

GRADE 9 BIOLOGY

DIGESTIVE SYSTEM

Instructions:

1. If you were not in class when the outline of body and the different systems were handed out, print the sheet below.
2. Cut out the different systems of the body, from the sheet. Complete the human body by sticking the different systems into place within the outline.

Remember: some of the systems would need to be flapped, or else you will not be able to see where they belong in the human body.

Answers on how this should be done will be given at the end of these assignments.

3. Click on the link below to watch the video on the digestive system.

<https://youtu.be/Og5xAdC8EUI>

4. Complete the following questions from the information given in the video.
 - 4.1. Name the four main components of the digestive system.
 - 4.2. Describe the process of digestion from when food is served to the release of waste products.
 - 4.3. What is the estimated amount of food consumed during a life time?
 - 4.4. What juices are necessary for the digestive process to occur?

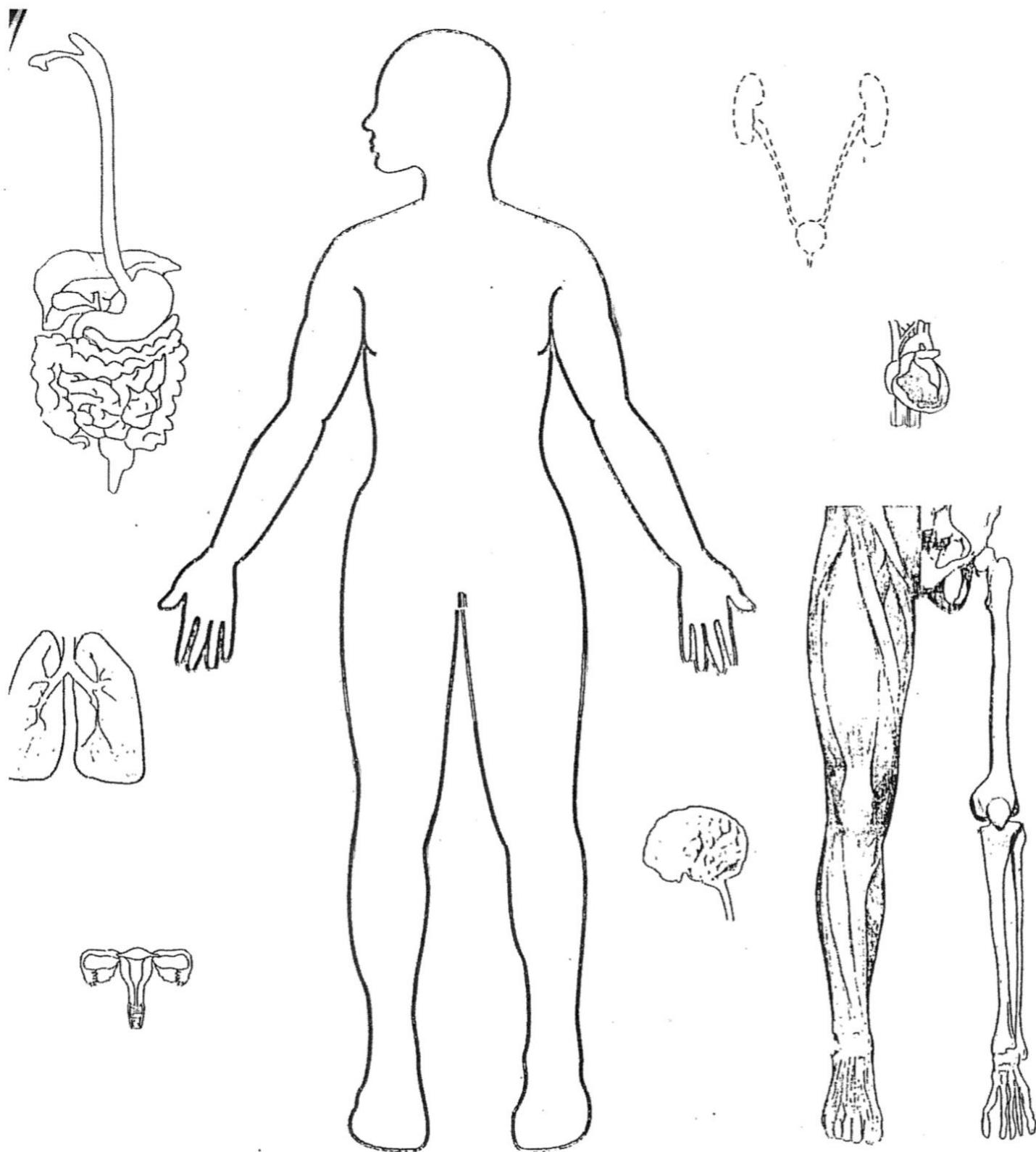
5. Complete the questions from the workbook:

If you have:

Separate study guide and workbook: Pages 4-5 and the terms on page 7,

OR

Study guide and workbook all-in-one book: Pages 80-81 and the terms on page 83.



