

GRADE: VI
SUBJECT - SCIENCE
UNIT 9

ASSIGNMENT 1

DATE: 22 JUNE 2020

Investigating falling

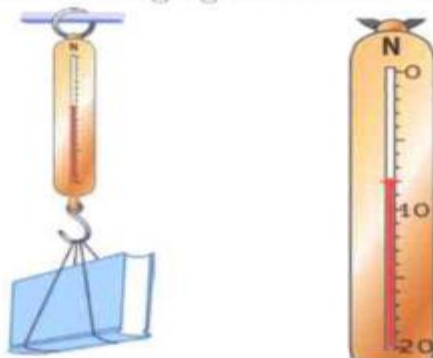
In this activity, you will measure the time it takes for different objects to fall to the floor.

- 1 Find a selection of objects which you can safely drop, for example, a marble, a shuttlecock, a rubber ball, a pebble, a crumpled sheet of paper, a table tennis ball.
- 2 Use a stopwatch to time each falling object. You must start timing when the object is released and stop when it reaches the floor. Try this out and find the best way to do it.
- 3 Before you start your investigation, think about these things.
 - All the objects should fall from the same height. Why?
 - The greater the height, the better. Why?
 - Put your objects in order, starting with the one you think will fall in the shortest time. Discuss your ideas with your partners.
- 4 Draw up a table to show your results: for each object, record the distance it has fallen and the time taken. To be more sure of your answers, time each fall three times and find the mean. (This means that your table will need six columns.)
- 5 Now make your measurements.
- 6 Study your completed table of results. Do some objects fall more slowly than others? Do they show the pattern you predicted?
- 7 Try to explain your findings using ideas about forces (weight and air resistance). It will also help if you think about the result of Galileo's experiments.



Measuring the time taken for an object to fall.

The drawing shows a book hanging from a forcemeter.

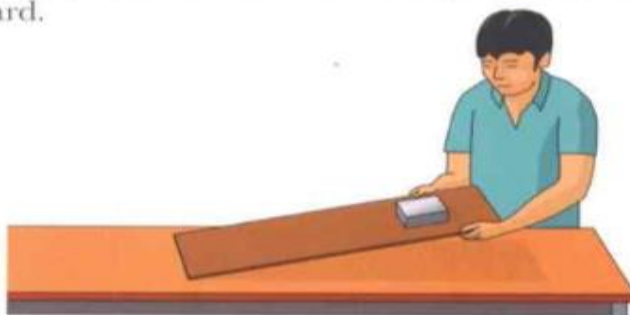


What is the weight of the book? Give the value and the unit.

The Earth's gravity pulls with a force of 10 N on each kilogram of an object's mass.

Calculate the weight of a 15 kg sack of potatoes.

Jon is investigating the force of friction acting on a metal block as it slides on a wooden board.



a Here are steps **1** to **4** in his method. They are in the wrong order.

- He stops lifting the board when the block starts to slip.
- He places the block on the board.
- He measures the angle of the board.
- He carefully lifts the end of the board upwards.

Write the steps in the correct order, numbering them from **1** to **4**.



b Jon wants to know how the force of friction will change when he changes the surface of the board.

He spreads a thin layer of cooking oil over the board. Then he repeats the experiment.

What will happen to the angle at which the block slips? Choose one answer.

- The angle will stay the same.
- The angle will decrease.
- The angle will increase.

EXPLAIN YOUR ANSWER

 Cambridge Assessment International Education	 <i>The Revival of Tradition</i>	
GRADE: 6	SUBJECT: SCIENCE	DATE: JUNE 29
WORKSHEET NUMBER: 10	WORKSHEET TOPIC: UNIT 6: MATERIAL PROPERTIES	
INSTRUCTION (IF ANY):		

LINK: <https://youtu.be/AJbe5THaNuU>

LINK: <https://youtu.be/PHu8hQBtPcY>



What you need to know:

- What is a metal?
- What are the physical properties of metals?
- Why are metals useful?

