

# Home Learning Tasks



Your home learning tasks have been split into four main sections. It is entirely up to you in which order you complete these. They are designed to revisit some of the key Scientific skills you have used in your lessons this year. This means that some of the experiments you are asked to work on may be unfamiliar – Please don't be put off by this as we are looking for the skills.

If you can, we would like you to send any completed work to us through Show My Homework. Please don't worry if you can't; keep hold of it until we return to school.

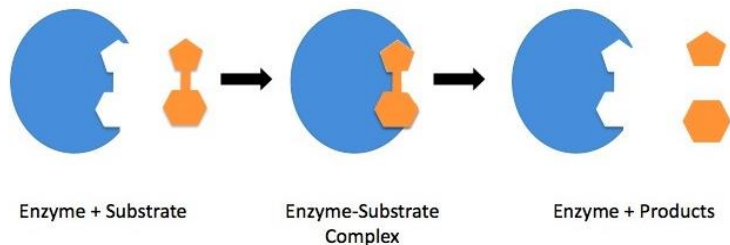
Science in Action	Application of Science	Recall of knowledge: Choose 1	Widening Your Scientific Mind
<p>We want you to get creative for this section! We will provide you with a method for an experiment you can complete at home. Use the planning sheets to record what you did and what you found out.</p> <p>If you want a real challenge, you could design your own investigation altogether! Use the blank planning sheet to help you structure your ideas.</p>	<p>For this task, you will have to read information around a key area of Science. This is where we are looking for you to develop your Scientific skills and will be given a list of criteria for the work that you produce.</p>	<p><b>Option One:</b> An Educake quiz will be set over the 3 weeks for you to complete. Decide how many you think you need to get right – 50%? 75%? 100%?</p> <p><b>Or</b></p> <p><b>Option Two:</b> Read a method for an investigation you may or may not have completed.</p>	<p>These tasks will help to understand the Science in the real world. We would like you to watch, read or discover some new Science and will provide you with some stimulus material to look at.</p> <p>You will be given <b>two</b> options and you we'd like you to complete at least <b>one</b>.</p>

**For Year 7 - Wb 1<sup>st</sup>, 8<sup>th</sup> and 15<sup>th</sup> June**

# Biology Home Learning Project – Food and Digestion

## Section One – Science in Action

Enzymes are proteins that speed up chemical reactions (breaking down larger molecules into smaller ones).



You are investigating how the size (surface area) effects how fast the enzyme amylase (found in saliva) breaks down bread.

Fill in the boxes:

### **Independent variable**

I will change: \_\_\_\_\_

### **Dependent variable (what the results depend on/record this in the results table)**

I will measure: \_\_\_\_\_

Using a \_\_\_\_\_

### **Control variable**

I will keep these the same:

\_\_\_\_\_  
\_\_\_\_\_

This is because \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**Write a step by step method describing how you would do the investigation.**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Carry out the practical:

- **Measure out 5 different sizes of bread – MAKE SURE YOU HAVE ADULT SUPERVISION WHEN CUTTING THE BREAD.**
- **Time how long it takes for the bread to disintegrate (break up) in your mouth.**

**Basic - Run the investigation once and record the results.**

**Intermediate - Run the investigation 3 times and calculate the average (add the rows up and divide by 3).**

**Challenge: Are there any anomalies? If so how can you tell? Should they be included in the average?**

Size of the bread (mm)	Time taken for bread to break up (seconds)			
	Trial 1	Trial 2	Trial 3	Average

