

### Science 9-Biology

## Worksheet 7-2—Digestion in the Small and Large Intestine



          
**10**

Name \_\_\_\_\_

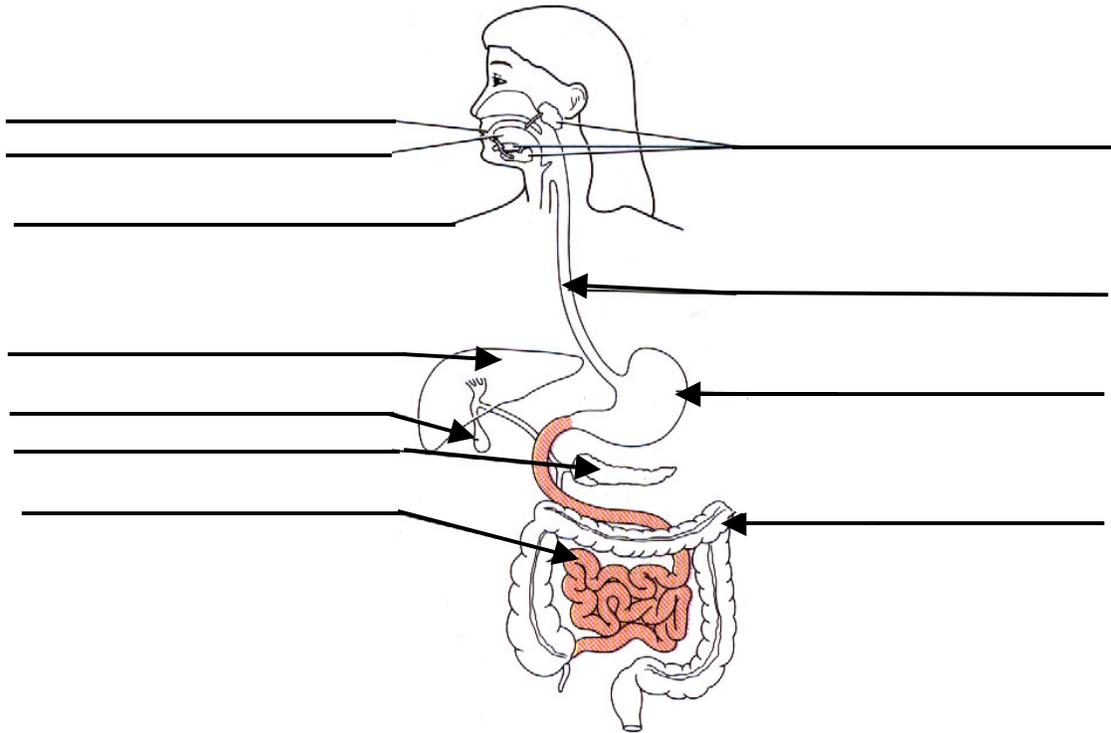
Due Date \_\_\_\_\_

Show Me       Hand In

*Correct and Hand In Again By* \_\_\_\_\_

*Read pages 140-147 of SP to help you answer the following questions:*

1. Label the names of organs on the following diagram:



2. A distance of six meters in this classroom goes from the window, approximately to the \_\_\_\_\_ . This is the approximate length of the \_\_\_\_\_ intestine!

3. Draw a circle about 2.5 cm in diameter:

This is the approximate diameter of the \_\_\_\_\_ **intestine**.

4. Now draw a circle showing the approximate diameter of the **large intestine**:

5. The **large intestine** has a length of about \_\_\_\_\_ m, or the distance from the windows to the \_\_\_\_\_.

6. Why is the mixture entering the small intestine very **acidic**? \_\_\_\_\_  
\_\_\_\_\_

7. Why doesn't the inside wall of the small intestine get "digested" by the acidic stomach acid in the mixture of food entering it? \_\_\_\_\_

8. The process of \_\_\_\_\_ moves the food through the small intestine.

9. How long does it usually take the food to get through the small intestine? \_\_\_\_\_  
Suggest a reason that it takes so long. \_\_\_\_\_

10. Are **carbohydrate** and **protein** molecules broken down to small enough molecules in your mouth and in your stomach that they can be absorbed into your blood stream? \_\_\_\_\_  
\_\_\_\_\_. These nutrients are broken down farther in the first \_\_\_\_\_ cm of the \_\_\_\_\_ intestine.

