Benjamin Britten Academy of Music and Mathematics

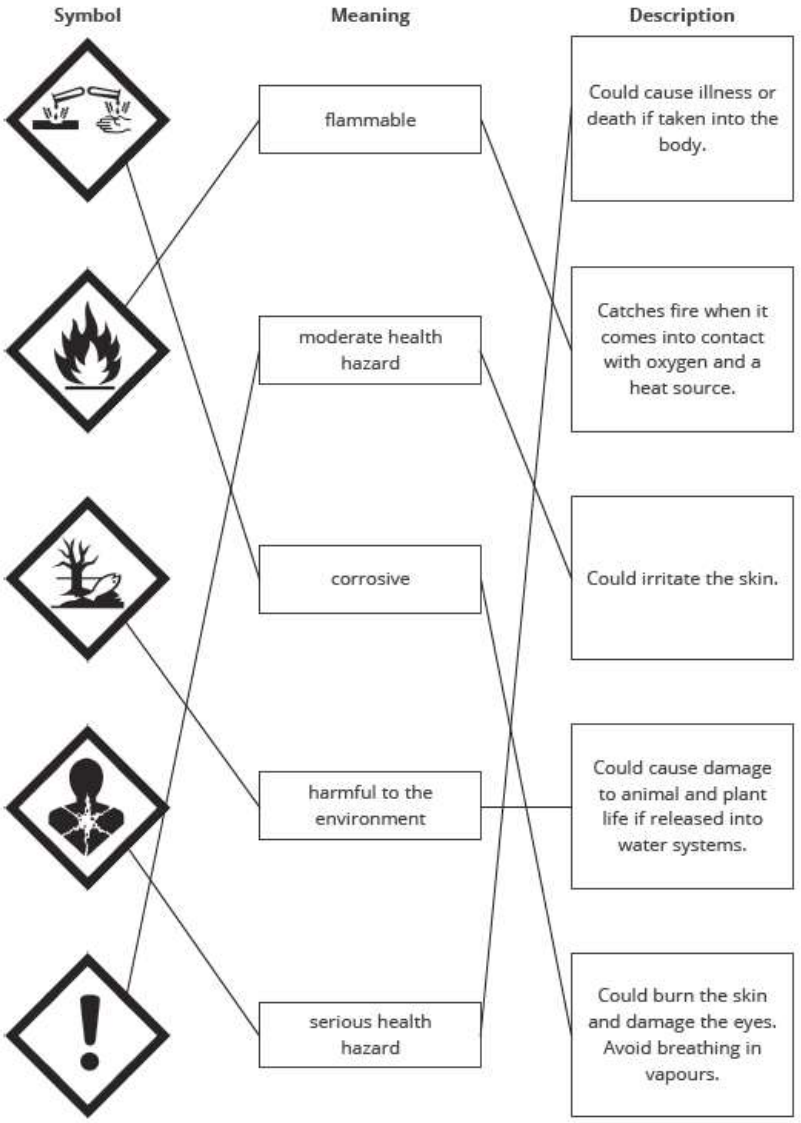
SCIENCE HOMEWORK BOOKLET

ANSWERS

Year 8 Book A

AUTUMN TERM

Homework 1: Hazards and Risks



1. A Bunsen burner is used to heat water.

   Precaution:

   Any from the flames or hot equipment/liquids sections of the table.

2. Different metals react with an acid.

   Precaution:

   Any from the chemicals section of the table.

3. A scalpel is used to cut a piece of sodium.

   Precaution:

   Any from the sharp equipment or chemicals sections of the table.

You spill a chemical on the desk during a practical. What should you do?

Tell your teacher. Clear it up if they tell you to do so.

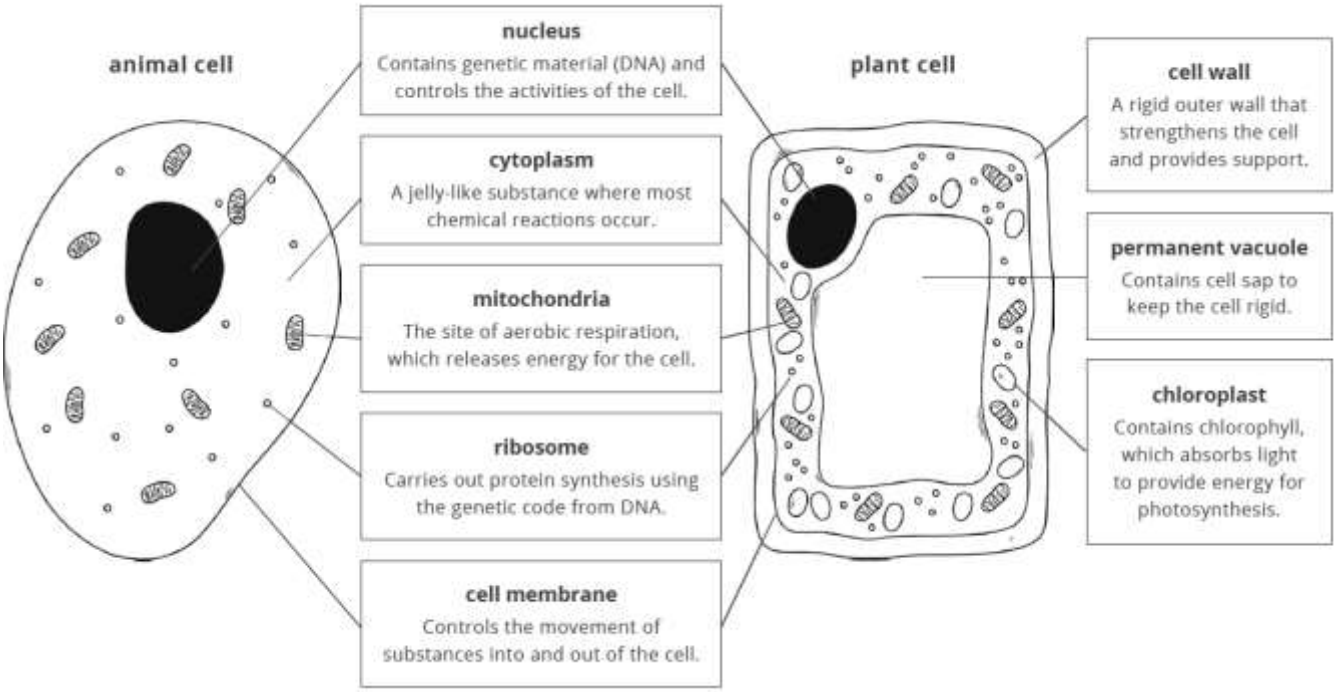
You notice a bag in the middle of the floor. What should you do?