-
- Elements can be classified as metals and non-metals on the basis of their properties.
 - Example of some metals are :
Iron (Fe), Aluminium (Al), Silver (Ag), Copper (Cu)
 - Examples of some non-metals are :
Hydrogen (H), Nitrogen (N), Sulphur (S), Oxygen (O)

Metal is defined as a solid material which is typically hard, shiny, malleable, fusible, and ductile, with good electrical and thermal conductivity (e.g. iron, gold, silver, and aluminium, and alloys such as steel).

Physical Properties of Metals

- 1. Ductile**
- 2. Malleable**
- 3. Good conductors of electricity**
- 4. Good conductors of heat**
- 5. Shiny**
- 6. High melting points & boiling points**
- 7. High density**
- 8. Strength**

Non Metals

- Non metals may be solids, liquids or gases. (Solids – Carbon, Sulphur, Phosphorus etc. Liquid – Bromine, Gases – Oxygen, Hydrogen, Nitrogen etc.)
- Non metals are soft. (except diamond which is the hardest natural substance)
- Non metals do not have lustre.(except iodine crystals)
- Non metals are not malleable.
- Non metals are not ductile.
- Non metals which are solids and liquids have low melting points.
- Non metals which are solids and liquids have low boiling points.
- Non metals are bad conductors of heat.
- Non metals are bad conductors of electricity. (except graphite)
- Non metals are not sonorus.

Property	Metals	Non-Metals
Lustre (metallic shine)	All metals have lustre	Have no lustre (except Iodine and Graphite)
Hardness	Very hard (except sodium and potassium)	Not hard (except Diamond- hardest substance)
Malleability (property due to which a substance can be beaten into sheets)	Highly malleable (except Zinc, Antimony and Arsenic)	Non malleable
Ductility (property by which a substance can be drawn into wire)	Ductile (except Zinc, Arsenic and Antimony)	Non ductile (except Carbon fiber)
Conductivity	Good conductor of heat and electricity (except Bismuth and Tungsten)	Bad conductor of heat and electricity. (except Graphite and gas carbon)
State	Solid (except Mercury and Gallium)	Solid, liquid or gas
Density	High density (except sodium and potassium)	Low density (except diamond)



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The Revival of Tradition



GRADE: 6	SUBJECT: SCIENCE	DATE: JULY 3
WORKSHEET NUMBER: 11	WORKSHEET TOPIC: UNIT:6, MATERIAL PROPERTIES	
INSTRUCTION (IF ANY):	https://youtu.be/XnkQcP-RHCw :link for video	

6.1 Metals

Questions

- 1 List **ten** metals.
- 2 Why are gold and platinum used for jewellery?
- 3 Why is copper so useful?
- 4 What are Olympic medals made from?
- 5 What do 'malleable' and 'ductile' mean?

6.2 Non-metals



Sulfur is added to rubber to make it hard.



Pure oxygen is used in hospitals for people with breathing difficulties.



The balloons are filled with helium.



Chlorine is used to kill bacteria.

Questions

- 1 Name **five** non-metals, other than sulfur and helium.
- 2 What is sulfur used for?
- 3 What property of the gas helium makes it useful in balloons?

6.3 Comparing materials

Metals

- Most are solid at room temperature.
- They are shiny.
- They do not shatter.
- They conduct heat energy well.
- They conduct electricity.
- They are malleable.
- They are ductile.
- They make a ringing sound when hit.

Non-metals

- Many are gases at room temperature.
- They are dull.
- They are brittle.
- They do not conduct heat energy well.
- Most do not conduct electricity.

Questions

- 1 List **five** objects in the photograph that are made of metal and **five** that are made of a non-metal.
- 2 A material is dull, brittle and does not conduct electricity. Is it a metal or a non-metal?
- 3 Mercury is a metal. Why is it unusual?

6.4 Everyday materials



Plastics come in many different types, with different properties. Some plastics are **flexible**, lightweight and easily shaped.



Fibres can be natural (made from living materials, such as silk or cotton) or **synthetic** (made from other chemicals). Fibres are tiny threads so they can be strong and bendy.



Ceramics can withstand high temperatures. They are hard, brittle and very strong. Ceramics are used for floor tiles, sinks and the tiles on the outside of the space shuttle.