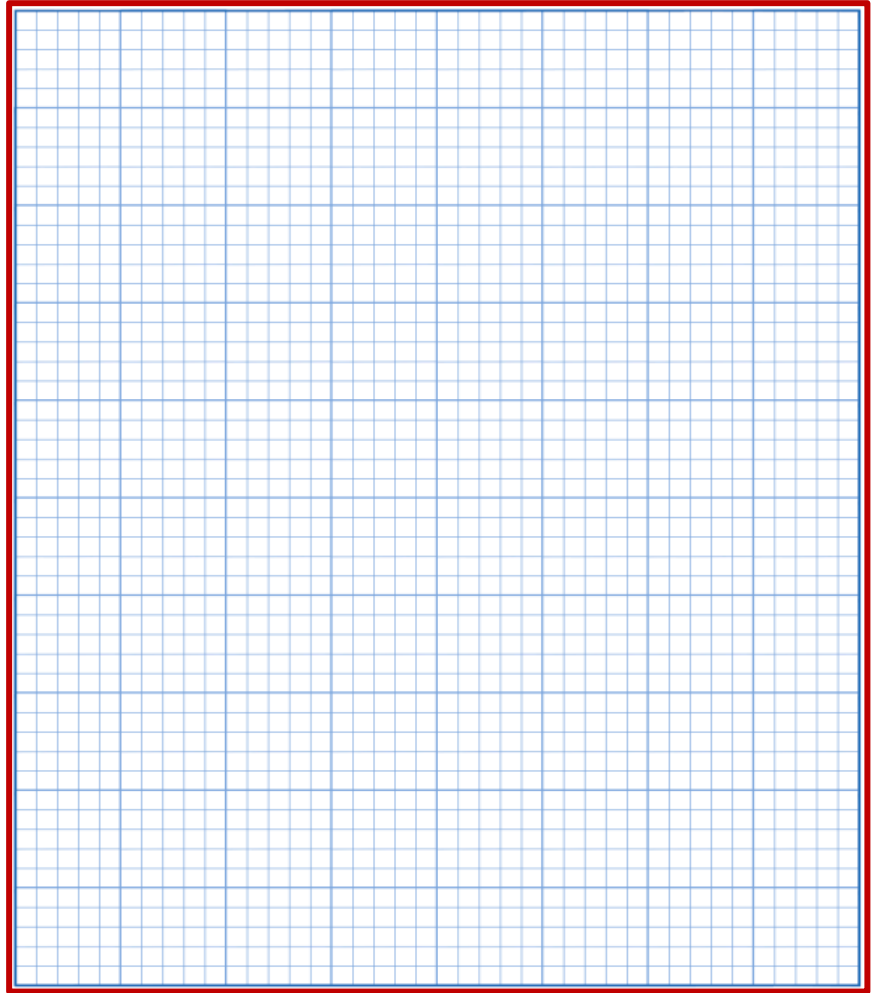
**Challenge:**

**Suggest 3 ways that you could improve the investigation.**

I could improve the investigation by ...

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

**Super challenge:** Plot your results on the graph paper and draw a line of best fit.



**Conclusion:**

What did you find? Use your graph to give extra detail.

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**Explain how you know this.**

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Any observations, did you taste a difference in the bread?

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## Section Two – Application of Science

# The journey of a cheese sandwich

### Task:

You must explain the journey of a cheese sandwich through your digestive system.

You can choose to explain your ideas through either:




- writing a story;
- drawing a cartoon.



### Top tips:

- Choose a level to work on.
- Include as many key words as you can.

**Key words:** carbohydrate, large molecule, fat, gullet, large intestine, anus, liver, small molecule, mouth, small intestine, protein, stomach, teeth, carbohydrate, blood, absorbs

	<ul style="list-style-type: none"><li>• Drawn a diagram to show that the food is broken down in the stomach.</li><li>• Drawn a diagram to show how digested food goes to organs in the body.</li><li>• Name some organs in the digestive system.</li><li>• State what food is used for by the body.</li></ul>
	<ul style="list-style-type: none"><li>• Name the major organs of the digestive system, using key words.</li><li>• Describe simply the job/function of each organ.</li><li>• Name the food groups in the cheese sandwich.</li><li>• Describe simply what food is used for in the body.</li></ul>
	<ul style="list-style-type: none"><li>• Name most of the organs of the digestive system, using key words.</li><li>• Describe what happens to the food in each organ.</li><li>• Name the food groups in the cheese sandwich.</li><li>• Explain why the body needs food.</li><li>• Explain why teeth are important in digestion.</li></ul>

## **Section Three – Application of Science**

### **Either**

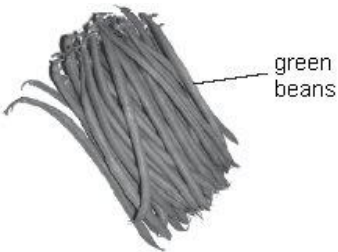
Go to [www.educake.co.uk](http://www.educake.co.uk) and enter the username and password you were given. If it doesn't work and you are unable to reset it yourself, email [pschuller@stocksbridgehigh.co.uk](mailto:pschuller@stocksbridgehigh.co.uk) and you will be given instructions on what to do next.

1. Decide how many you think you need to get right before you start. Are you aiming for 50%, 75% or even 100%? If you don't reach your target first time, that's okay as you can retake the quiz as many times as you like.
2. If you don't agree with the way that Educake has marked your answer, you can disagree with the mark. Pressing this will ask your teacher to check and decide whether your answer is indeed correct or whether it still needs a little bit of work. Make sure you check back regularly to see whether you have received some feedback
3. If you want to set yourself a real challenge; you can set yourself your own quiz to complete. Try setting yourself 10 random questions from a topic you have covered this year. If you are unsure, email your Science teacher with your name and class and they will be able to help you out.



### **Or answer the questions below**

Q1. (a) Green beans contain vitamin C.