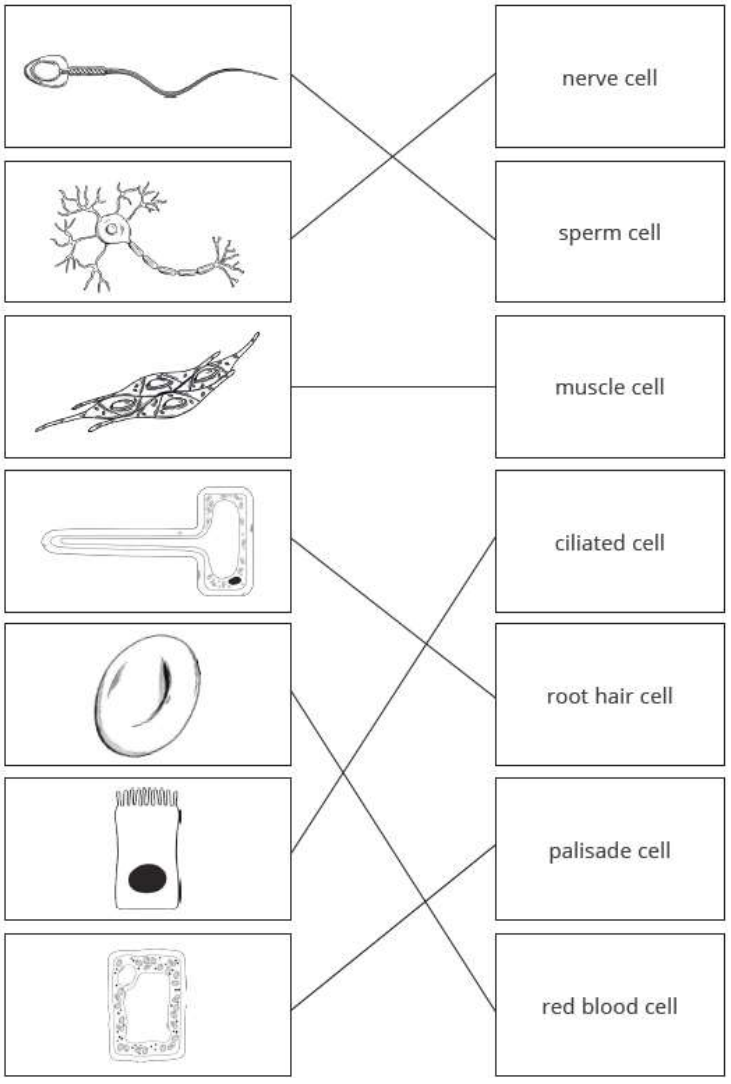
Move the bag to either a bag storage area or place under the desk.

You drop a glass beaker on the floor and it breaks. What should you do?

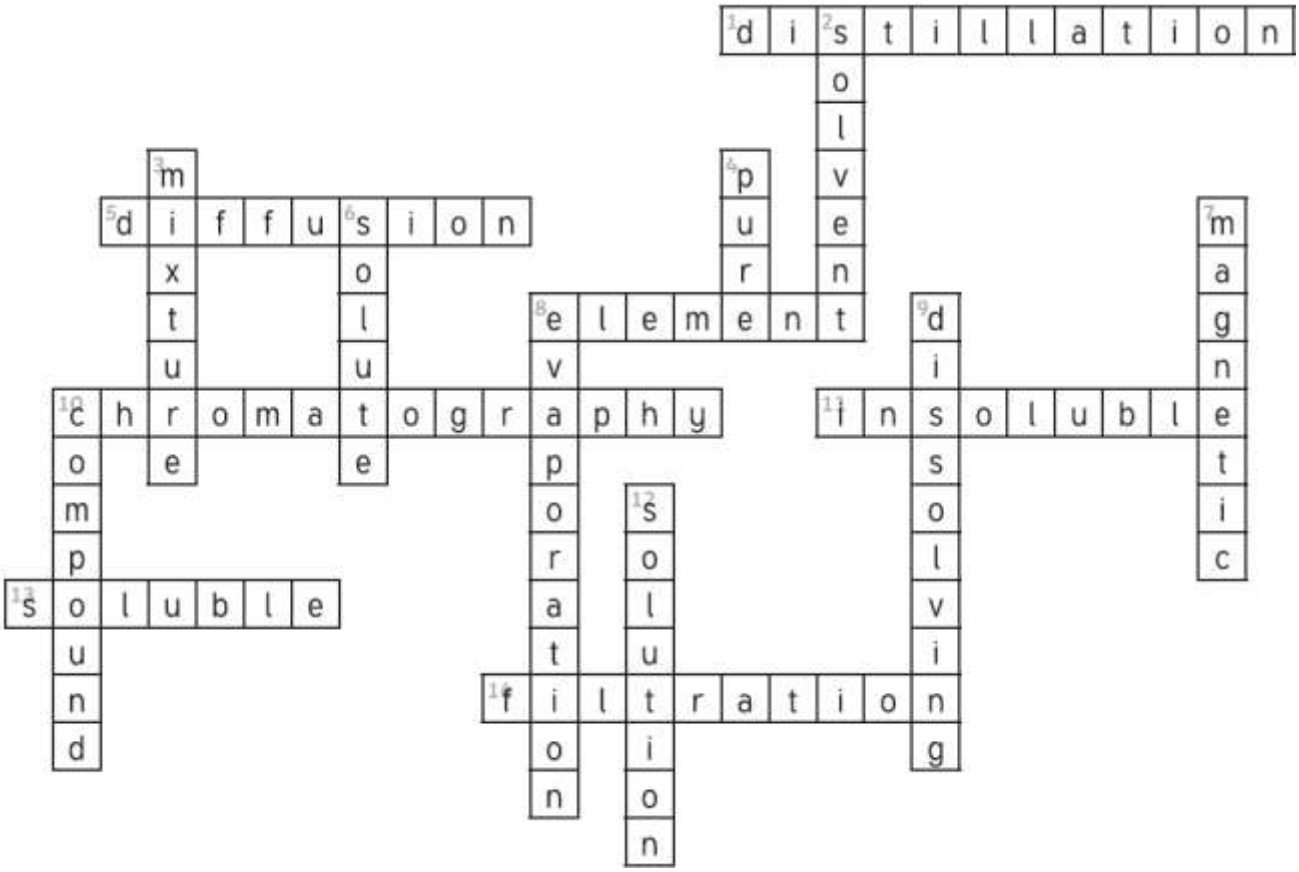
Tell your teacher. They will brush it up and place it in a glass bin.

