



SCIENTIFIC ENGLISH

SCIENCE

GRADE 8

Grade 7 Review



Look at the keywords column in the table below (from Grade 7). Rewrite each word in the next column. Next to the word write its meaning, and in the last box draw a picture or give an example.



KEY WORD	MEANING	PICTURE or EXAMPLE
nucleus		
foetus		
particles		
evaporate		

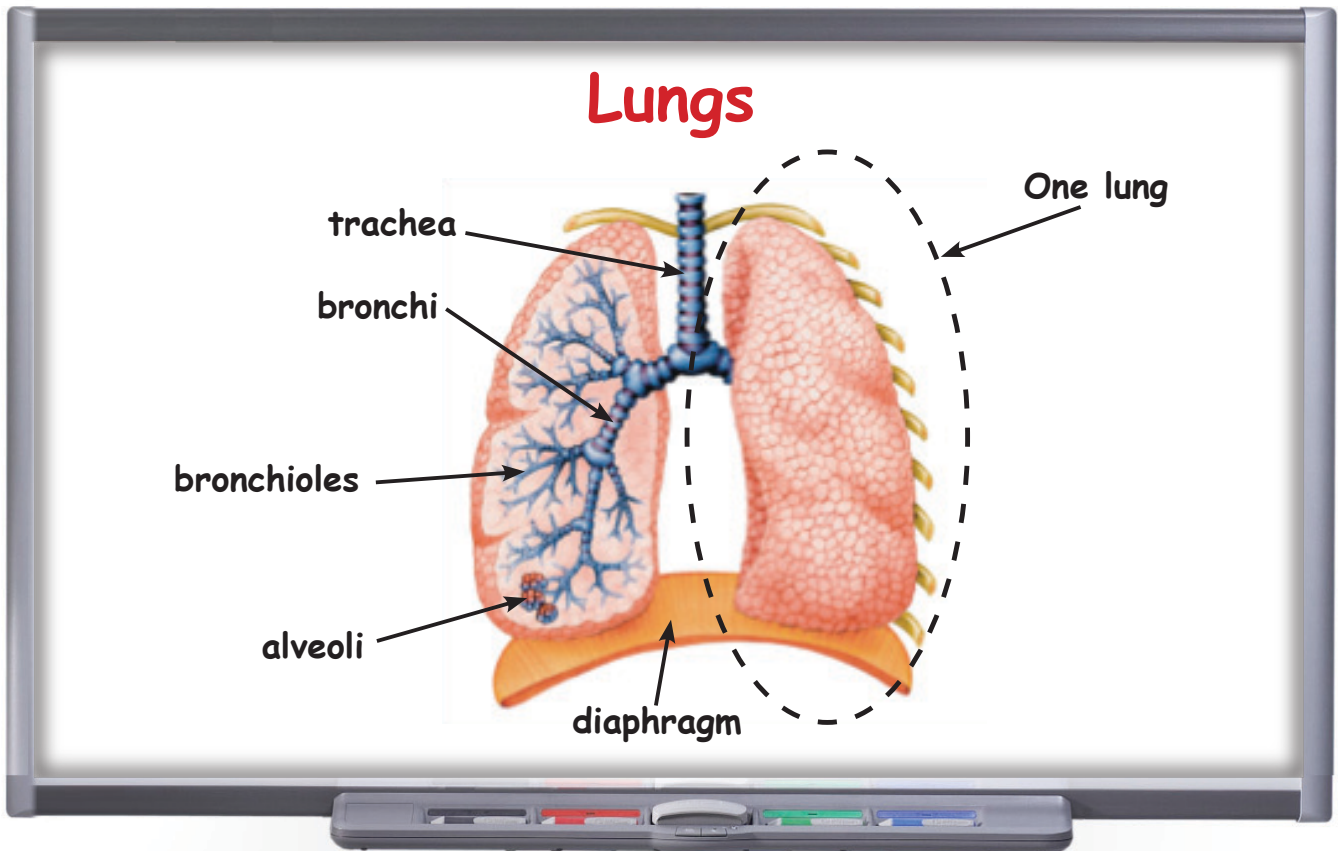
KEY WORD	MEANING	PICTURE or EXAMPLE
kilogram		
static electricity		
magnet		



GAS EXCHANGE

KEYWORDS:

gas exchange trachea bronchi bronchiole
alveoli diaphragm



Hello! Today, we are going to talk about **gas exchange**. Look at the board and tell me how this happens.



We take in air through the mouth and the nose. The air goes into the lungs through the **trachea**. The **trachea** divides into two smaller tubes called **bronchi**. The **bronchi** go into the lungs. Inside the lungs, the **bronchi** divide into small tubes called **bronchioles**. The **bronchioles** end in air sacs, small bags or airbags, called **alveoli**. Here, oxygen and carbon dioxide goes in and out of the lungs. This is **gas exchange**.



What about the **diaphragm**? How does it help, Maha?

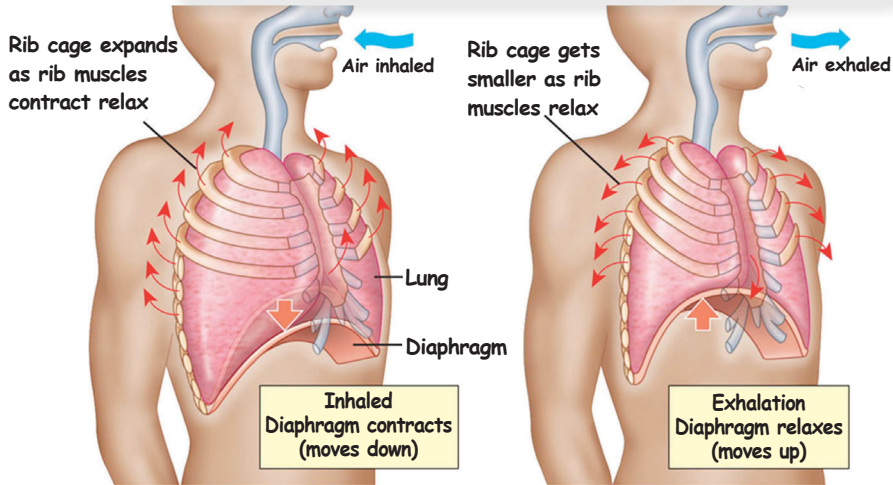
GAS EXCHANGE



I know!

The **diaphragm** is a muscle at the bottom of the ribs that helps us breathe in and out.

Do you remember doing this in science?



Task 1:

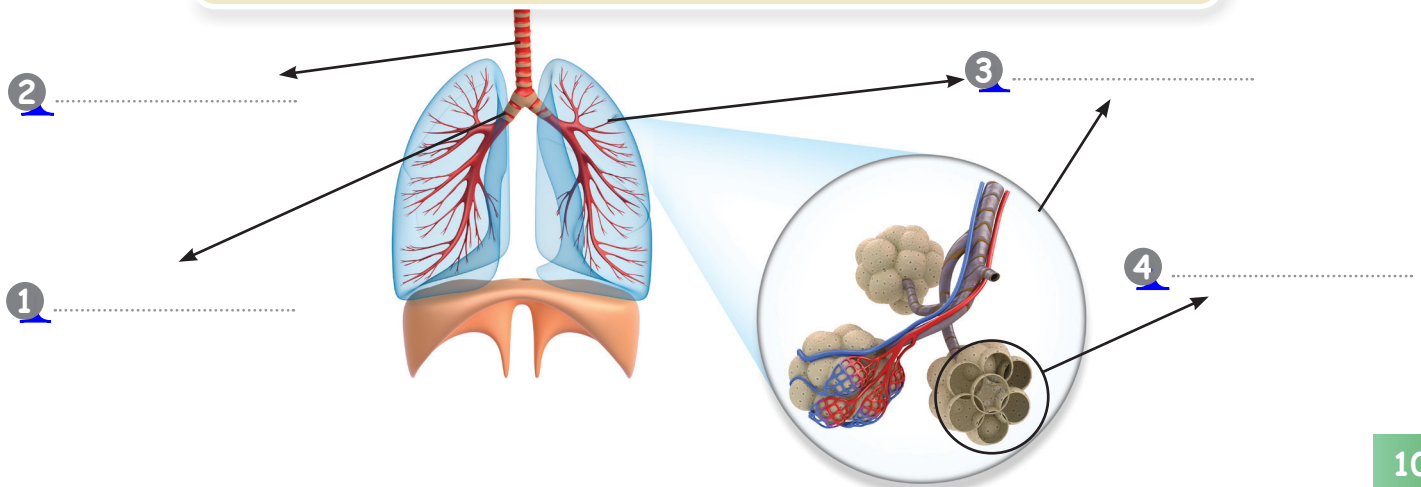
Match the two parts. Draw lines.

- | | | |
|------------------------------|---|--------------------------------|
| ① Air flows from the trachea | → | a) through the mouth and nose. |
| ② The bronchi divide into | → | b) through the alveoli. |
| ③ The diaphragm helps us to | → | c) bronchioles. |
| ④ We breathe in | → | d) breathe. |
| ⑤ Oxygen goes into the blood | → | e) to the bronchi. |

Task 2:

Label the diagram. Use the words in the box.

bronchi alveoli trachea bronchiole



GAS EXCHANGE

Task 3:

Correct the underlined word in each sentence.

1 Carbon dioxide goes into the lungs.

2 The trachea divides into the bronchioles.

3 The diaphragm looks like little air bags.

4 The diaphragm is a pipe.



Task 4:

Use the words from the box and fill in the blanks.

lungs sacs blood nose trachea

We breathe in air through our 1..... . The air goes into the
2..... . The air flows into the 3..... through the
bronchi. The bronchi divide to become small tubes called bronchioles. The bronchioles end in
tiny little 4..... called alveoli. Now, the oxygen enters the
5..... .



Task 5:

Play this game with a partner. Don't forget to take turns.

I am what you breathe out.
What am I?

I divide into small tubes called
bronchioles. What am I?



I am a muscle that helps you
to breathe. What am I?

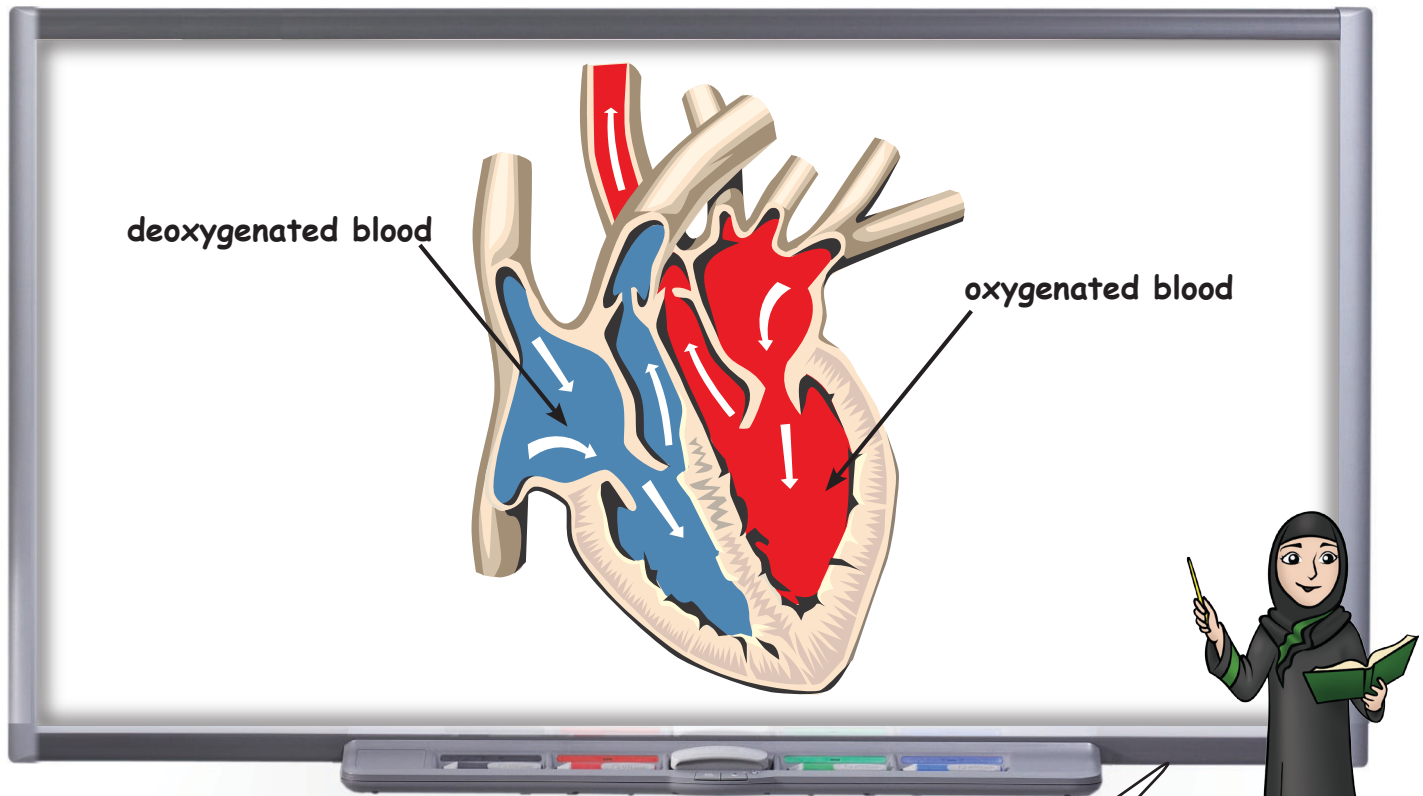
I am what you breathe in.
What am I?