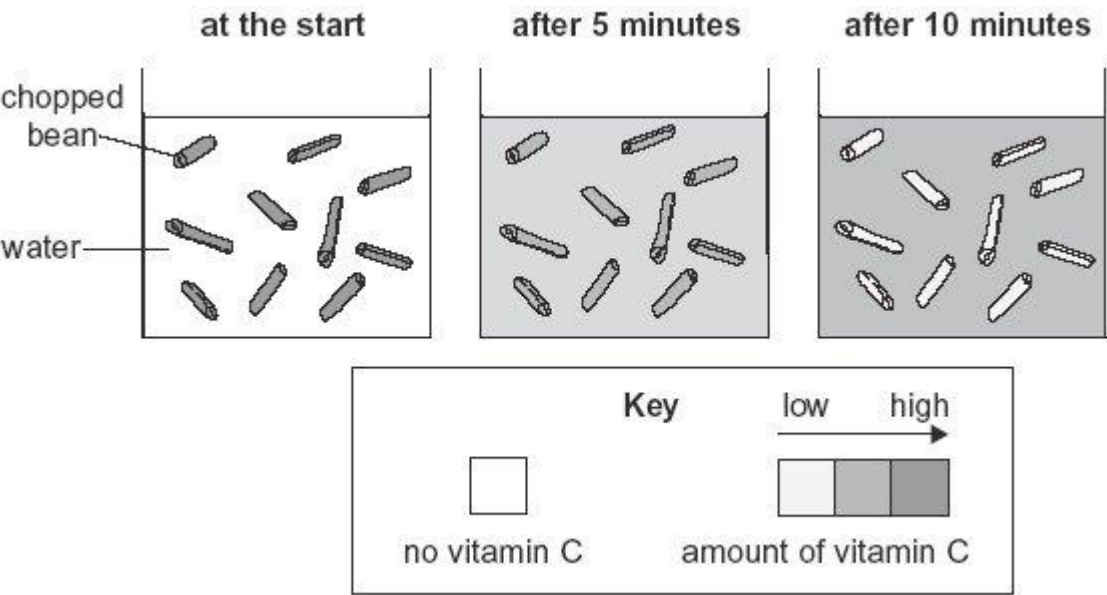


Which other food is a good source of vitamin C. Tick the correct box.

cheese	chicken	eggs	oranges
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1 mark

(b) The amount of vitamin C changes in the beans and in the water as the beans are cooked. The shading shows how it changes.



Use the diagram. How does the **amount of vitamin C** in the beans and in the water change as the beans are cooked? Tick one box in each row.

amount of vitamin C	increases	decreases	stays the same
in the beans			
in the water			

1 mark

(c) Cheese is a source of calcium. Why do we need calcium?

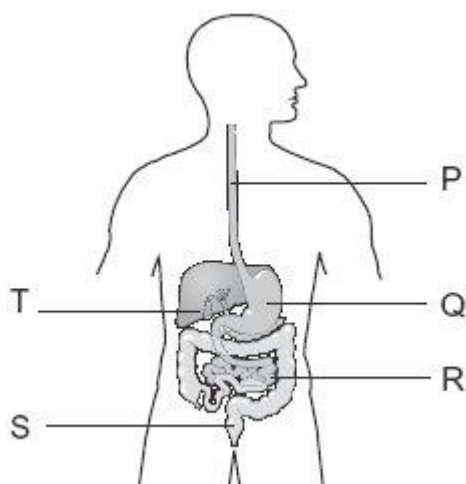
..... 1 mark

- (d) Draw a line from each nutrient to a good source of that nutrient in our diet.

nutrient	source of nutrient
starch	lean chicken meat
fat	jam
protein	pasta
sugar	margarine

2 marks

- (e) The diagram shows part of the human digestive system.



- (i) Write the letter which labels the small intestine.

.....

1 mark

- (ii) Write the letter which labels the stomach.

.....

1 mark  
maximum 7 marks



**Q2.** The table shows the recommended daily intake of energy and some of the nutrients needed by different groups of people.

		nutrients				
group of people	energy, in kJ	protein, in g	carbohydrate, in g	fat, in g	minerals, in g	
					calcium	iron
male 15 - 18	11510	55.2	360	109	1000	11.3
female 15 - 18	8830	45.0	276	84	800	14.8
male 19 - 50	10600	55.5	331	100	700	8.7
female 19 - 50	8100	45.0	253	77	700	14.8
pregnant female	8900	81.0	278	84	700	14.8

- (a)

(i)

Explain why two 16 year-old males of the same weight might need different amounts of energy.

.....

.....1 mark

(ii)

Which **two** types of nutrient provide most of the energy in our diet?

1. ....

2. .... 2 marks
- (b)

Look at the table. Explain the difference in the amount of protein needed by a 25 year-old pregnant female and a 25 year-old female who is not pregnant.

.....

..... 1 mark
- (c)

Iron is needed to make blood.

Explain why a 15 year-old female might need more iron than a 15 year-old male.

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## **Section Four – Widening your Scientific Mind**

### **Either**

#### **Watch The Secret of Your Food: We are what we eat**

<https://www.youtube.com/watch?v=23EMDivtnEE>

Create a poster/presentation or a leaflet to summarise the key nutrients that we need to live healthily.

You may want to include:

- Information on the source of key nutrients, uses in the body and what they are made up of.
- Yeast is a single celled organism, when it respire, what does it produce?
- How many essential amino acids are there?
- What do we mean by lactose intolerance, why is it a problem for our health – how is this overcome? What role do enzymes play in this?
- What are the key vitamins and their uses?



Keep a diary of everything that you eat and drink for 3 days.

Look back at your food diary and think about how healthy your diet is. Do you think you are getting the right amount of nutrients for your lifestyle? Think about all of the activities that you do that need extra energy.

Design a new healthy balanced meal plan for yourself. Think about each of the food groups carefully and when you might need extra energy. How can your new plan support this?