Homework 2: Cell Structures

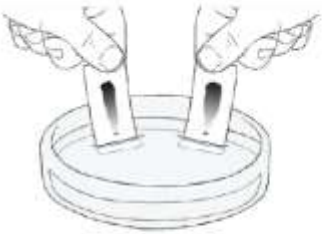




Homework 3: Separating Mixtures



When salt is stirred into water, it dissolves. The salt is a **solute** which mixes with the water, a **solvent**, and forms a new **solution**. The salt can dissolve so we say it is **soluble**. Pepper would not dissolve so it is **insoluble**. When a solution cannot dissolve any more solute we say it is **saturated**.



chromatography	distillation	evaporation	filtration

Homework 4: Forces

Force	Contact	Non-Contact
friction	✓	
air resistance	✓	
gravitational		✓
upthrust	✓	
magnetic		✓
reaction	✓	
electrostatic		✓

a. Give the letter of the arrow that represents upthrust.

A

b. Which force is represented by arrow B? Tick **one** box.

air resistance ☑
gravity ☐
reaction ☐
driving force ☐

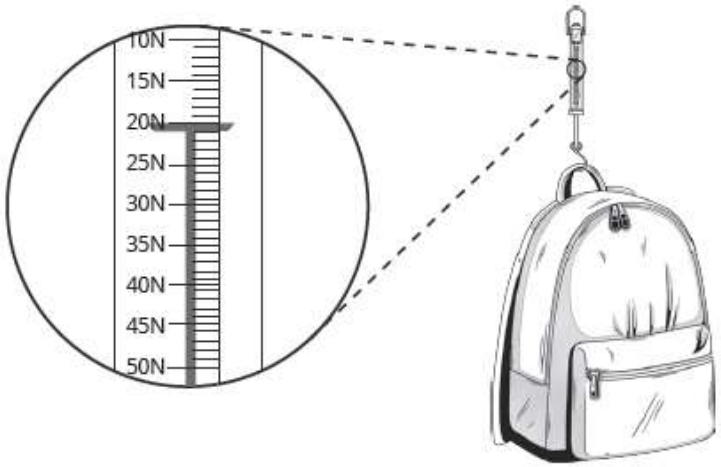
c. When the boat is travelling at a constant speed in the direction shown, which two forces must be balanced?
Give **two** letters. [2]

B and **D**

a. Name this piece of equipment.