I divide into tubes called
bronchi. What am I?

LET'S TALK ABOUT BLOOD

KEYWORDS:

oxygenated deoxygenated haemoglobin antibodies
plasma platelets



deoxygenated blood

oxygenated blood



Today, we are going to talk about blood. What is **oxygenated** and **deoxygenated** blood?

Blood that contains oxygen is **oxygenated** blood. **Oxygenated** blood takes oxygen from the lungs to the rest of the body.

Deoxygenated blood contains carbon dioxide and takes carbon dioxide to the lungs. But teacher, what are haemoglobin, antibodies and platelets?



So, **platelets** will stop the bleeding if I cut myself.

Oh! I know! **Haemoglobin** is a protein in red blood cells. It carries oxygen throughout the body. **Antibodies** are proteins that fight against diseases. **Platelets** are proteins in the blood that will help stop bleeding.



LET'S TALK ABOUT BLOOD

Task 1:



Work with a partner. Draw lines to match the two parts of the sentences.

- 1 Oxygenated → a) blood takes oxygen away from the lungs.
- 2 Deoxygenated → b) fights diseases in the body.
- 3 Haemoglobin → c) blood carries carbon dioxide to the lungs.
- 4 Antibodies → d) help to stop bleeding when we cut ourselves.
- 5 Platelets → e) is a protein in the blood and carries oxygen throughout the body.

Task 2:

Choose the correct answer. Is it a, b, or c?

- 1 Oxygenated blood takes oxygen from the to the rest of the body.
a) heart b) lungs c) platelets
- 2 Deoxygenated blood takes carbon dioxide to the
a) heart b) lungs c) platelets
- 3 Haemoglobin carries throughout the body.
a) nitrogen b) carbon dioxide c) oxygen
- 4 fight against diseases.
a) Platelets b) Antibodies c) Haemoglobin
- 5 help stop bleeding after you cut yourself.
a) Platelets b) Antibodies c) Haemoglobin



LET'S TALK ABOUT BLOOD



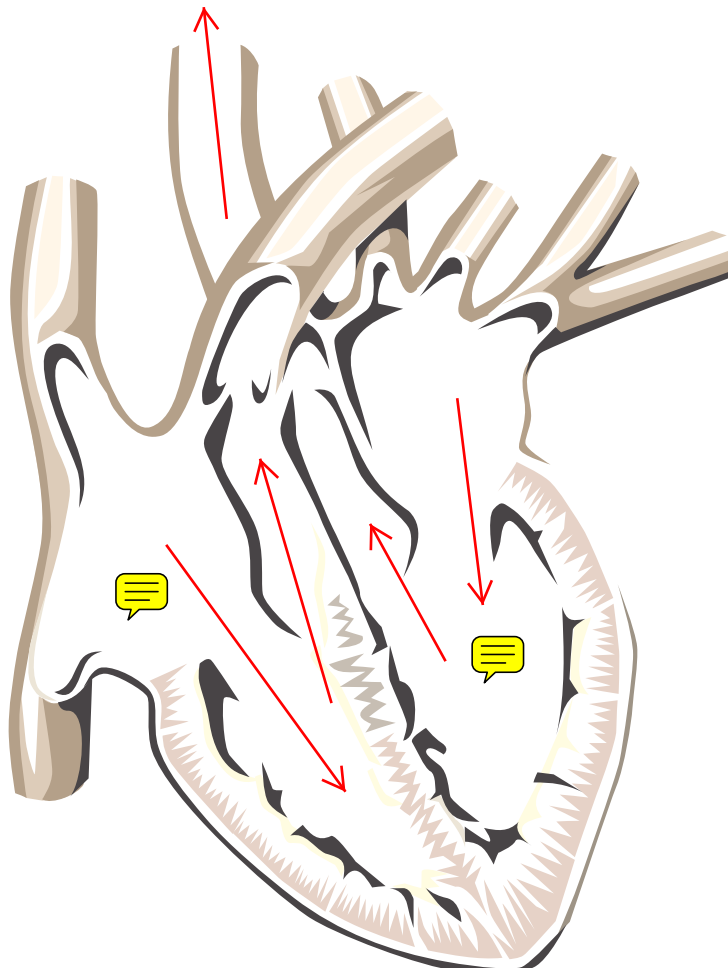
Task 3:

Correct the underlined words in each sentence.

- 1 Haemoglobin is found in white blood cells. _____
- 2 Platelets help fight against diseases. _____
- 3 Haemoglobin help to stop bleeding. _____
- 4 Oxygenated blood has lots of carbon dioxide. _____
- 5 Deoxygenated blood has lots of sodium. _____

Task 4:

Draw arrows to show the direction of the blood flow. Then, colour in the sections to show where the deoxygenated and oxygenated blood is.



LET'S TALK ABOUT BLOOD



Task 5:

Play this game with a partner. Ask your partner the following questions. Don't forget to take turns.

I take oxygen from the lungs to the rest of the body. What am I?



I'm a protein in red blood cells that carries oxygen. What am I?

I take carbon dioxide to the lungs. What am I?

I'm a protein that fights against disease. What am I?

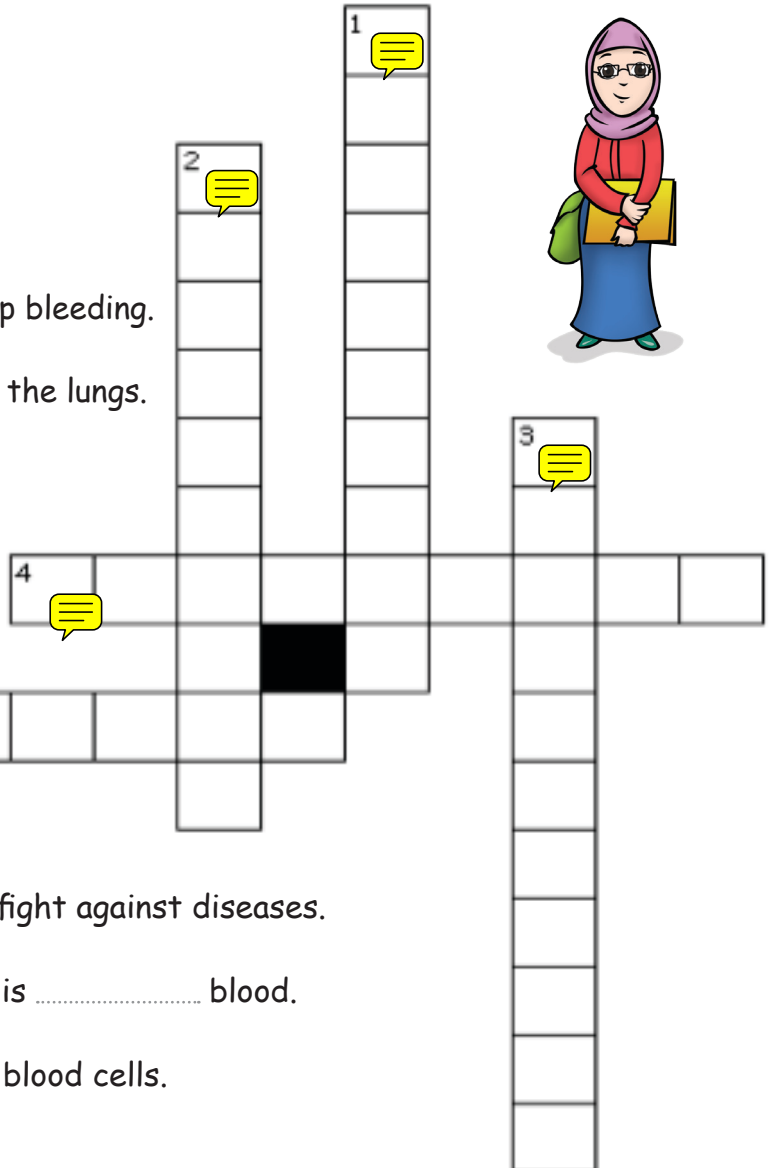
I'm a protein that stops bleeding. What am I?

Task 6: PUZZLE TIME!

Fill in the puzzle.

Across

- 4) are proteins that will help stop bleeding.
- 5) blood takes carbon dioxide to the lungs.



Down

- 1) are proteins that fight against diseases.
- 2) Blood that contains oxygen is blood.
- 3) is a protein in red blood cells.

THE HEART

KEYWORDS:

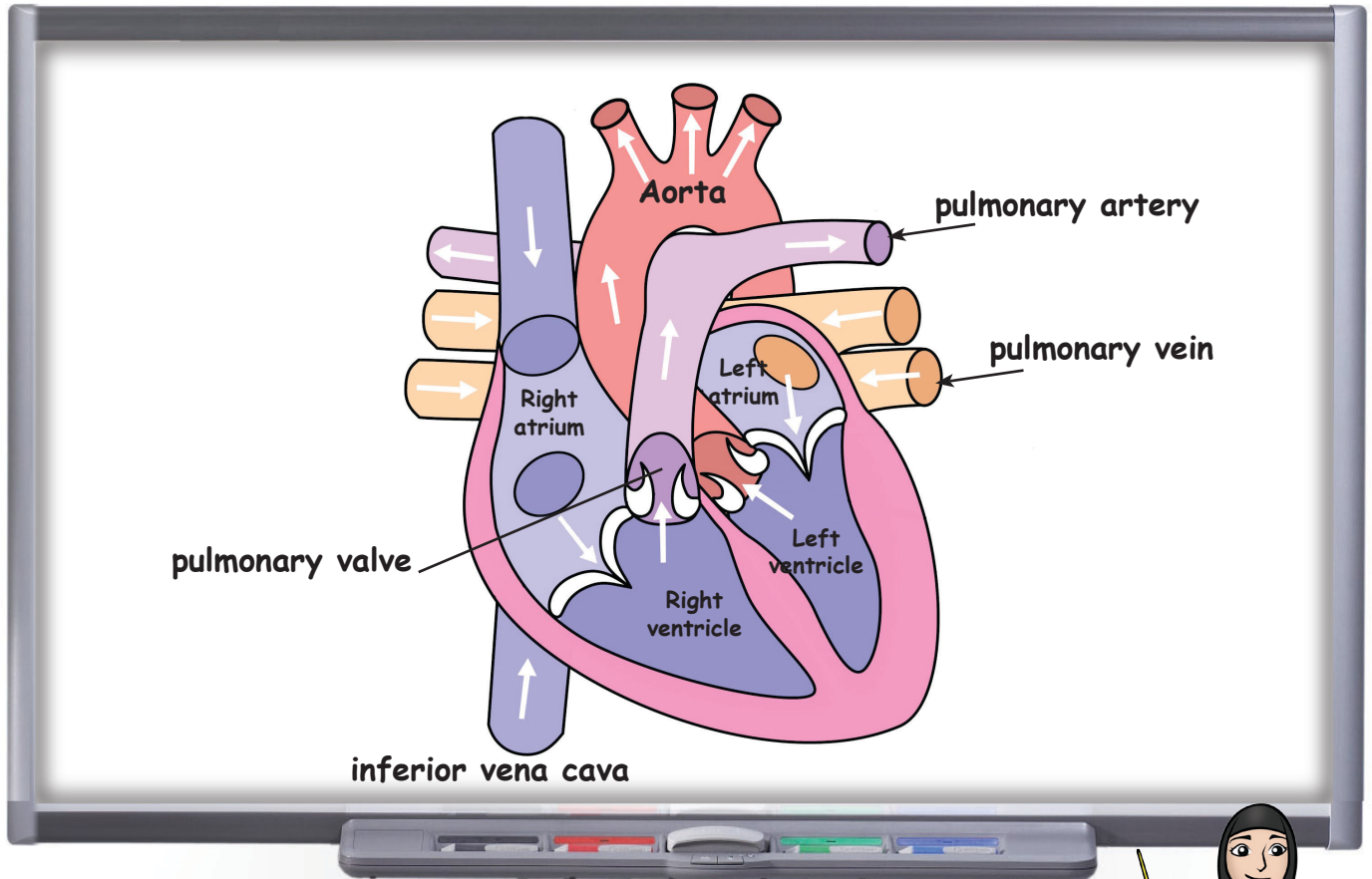
left/right

atrium

left/right ventricle

aorta

vena cava



Hello! Today, we are going to study the heart. Look at the board and tell me what you see.

The human heart has four parts: the **left atrium**, the **right atrium**, the **left ventricle** and the **right ventricle**.

The **right atrium** receives deoxygenated blood (blood without oxygen) and the **left atrium** receives oxygenated blood (blood with oxygen).