Glass is **transparent** or **translucent**. It is hard but very brittle. It can be coloured.

Questions

- 1 **a** Give **two** properties that glass and plastic always share.
b Give **two** properties that glass and plastic sometimes share.
- 2 What advantages do bottles made from plastic have?
- 3 What disadvantages are there when you use plastic bottles?
- 4 Why are plastic bowls not used for heating on a cooker?
- 5 Look at the photographs of the toys. Which type of material is most suitable for making a toy for a baby? Give reasons for your choice.
- 6 What are the disadvantages of using metal for a toy for a baby?
- 7 Why is plastic often used for children's toys?
- 8 What properties would you look for in materials to make a kite?



Toys made from different materials.

GRADE: 6	SUBJECT: SCIENCE	DATE: JULY 6
WORKSHEET NUMBER: 12	WORKSHEET TOPIC: UNIT 6: QUESTIONS AND ANSWERS	
INSTRUCTION (IF ANY):		

Unit 6 End of unit questions

- 6.1 a Copy the paragraph and choose words from the list to complete it. Each word may be used once, more than once or not at all.

brittle conduct cut ductile
electricity malleable metal ring

Metals are shiny when freshly or polished. They are

strong and if you tap them they like a bell.

Metals heat energy and

Metals are, which means they can be beaten into shape.

They are, which means they can be drawn out into wires. [6]

- b State **three** differences between metals and non-metals. [3]

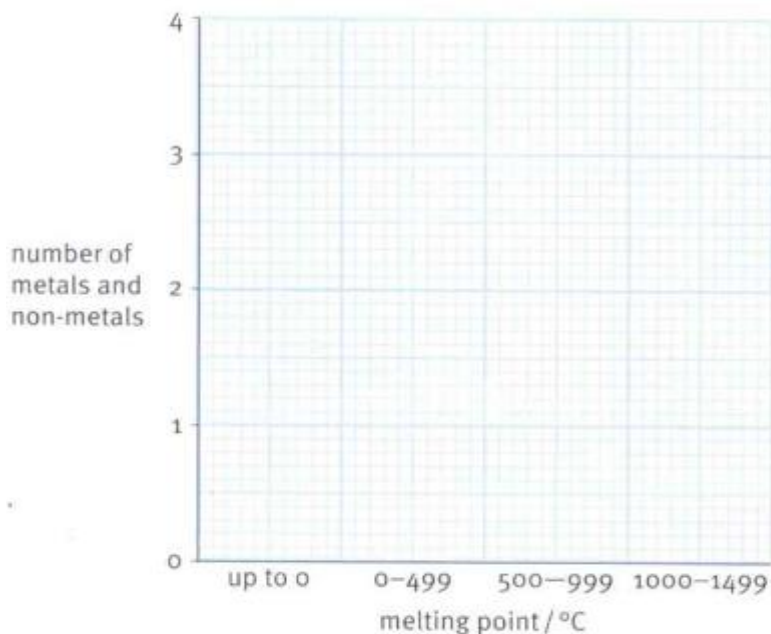
- 6.2 The table gives information about the melting points and boiling points of some metals and non-metals.

Substance	Melting point / °C	Boiling point / °C
gold	1064	2850
lead	328	1750
copper	1082	2580
helium	-270	-269
oxygen	-219	-183
mercury	-39	357
aluminium	660	2400
nickel	1455	2150
sulfur	119	445
sodium	98	900

- a Copy and complete the tally charts below.

up to 0	
0 to 499	
500 to 999	
1000 to 1499	

Boiling point / °C	Tally
up to 0	
0 to 999	
1000 to 1999	
2000 to 2999	



- b** Plot the tallied figures on two separate frequency diagrams. [6]
- c** Which metals and/or non-metals are gases at a room temperature of 25 °C? [1]
- d** Which metals and/or non-metals are liquid at a room temperature of 25 °C? [1]
- e** Which metals and/or non-metals are solid at a room temperature of 25 °C? [2]
- f** Which metal or non-metal has the smallest difference between its melting point and its boiling point? [1]
- g** Which metal or non-metal has the largest difference between its melting point [1]

6.3 For each of the statements below choose **one** of the materials from the list. Each material may be used once, more than once or not at all.

aluminium glass gold helium mercury
 paper plastic steel straw wood

- a** This metal is very strong and is used to build bridges.
- b** This metal is used for jewellery because it stays shiny and can be made into many shapes.
- c** This is not a metal and is lightweight. It can be used for making bottles.
- d** This metal is very light and is used for building aircraft.
- e** This is not a metal and can be used for making the roofs of houses.
- f** This material is made from wood and can be made into thin sheets. You can write on it.