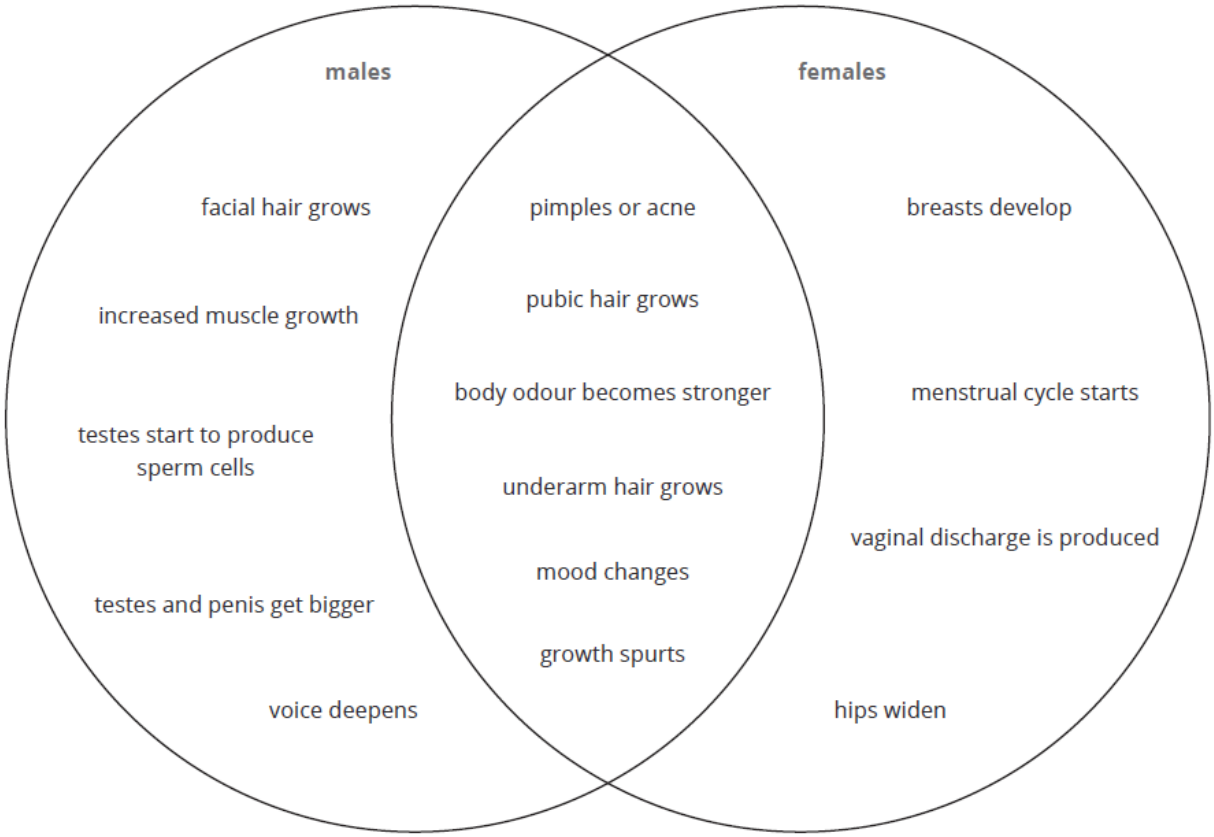
newton meter

b. Look at the diagram below.
What is the weight of the bag?



Weight = **20**N

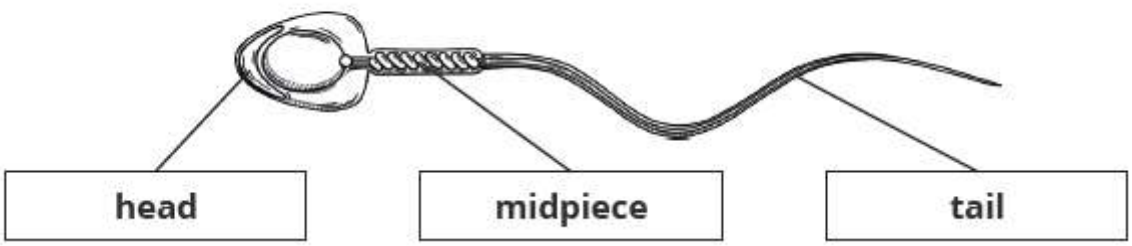
Homework 6: Reproduction



Draw one line from the name of each part of the sperm cell to the correct description.

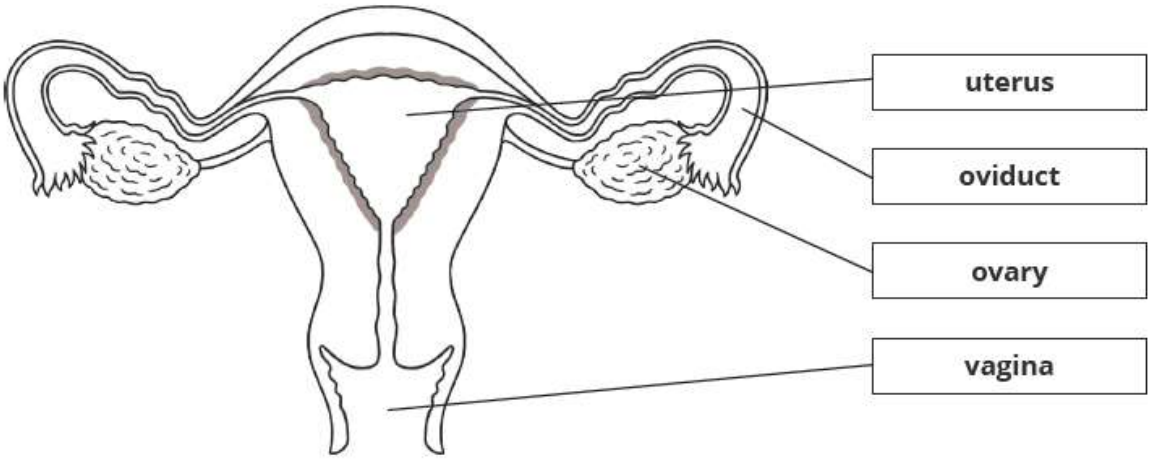
Cell Part	Description
tail	contains the nucleus which holds the DNA of the cell
midpiece	moves like a propeller to allow the cell to move to the egg
head	contains many mitochondria that release energy

Label the parts of the sperm cell.



Label the organs of the female reproductive system. Use words from the box below.

ovary	oviduct	uterus	vagina



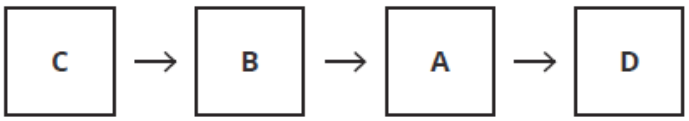
Read the statements below and write the letters in the boxes to show the correct sequence of events.

A. The fertilised egg moves along the oviduct into the uterus.

B. A single sperm penetrates the egg cell and the two nuclei fuse.

C. Sperm travels through the female reproductive system towards the egg cell.

D. The fused cells embed into the lining of the uterus and develop into an embryo.



Homework 7: Atoms Fact File

1. Test your Knowledge!

   - What is an atom?

