinner have time to cause havoc. The digestive process starts the moment the nose catches an aroma of food wafting through the air. This sense initiates a buildup of saliva in the mouth. Once a morsel of food enters the mouth, it begins the hours-long process of food digestion. It may seem like a straightforward process, but digestion involves a variety of organs, enzymes, hormones, and interactions in the body. Also known as the gastrointestinal tract, the digestive system is 30 feet long, and it takes an average healthy person about 40 hours to fully process food, from eating to elimination. Hunger is the result of the brain and the digestive system interacting with each other. Once the stomach has burned up the food and completed its part of digestion, blood sugar and essential hormone levels begin to drop. Ghrelin, also known as a “hunger hormone,” is produced by the stomach and signals the hypothalamus in the brain that the body needs food. The vagus nerve serves as the line of communication between the brain and the stomach. The hypothalamus then releases a very abundant peptide called neuropeptide Y that stimulates appetite. YakobchukOlena / Getty Images The first bite of food signals the salivary glands, and they begin to produce saliva. The average person produces about two pints of saliva each day. Chewing breaks the food down into digestible pieces. The tongue pushes the food around the mouth during chewing. Saliva mixes with the chewed food, transforming it into an absorbable form. Most of the salivary glands are in the lining of the mouth, but there are three additional pairs - the parotid, the sublingual, and the submandibular glands. A small fold of tissue called the epiglottis folds over the windpipe to prevent food from entering this opening. Eva-Katalin / Getty Images Once chewing reduces the food to a soft mass or bolus, the muscles in the mouth and throat propel it into the esophagus. The esophagus connects the throat and the stomach. The muscles in the esophagus begin a series of contractions called peristalsis, where the muscles behind the bolus push it forward, and the muscles in front of the bolus relax. The bolus continues its trek until it reaches a muscular valve at the lower end of the esophagus called the lower esophageal sphincter. The valve relaxes, allowing the bolus to pass into the stomach. jakinnboaz / Getty Images Some people think all digestion takes place in the stomach, but this isn’t true. Most of it happens in the small intestine. However, the stomach does take care of some important aspects of the digestion process. Aided by the digestive glands in the lining, the stomach produces acids and enzymes that break down the food further. The acids in the stomach mix with the food, creating a paste called chyme. Powerful muscles in the stomach contract in a wave-like pattern, and help propel the chyme into the first part of the intestine, the duodenum. TefiM / Getty Images Once the food reaches the duodenum, other organs get involved. The 22-foot small intestine is made up of three parts: the duodenum, the jejunum, and the ileum. The duodenum continues breaking down the food. The pancreas adds digestive enzymes to break down fats, carbohydrates, and proteins. The liver helps process the nutrients but also detoxifies harmful chemicals. The gallbladder produces bile, which absorbs and digests fats. Nutrients and water from the food move to the jejunum for absorption, and the ileum completes the process. Any leftover liquid food residue passes through the small intestine. solar22 / Getty Images Connecting the small intestine to the rectum is the 6-foot long colon or large intestine. The digestive process creates waste products, and it is the colon’s job to absorb any water and remove any leftover food particles or old cells remaining in the GI tract. The large intestine changes the liquid into a solid, forming stool. The muscles perform peristalsis again, pushing the stool through to the end of the large intestine, the rectum. During a bowel movement, the body eliminates the stool. Ben-Schonewille / Getty Images A whole ecosystem of bacteria lives in the human gut, consisting of trillions of microbes. These gut bacteria not only help digestion, but they also alter how the body stores fat. Gut bacteria assist in balancing glucose levels in the blood and control how humans respond to those hunger hormones -- ghrelin. In recent years, researchers have connected incorrect gut microbe mixes to obesity and diabetes. The clean and sterile intestinal tract in newborns at birth doesn’t stay that way for long. Environmental factors and bad gut bacteria start affecting the body soon after birth. Dr_Microbe / Getty Images A "second brain" located in the walls of the digestive system is called the enteric nervous system, or ENS. These two thin layers of more than 100 million nerve cells, found in the lining of the gastrointestinal tract, control much of the digestion process. A high number of people who experience irritable bowel syndrome (IBS) also experience depression and anxiety. Researchers believe irritation in the gastrointestinal system could be sending signals to the central nervous system via the ENS causing mood changes. For years, experts believed the opposite was true -- that depression and anxiety cause digestive issues. Michail_Petrov-96 / Getty Images Numerous issues may affect the digestive system and cause pain and discomfort. Celiac