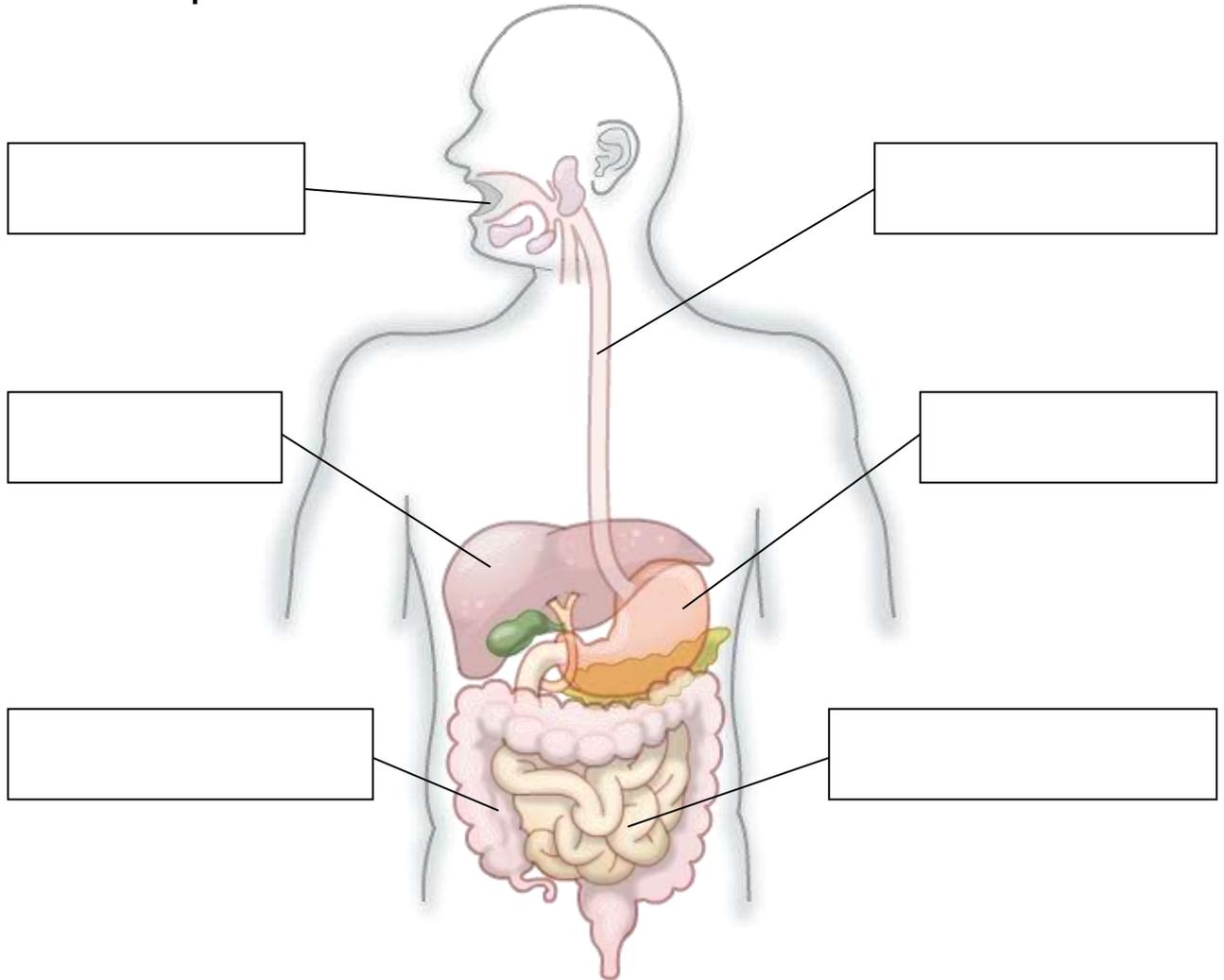


Digestion and Enzymes Worksheet

1. The diagram below shows the human digestive system. Answer the questions below.



- Label the diagram.
- Physical digestion takes place at two places in the system. Circle two labels to show the places where this occurs.
- Explain why physical digestion is important.

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d. Complete the following sentences about chemical digestion.

The digestion of starch begins in the and is broken down by an enzyme called This digests starch into maltose, which is further broken down into by the action of maltase. Enzymes called proteases break down into amino acids. This occurs in the Fat is broken down into and by an enzyme called

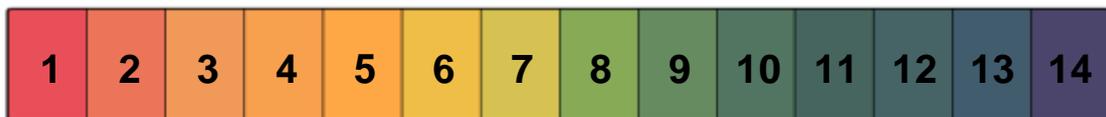
e. Explain why the pH of the alimentary canal changes at different points.

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2. As well as being important in the body, enzymes are useful to us in many everyday processes and products.

a. Draw a line to match the enzymes on the left to one of their uses on the right.

**a mix of carbohydrases,
lipases and proteases**

making vegetarian cheese

chymosin

making sweets

invertase

as a biological washing powder

b. One of the enzymes above is used in the production of low calorie food. Identify the enzyme and explain why it is used.

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c. Give two more uses of enzymes.

i.

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ii.

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3. **Anni plays football at the weekend. At one point she falls and scratches her arm, getting blood on her shorts. On the way home, she eats a sandwich and some of the butter gets on her t-shirt. Anni's father puts her clothes in the washing machine with some biological washing powder.**



a. Which type of enzyme in the washing powder would get rid of the blood stain?

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b. Which type of enzyme in the washing powder would get rid of the butter stain?

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c. Anni's father sets the washing machine to 40 degrees. Anni thinks that her clothes will be cleaner if she sets it to 90 degrees. Identify who is correct and explain why.

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4. Enzymes are used in industrial processes.

a. Complete the following sentences by circling the correct word(s).

Enzymes used in industrial processes are often immobilized in [sodium / gel / substrate / reagent beads]. This is done by mixing the enzyme with [alginate / protease / reagent / calcium chloride], then dropping the mixture into [alginate / protease / reagent / calcium chloride] solution. The advantages of this are that the product is not contaminated with the enzyme, and the enzyme can be used many times, including in continuous [industrial / gel / lactose / flow] processing.

b. Are the statements below true or false? Circle the T for true and F for false.

Lactose is broken down to glucose and fructose. T F

Lactose intolerance is a condition where people are unable to produce lactose. T F

Lactose can be fermented by bacteria in the gut, which causes wind. T F

It is possible to make lactose-free milk. T F

Lactose intolerance is very rare. T F