     Atoms are the basic building blocks for everything in the universe. They are small, everywhere, and they can last forever.

   - Can atoms be seen with your eyes? Why or why not?

     No, you cannot see them with your eyes because they are incredibly small.

   - How many atoms are in the human body?

     There are seven billion billion billion atoms in the human body.

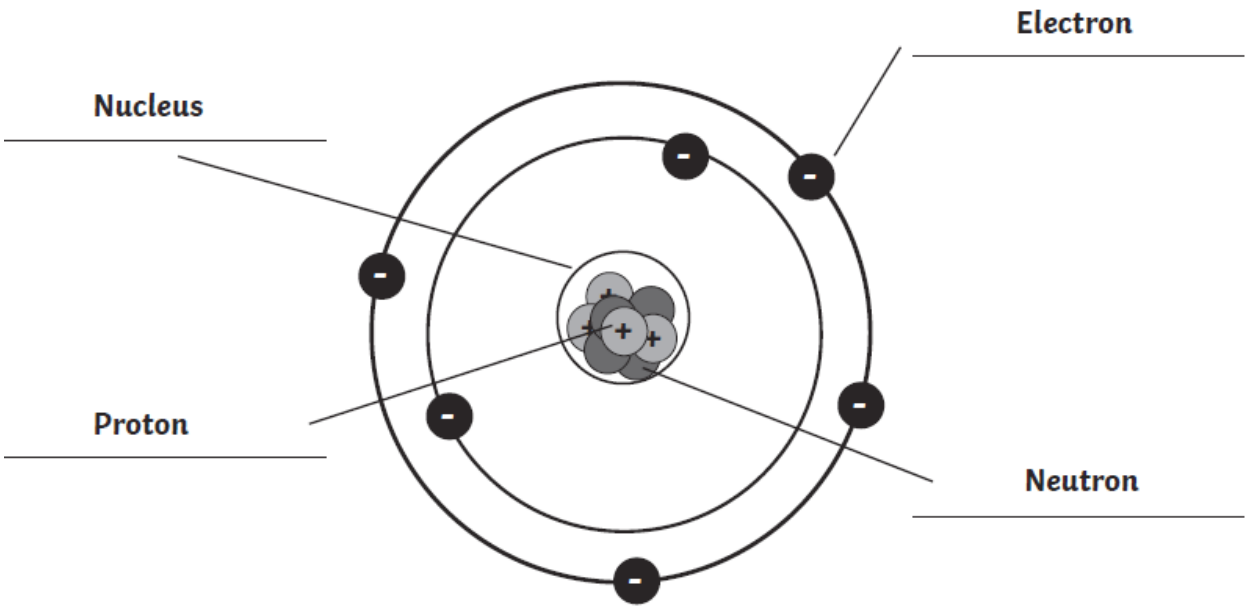
   - What determines the atomic number of an atom?

     The atomic number of an atom is determined by the number of protons within an atom's nucleus.

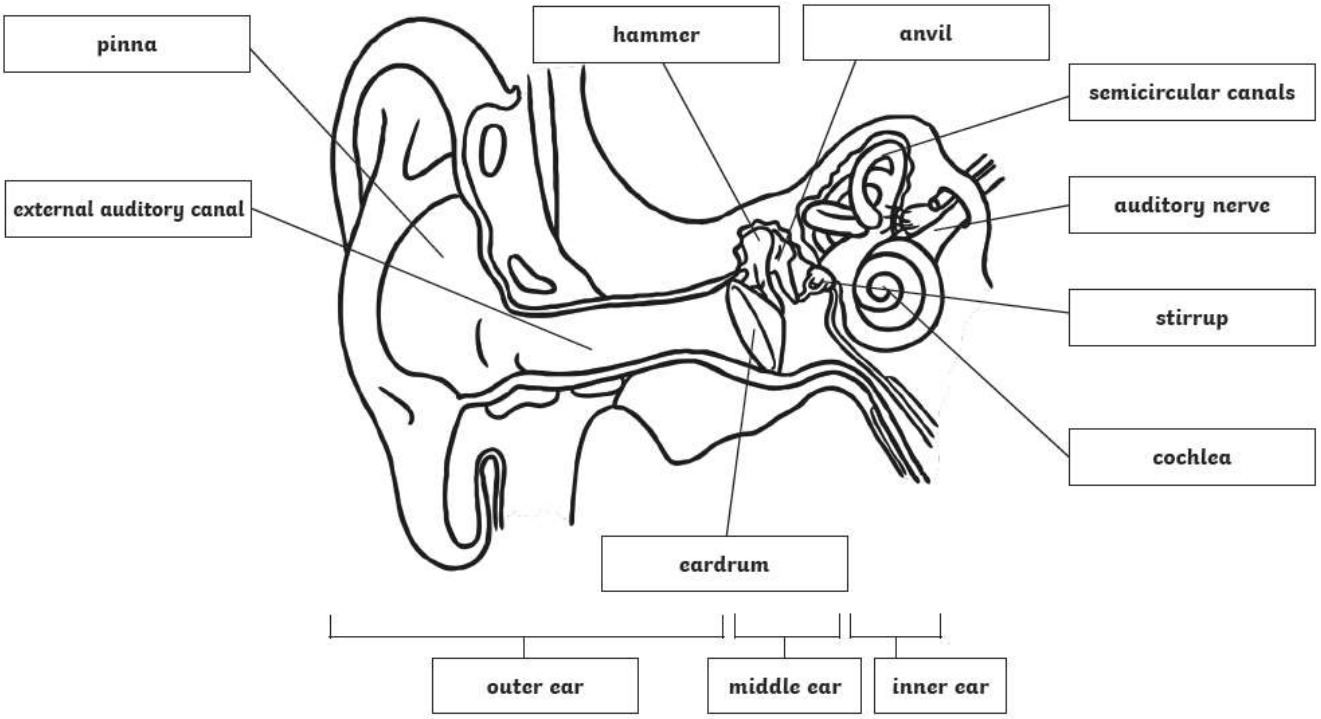
   - What can change depending on the number of protons in an atom?