The two **ventricles** pump blood to the other parts of the body.

But how does blood leave and return to the heart?

I know! The **vena cava** is the vein that brings blood to the heart. The **aorta** is the artery that carries blood away from the heart.

THE HEART

Task 1:

Draw lines to match the two parts of the sentences.

- 1 The atrium a) carries blood away from the heart.
2 The ventricle b) brings blood to the heart.
3 The aorta c) pushes blood out of the heart.
4 The vena cava d) receives blood.



Task 2:

Ask a partner the following questions.

What do we call blood without oxygen in it?

How many parts does the heart have?

Which two parts of the heart receive blood?

What do we call blood with oxygen in it?

Which two parts of the heart pump blood?



Task 3:

Work with a partner and correct the underlined word in each sentence.

- 1 Deoxygenated blood contains lots of oxygen.
2 The aorta carries blood to the heart.
3 The ventricle receives deoxygenated blood.
4 Our heart has three parts.



Task 4: PUZZLE TIME!

Fill in the puzzle.

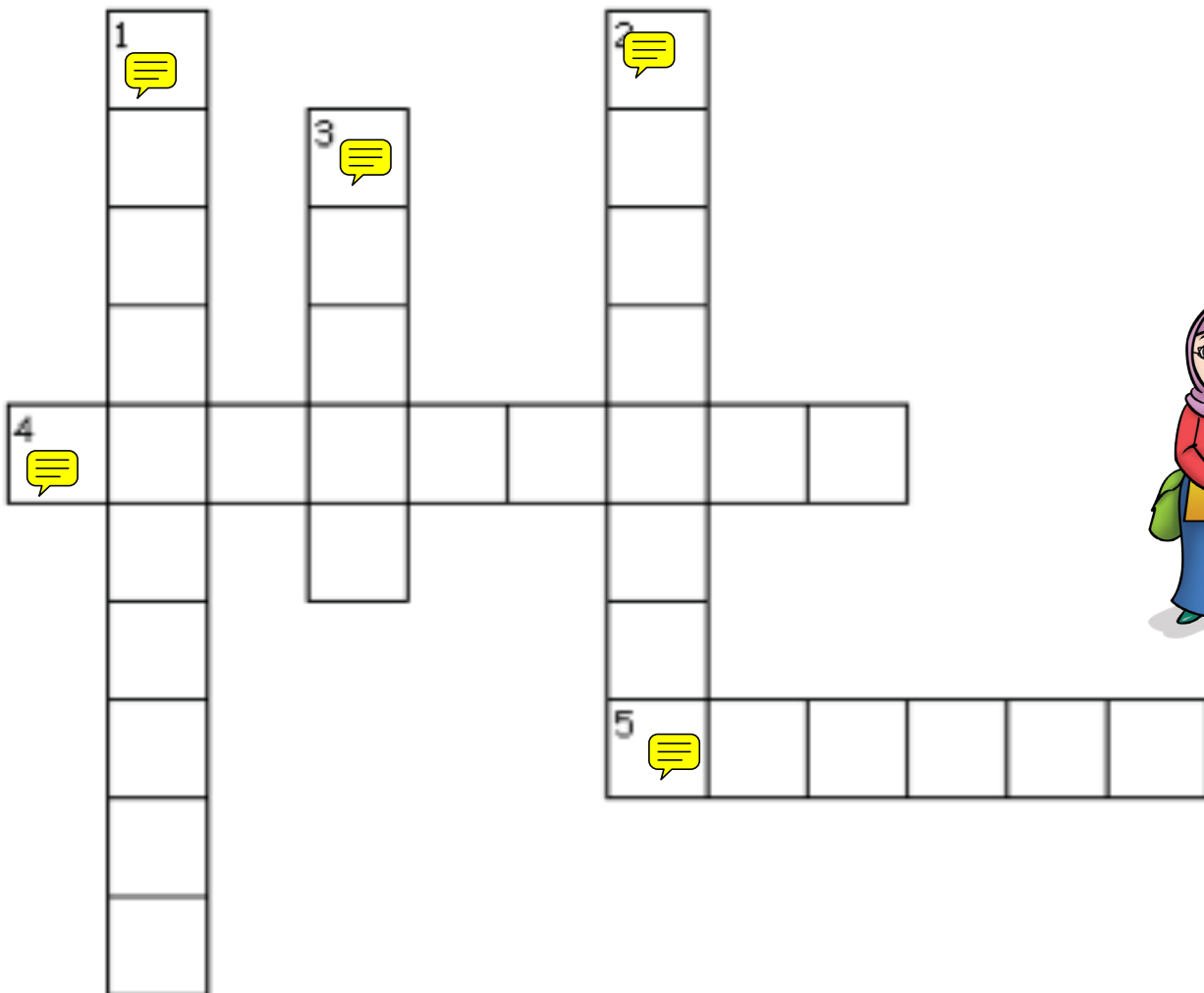


Across

- 4) The left pumps blood.
- 5) The right receives blood.

Down

- 1) blood has lots of oxygen.
- 2) The takes blood to the heart . (2 words)
- 3) The is an artery.



THE HEART

Task 5:

Use the words from the box and fill in the blanks.





vena cava atrium ventricles deoxygenated aorta


The ① in the heart pump blood and the right
② receives ③ blood.
The ④ brings blood to the heart and the
⑤ carries blood away from the heart.


Task 6:

Play this game with a partner. Ask your partner the following questions.

I bring blood to the heart.
What am I? 

I receive deoxygenated
blood. What am I? 

I receive oxygenated blood.
What am I? 

I take blood away from
the heart. What am I? 



CIRCULATION

KEYWORDS:

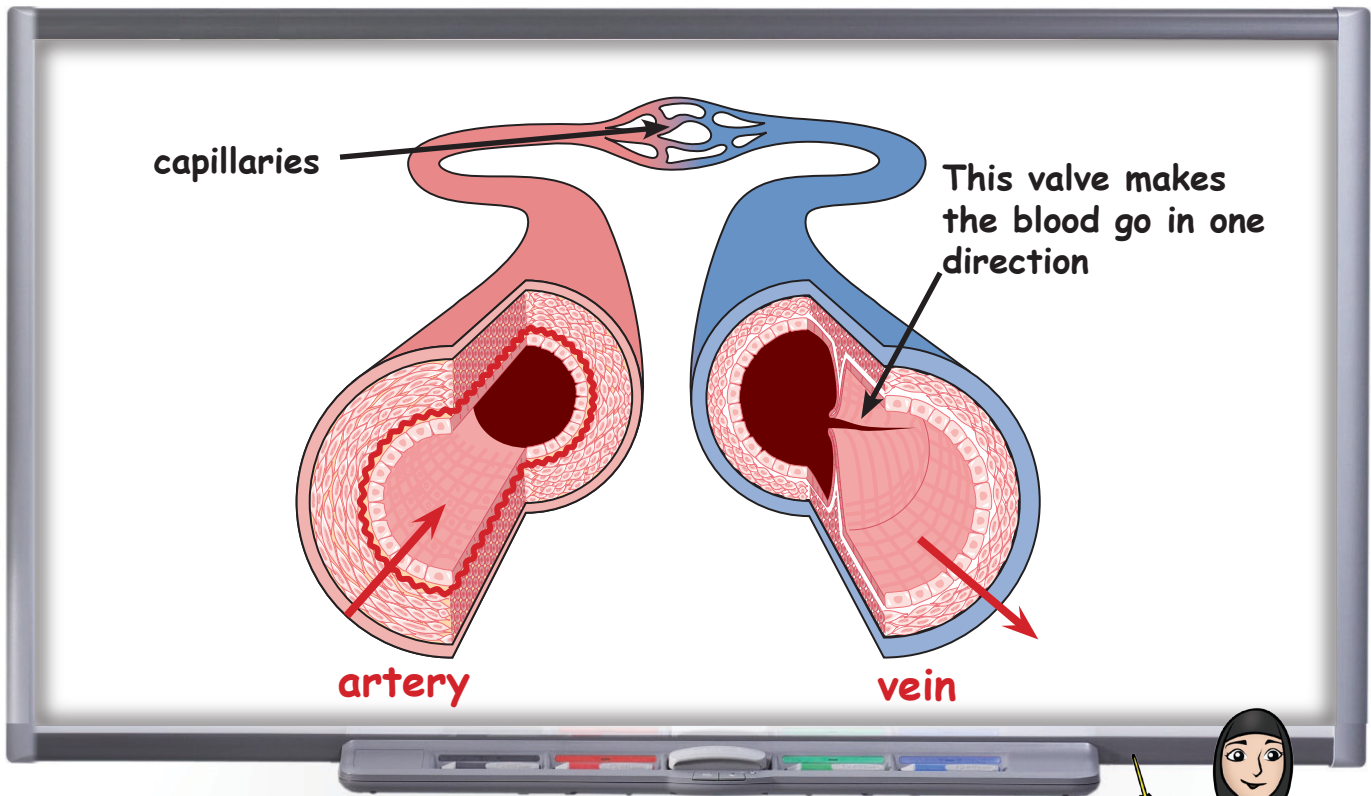
arteries

circulation

vein

capillary

valve



Hello! Today, we are going to talk about **circulation**. What is **circulation**?



Circulation is the movement of blood through the body. Blood moves around the body through vessels or tubes called **veins**, **arteries** and **capillaries**.

Arteries are blood vessels that carry blood from the heart to the rest of the body. The walls of the **arteries** are thick and elastic.

Veins carry waste and carbon dioxide. They have thinner walls.

Capillaries are very narrow. They are very thin so that the exchange of oxygen and carbon dioxide can happen.



CIRCULATION

Task 1:

Work with a partner. Match the two parts of the sentences. Draw lines.

- ① Capillaries → a) carry blood from the heart.
② Arteries → b) carry waste and carbon dioxide
③ Veins → c) exchange oxygen and carbon dioxide

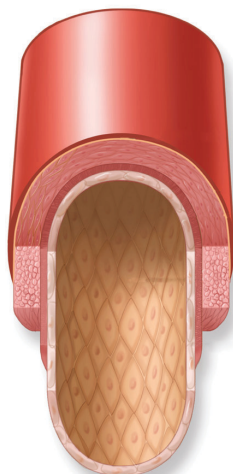


Task 2:

Use the words from the box to fill in the blanks. Use each word once.

blood heart oxygen yeins

- ① Arteries carry blood away from the
② Deoxygenated blood is carried by
③ goes into the blood through the capillaries.
④ moves through veins, arteries and capillaries.



Artery



Vein



Capillary

Task 3:

Choose the correct answer. Is it a, b, or c?

- 1 have thinner walls than arteries.
 a) Veins b) Capillaries c) Vessels
- 2 are very thin.
 a) Veins b) Capillaries c) Arteries
- 3 Arteries carry blood from the
 a) lungs b) kidneys c) heart
- 4 Oxygen and carbon dioxide pass into the
 a) capillaries b) veins c) arteries
- 5 Circulation is the movement of through the body.
 a) waste b) carbon c) blood



Task 4:

Write T for true and F for false sentences.

- 1 Arteries carry waste and carbon dioxide. _____
- 2 Oxygen and carbon dioxide enter through the veins. _____
- 3 Veins carry blood away from the heart to the whole body. _____
- 4 Circulation is the movement of blood through the body. _____
- 5 Circulation happens all the time. _____



Task 5: PUZZLE TIME!

Fill in the puzzle.



3) is the movement of blood through the body.

1) carry waste and carbon dioxide.

2) carry blood from the heart.

3) are one cell thick.

Task 6:

Play this game. Ask your partner the following questions.

Blood moves through us.
What are we?

I carry blood from the heart to
the rest of the body. What am I?

I carry waste and carbon
dioxide. What am I?

The exchange of carbon dioxide and
oxygen happens through me. What am I?



RESPIRATION WITHOUT OXYGEN

KEYWORDS:

fermentation yeast enzymes

Mrs Aisha is teaching Maha and Shikha about **respiration without oxygen**. Read and listen to the lesson, then do the activities that follow.

Fermentation

Fermentation is an anaerobic (without oxygen) reaction in which yeast produces ethanol and carbon dioxide from sugars.

Yogurt is made from fermented milk.

When a baker makes a loaf of bread, he adds yeast and sugar to the dough. When the baker sets the dough aside to rise, the yeast consumes the sugar and gives off carbon dioxide



Yogurt

We know that micro-organisms are tiny living things. We need a microscope to see them. **Yeast** is a micro-organism that can respire with or without oxygen. It makes a gas called carbon dioxide (CO_2) and produces energy. When this happens, it is called **fermentation**. This is an anaerobic process. It happens without oxygen. Can you tell me about yeast, Shikha?

I know that yeast has enzymes that cause fermentation. **Enzymes** are substances made by living things that make chemical changes.



RESPIRATION WITHOUT OXYGEN

Task 1:

Work in pairs. Correct the false information in each sentence.

Example. Micro-organisms are big living things.(tiny)

- 1 Yeast is a plant that can respire with or without oxygen.....
- 2 When fermentation takes place oxygen is released.....



Task 2:

Draw lines to match the two parts of the sentences.