11. In the **small intestine**:

|  |  |
|--|--|
| Carbohydrates are broken down into →                           |  |
| Proteins are broken down into →                                |  |
| Vitamins and Minerals are →                                    |  |
| All nutrients are broken down into molecules small enough to → |  |

12. **Enzymes** needed to break down food molecules are:

1. Produced in the **cells** lining the walls of the \_\_\_\_\_

2. Added to the small intestine from an organ called the \_\_\_\_\_

13. A substance called sodium bicarbonate goes into the small intestine to **neutralize** the harsh stomach acid in the food entering the small intestine. This substance is produced in the \_\_\_\_\_

14. Where is your **liver** located in your chest cavity? \_\_\_\_\_

Is it a small or large organ? \_\_\_\_\_

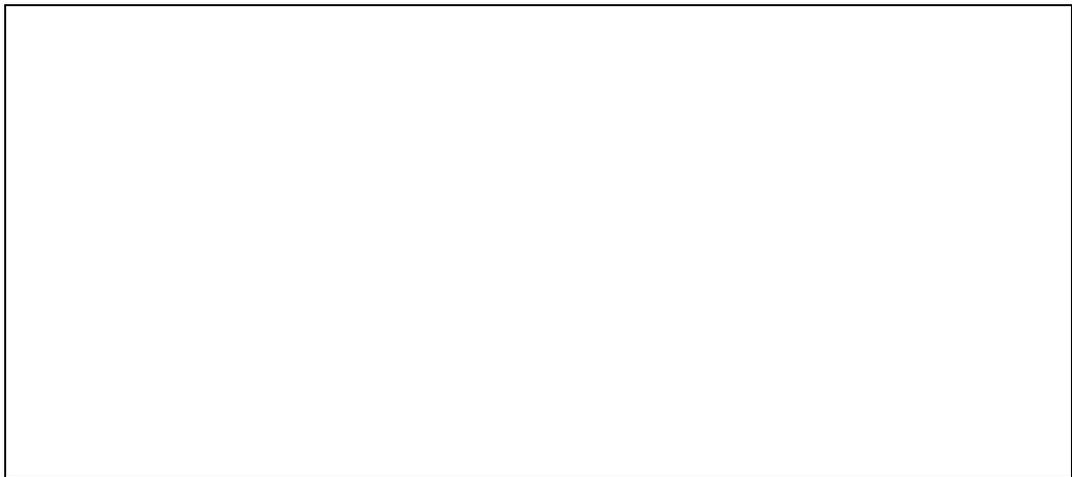
15. The liver produces a **green fluid** called \_\_\_\_\_. This fluid is stored in the \_\_\_\_\_ much like windshield washer fluid is stored in a little plastic container in your car.

16. Is **bile** really a digestive enzyme? \_\_\_\_\_. Does it help speed up a chemical reaction in the body? \_\_\_\_\_. What does bile actually do to large **fat** droplets? \_\_\_\_\_. This increases the \_\_\_\_\_ of the droplets and helps **enzymes** digest the fats more quickly.

17. When there is too much cholesterol in the bile \_\_\_\_\_ can be formed in the **gall bladder**. What do you think will happen if these crystals block the tube which the bile passes through? Do you know of anyone who has had this condition? \_\_\_\_\_ Would there be any pain? \_\_\_\_\_
18. Some of the functions of the **liver** are:

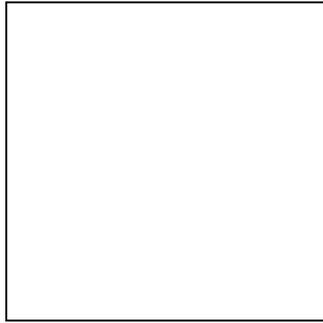
|   |   |
|---|---|
| 1 | To produce <u>bile</u> to help the digestive system break up large fat droplets |
| 2 | To  |
| 3 | To  |

19. Draw a copy of Figure 7.12 on the bottom of page 141. This represents the top section of the small intestine. Show and label all of the substances entering and where they come from.



20. **Absorption** is the process by which \_\_\_\_\_
- \_\_\_\_\_

21. **Absorption** takes place in the \_\_\_\_\_ that line the walls of the small intestine.
22. Draw Figure 7.13 showing the folded inner surface of the small intestine:



23. If you were to stretch out the inside surface of an adult’s small intestine. (unfold all the folds) its area would be that of the \_\_\_\_\_ of a \_\_\_\_\_  
Why is there such a large surface area in the small intestine? (HINT: What happens through these walls?) \_\_\_\_\_  
\_\_\_\_\_
24. The last part of the digestive system is called the \_\_\_\_\_ **intestine**.  
**Mucus** is produced in the walls of this organ to help \_\_\_\_\_  
\_\_\_\_\_
25. What has happened to most of the **nutrients** that were in the food by the time the mixture reaches the large intestine? \_\_\_\_\_  
This creamy mixture now contains mainly \_\_\_\_\_ and \_\_\_\_\_ materials such as **fibre**.
26. **Elimination** is the \_\_\_\_\_  
This is sometimes called a \_\_\_\_\_ movement.
27. The wastes you eliminate from your large intestine are called \_\_\_\_\_
28. What happens to much of the water in the feces as it passes through the large intestine?  
\_\_\_\_\_  
\_\_\_\_\_ L to \_\_\_\_\_ L of water are absorbed into the body in one day.