GRADE: 6	SUBJECT: science	DATE: July 13
WORKSHEET NUMBER:13	WORKSHEET TOPIC: Unit 7-Material changes	
INSTRUCTION (IF ANY):	WATCH VIDEO AND MAKE NOTES	

LINK FOR VIDEO: <https://youtu.be/i2x4foEuRcl>



ACID

- Chemical compounds found naturally in plants or derived from minerals.
- **E.g.** : citric acid, sulphuric acid etc.
- The sour taste of many fruits and vegetables, lemon for instance, is due to various types of acids present in them.
- The word '**acid**' is derived from a Latin word, which means "**sour**".
- **Uses** : manufacture of dyes, drugs, paints, fertilizer, as a food preservative, in soft drinks, in cooking.

BASES

- They are oxides or hydroxides of metals.
- Soluble bases are called alkali.
- **E.g.**: Sodium hydroxide, copper oxide.
- They are **bitter** in taste and **soapy** to touch.
- Sea water and detergents are some examples of substances that are basic.
- **Uses**: manufacture of soap, batteries and preparation of mortar

SALTS

- They are the **ionic compound** formed when an acid reacts with a base.
- **E.g.**: sodium chloride, zinc chloride etc.
- **Uses** : as food preservative, in freezing mixture, in cooking food, manufacture of fertilizers

Neutralization Reaction

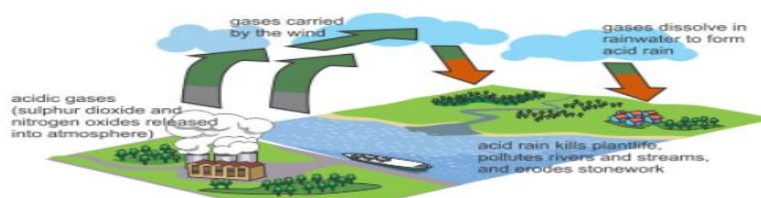
A chemical reaction in which an **acid** and a **base** react, resulting in the formation of a **salt** is called a **neutralization reaction**.



Examples in everyday life

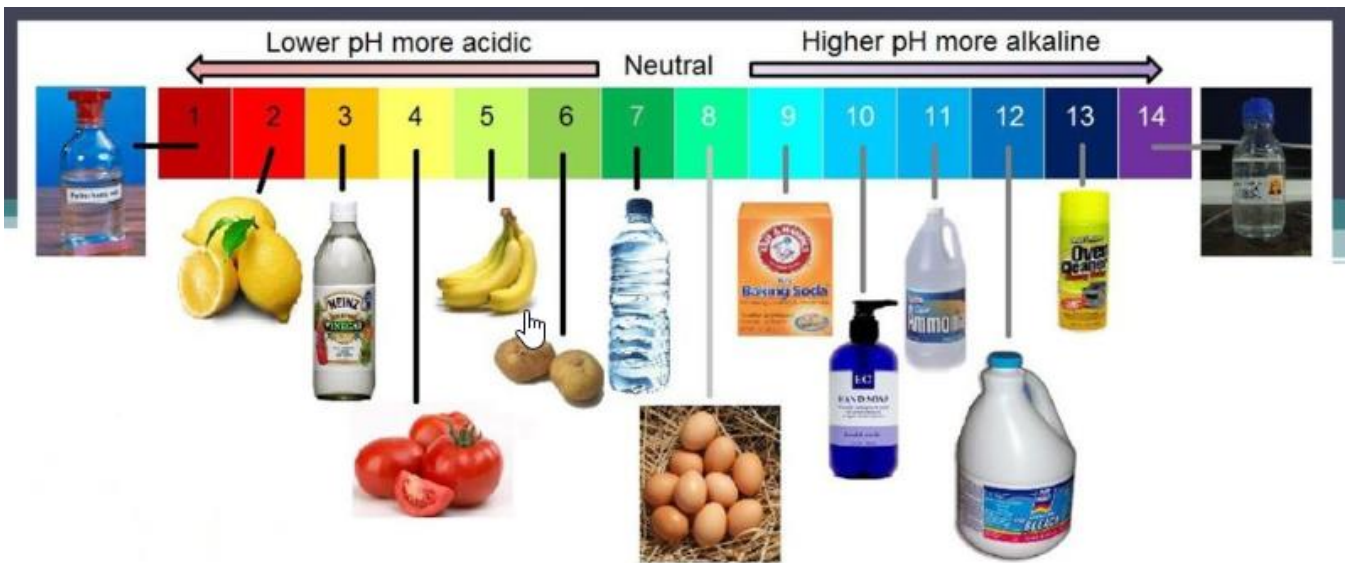
- Gastric acid (excess) is neutralized by antacids
- **Formic acid** of red ant bite is neutralized by rubbing moist **baking soda** or **boric powder**
- When soil becomes acidic, its treated with base to neutralize