- 1 An enzyme
 - 2 Yeast
 - 3 A microscope
 - 4 A baker adds sugar
 - 5 Fermentation
- a) is a useful micro-organism.
 - b) and yeast to the dough.
 - c) is an anaerobic process.
 - d) is useful for seeing tiny things.
 - e) comes from living things and makes chemical changes.

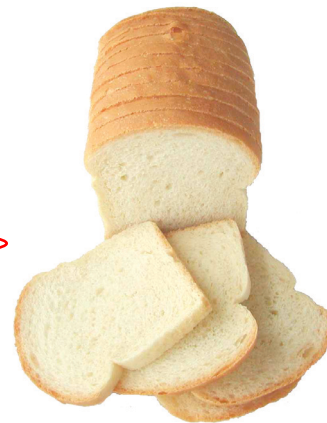


RESPIRATION WITHOUT OXYGEN

Task 3:

Choose the correct answer. Is it a, b, or c?

- 1 We need a microscope to see
a) CO_2 b) yeast ~~c) micro-organisms~~
- 2 Fermentation does not need
a) yeast **b) oxygen** c) micro-organisms
- 3 Fermentation produces
a) CO_2 b) oxygen c) yeast.
- 4 Yeast has that cause chemical changes.
a) bubbles b) gases **c) enzymes**



Task 4:

Work in pairs. Ask and answer the following questions about today's lesson.



What is fermentation?

What makes drinks fizzy?

What is an enzyme?

Fermentation is

That's easy! It's ...

I know that! An enzyme is...



ATOMS AND MOLECULES AND ELEMENTS

KEYWORDS:

atom symbol element compound molecule

ATOMS, COMPOUNDS AND ELEMENTS

Today, we are going to learn about atoms and molecules. Look at the board and tell me what you see.

A symbol is a sign that takes the place of something. We use specific symbols for each element i.e. for oxygen we use O.

An atom is so small that we cannot see it. Everything we see and cannot see is made of atoms. When two or more atoms join chemically they make molecules - like molecular **hydrogen** (H_2), molecular **oxygen** (O_2) and molecular **nitrogen** (N_2).

An element like oxygen or hydrogen is made up of one type of atom. A compound is a molecule that contains at least two different **elements**. All compounds are molecules but not all molecules are compounds. Water (H_2O), carbon dioxide (CO_2) and methane (CH_4) are compounds because each is made from more than one element.

ATOMS AND MOLECULES AND ELEMENTS



Task 1:

Complete the sentences by matching the two parts. Draw lines.

- 1 A compound → a) is a sign.
2 An atom is the smallest piece of matter. → b) is made when two or more atoms join chemically.
3 A symbol → c) we cannot see it.
4 An element → d) is a molecule that has two or more elements.
5 A molecule → e) is made up of one type of atom.

Task 2:

Choose the correct answer. Is it a, b, or c?


- 1 join together to form a molecule.
a) Symbols b) Elements c) Atoms
- 2 An element is a chemical that is made up of only one type of
a) molecule b) atom c) compound
- 3 A/An is the smallest piece of matter.
a) atom b) molecule c) element
- 4 A/An is something that represents a specific thing.
a) atom b) compound c) symbol
- 5 A/An is a substance that that has two or more elements.
a) atom b) compound c) symbol



Task 3: PUZZLE TIME!

Fill in the puzzle.



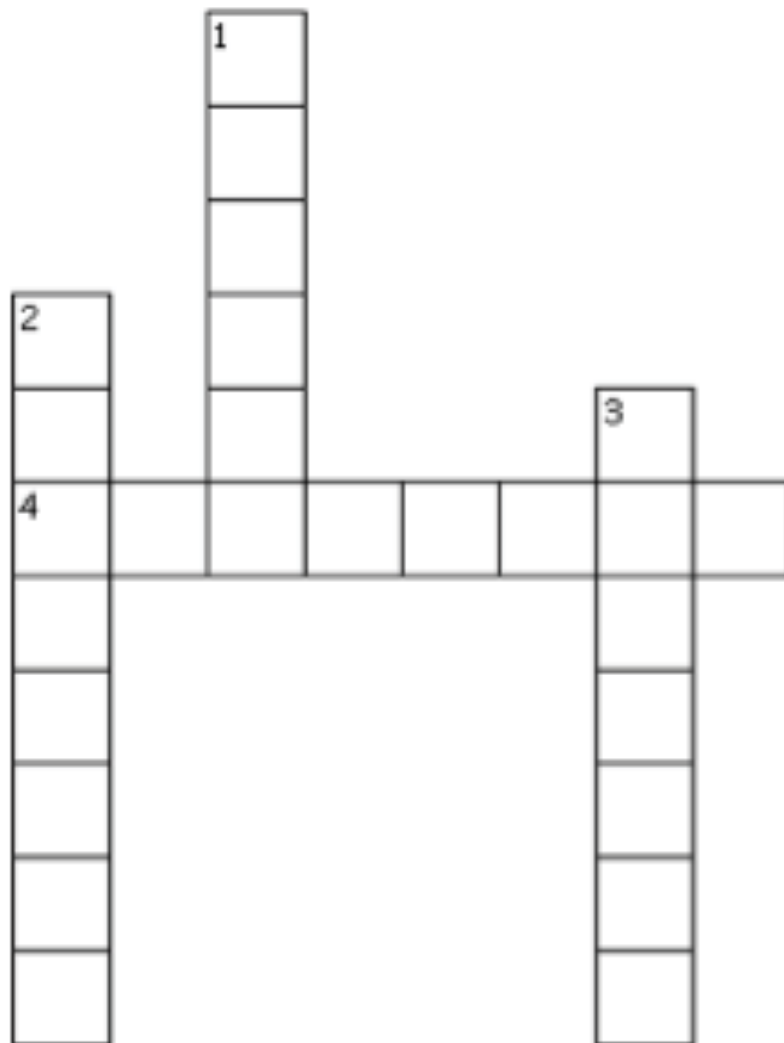
4. Atoms join together to make a 



1) A..... is a sign for something.

2) A..... has two or more atoms.

3) An..... is made up of only one kind of atom.



ATOMS AND MOLECULES AND ELEMENTS

Task 4:

Answer the following questions. Work with a partner.

- 1 What is formed when atoms join together?.....
- 2 What do we call a sign that takes the place of something else?.....
- 3 What do we call a substance that has two or more elements?.....
- 4 What do we call a chemical made up of one type of atom?.....
- 5 What is the smallest part of matter called?.....

Task 5:

Play this game with a partner. Ask your partner the following questions. Don't forget to take turns.



I take the place of something else.
What am I?

I am the smallest part of matter.
What am I?

I am part of a compound.
What am I?

I am made when atoms are combined.
What am I?

I contain only one kind of atom.
What am I?



CHEMICAL REACTIONS

KEYWORDS:

chemical reaction equation reactant product
 conservation of mass balanced equations

hydrogen

oxygen

water

chemical

$$2\text{H}_2 + \text{O}_2 \Rightarrow 2\text{H}_2\text{O}$$

but this is not balanced

reactant product

balanced

$$2\text{H}_2 + \text{O}_2 \rightarrow 2\text{H}_2\text{O}$$

conservation of mass

4H, 2O = 4H, 2O

Today, we are going to learn about atoms, compounds and elements. Look at the board and tell me what you see.



A **chemical reaction** is when atoms are rearranged. This happens when molecules combine.

An **equation** shows how substances behave in a chemical reaction.

The **reactant** is the substance at the start of a chemical reaction. We write it on the left of a chemical equation.

The **product** is what we get after the chemical reaction happens. We write it on the right of a chemical equation.

A **balanced equation** is when the number of atoms or molecules is the same on both sides of the equation. Matter cannot be destroyed. The mass of the reactants before an equation must be equal to the mass of the product after a reaction. This is **conservation of mass**.





Task 1:

Write (T) for true and (F) for false sentences.

- ① We write the reactant on the left of a chemical equation.
- ② The product is what you have before a chemical reaction.
- ③ An equation shows us what molecules are in a chemical reaction.
- ④ $H_2O \rightarrow 2 H_2 + O_2$ is a balanced equation.
- ⑤ The molecules at the start of a chemical reaction are the reactant.

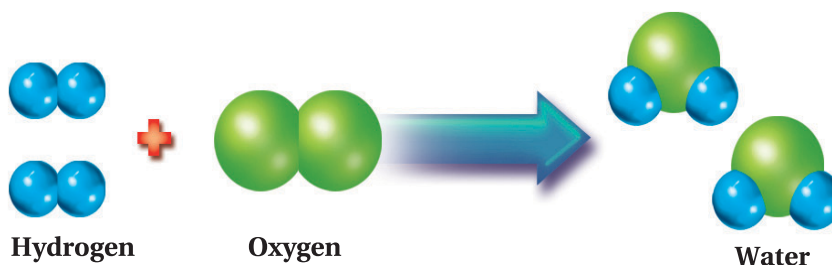
.....

.....

.....

.....

.....



Task 2:

Choose the correct answer. Is it a, b, or c?

- ① We get the after a chemical reaction.
 a) reactant **b) product** c) equation
- ② The are the molecules before a chemical reaction.
a) reactants b) products c) equations
- ③ An equation is balanced if the atoms on both sides of the equation are
 a) different **b) the same** c) unlike
- ④ Atoms are rearranged in a/an
 a) **chemical reaction** b) equation c) balance



CHEMICAL REACTIONS

Task 3: Complete the following sentences by matching the two parts. Draw lines.

- ① We have chemical reaction
- ② The reactants
- ③ A balanced equation is when
- ④ An equation tells us
- ⑤ Conservation of mass tells us that
- a) the number of atoms is the same on both sides of an equation.
- b) the mass of the reactant must equal the mass of the product.
- c) when molecules combine.
- d) are the molecules before a chemical reaction.
- e) how substances behave in a chemical reaction.

Task 4: Complete the following sentences. The answers are on page 108.

- ① The reactant is written on the side of a chemical reaction.
- ② A has the same number of molecules on both sides of an equation.
- ③ An is a short way of writing the atoms and molecules that you have in a chemical reaction.
- ④ The product is written on the side of an equation.
- ⑤ means that you cannot make matter out of nothing and you cannot destroy matter.

Task 5: Play this game with a partner. Don't forget to take turns.

I'm a short way of telling what substances react together and what is produced.

You will find me before a chemical reaction starts.



I am a chemical process where one substance changes into another.

You will find me after a chemical reaction happens.

USES OF METALS

KEYWORDS:

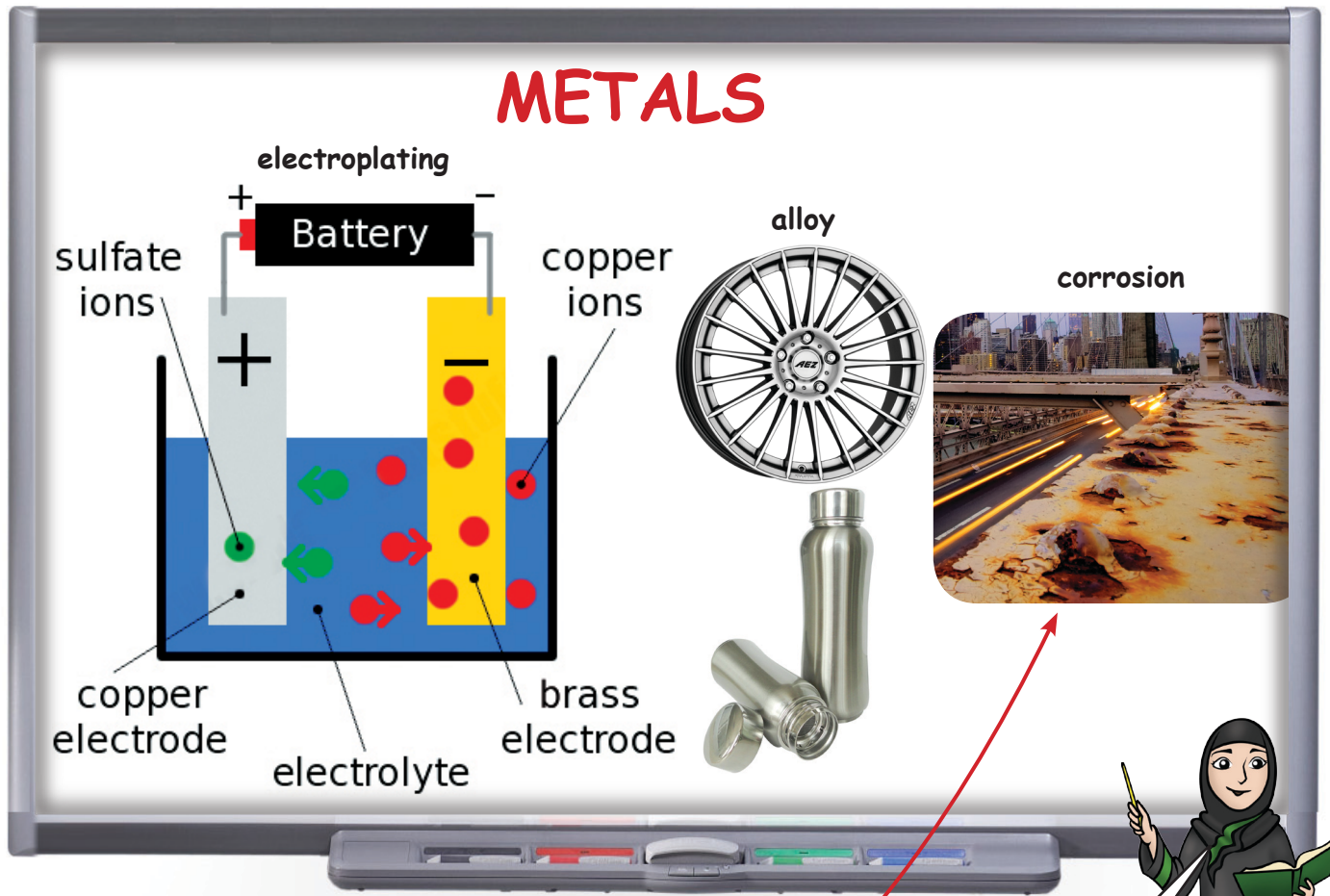
corrosion

coat

alloy

electroplating

rust



Today, we are going to learn about how we use metals. Look at the uses of metals on the board and tell me about them.