     The mass and the radioactivity of an atom depend on the number of protons and neutrons in an atom.

2. Label this picture of an atom.



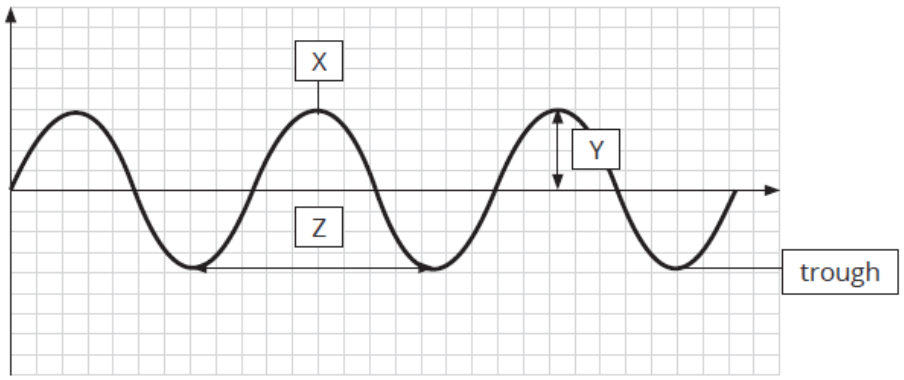
Homework 8: Hearing and Sound Waves



Draw **one** line from each feature of the sound wave to the correct description.

amplitude	The distance between two corresponding points on repeating cycles of a wave.
frequency	A measure of how much the wave is displaced from its rest position. It affects the loudness of the sound.
wavelength	The number of whole waves passing a given point every second. It is measured in hertz (Hz) and affects the pitch of a sound.

The diagram below shows a sound wave.



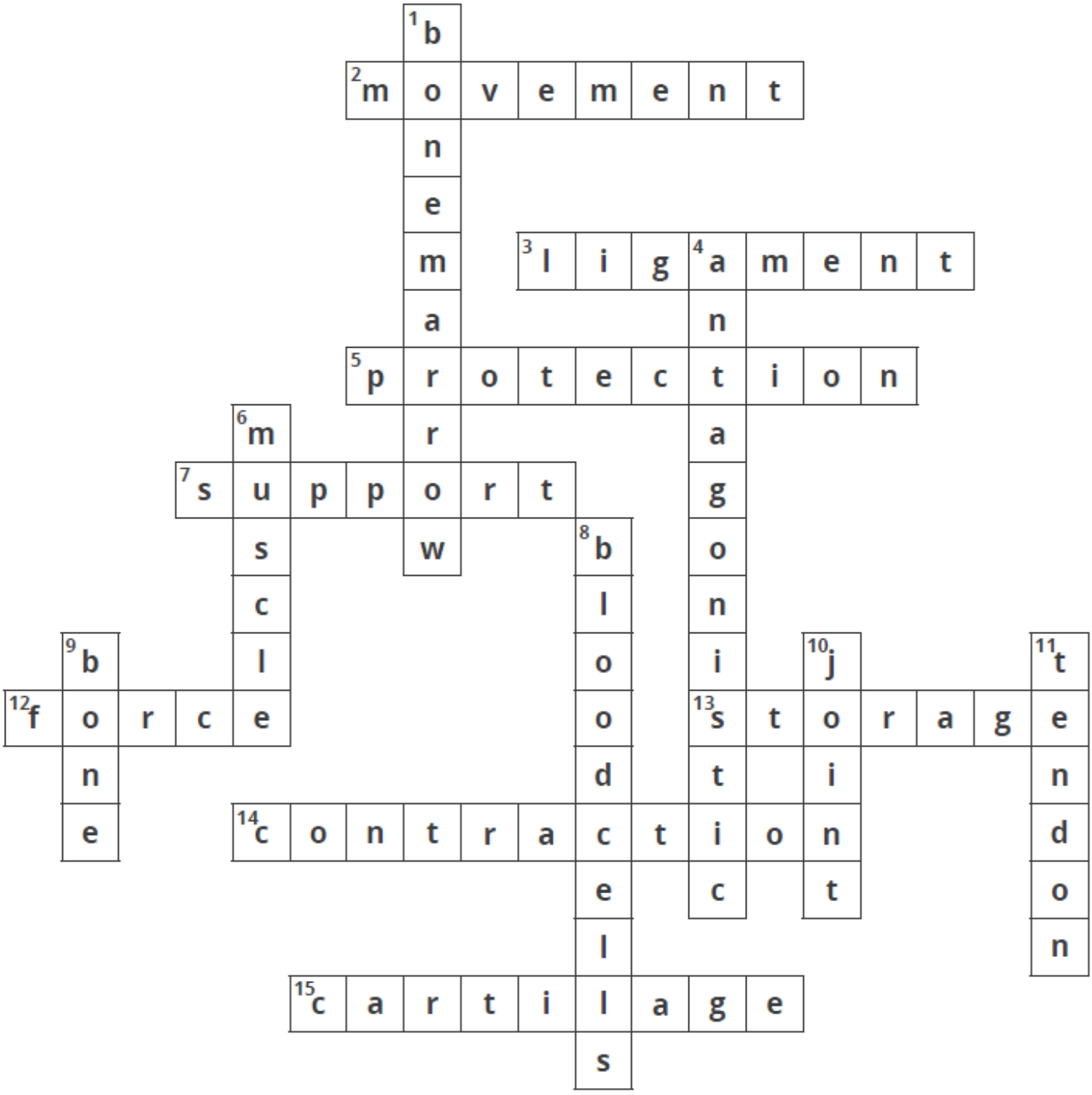
Use the graph to answer the questions. For each question tick **one** answer.

