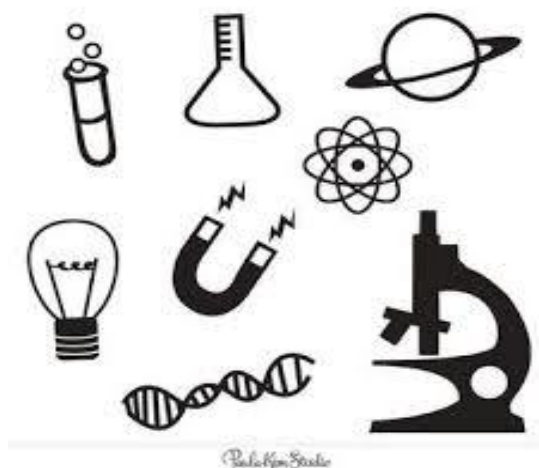




DURHAM JOHNSTON  
COMPREHENSIVE SCHOOL  
— DARE TO BE WISE —

# Year 8 Science workbook



This workbook is to complete if you are struggling to access Active Learn and Seneca and is not additional work every student is expected to complete.

You can use this for extension activities if you would like to.

Each week you will have a topic to cover with short answer questions and multiple choice questions.

You can access support by logging into the S drive using remote desktop and going to;

Science →KS3→ Support for KS3 content.

You can also use the link to BBC bitesize at the top of the weeks work to get support.

You can print the work out, complete it on paper or in your exercise book.

You should self-assess work using the mark scheme also on the website.

This is the first version of the workbook and contains work for weeks 1-3 watch for updates with more work added in later weeks.

# Week 1 Biology Food and Nutrition

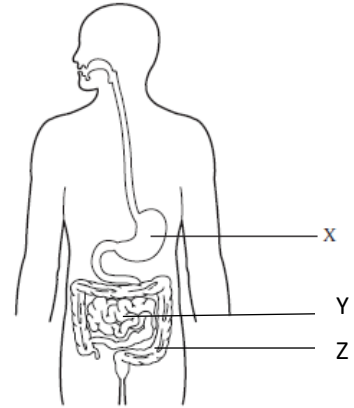
Support <https://www.bbc.co.uk/bitesize/topics/zf339j6/articles/z7gpfcw>

## Food and Nutrition

1. What happens in the stomach?
2. What will be the results of someone taking in more energy than they use?
3. Why do our bodies need fats?
4. Why do our bodies need protein?
5. Where does absorption of the food molecules from digestion happen?
6. What will a marathon runner need to eat a lot of and why?
7. Give an example of a food type that contains vitamins
8. What is the function of the saliva?
9. Which organ produces bile?
10. How is the small intestine adapted to its function?
11. How is food broken down during digestion?

## Food and Nutrition - multiple choice

1. On the diagram, which organ is labelled "X"?
  - a. Stomach
  - b. Large Intestine
  - c. Small Intestine
  - d. Rectum
2. On the diagram, which organ is labelled "Y"?
  - a. Stomach
  - b. Large Intestine
  - c. Small Intestine
  - d. Rectum
3. On the diagram, which organ is labelled "Z"?
  - a. Stomach
  - b. Large Intestine
  - c. Small Intestine
  - d. Rectum



4. Which nutrient is needed mostly for growth and repair?
  - A. Fat
  - B. Fibre
  - C. Vitamins
  - D. Proteins
5. Which nutrient is needed mostly for Energy?
  - A. Carbohydrate
  - B. Fibre
  - C. Vitamins
  - D. Proteins
6. Which nutrient is needed in very small amounts for general good health?
  - A. Carbohydrate
  - B. Fibre
  - C. Vitamins
  - D. Proteins

7. What journey does food take through the digestive system?

- A. Mouth, stomach, small intestine, large intestine, rectum
- B. Mouth, stomach, liver, large intestine, small intestine
- C. Mouth, pancreas, stomach, small intestine, rectum
- D. Mouth, oesophagus, stomach, pancreas, rectum