Corrosion happens when oxygen (O_2), and water (H_2O) or acid destroys a metal. As you see on the board above, **rust** has formed on the metal bridge. We make an **alloy** by mixing two or more different metals, like stainless steel. This stops the metal from rusting.

To **coat** means to cover with something. We can protect metals from rusting by coating them with paint or oil.

Electroplating is when we coat one metal with another by using electricity.

USES OF METALS

Task 1:

Match the words with their meanings. Draw lines.

- | | |
|----------------|---|
| 1 Alloy | a) Use electricity to cover another substance |
| 2 Corrode | b) Cover |
| 3 Electroplate | c) Damage metals by O_2 and H_2O |
| 4 Coat | d) Combination of metals |



Task 2:

Use the words from the box to fill in the blanks.

corrode electroplating alloy (x2) coat

- 1 Bronze is a/n of zinc and copper.
- 2 The word is the joining of two words... electro which means electricity and plating which means to cover.
- 3 18-karat gold is a/n because it is made of 75% gold.
- 4 It will not rust if you that metal with oil or paint.
- 5 Don't leave the metal sheet outside in this wet weather because it will

Task 3:

Choose the correct answer. Is it a, b, or c?

- We can protect metal fences by it with a layer of paint.
 a) coating b) electroplating c) corroding
- We use stainless steel when cooking because the metal does not
 a) rust b) bend c) smell
- Electroplating is putting gold over another metal by using
 a) plating b) electricity c) acid
- When you mix two metals you get
 a) an alloy b) a plastic c) gold
- can destroy metals.
 a) paper b) O_2 and H_2O c) coating



Task 4: PUZZLE TIME!

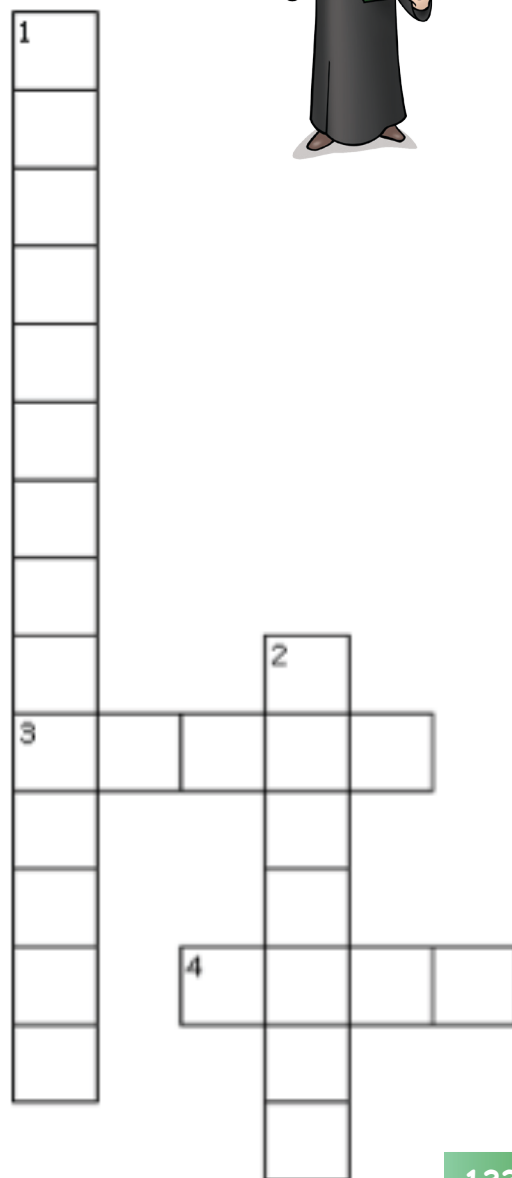
Fill in the puzzle.

Across

- Mixing of metals
- To cover

Down

- Using electricity to coat something
- to damage metals by a chemical reaction



USES OF METALS

Task 5:

Ask your partner the following questions. Take turns.
(Refer to the pictures below to help you)



What is corrosion?

What is electroplating?

What is an alloy?

What has happened to the metal below?



















What does it mean to coat something?



REACTIVITY SERIES

KEYWORDS:

 reactivity series acid base/alkali dilute flammable
 reaction electrolysis

Series	Reaction	Flammable	Dilute
K	Potassium		
Na	Sodium		
Ca	Calcium		
Mg	Magnesium		
Al	Aluminium		
C	Carbon		
Zn	Zinc		
Fe	Iron		
Sn	Tin		
Pb	Lead		
H	Hydrogen		
Cu	Copper		
Ag	Silver		
Au	Gold		
Pt	Platinum		

↑ Most reactive
↓ Least reactive

Today, we are going to talk about chemicals. Look at the board and tell me which words you recognize.

The **reactivity series** is a list of elements or metals telling us how reactive they are. The order is from highest to lowest.

There are two kinds of chemicals called **acids** and **bases**. Acids are liquids with lots of hydrogen ions (H^+) and **bases** are liquids with lots of hydroxide ions (OH^-). When you mix the two, they maybe a reaction, which is a change that happens when substances join.

Some chemicals are **flammable** which means that they burn easily. You can **dilute** some chemicals, which means you can add water to make them weaker.



REACTIVITY SERIES

Task 1:

Use the words from the box to fill in the blanks.

potassium acid water base top

- 1 The most reactive metals are at the of the reactivity series.
- 2 You will get a new substance when you mix a/n and a base.
- 3 is the most reactive metal in the reactivity series.
- 4 You can make some chemicals weaker by adding
- 5 Another word for is alkali.



Task 2:

Complete the following sentences by matching the two parts. Draw lines.

- 1 Bases are liquids a) with lots of hydrogen ions.
- 2 Flammable substances b) by adding water.
- 3 Acids are liquids c) burn easily.
- 4 When substances react d) how metals or elements react with one another.
- 5 You dilute a substance e) with lots of hydroxide ions.
- 6 The reactivity series tells us f) they change form.



REACTIVITY SERIES

Task 3:

Choose the correct answer. Is it a, b, or c?

- 1 have lots of hydroxide ions and ~~have lots of hydrogen ions.~~
a) Acids, bases **b) Bases, acids** **c) Bases, alkali**
- 2 The in a cigarette lighter is flammable.
a) gas **b) water** **c) hydroxide**
- 3 You can your orange juice if it is too sweet.
a) platinum **b) stir** **c) dilute**
- 4 Platinum is the least reactive metal because it is in the reactivity series.
a) the lowest **b) the highest** **c) not found**
- 5 We arrange the reactivity series from to reactive metals or elements.
a) least, most **b) least, lowest** **c) most, least**

Task 4:

Look at the picture below, how would you describe the yellow substance?

.....
.....



REACTIVITY SERIES

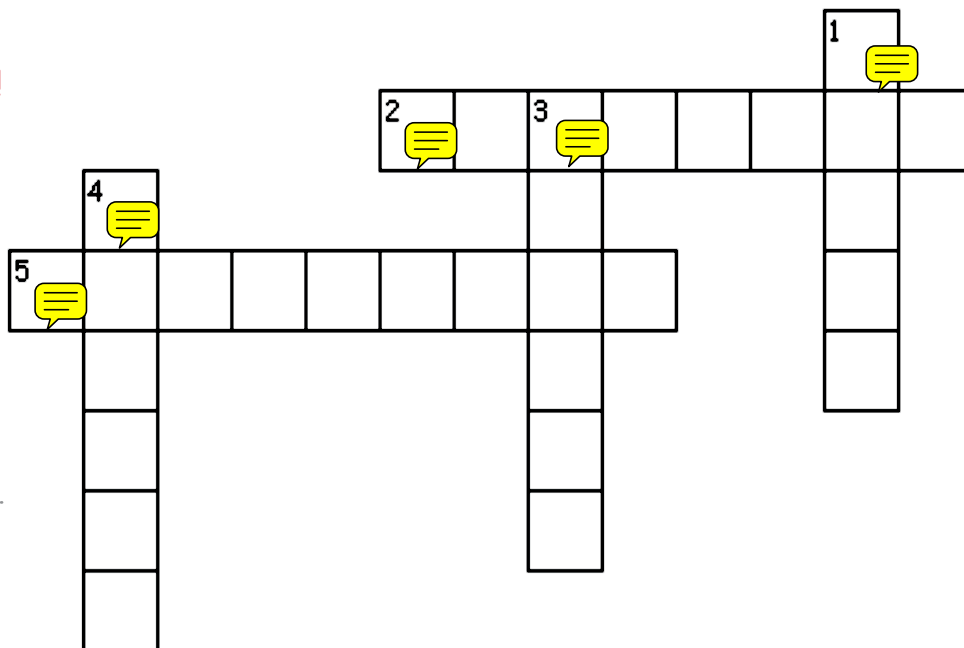
Task 4: PUZZLE TIME!

Fill in the puzzle.



2) (H+) is the symbol for ions.

5) chemicals burn easily.



1) Some chemicals when they come together.

3) You chemicals by adding water.

4) Another word for a base is



Task 5:

Ask your partner to answer the following questions. Don't forget to take turns.

What chemical has lots of hydrogen ions?

What is the reactivity series?

What is a base?



How do we dilute substances?

What is an acid?

THE SOLAR SYSTEM 1

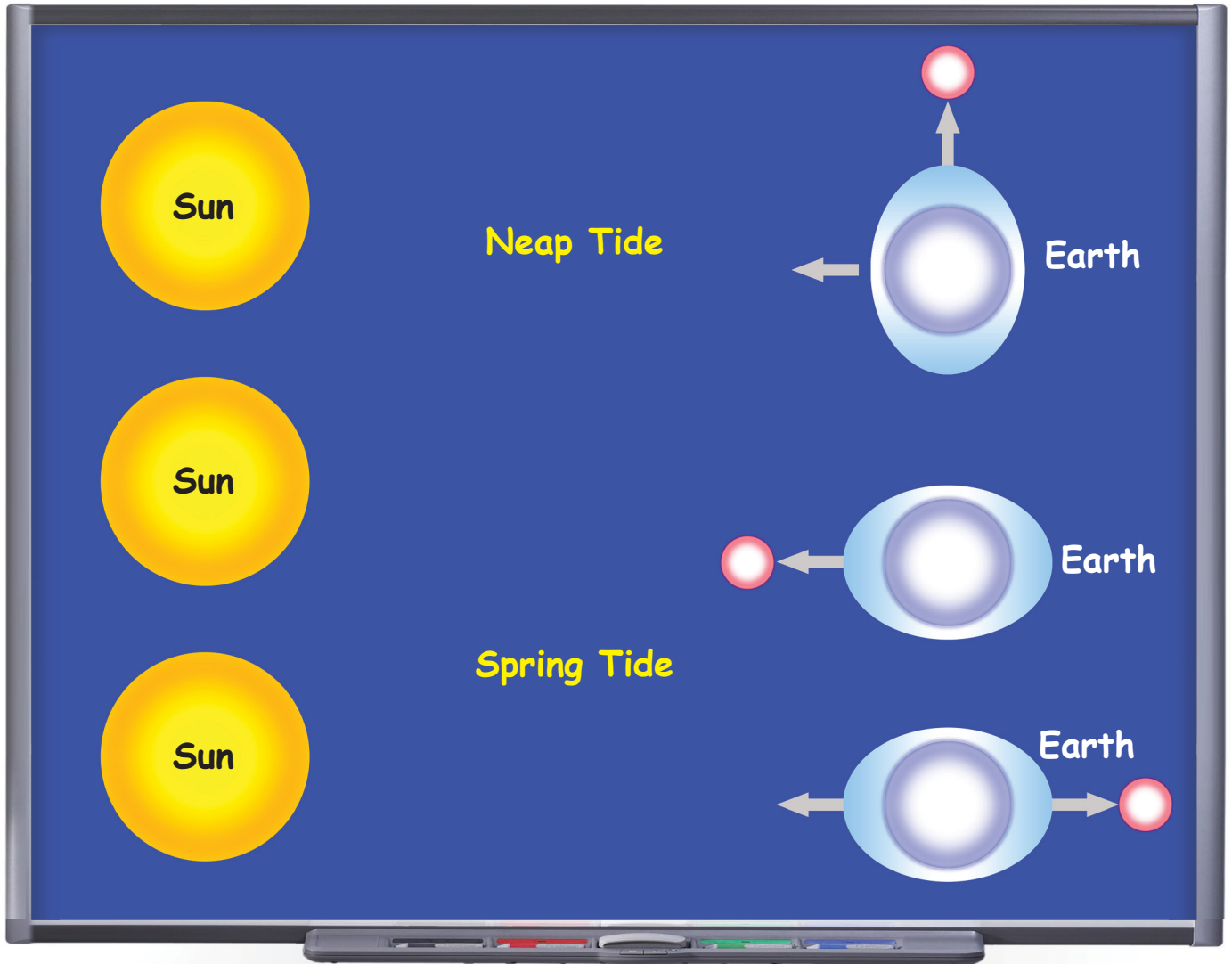
KEYWORDS:

tides

spring tide

neap tide

gravity



Gravity is the force of attraction by very big objects. The bigger the object, the bigger is the pull. The Moon and the Sun are very big and they pull on the Earth's water. This is how we get tides. **Tides** are the rise and fall of the sea level because of gravity. Look at the board and tell me about spring tide and neap tide.