Acid Rain



INDICATORS

- Indicators are substances that show different colors in an acidic and a basic medium.



	Indicator	Smell/Colour in acidic solution	Smell/Colour in basic solution
Natural Indicator	Litmus	Red	Blue
	Red cabbage leaf extract	Red	Green
	Flower of Hydrangea Plant	Blue	Pink
	Turmeric	No Change	Red
Synthetic Indicator	Phenolphthalein	Colourless	Pink
	Methyl orange	Red	Yellow

Imagine you are the owner of a factory making shirts. You are going to make a new design of shirt to be worn in a tropical climate.

The table below shows some properties of three materials that you could use – **A, B and C.**

	Material A	Material B	Material C
Cost	expensive	very cheap	cheap
Easy to make?	very easy	very difficult because the material slides about	easy
Easy to wash?	very easy	easy	easy
Does it dye well?	very well	patchy	fairly well
Keeps colour after washing ten times?	no fading	very faded	slight fading
Drying time	fast	very fast	slowest
Can sweat evaporate from the skin through the material?	yes	no	yes

a Which material would you choose to use to make the shirts?




.....

b Explain the reasons for your choice.

.....

Write **mass** or **weight** next to each statement in the second column of this table.

Statement	Mass or weight?
the force of gravity acting on an object	
measured in kilograms	
gets much less if you go to the Moon	
can be represented by a force arrow	
measured in newtons (N)	
'Add 50 g of salt to 1 kg of water.'	
stays the same even if you are far out in space	
5 apples are about 5 N	

 Cambridge Assessment International Education		
GRADE: 6	SUBJECT: SCIENCE	DATE: August 7
WORKSHEET NUMBER: 15	WORKSHEET TOPIC: Ph scale and Neutralisation Reaction	
INSTRUCTION (IF ANY):		

<https://youtu.be/Ne8xQ4LGLf0> : LINK FOR VIDEO

7.3 The pH scale

Questions

- 1 What does the pH scale measure?
- 2 What is the pH of a neutral solution?
- 3 A liquid has a pH of 1. What type of liquid is it?
- 4 What range of pH do strong alkalis have?
- 5 What colour does Universal Indicator go in a liquid with a pH of 9?
- 6 Which colours does Universal Indicator go in acids?

7.4 Neutralisation

<https://youtu.be/RmnT9jwX4gQ> : LINK FOR VIDEO

Questions

- 1 What colour is Universal Indicator when the solution is neutral?
- 2 What sort of reaction happens when an acid and an alkali are mixed?

How does the rainbow happen in the test tube?

At the bottom of the tube

The washing soda has dissolved in the water around it. The Universal Indicator is purple or dark blue around the washing soda. The washing soda solution is a strong alkali. The particles of washing soda gradually move up the test tube. They mix with more water and the Universal Indicator turns a lighter blue. This shows it is more weakly alkaline.