8. Which is the first part of the digestive system where the enzyme protease is mixed with food?

- A. Mouth
- B. Stomach
- C. Pancreas
- D. Small intestine

# Week 2 Chemistry Combustion

Support <https://www.bbc.co.uk/bitesize/topics/zypsgk7/articles/zcwxcj6>

## Combustion

1. What does Combustion mean?
2. Which gas in air is used up when combustion takes place?
3. Which types of energy are released when combustions takes place?
4. What two chemicals are made during the combustion of Methane?
5. Write the word equation for the combustion of Methane.
6. What could you use the combustion of Methane for?
7. What is the chemical formula of Carbon Dioxide?
8. What is the chemical formula of Water?
9. Find what the fire triangle looks like.
10. What safety rules would you have to follow if you were doing a combustion reaction in school?

### **Combustion multiple choice**

- 1 Combustion is a scientific word for:
  - A) Exploding
  - B) Burning
  - C) Evaporating
  - D) Getting hotter
  
- 2 A fuel is:
  - A) a substance formed from living organisms that lived a long time ago
  - B) a substance that explodes
  - C) a substance that contains hydrocarbons
  - D) a substance that transfers energy usefully, usually by heating.
  
- 3 When hydrogen reacts with oxygen, the product is:
  - A) Water
  - B) Oxide
  - C) Carbon Dioxide
  - D) Hydrogen
  
- 4 The products of combustion of a hydrocarbon are:
  - A) hydrogen + oxygen
  - B) carbon dioxide + water
  - C) carbon dioxide + hydrogen
  - D) carbon + water
  
- 5 When zinc burns in oxygen it forms:
  - A) Water
  - B) Zinc Hydroxide
  - C) Zinc Carbonate
  - D) Zinc Oxide
  
- 6 During a chemical reaction, reactants form products. Compare the mass of reactants with the mass of products formed.
  - A) The mass of reactants is greater than the mass of products.
  - B) The mass of products is greater than the mass of reactants.
  - C) The mass of products is the same as the mass of reactants.

The change in mass depends on what the reactants and products are.

7 What does this hazard symbol warn of?

- A) The substance is explosive.
- B) The substance burns easily.
- C) The substance supplies oxygen to fires.
- D) The substance puts out fires.



8 The best way to put out a small electrical fire is:

- A) spray it with water to cool it down.
- B) spray with foam to exclude air and cool it down.
- C) cover with a wet cloth to exclude air and cool it down.
- D) spray with a powder extinguisher to exclude air.

9 The three sides of the fire triangle are.

- A) Fire, Water, Heat
- B) Heat, Water, Fuel
- C) Heat, Oxygen, Fuel
- D) Fire, Oxygen, Fuel

10 What does global warming mean?

- A) The warming effect of the Sun on the Earth.
- B) The natural warming effect caused by greenhouse gases in the atmosphere.
- C) The additional warming effect caused by increasing amounts of carbon dioxide in the air.
- D) The way the climate is changing as a result of more carbon dioxide in the air.

11 Which description explains how carbon dioxide helps to cause the greenhouse effect?

- A) It blocks energy from the Sun from reaching the Earth's surface.
- B) It absorbs energy emitted from the Earth's surface and re-emits it out into space.
- C) It absorbs energy emitted from the Earth's surface so that it doesn't get any warmer.
- D) It absorbs energy emitted from the Earth's surface and re-emits it back to the surface.