THE SOLAR SYSTEM 1

Maha, what causes the sea to rise and fall?



Neap tides are very low tides. They happen when the Sun and the Moon are at 90° to the Earth. See the board Fig 1.



There is a very strong pull on the Earth when the Moon, the Earth and the Sun are in a straight line. Then, the tides are very high. This is **spring tide**. See the board Fig 2.

Task 1:

Draw lines to match the two parts of the sentences.

- 1 Spring tides ← a) happen when the Moon and the Earth and the Sun are in a line.
- 2 Neap tides → b) are the rise and fall of the sea.
- 3 Tides → c) is the force of attraction by objects.
- 4 Gravity → d) happen when the Sun and the Moon are at 90° to the Earth.

Task 2:

Unscramble the words in brackets, and then fill in the blanks.

- 1 The bigger an object, the bigger the force of (iavygtr).
- 2 The Moon and the Sun have a (lulp) on the Earth.
- 3 Neap tides are very (wlo) tides.
- 4 Spring tides are very (hhgi) tides.
- 5 Spring tide happens when the Sun, Earth and Moon are in a (ttiaghsr) line.



THE SOLAR SYSTEM 1

Task 3:

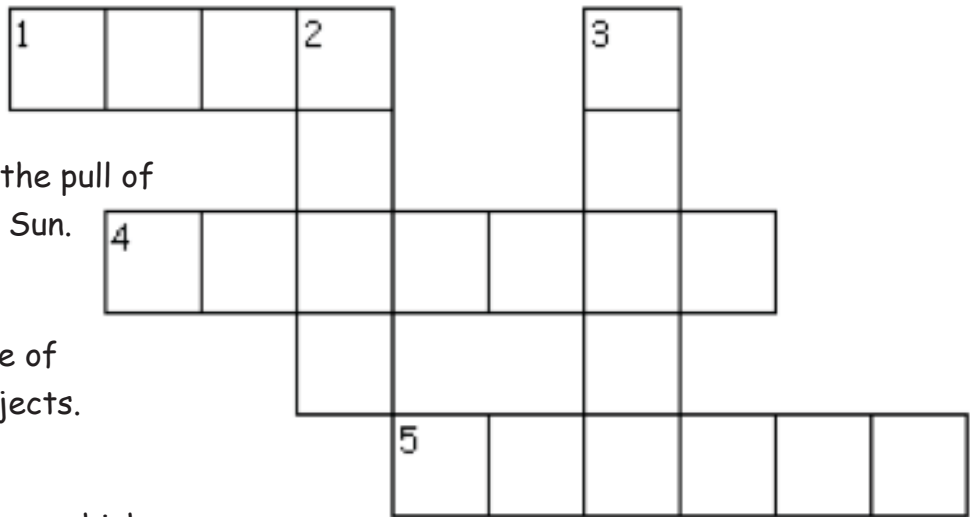
Use the words from the box below to complete the following paragraph.

gravity tides neap low high

Bigger objects have more The Sun and the Moon's gravity give us tides.
 are the rise and fall of the water in the sea. tides happen when the
 Sun and Moon are at 90° to the Earth. The sea is at neap tide. Spring tides happen
 when the Sun, Moon and Earth are in a straight line. The sea is at spring tide.

Task 4: PUZZLE TIME!

Fill in the puzzle.



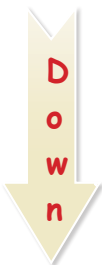
1) Tides happen because of the pull of
 the and the Sun.



4) is the force of
 attraction by very big objects.



5) A tide is a very high
 tide.



2) A tide is a very
 low tide.



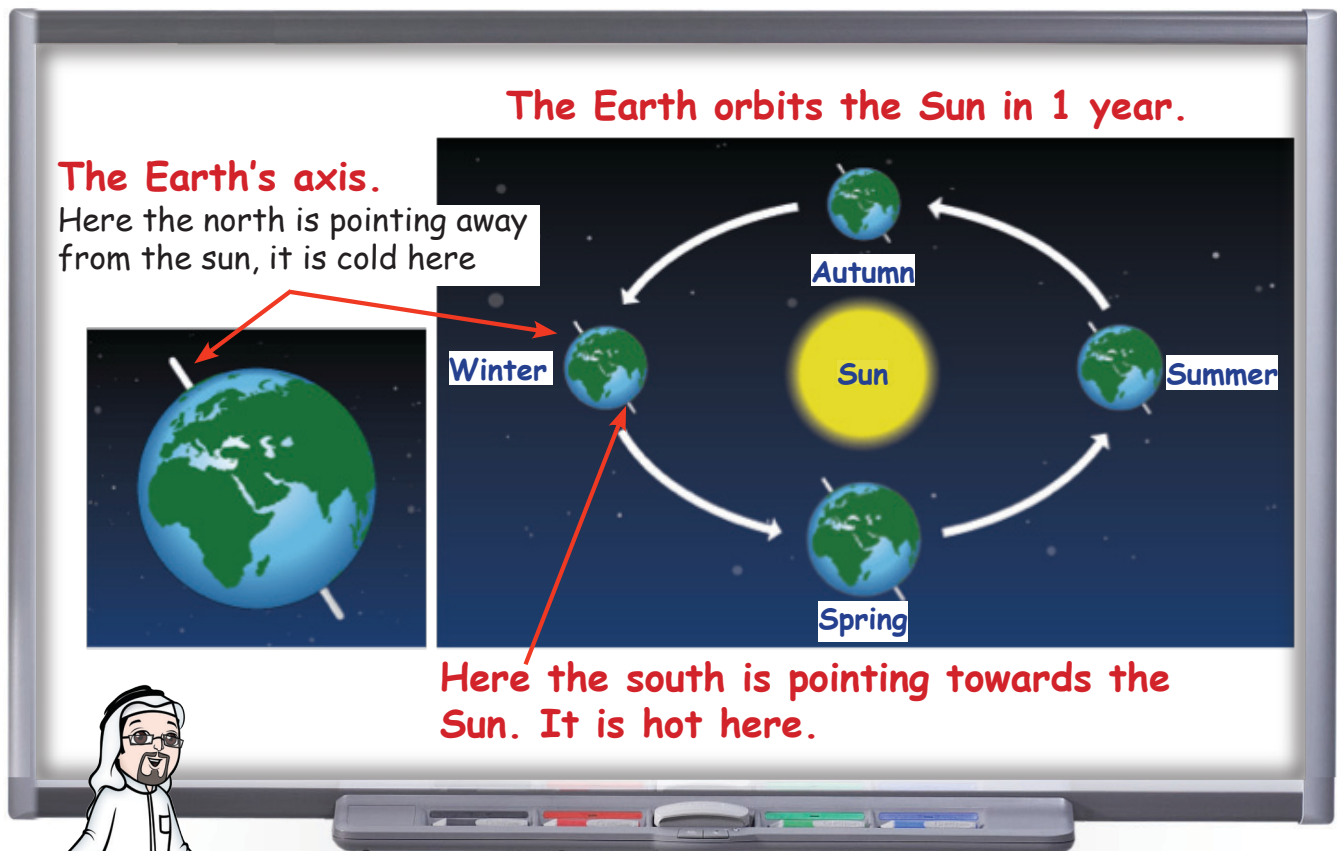
3) The Sun and the Moon pull on
 the Earth's



THE SOLAR SYSTEM 2

KEYWORDS:

solar system season orbit axis planet



Look at the board. The **solar system** is the Sun and everything that travels around it. A **planet**, like our Earth, is a very large object that goes around the Sun. Do you know how we get the different **seasons**?

Sir, can you tell us about our solar system?



The earth takes one year to move round the sun. This is an **orbit**. The earth's **axis** is the line that we draw from the north to the south pole. The axis is at an angle. When the northern half of the earth is facing the Sun, we get summer. This is how we get **seasons**. As seasons change, the weather and the length of days change too.



THE SOLAR SYSTEM 2

Task 1:

Draw lines to match the two parts of the sentences.

- ① The solar system **a)** is a very large object that goes around the Sun.
- ② The seasons **b)** is the movement of an object around another object.
- ③ An orbit **c)** change the weather and the length of day.
- ④ The Earth's axis **d)** is our Sun and everything that travels round it.
- ⑤ A planet **e)** is the imaginary line from the south to the north pole.

Task 2:

Use the words from the box to complete the sentences.

Earth seasons Sun axis solar system

- ① The is the Sun and all the planets that go around it.
- ② The is a planet.
- ③ The Earth goes around the
- ④ When the change, the weather and the length of day change.
- ⑤ The Earth's is at an angle.



THE SOLAR SYSTEM 2

Task 3:

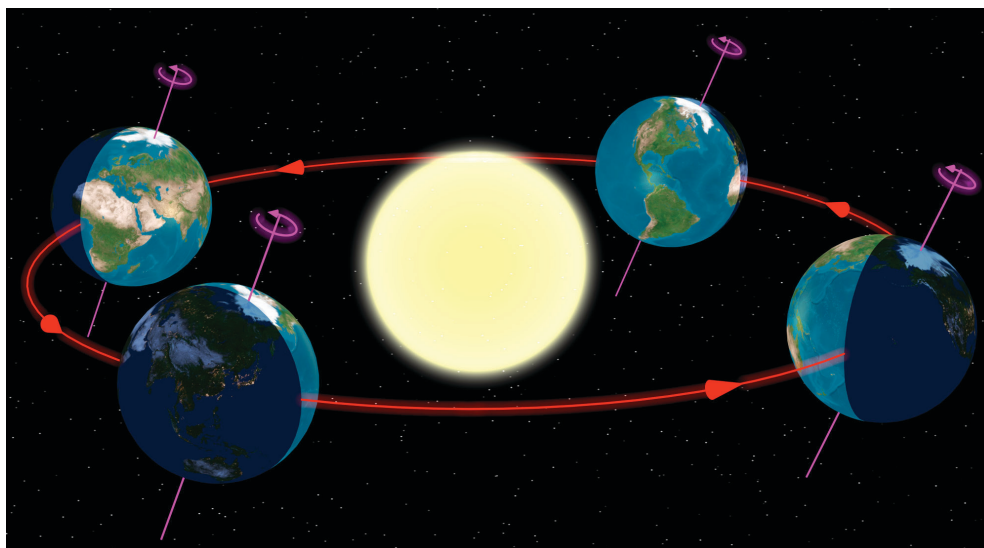
Choose the correct answer. Is it a, b, or c?

- 1 The is a line that goes from the North to the South pole.
a) orbit b) axis c) planet
- 2 The southern part of the Earth has when the southern half of the Earth faces the Sun.
a) summer b) winter c) autumn
- 3 The gives us different lengths of day.
a) solar system b) winter c) seasons
- 4 It takes for the Earth to go around the sun.
a) 24 hours b) 365 days c) 6 months
- 5 When the season changes, the changes.
a) orbit b) axis c) weather



Task 4:

Label the diagram using the following words: planet Earth, Sun, Axis, North, South.



THE SOLAR SYSTEM 2

Task 5: PUZZLE TIME!