disease is a serious sensitivity to gluten that triggers the immune system to react. It interferes with the small intestine’s ability to absorb nutrients. Inflammatory bowel diseases such as Crohn’s disease, which affects the small bowel, and ulcerative colitis, which affects the colon, have been diagnosed in an estimated 2 million adults and children. Diverticulitis causes weak spots in the lining of the digestive system, especially in the colon. To ensure the digestive system can deliver nutrients to the body as it requires, medical professionals suggest sticking to a healthy diet, rich in fresh vegetables, fruits, and whole grains. Processed foods should be avoided whenever possible. Overeating puts stress on the digestive system. Take the time to eat slowly and chew food. A relaxed meal results in better digestion. Avoid skipping meals, which causes fluctuations in blood sugar levels and may cause overeating at the next meal. Regular exercise is crucial to maintain weight and strengthen abdominal muscles. Managing stress levels might be one of the most important factors in healthy digestion. Lisovskaya / Getty Images Netflix is reviving the beloved Nineties children’s show The Magic School Bus in a collaboration with Scholastic Media, the company announced on Wednesday. The new CG-animated original series The Magic School Bus 360° “will be a dynamic reimagining of the show that revolutionized kids television,” according to a press release from Netflix. The creative team from Scholastic Media will work on the show and the series’ first 26 episodes will debut in 2016. “The Magic School Bus revolutionized kids television through a unique and powerful blend of entertainment and science information. We’re proud that its become an evergreen show that children and parents continue to watch together,” said Deborah Forte, President of Scholastic Media, in the release. ”Our new rendition The Magic School Bus 360° is a similarly compelling addition to the current landscape of childrens programming and on Netflix is bound to reach more families around the world than ever before who will now be able to watch the show anytime, anywhere they want.” The original Magic School Bus animated show was developed from the book series by Scholastic Media in 1994. Though the show stopped production in 1997, it continued to air on PBS and other channels for many years and is one of the most highly rated PBS programs for children. The show follows the elementary class of Ms. Frizzle, a zany teacher who imparts science lessons through bizarre field trips taken on an anthropomorphic school bus. The bus can do things like take the kids back in time, out into space, and into the human body. “Scholastic Media is a powerhouse creator and producer of top-quality programming for kids and families and its flagship series like The Magic School Bus, Clifford The Big Red Dog, and Goosebumps have been huge hits on Netflix in all our territories,” said Ted Sarandos, Chief Content Officer of Netflix. ”We’re thrilled to expand our relationships and to be the first-run home of The Magic School Bus 360°, introducing a whole new generation to Ms. Frizzle and her hijinks.” One of Netflix’s biggest competitors, Amazon’s Prime Instant Video, has increased its own offerings for original children’s programming just in time for summer break. Amazon promised that its shows would keep kids both intellectually engaged and entertained during their months off from school and hired Alice Wilder, the woman who worked as producer and director of research and development for the popular children’s series Blue’s Clues, to that end. As streaming services increasingly become the go-to place to watch television rather than traditional networks, streaming services have been creating their own original programming to help compete even better. Netflix has been incredibly successful to this end with its programming for adults including House of Cards and Orange Is the New Black, and now it’s broadening its focus to include children’s shows as well. Landing the Scholastic team was the best way for Netflix to replicate both the quality and the success of the original Magic School Bus in the new series. More From Wall St. Cheat Sheet: Follow Jacqueline on Twitter @Jacqui_WSCS The digestive system serves the role of taking in nutrients, eliminating waste, and absorbing and using the nutrients we take in. The digestive system includes all the parts of your body that are involved when you eat or drink. While you may not think about your digestive system often, you are using it all the time. You also may not think of the digestive system as fun, but let’s take a look at some fun facts about your digestive system you may not have known.1. The average person produces 2 pints of saliva every day. That is 32 ounces, or 2 cans of soda.2. The muscles in your esophagus act like a giant wave. That is what moves food or drinks down to your stomach. This wave action is called peristalsis.3. The second part of your small intestine is called the jejunum. That’s just fun to say!4. Enzymes in your digestive system are what separate food into the different nutrients that your body needs.5. The gut-brain axis is the close bond that exists between the digestive system and your brain. Emotions (including stress) and brain disorders affect how your body digests food.6. Your body can move your food through the digestive system even while you are standing on your