Answers to the question from the video:

4.1. Gastrointestinal tract,

Glands – liver, pancreas, gall bladder

Enzymes, hormones, blood and nerves

Mesentery

4.2. Process of digestion

- ✓ Before the food enters the mouth, food looks tasty allowing for the salivary glands to produce saliva.
- ✓ Chewing allows for the food to be mixed with saliva adding some enzymes to the ball of food being swallowed. This is called a bolus of food.
- ✓ In the oesophagus, the peristaltic movements are triggered, moving the bolus of food to the stomach.
- ✓ In the stomach, the food is churned for about three hours. Mechanical and chemical digestion occurs.
- ✓ Chyme is formed. This is a liquified form of the food.
- ✓ Chyme moves to the small intestine where bile is added. Bile is produced in the liver and stored in the gall bladder to be secreted into the small intestine. This happens when the chyme is released from the stomach.
- ✓ Bile breaks down fats into glycerol and fatty acids, proteins are deconstructed into amino acids and carbohydrates into simpler sugars.
- ✓ Villi in the small intestine enlarge the surface area to maximize the absorption and allow the transfer of the nutrients to the blood, for circulation to all the cells.
- ✓ Once this reaches the large intestine, water is drained from the fluid like chyme. Fibre is needed to assist in the movement of the chyme.
- ✓ The rectum stores the soft mass of undigested food and byproducts of digestion.
- ✓ The entire process takes 30-40 hours to complete.

4.3. About 28 000kg of food per life time.

- 4.4. Saliva
- Bile
- Enzymes
- Hydrochloride acid
- Intestinal juices
- Insulin

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B: Systems

1. The Digestive System

Question 1

1. List 4 reasons why we need to consume food. (4)

- Provides the body with energy
- Supplied the body with materials for growth.
- Food has nutrients that repairs and replaces tissues
- Protects body from disease and infection.

2. Provide 4 reasons why water is essential for the body. (4)

- A medium for chemical reactions to take place
- Removed waste from the body - sweat + urine
- Component of blood, to transport dissolved substances around the body
- When sweat evaporates; the body is cooled.

Question 2

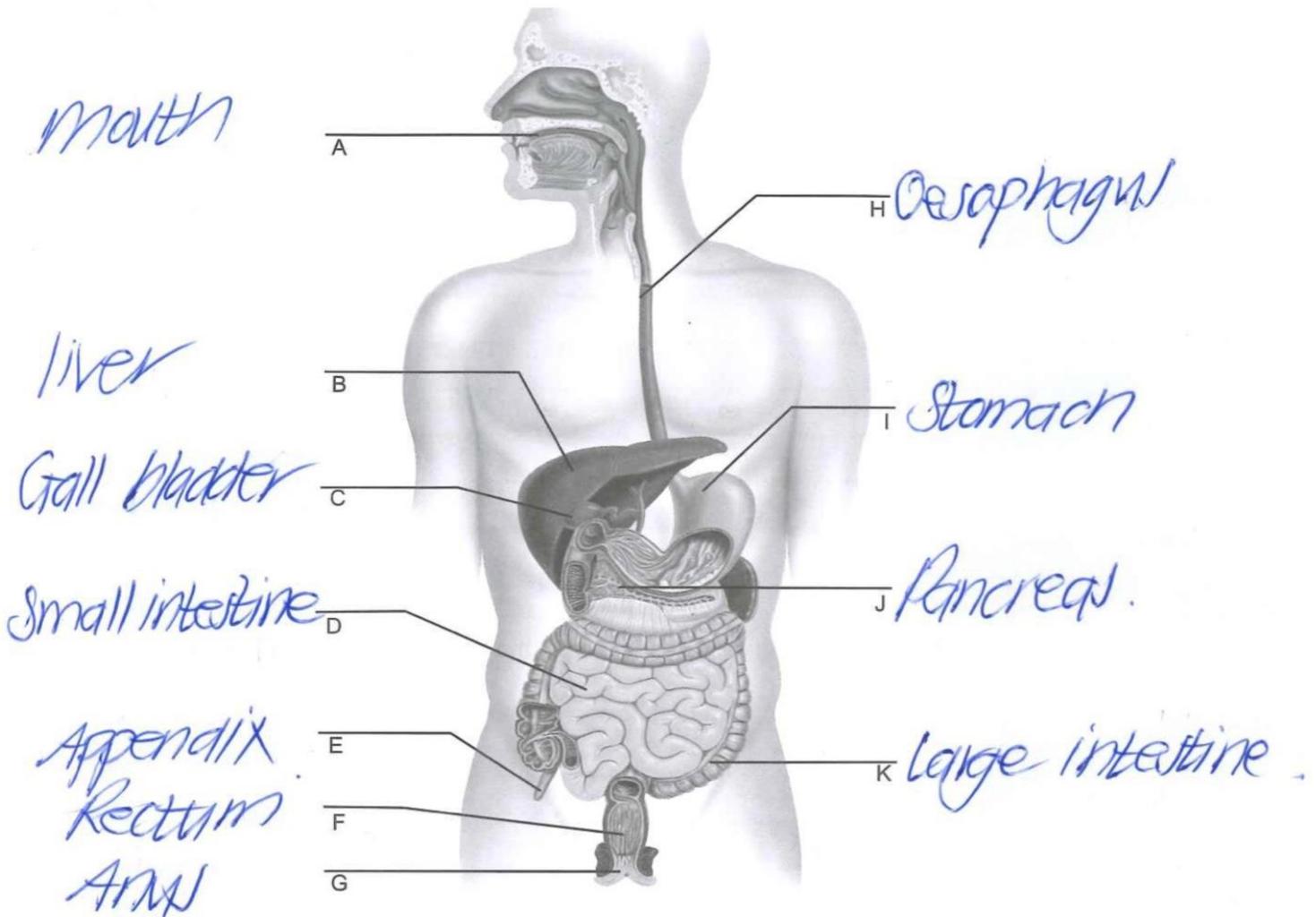
Study the diagram of the human digestive system then answer the questions that follow:

1. Provide labels for A to K. Label on the diagram. (11)

4

80

Digestive system of human.



2. Write down ONE function of the part labelled:

- a) B: Secretes bile (a salt) to be stored in the gall bladder.
- b) D: Digestive juices secreted by the walls; chyme & nutrients absorbed into the blood system.
- c) I: Produces hydrochloric acid to partially digest / break down food for absorption to occur.
- d) K: Absorption of water; temporary storage of undigested food/waste material.

3. Provide the LETTER only of the part that:

(4)

- a) stores bile: C
- b) is a tongue-shaped organ that lies below the stomach: J
- c) is a tube that connects the mouth to the stomach: H
- d) that allows faeces to leave the body: G

Question 6

Provide the correct term for each of the following :

1. Taking in of food through the mouth.
2. Physical breakdown of food by the teeth and the muscles of the stomach walls.
3. Breakdown of food by enzymes.
4. Movement of dissolved nutrients from the small intestines into the bloodstream.
5. Removal of undigested waste from the alimentary canal.
6. Opening to the alimentary canal.
7. Structure within the mouth that mixes food with saliva.
8. Structure within the mouth that assists in the swallowing of food.
9. Organ of the digestive system that secretes bile.
10. Structure that stores bile.
11. Part where final digestion and absorption of food takes place.
12. Long tube that connects the mouth to the stomach.
13. Muscular, sac-like organ containing chyme.
14. Organ of digestive system that contains hydrochloric acid.
15. Part of digestive system with acidic pH.
16. Liver secretion that assists in the digestion of fat.
17. Leaf-shaped organ found behind the stomach.
18. Partially digested food in a semi-solid form in the stomach.
19. Opening through which undigested waste leaves the body.
20. Muscular tube that extends from the small intestine to the anus.
21. Structure that serves as a temporary storage place for undigested waste.
22. Foods that are the body's main source of energy.
23. Indigestible material found in plant cell walls that prevent constipation.
24. Foods required by the body to assist with repair of damaged or worn out cells.
25. Foods that act as a reserve energy source.
26. A condition that results when a balanced diet is not followed.
27. Disease caused from a diet consisting of energy rich foods.
28. Disease that results from a diet rich in carbohydrates but lacking in protein.
29. Disease characterised by a lack of muscle tissue and thin stick-like body.
30. Scarring of the liver tissue as a result of consuming too much alcohol.

(30)

ingestion
mechanical digestion
Chemical digestion
Absorption
Egestion
Mouth
Tongue
Tongue
Liver
Gall bladder
Large intestine
Oesophagus
Stomach
Stomach
Stomach
bile (salt)
Pancreas
chyme
Anus
Colon / Large intestine
Rectum
Carbohydrates
Fibre
Protein
Fat
Malnutrition
obesity
Kwashiorkor
Anorexia
Cirrhosis of the liver

Answer to completing the human body:

Place the uterus into position and stick flat down.



Place the Kidney and bladder into position and flapped over the uterus...



The finished product...

Intestines will be over all the other systems. Flap the lungs over the heart .