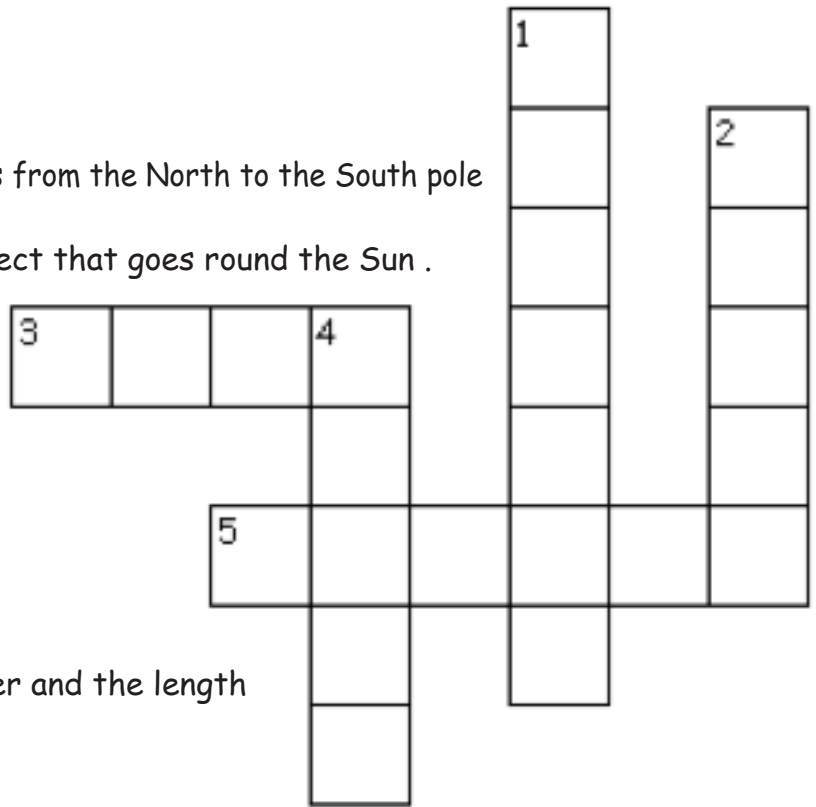
Fill in the puzzle.

Across

- 3) The is the line that goes from the North to the South pole
- 5) A is a very large object that goes round the Sun .

Down

- 1) The change the weather and the length of the day.
- 2) It takes one year for the Sun to the Earth.
- 4) The system is everything that travels round the sun.



Task 6:

Ask your partner the following questions.

What do we call a large object that goes around the Sun?

How long does it take for the Earth to go around the Sun?



Can you mark the sun and planet earth in this diagram?

What do we call the line we draw from the north to the south pole?

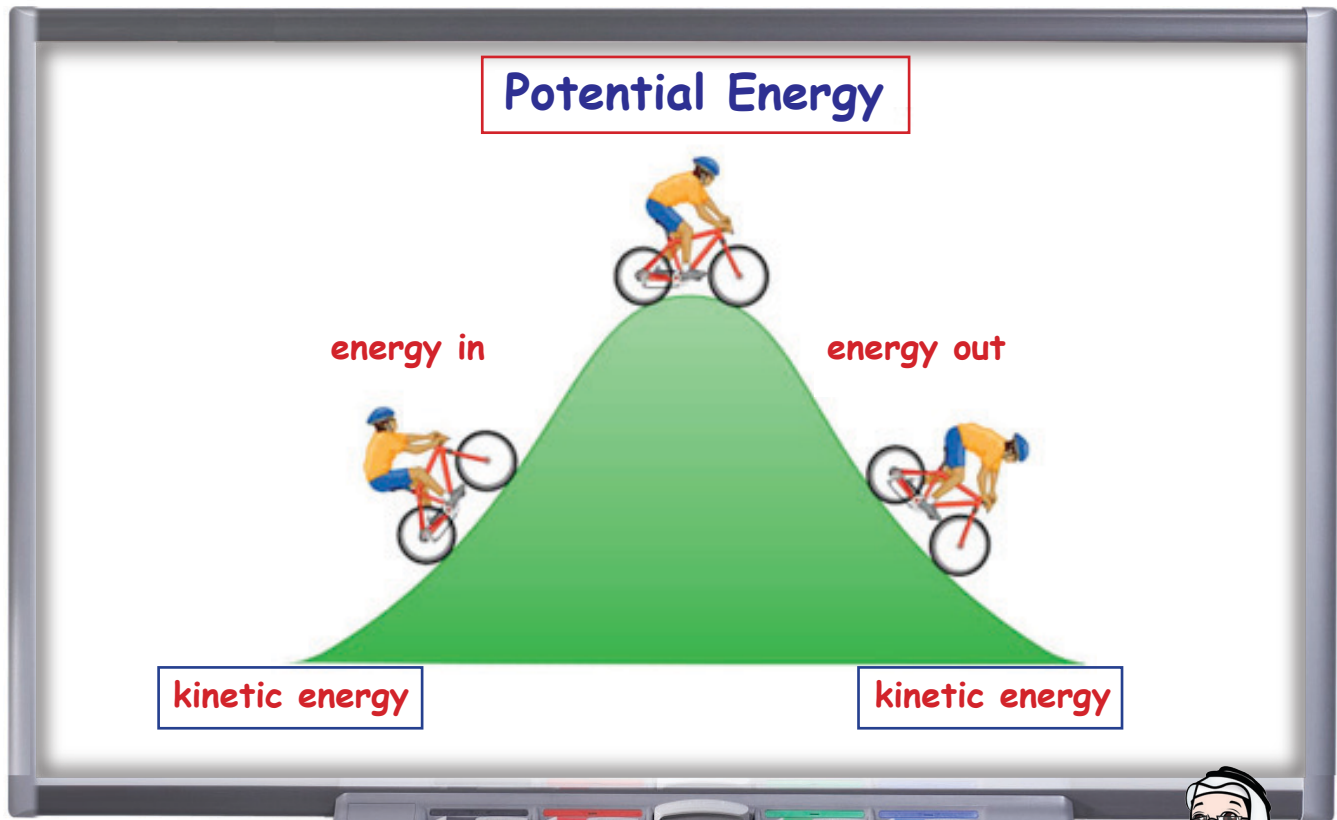
What season is it in July in Qatar?

ENERGY TRANSFORMATION

KEYWORDS:

energy transformation
potential energy

kinetic energy
joules (J)



Energy is the ability to do something. We can't create or destroy energy. We can change it from one kind of energy to another. This is called **energy transformation**. Now, look at the board and tell me about kinetic and potential energy. What is the difference between kinetic and potential?



There are two main kinds of energy: **kinetic energy** and **potential energy**. A moving object has **kinetic energy**. If the object stops moving, it has **potential energy**, because the energy is being stored. It has **kinetic energy** when it moves again.




....So when the bike stops at the top, it has **potential energy**. When it moves again, it has **kinetic energy**. We measure energy in Joules (J)



ENERGY TRANSFORMATION


Task 1:

Draw lines to match the two parts of the sentences.

- 1 Energy transformation **a)** is an object that is moving.
 - 2 Kinetic energy **b)** is the ability to do something.
 - 3 Potential energy **c)** is a unit for energy.
 - 4 Joules **d)** is an object that is not moving, but in a high position.
 - 5 Energy **e)** is a change of energy from one kind to another.
- 

Task 2:

Choose the correct answer. Is it a, b, or c?

- 1 Energy is measured in
a) kilograms **b) joules** **c)** degrees
 - 2 energy is stored energy.
a) Potential **b)** Heat **c)** Kinetic
 - 3 Anything that doesn't move has energy.
a) potential **b)** heat **c)** kinetic
 - 4 The wind has energy.
a) potential **b)** heat **c) kinetic**
 - 5 The pencil on your desk has energy.
a) potential **b)** heat **c)** kinetic
- 

ENERGY TRANSFORMATION

Task 3:

Unscramble the words in the box and write them in the blanks.

rhaci hncage wto sujeol sdtreo

- ① There are main kinds of energy.
 - ② The in your room has potential energy.
 - ③ Energy can from one type to another.
 - ④ Potential energy is energy.
- is the unit for energy.



Going from potential energy



.... to kinetic energy.

Task 4:

Write (T) for True and (F) for False sentences.

- ① Energy can be destroyed and created.
- ② A moving object has potential energy.
- ③ Potential energy and kinetic energy are measured in metres.
- ④ A river has kinetic energy.
- ⑤ 'J' is the short way of writing joules.

.....

Task 5:

Ask your partner the following questions.

What do we call the change of energy from one kind to another?

What kind of energy does a moving object have?



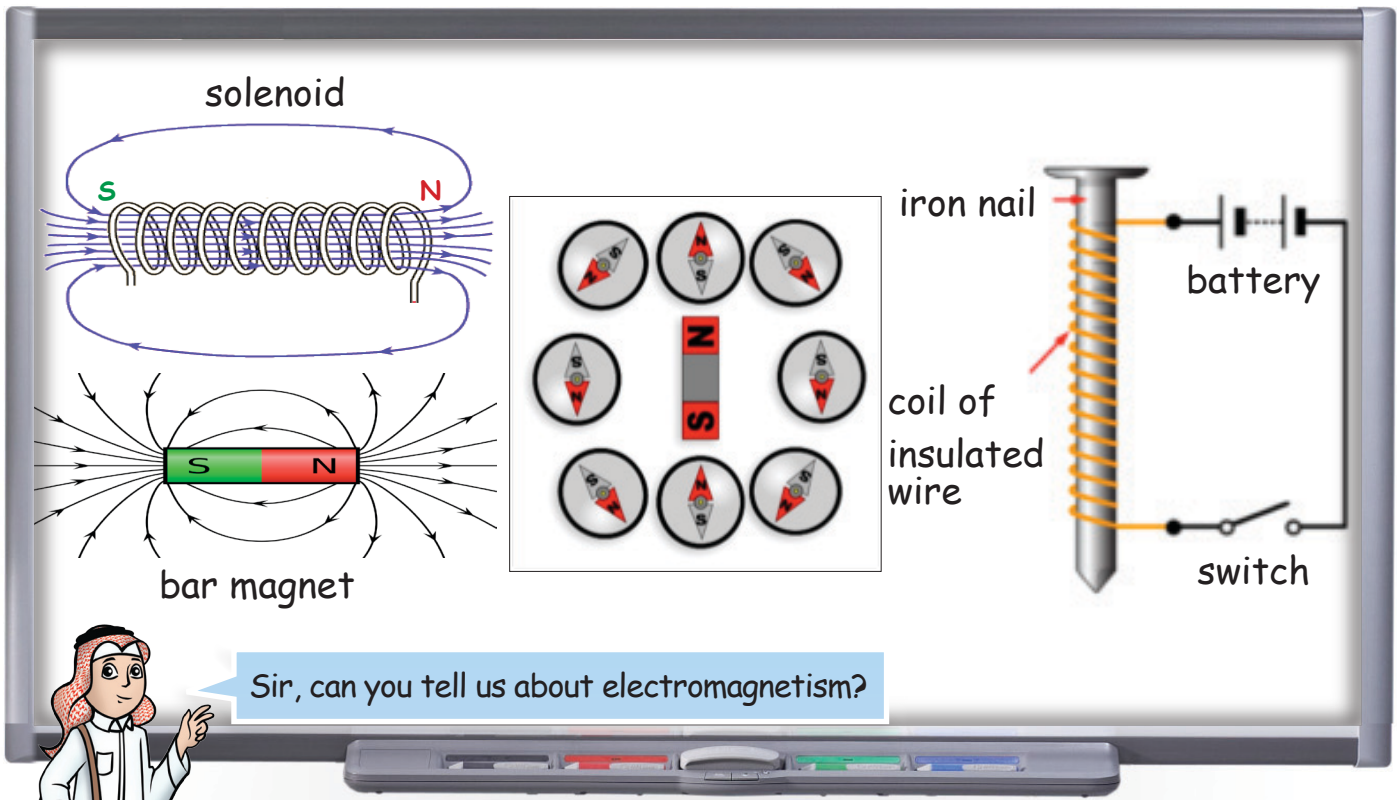
What do we measure energy in?

When an object stops, what kind of energy does it have?

ELECTROMAGNETISM 1

KEYWORDS:

magnetism magnetic field compass solenoid
electromagnet



Sir, can you tell us about electromagnetism?

When an electric current flows in a wire, it creates a **magnetic field** around the wire. By winding the wire into a **coil**, we can strengthen the magnetic field. **Electromagnets** are made from coils like this. The coil is called a **solenoid**, and inside it there is an iron nail, which becomes a **magnet** when the circuit is connected. We can switch the magnets on and off. A **compass** placed near the electromagnet can show the shape and direction of the **magnetic field**. You can see it is the same as a **bar magnet**. The magnetic field is the force field around the magnet.

So, we can make magnets that we can control when to switch on and off - using an electric current, making a solenoid (the coil) around iron.

Also, the electromagnet behaves like a normal magnet and we can see the shape and direction using a small compass.

ELECTROMAGNETISM 1



Task 1:

Draw lines and match the two parts.

- ① compass
 - ② solenoid
 - ③ magnet
 - ④ electromagnet
 - ⑤ magnetic field
- a) the name for the wire coil
 - b) a magnet we can turn on and off
 - c) a tool we use to show us which direction is North
 - d) is the force field that surrounds the magnet
 - e) a material or object that produces a magnetic field
- Red arrows indicate the following matches: ① to c, ② to a, ③ to b, ④ to e, ⑤ to d.

Task 2:

Complete the table below. Copy the word, and draw a picture.

word	word	object
Compass		
Solenoid		
Magnetic field		

Task 3:

Ask your partner to give a one word answer for the following questions.