a. Which part of the graph shows the amplitude? ☐ X ☑ Y ☐ Z

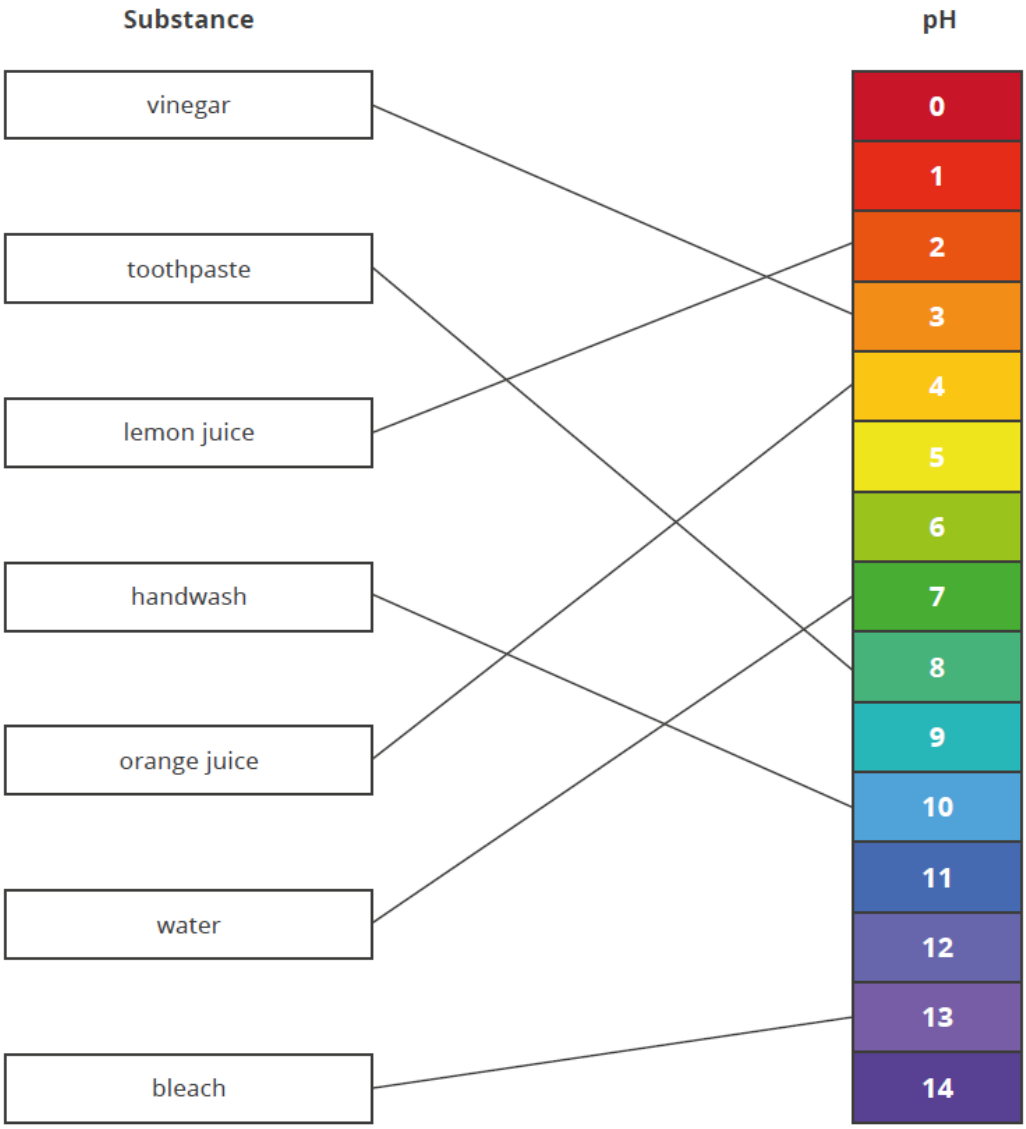
b. Which part of the graph shows the crest of the wave? ☑ X ☐ Y ☐ Z

c. Which part of the graph shows the wavelength? ☐ X ☐ Y ☑ Z

Homework 10: Skeleton and Muscles



Homework 11: pH and Indicators



Answers	Extra Information
orange	
acid	If more than one box is ticked, award no marks.
water	
bleach	