head. It is not connected to gravity because it works with muscles.7. You know those laundry detergents you hear advertised that have enzymes to remove stains? Some of those enzymes are the same as those found in your digestive system.8. The small intestine is about 22-23 feet long while the large intestine is only about 5 feet long.9. Ever wonder why it smells bad when you pass gas? It is because it is produced by fermented bacteria and then mixed with air.10. Platypuses do not have stomachs.11. Stomach growling is called borborygmic and happens all the time, but it is just louder when your stomach is empty because there is no food to muffle it.12. The stomach has the ability to stretch and hold up to 4 pounds of food at one time.13. Aerobic exercise is the best type of exercise to keep your digestive tract in shape.14. When you are first born, you don’t have any of the healthy bacteria your system needs to digest food.15. Gastro mechanical distress symptoms can be caused by only slightly more than 1 cup of a carbonated beverage.16. You burp to release extra air that you swallow if you eat fast, drink carbonated drinks, or smoke.17. Hiccups can be caused by a change in temperature that happens suddenly.18. The amount of saliva you produce increases when you throw up to protect your teeth from the acid in your stomach that will come up.19. The longest attack of constant hiccups lasted 68 years.It is amazing the way your body works and that includes the digestive system. Learning more about it can actually uncover some fun or at least interesting facts you may not have known. So, the next time your digestive system does something you don’t understand, start researching to learn more. Many issues you may have with digestion can be remedied by learning how it works and then avoiding what upsets the balance of your digestive system. The digestive system is the group of organs that break down food in order to absorb its nutrients. The nutrients in food are used by the body as fuel to keep all the body systems working. The leftover parts of food that cannot be broken down, digested, or absorbed are excreted as bowel movements (stool). PIXOLOGICSTUDIO / Getty Images Several organs make up the digestive system. Every organ has a role in breaking down food and managing the waste material. The digestive organs, in the order in which food travels through them, are: Mouth: Digestion starts at the very beginning, with food being chewed in the mouth. Food is broken down into smaller pieces and the saliva in the mouth begins digesting it. An enzyme in saliva called amylase breaks down certain starches down into the smaller sugars, maltose, and dextrin. Esophagus: The esophagus is a tube inside the throat, behind the windpipe. After food is chewed and swallowed, it travels down through the esophagus to the stomach. The muscles in the esophagus contract to move food along, which is called peristalsis. Stomach: After the food is deposited in the stomach, the digestive process continues. The food is mixed with the acids and enzymes that are secreted from the stomach wall. After the food is thoroughly broken down, it's moved along into the small intestine. Small Intestine: The small intestine is a long tube where most of the vitamins and nutrients are absorbed from food into the bloodstream. More enzymes are added into the small intestine as the food moves through to help facilitate the process. The small intestine is composed of three parts: Large Intestine: After moving through the small intestine, the food is now partially digested and mostly in a liquid form as it passes through a sphincter called the ileocecal valve and enters the large intestine. The large intestine is where much of the water is absorbed from the waste material. By the time the stool reaches the end of the large intestine, it's in a more solid form. The sections of the large intestine are called: Cecum Ascending colon Transverse colon Descending colon Sigmoid colon Rectum: At the end of the large intestine is the rectum, a reservoir that holds stool until it can be passed out of the body. When the rectum becomes full of stool, it gives off a signal to the brain that it's time to go to the bathroom. Anus: The anus has two sphincters that serve to hold stool inside the body until it is time to pass it. When you consciously relax your external sphincter, the stool can then leave the body. The digestive tract forms one long tube through the body, all the way from the mouth to the anus (with some sphincters between organs to keep things moving in the right direction). When the digestive system is affected by certain diseases, surgery may be used as a treatment. This is true in particular cases of cancer and in severe cases of inflammatory bowel disease (IBD). Some parts of the digestive tract can be removed in part or in full: The large intestine can be removed partially or fully in an ileostomy or colostomy. or J-pouch surgery. Most people live full and productive lives after these surgeries. The rectum and the anus can be removed, which is also called ileostomy or colostomy. Parts of the small intestine can be removed, but since this is where most nutrients are absorbed, an effort is made to keep it as intact as possible. Part of the stomach can be surgically removed, and people can live well after this surgery as well. Thanks for your feedback! What are your concerns? 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