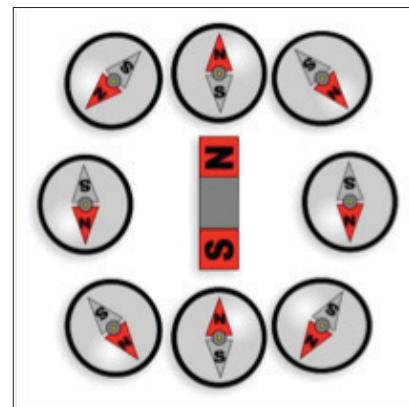
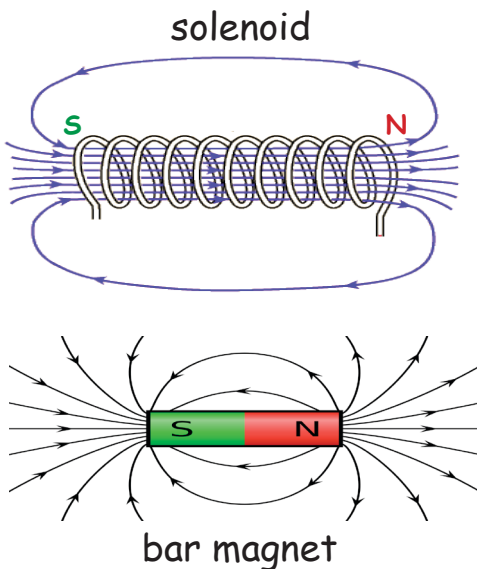
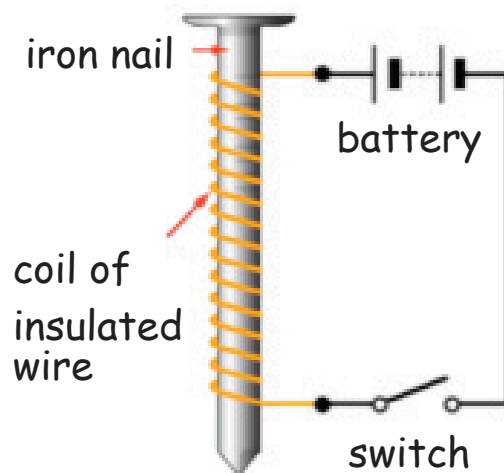
What do we call the change of energy from one kind to another?

What do we call the force around a magnet?



What is the wire coil called in an electromagnet?

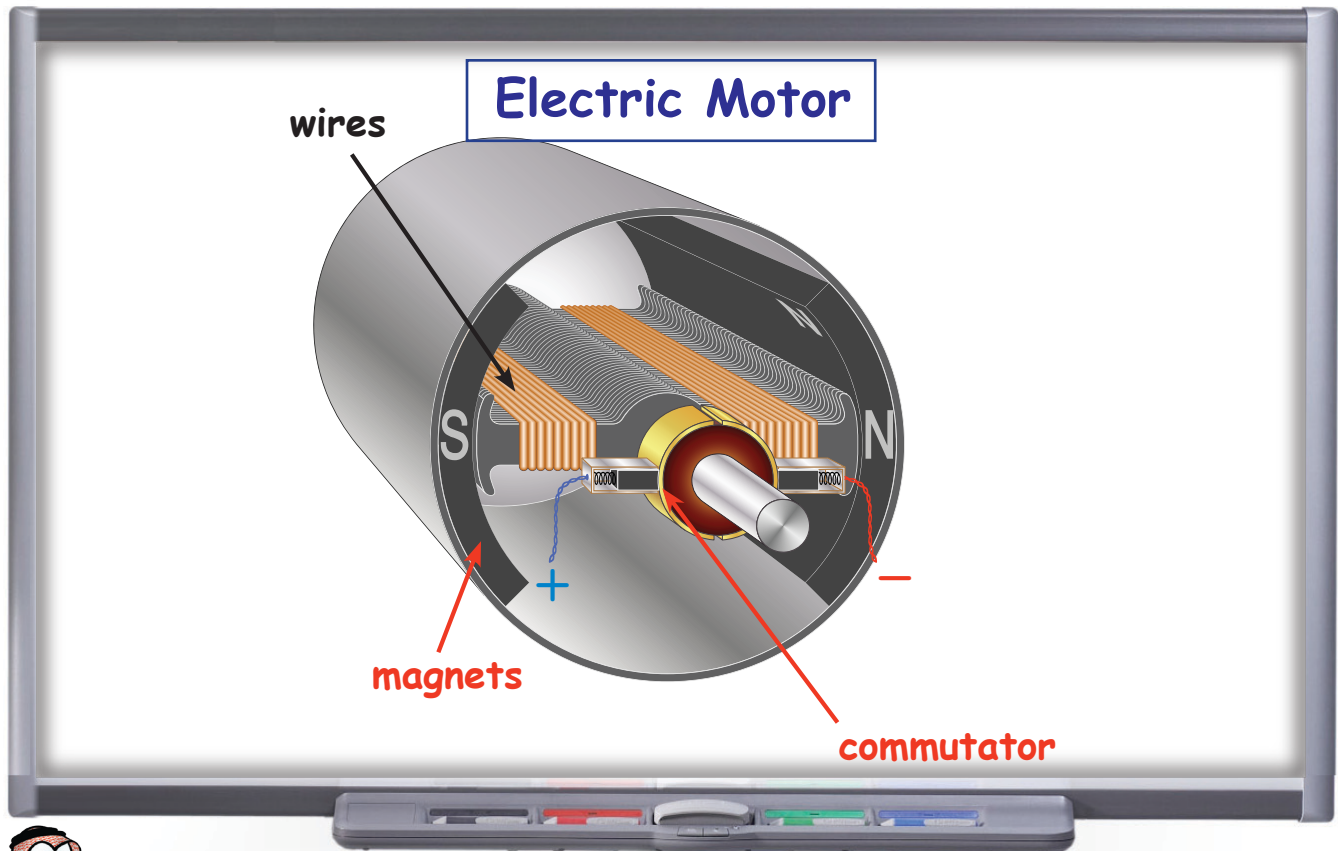
What do we use to find the direction North?



ELECTROMAGNETISM 2

KEYWORDS:

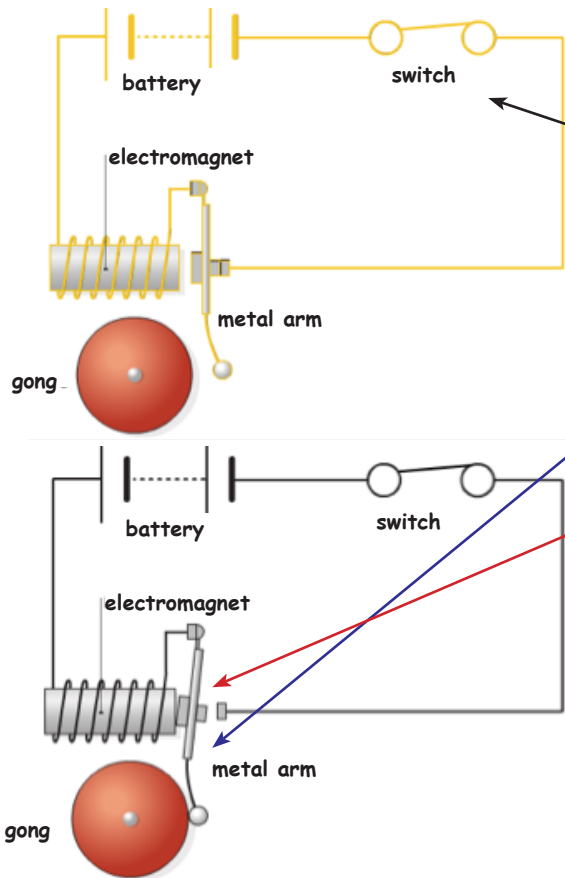
electric bell loudspeaker motor coil commutator
current



Sir, can you tell us about how we use electromagnetism ?



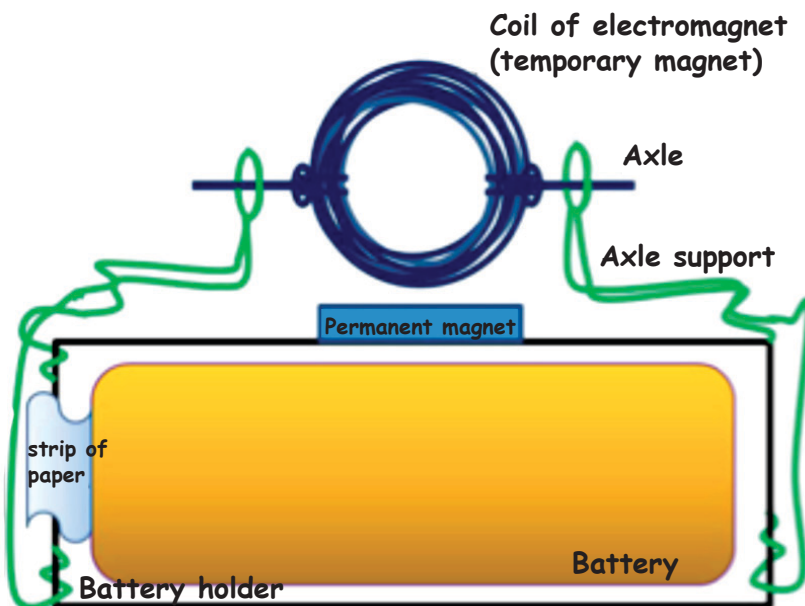
There are many uses for **electromagnets**. Here, we will talk about a few. Let's start with a simple **electric motor**, something you find in almost everything. On the board is a simple **motor**. The **commutator** acts as a current-reversing switch after every half-revolution of the coil. When a current flows through a wire in a magnetic field, a force of motion is produced. This force is what makes the motor go round. We call it the **motor effect**.



Now, let's look at the electric bell! This is how it works.

- 1 When the current flows through the circuit, the electromagnet makes a magnetic field. The yellow line shows the complete circuit.
- 2 The electromagnet attracts the springy metal arm.
- 3 The arm hits the gong, which makes a sound.
- 4 The circuit is broken, now the arm is out of position.
- 5 The electromagnet is turned off and the springy metal arm moves back.
- 6 The circuit is complete again.

The cycle is repeated as long as the switch is closed.





Task 1:

Complete the following paragraph using words from the box. You may need to use some words more than once.

conductor CD current field increase hair magnetic motor operate wire

When a flows through a in a magnetic, a force is produced.

This is called the effect. The larger the, the bigger the force.

If the field is increased, the force will also

Many devices use the motor effect to, Examples of these are dryers and players.

Task 2:

Unscramble the words in the box and write them in the blanks.

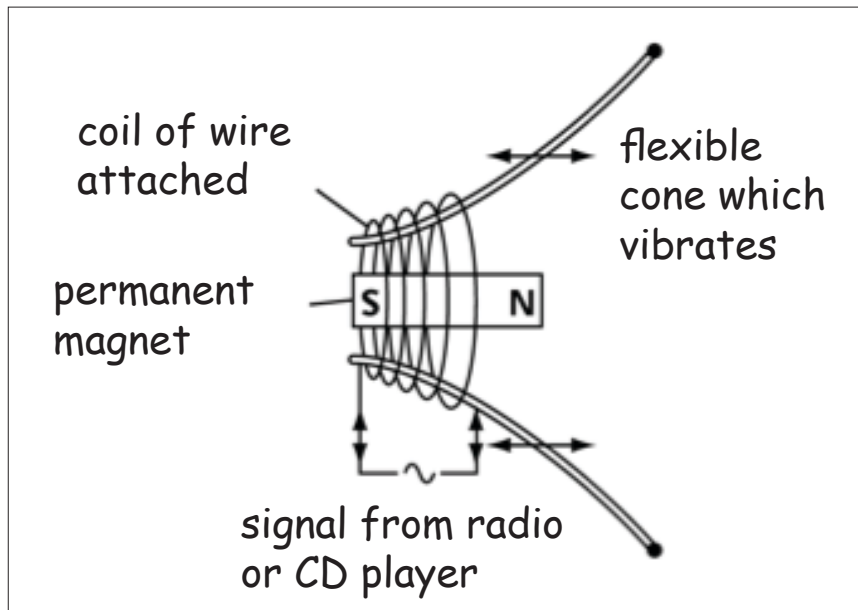
ogng

ucernrt

mtoro

- 1 The makes a loud noise due to the metal arm hitting it.
- 2 A through a wire in a magnetic field produces force.
- 3 You find a in almost everything that is electrical.





A loudspeaker uses electromagnetism to make sound waves. The force makes the cone of the speaker move and this magnifies the sound.

Task 3:

Draw lines to match the two parts. Then, write the full sentences below.

- | | | |
|---|---|--|
| ① The current in the coil | ← | a) and forwards which makes sound waves. |
| ② The two magnetic fields | ← | b) has a magnetic field around it. |
| ③ When the current flows the other way, | ← | e) produce a force. |
| ④ The forces make the cone move backwards | ← | d) the force is in the opposite direction. |

Write your sentences below:

- ①
- ②
- ③
- ④

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