# Week 3 Physics Fluids

Support

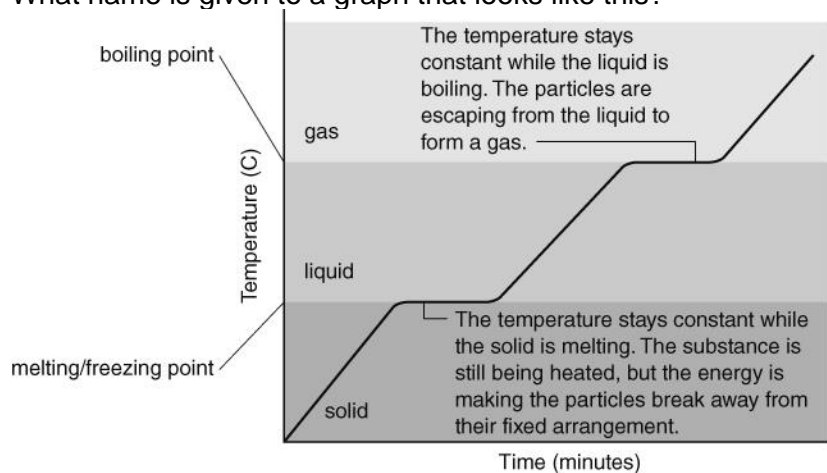
<https://www.bbc.co.uk/bitesize/topics/z9r4jxs/articles/zqp7p3>

<https://www.bbc.co.uk/bitesize/guides/zc9q7ty/revision/1> (You will need to read all 8 pages)

<https://www.bbc.co.uk/bitesize/topics/z4brd2p/articles/zv6kw6f>

## Fluids

1. What are the three states of matter called?
2. What name is given to the change which takes place when a solid becomes a liquid?
3. What does the word condensation mean?
4. What are the two main differences between the particles when solid and liquid?
5. Particles in which state have the most energy?
6. Particles in which state are closest together?
7. What name is given to a graph that looks like this?

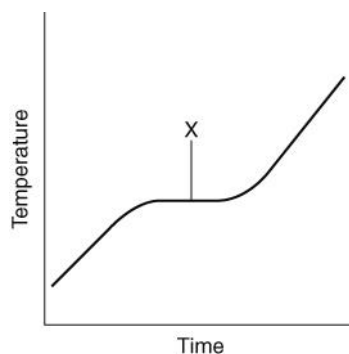


8. What word describes the reason why some object float on water while other sink?
9. If a gas in a container is heated, what happens to the pressure and why?

## Fluids - multiple choice

1. These statements are about the particle model of matter. Which one is *not* correct?
  - a. Liquids are hard to compress because their particles are very close together.
  - b. Gases expand to fill their container because there are only weak forces between the particles.
  - c. Liquids can flow because there are only very weak forces between the particles.
  - d. Solids have a fixed shape because there are very strong forces between the particles.
  
2. Why do solids expand when they are heated?
  - a. The particles get bigger.
  - b. The particles vibrate more and take up more space.
  - c. The particles vibrate more and get closer together.
  - d. The particles stick together.
  
3. When liquid water changes into steam it is:
  - a. evaporating.
  - b. condensing.
  - c. melting.
  - d. dissolving.
  
4. What happens to the temperature of the water in a beaker when it is boiling?
  - a. It goes up.
  - b. It stays the same.
  - c. It goes down.
  - d. It all depends on how hot the water was to start with.
  
5. In what way is ice different to other solid materials?
  - a. It is colder.
  - b. It occurs naturally.
  - c. Ice (solid water) is less dense than liquid water.
  - d. The density of ice does not change when it is cooled down.

6. A beaker of water is heated and a graph to show how its temperature changes is shown below. Which sentence explains the shape of the graph at point X?



- a. The particles in the solid are breaking apart and releasing energy.
  - b. The liquid is giving out the energy needed to break the bonds between particles.
  - c. The energy is breaking the bonds between the particles in the gas instead of making the gas hotter.
  - d. The energy is breaking the bonds between the particles in the liquid instead of making the liquid hotter.
7. The pressure in liquids and gases is caused by:
- a. the particles pressing down.
  - b. the particles pushing up.
  - c. the particles moving sideways.
  - d. the particles moving in all directions and colliding with things.
8. When a gas is compressed:
- a. the particles bump into the walls of the container less often.
  - b. the pressure drops.
  - c. the particles become more spread out.
  - d. the pressure increases.
9. Why does a hot air balloon float in air?
- a. Air is less dense than water.
  - b. The density of hot air is less than the density of cold air.
  - c. Air is denser on cold days.
  - d. The overall density of the balloon and its basket is less than the density of the air.