

Topic: Digestion

Lesson	Lesson Title
1	Balanced diets
2	Deficiency diseases
3	Should cola be banned?
4	Food tests (part 1)
5	Food tests (part 2)
6	Digestive system (part 1)
7	Digestive system (part 2)
8	Enzymes

The links below take you to The Oak National Academy Lessons.  
The lessons are linked in to the lessons above.  
The video lessons include tasks which are clearly explained.

Lesson 1 - <https://classroom.thenational.academy/lessons/healthy-diet-part-1-6tip2d>  
<https://classroom.thenational.academy/lessons/healthy-diet-part-2-6wt6cr>

Lesson 2 & 3 - <https://classroom.thenational.academy/lessons/unhealthy-diet-6dgk0r>

Lesson 4 & 5 - <https://classroom.thenational.academy/lessons/food-tests-61h3cd>

Lesson 6 & 7 - <https://classroom.thenational.academy/lessons/the-digestive-system-6wv30t>

Lesson 8 - <https://classroom.thenational.academy/lessons/enzymes-6nk62e>

**Questions for you to complete and then mark.**

**Q1.**

The table shows the mass of water, fat, fibre and vitamin C in 100 g of potato cooked in three different ways.

	<b>water, in g</b>	<b>fat, in g</b>	<b>fibre, in g</b>	<b>vitamin C, in mg</b>
100 g of chips	57	7	2	9
100 g of boiled, peeled potato	80	hardly any	1	6
100 g of potato baked in its skin	63	hardly any	3	14

(a) Use information from the table to help you fill the gaps in the following sentences.

(i) Chips are crisper than boiled potatoes because chips contain **less**

.....

(ii) Most of the fibre in a baked potato is in the ..... of the potato.

1 mark

(b) Use the information in the table to work out how much vitamin C there is in:

**200 g** of chips ..... mg;

**200 g** of potato baked in its skin ..... mg.

1 mark

(c) People do **not** always eat a balanced diet.

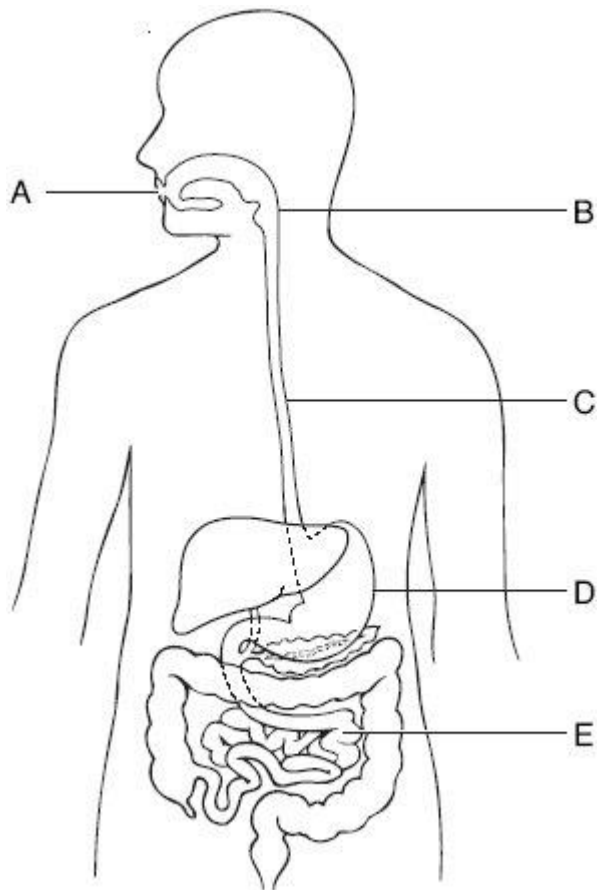
Draw **one** line from each fact about a person's diet to the organ it harms.  
Draw only **three** lines.

fact about the diet	organ harmed
<input type="checkbox"/> not enough calcium	<input type="checkbox"/> heart
<input type="checkbox"/> not enough fibre	<input type="checkbox"/> intestine
<input type="checkbox"/> too much fat	<input type="checkbox"/> lung
	<input type="checkbox"/> bones

3 marks  
Maximum 6 marks

**Q2.**

The diagram below shows the digestive system.



(a) (i) Give the letter which labels the stomach.

.....