At the top of the tube

The acid has turned the Universal Indicator red at the top of the tube. This shows it is strongly acidic. The acid particles gradually move down the tube. They mix with more water and the Universal Indicator turns yellow. This is more weakly acidic.

In the middle of the tube

The acid and the washing soda solution mix. The Universal Indicator is green. The washing soda solution and acid have neutralised each other.



The experiment in Activity 7.4 after a few days.

Questions

- 3 What is the pH of the top part of the test tube?
- 4 What is the pH of the bottom of the test tube?
- 5 Which is the most alkaline part of the tube?

7.5 Neutralisation in action

<https://youtu.be/r3hirzIWILM> :LINK FOR VIDEO

Questions

A+I

- 1 Why is toothpaste alkaline?
- 2 Where does the acid in your mouth come from?

Questions

A+I

- 3 Why is an alkaline substance dropped into lakes in some countries?
- 4 What do farmers spread onto acidic soil? Explain why they do this.

EXPLAIN WHY THEY DID THIS?

Topic 7.3 The pH scale

- 1 The pH scale measures how acidic or alkaline a liquid is.
- 2 A neutral solution is pH 7.
- 3 A liquid with a pH of 1 is a strong acid.
- 4 11 to 14
- 5 Universal Indicator goes blue in a liquid with a pH of 9.
- 6 Universal Indicator goes red, orange and yellow in acids.

Activity 7.3 Investigating the pH of different substances




Liquid	Colour of Universal Indicator	pH	Type of liquid
lemon juice	<i>yellow</i>	4	weakly acidic
salt water	green	7	<i>neutral</i>
soap solution	<i>blue</i>	8	weakly alkaline
cola drink	yellow	4	<i>weakly acidic</i>

Topic 7.4 Neutralisation

- 1 Universal Indicator is green in a neutral solution.
 - 2 A neutralisation reaction happens when an acid and an alkali are mixed.
-
- 3 The pH of the top part of the test tube is about 2.
 - 4 The pH of the bottom of the test tube is about 13.
 - 5 The most alkaline part of the tube is the bottom.

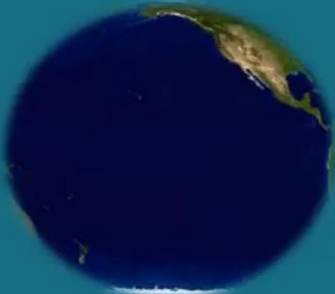
Topic 7.5 Neutralisation in action

- 1** Toothpaste is alkaline so that it can neutralise acid in your mouth, and help to stop your teeth decaying.
- 2** The acid in your mouth comes from the millions of bacteria there. When the bacteria feed they produce the acid.
- 3** Alkaline substances are dropped into lakes because they have become too acidic for the plants and animals to live there, perhaps as a result of acid rain.
- 4** Farmers spread lime (calcium oxide or calcium hydroxide) onto acidic soil to neutralise it. They do this so that crops that prefer less acidic soil will grow well.

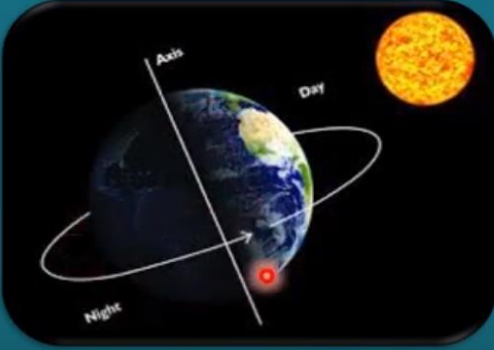
 <p>Cambridge Assessment International Education</p>		
<p>GRADE: 6</p>	<p>SUBJECT: SCIENCE</p>	<p>DATE: 10AUGUST</p>
<p>WORKSHEET NUMBER: 16</p>	<p>WORKSHEET TOPIC:UNIT 11, THE EARTH AND BEYOND</p>	
<p>INSTRUCTION (IF ANY):</p>		