29. To summarize:

The **small intestine** releases \_\_\_\_\_ to the rest of the body.

The **large intestine** releases \_\_\_\_\_ to the rest of the body.

30. Organisms that live inside of our large intestine are \_\_\_\_\_

31. **Bacteria** in our large intestine help us in three ways:

|   |  |
|---|--|
| 1 |  |
| 2 |  |
| 3 |  |

32. Feces are about \_\_\_\_\_% **water** and \_\_\_\_\_% **solid** material. The solid material in feces is mainly \_\_\_\_\_ and \_\_\_\_\_.

33. Having enough **fibre** in the feces helps it to \_\_\_\_\_ to move easily through the large intestine.

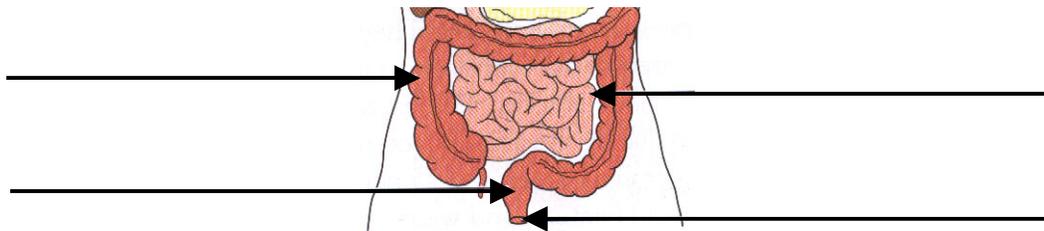
34. It normally take from \_\_\_\_\_ to \_\_\_\_\_ hours for material to move through the large intestine.

35. The process of \_\_\_\_\_ moves the food through the large intestine.

36. The **rectum** is a \_\_\_\_\_. It \_\_\_\_\_ to hold and store feces until they are eliminated.

37. The feces leave the body through an opening called the \_\_\_\_\_

38. Label the parts on the following diagram:



39. “Heartburn” is actually pain felt in the \_\_\_\_\_ and is often the result of acidic stomach contents felt in this organ. Does it have anything directly to do with the heart? \_\_\_\_\_
40. An **ulcer** is a \_\_\_\_\_ in the wall of the digestive system. \_\_\_\_\_ acid and pepsin in the stomach are designed to digest \_\_\_\_\_, which is just what the walls of your digestive system are made of. Normally, the walls of your digestive system are protected by a layer of \_\_\_\_\_. What dangerous thing can happen if an **ulcer** is left untreated? \_\_\_\_\_
41. Ulcers are thought to be caused by stress, over production of stomach acid and also by a type of \_\_\_\_\_ called **helicobacter pylori**

Read the following:

Until recently, it was felt that most ulcers were caused by lifestyle factors such as poor diet, too much stress, heavy drinking, and smoking. But amazingly, it now seems in the majority of cases the real culprit may be this tiny bacteria. As Helicobacter invades the stomach lining, it disrupts the protective mucous layer and allows the corrosive stomach acids to come in direct contact with the delicate tissues below. This can then lead to peptic ulcers and stomach inflammation called gastritis. In fact, chronic gastritis is the hallmark of Helicobacter. It is found in nearly all those infected.

The real breakthrough is the evidence that Helicobacter infection is the culprit in up to 90% of duodenal ulcers. Most of the other 10% are probably caused by too much aspirin, ibuprofen, and other anti-inflammatory drugs. Stress and diet may play a role in aggravating an ulcer, but no longer seem to be the main cause. The good news is that we now have medications to eradicate Helicobacter which speeds ulcer healing, and more importantly, greatly reduces the risk of ulcer recurrence. Soon, for many people, ulcers will be a thing of the past. Copied from <http://www.qihealth.com/html/education/helicobacter.html>

42. The build-up of **feces** in the intestine and rectum for a longer period of time than normal is called \_\_\_\_\_
43. What happens in **diarrhea**? \_\_\_\_\_
- The main causes of diarrhea are \_\_\_\_\_, \_\_\_\_\_ and stress. Diarrhea can be easily treated yet it is actually the cause of many infant deaths in the world. Suggest why this is so. \_\_\_\_\_