1 mark

(ii) Give the letter which labels the small intestine.

.....

1 mark

(iii) Glucose is absorbed in the small intestine.

What carries glucose from the intestine to other parts of the body?

.....

1 mark

(b) Some athletes take glucose tablets before a race.

Why do they take glucose?  
Tick the correct box.

for growth	<input type="checkbox"/>	for healthy bones and teeth	<input type="checkbox"/>
to prevent disease	<input type="checkbox"/>	to provide energy	<input type="checkbox"/>

1 mark

(c) The table below shows what four people ate for lunch.

name	lunch
Jon	chicken and salad
Nadia	cheeseburger and chips
Clare	lemonade and a jam doughnut
Zak	mushroom soup and an orange

(i) Whose lunch had the most sugar in it?

.....

1 mark

(ii) Whose lunch had the most fat in it?

.....

1 mark

(iii) Eating too much fat is bad for you.  
Give **one** reason for this.

.....  
.....

1 mark  
maximum 7 marks

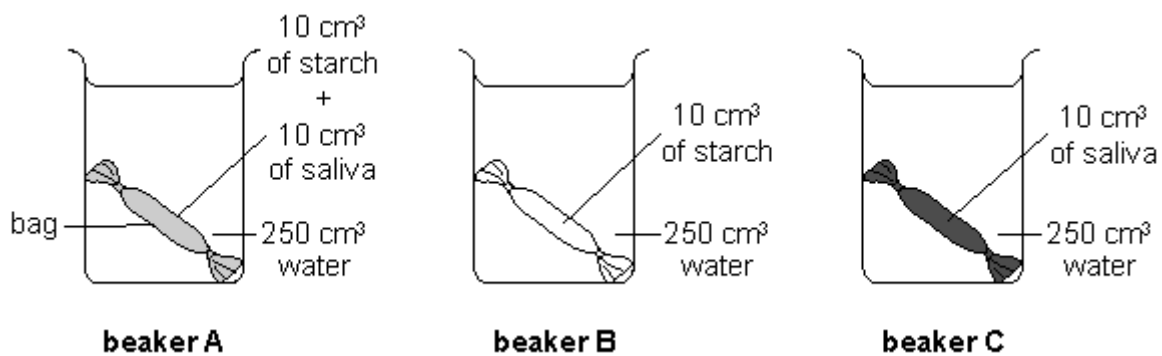
**Q3.**

Sally investigated how the human body digests and absorbs starch.

She used saliva to digest the starch.

To model digestion she used special bags made from a semi-permeable membrane. These bags have lots of very small holes.

Sally sets up the equipment as shown below. There is one special bag in each beaker.



She keeps the water in the beakers at 37°C.

After 20 minutes, Sally tested the contents of each beaker and bag for starch and sugar.

The table below shows Sally's results.

	Was starch found in the bag?	Was sugar found in the bag?	Was starch found in the water?	Was sugar found in the water?
beaker A	✓	✓	✗	✓
beaker B	✓	✗	✗	✗
beaker C	✗	✗	✗	✗

(a) Suggest why Sally kept the water at 37°C.

.....

1 mark

(b) (i) Explain why sugar was found in the bag in beaker A.

.....

1 mark

(ii) Starch was **not** found in the **water** outside the bag in any beaker. Suggest why.

.....

1 mark

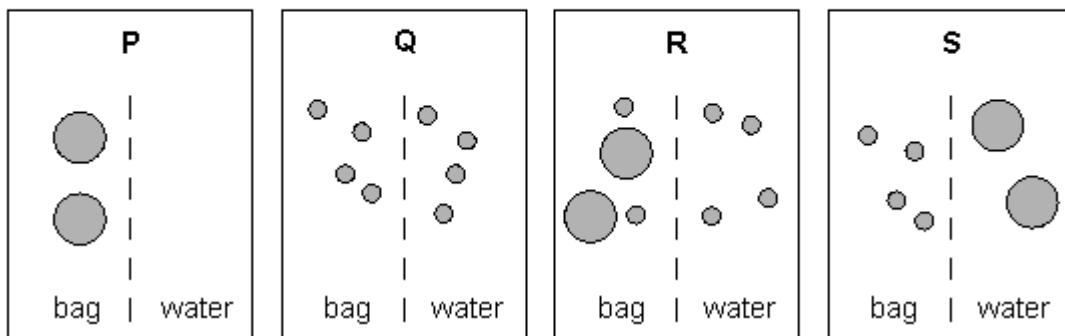
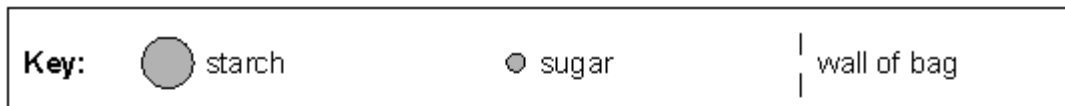
(c) Why did Sally set up beaker C? Tick the correct box.