Homework 12: Space

1. Which planet is closest to the Sun?

☐ A. Earth ☐ B. Venus ☑ C. Mercury

2. Which planet is known as the 'Red Planet'?

☐ A. Jupiter ☑ B. Mars ☐ C. Saturn

3. Which planet has the most moons?

☑ A. Saturn ☐ B. Neptune ☐ C. Uranus

4. Which planet is famous for its rings?

☐ A. Mars ☑ B. Saturn ☐ C. Venus

5. Which planet is the largest in our Solar System?

☐ A. Earth ☐ B. Neptune ☑ C. Jupiter

6. Which planet is known as Earth's twin because it is similar in size and composition?

☐ A. Mars ☐ B. Neptune ☑ C. Venus

7. Which planet is the smallest in the Solar System?

☐ A. Earth ☑ B. Mercury ☐ C. Pluto

8. Which planet takes the longest to orbit the Sun?

☑ A. Neptune ☐ B. Jupiter ☐ C. Pluto

9. Which planet has a day that is longer than its year?

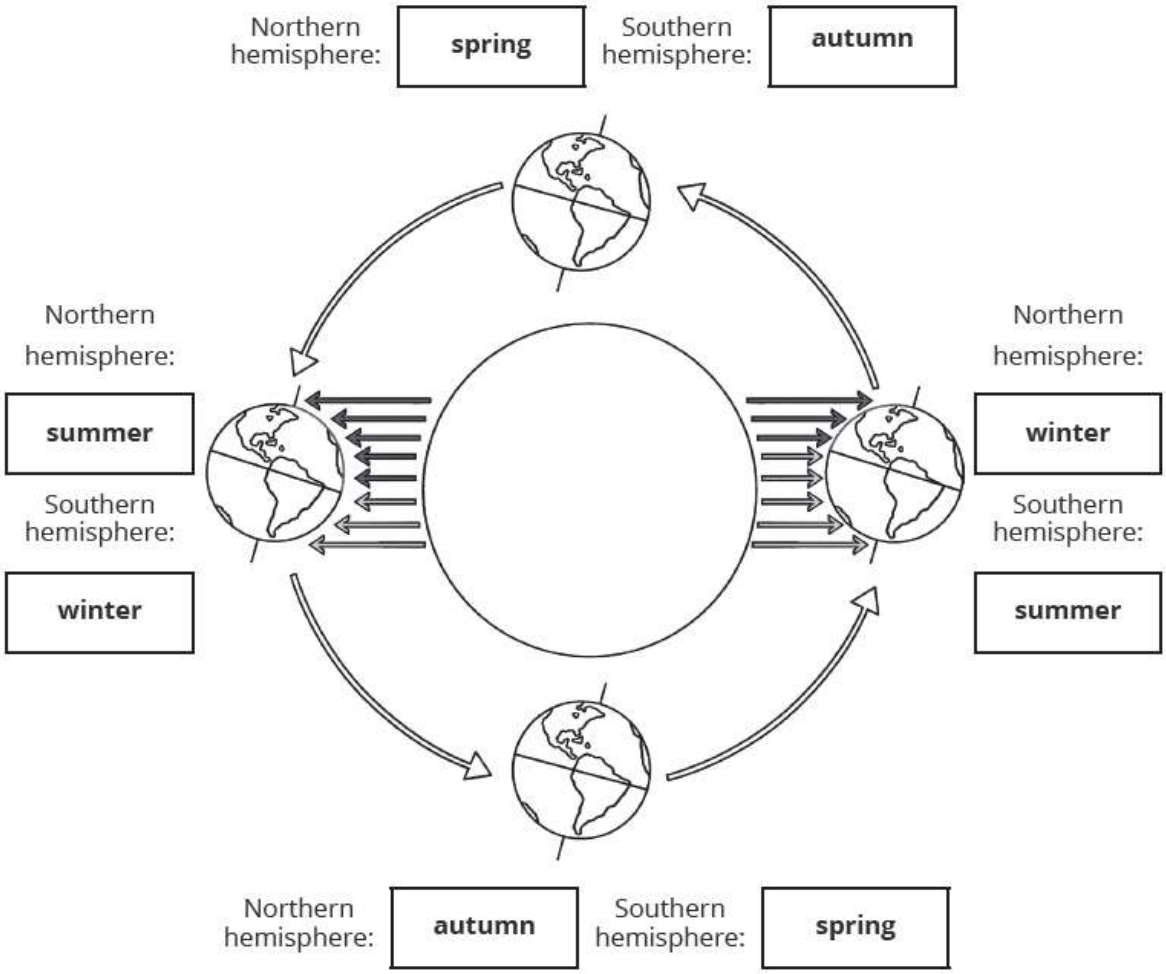
☑ A. Venus ☐ B. Mercury ☐ C. Mars

10. Which planet is tilted on its side, making it unique in the Solar System?

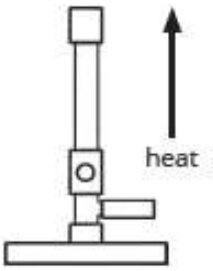
☐ A. Jupiter ☑ B. Uranus ☐ C. Neptune

11. Which planet is the hottest in the Solar System?

☐ A. Mercury ☑ B. Venus ☐ C. Earth


Northern hemisphere:
spring
Southern hemisphere:
autumn
Northern hemisphere:
summer
Southern hemisphere:
winter
Northern hemisphere:
winter
Southern hemisphere:
summer
Northern hemisphere:
autumn
Southern hemisphere:
spring

Homework 14: Equipment and Variables



Bunsen burner

beaker

measuring cylinder

test tube

boiling tube

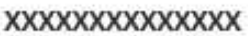
evaporating basin

tripod

funnel

clamp stand, boss and clamp

conical flask



gauze

heatproof mat

1. A student investigates how the surface material of a ramp affects how fast a toy car travels down the ramp.

   independent variable: **surface material** dependent variable: **speed of car**

   control variables:

   any two from:
   - **height of ramp**
   - **length of ramp**
   - **same car**
   - **same method for measuring speed**

2. A student investigates how the light intensity affects the height that seedlings grow.

   independent variable: **light intensity** dependent variable: **height of seedlings**

   control variables:

   any two from:
   - **amount of water given to seedlings**
   - **type of seedlings**
   - **temperature of room**
   - **type of soil/surface the seedlings grow on**
   - **number/density of seedlings**

3. A student investigates how the temperature affects the rate of a reaction between liquid hydrochloric acid and solid calcium carbonate.

   independent variable: **temperature** dependent variable: **rate of reaction**

   control variables:

   any two from:
   - **volume of hydrochloric acid**
   - **concentration of hydrochloric acid**
   - **mass of calcium carbonate**
   - **surface area of calcium carbonate**
   - **method for measuring the rate of the reaction**