for a fair test  for accuracy

for reliability  for a control

1 mark

(d) Sally used diagrams to show what happened in her investigation.



Use the diagrams above to answer the following questions.

(i) Which diagram shows the **results** of beaker **B**? Write the letter.

.....

1 mark

(ii) Which diagram shows the **results** of beaker **A**? Write the letter.

.....

1 mark

(e) What does saliva contain that causes starch to change in beaker A?

.....

1 mark

(f) Sally chewed a piece of bread for 5 minutes without swallowing.  
What would she notice about the taste of the bread after chewing for 5 minutes?  
Use Sally's results to help you.

.....

1 mark  
maximum 8 marks

#### Q4.

(a) Egg white contains a protein called albumen.

A pupil carried out an experiment to investigate the digestion of three identical cubes of cooked egg white using the enzyme pepsin. She set up the experiment as follows.

Into beaker A, she put 50 cm<sup>3</sup> pepsin solution and a cube of egg white left whole.

Into beaker B, she put 50 cm<sup>3</sup> pepsin solution and a cube of egg white which had been cut into eight small cubes.

Into beaker C, she put 50 cm<sup>3</sup> pepsin solution and a cube of egg white which had been cut into sixty four tiny cubes.

She added 1 cm<sup>3</sup> hydrochloric acid to each beaker and placed the three beakers in a waterbath at 37°C. The table gives the pupil's observations five hours later.

beaker	observations five hours later
A	a little of the egg white had gone from the edges of the whole cube
B	the cubes were about half their original size
C	only a few tiny fragments of egg white were left

(i) Why was the cube of egg white which had been cut into sixty four pieces digested most quickly?

.....

.....

1 mark

(ii) When protein is digested it is broken down into smaller molecules. What name is given to these smaller molecules?

.....

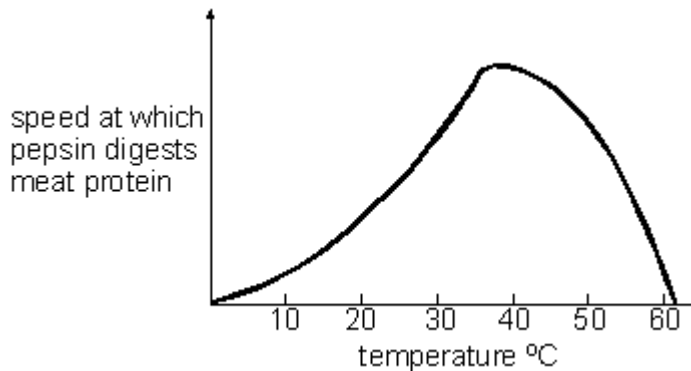
1 mark

(b) In another experiment, it was found that pepsin does not digest sucrose (sugar). Explain why sucrose is not digested by pepsin.

.....  
.....

1 mark

(c) The graph below shows how quickly pepsin digests meat protein at different temperatures.



Explain why pepsin does **not** digest protein at temperatures above 60°C.

.....

1 mark

(d) Glands in the stomach wall produce mucus, hydrochloric acid and an inactive form of pepsin called pepsinogen. In the stomach hydrochloric acid reacts with the pepsinogen to produce pepsin.

(i) Suggest **one** other purpose of acid in the stomach.

.....  
.....

1 mark

(ii) Suggest **one** reason why pepsin is secreted in its inactive form.

.....  
.....

1 mark

(iii) Suggest **one** purpose of mucus produced in the wall of the stomach.

.....  
.....

1 mark

(iv) Bile from the liver makes the duodenum alkaline. Give **one** reason why the contents of the duodenum need to be alkaline.

.....

.....

1 mark  
Maximum 8 marks