<https://youtu.be/iD9J2LCnIWw> -the earth and beyond-part 1

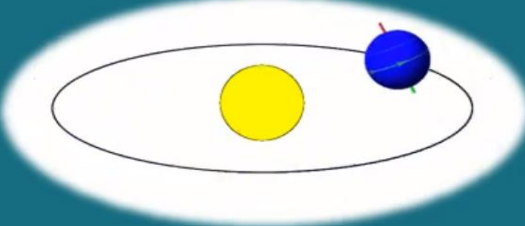
ROTATION



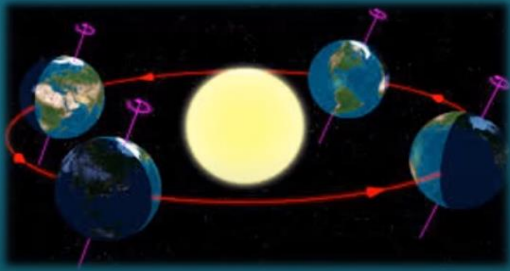
- The axis is a tilted imaginary line which runs through the centre of the Earth.
- The Earth rotates from west to east.



REVOLUTION

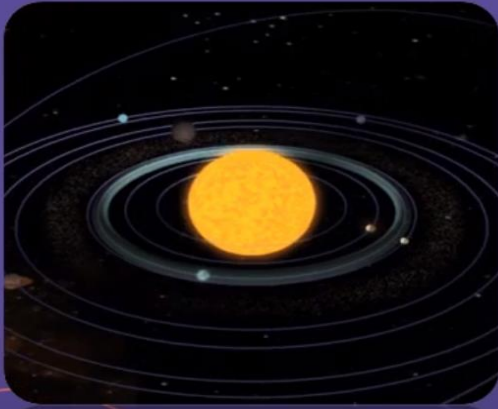


- All the planets move around the Sun in a fixed path called orbit.
- The Earth takes about 365 days and 6 hours to one revolution around the Sun.



<https://youtu.be/ZKLItUMp6BY> -The earth and beyond -part 2

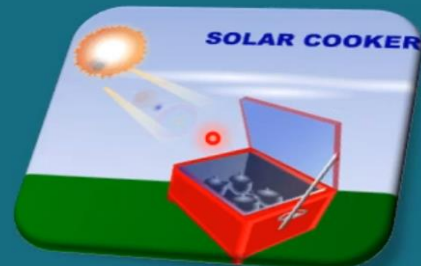
SUN



- *The Sun lies at the centre of our solar system.*
- *The Earth is at the right distance from the Sun for life to exist.*



- *The energy generated from sunlight is called solar energy.*
- *It is used for many purposes like generating electricity, cooking food, heating water and drying products.*



MOON



- *The Moon is the Earth's only natural satellite.*
- *The Moon does not have light of its own.*
- *Its surface reflects the light from the Sun.*





PHASES OF THE MOON

29
Days



STARS

- Stars are huge balls of fire and gases.
- The Pole star is almost straight above the Earth's North Pole.

COURSEBOOK Question of lesson 11.1,11.2

11.1 Day and night

Questions

- 1 Which word means 'scientists who study space'?
- 2 Nadia says, 'We see the Sun during the day and the Moon at night.' Is she correct? Explain your answer.

Questions

A+I

- 3 If your part of the Earth is turned away from the Sun, is it day or night?
- 4 Look at the picture of the Earth turning. Who will see the Sun rise first, someone in India or someone in Australia?



11.2 The starry skies

Questions

A+I

1 Each star follows a path across the sky from east to west, just like the Sun. Suggest an explanation for this.

A+I

2 Look at the photograph of the star tracks. How can you tell that some stars are brighter than others?

Question

3 Orion cannot be seen in July. Make a simple copy of the diagram and mark where you think Orion is in July.

ANSWERS

Topic 11.1 Day and night

- 1 astronomers
- 2 Incorrect; the Moon can often be seen in the sky during the day.
- 3 night
- 4 someone in Australia

Topic 11.2 The starry skies

- 1 The stars appear to move from east to west because the Earth is turning from west to east.
- 2 Some star tracks are brighter than others.
- 3 To find the position of Orion in July, draw a line from the Earth's July position, through the Sun, and out beyond the Earth's January position.

ASSIGNMENT :1

UNIT :1

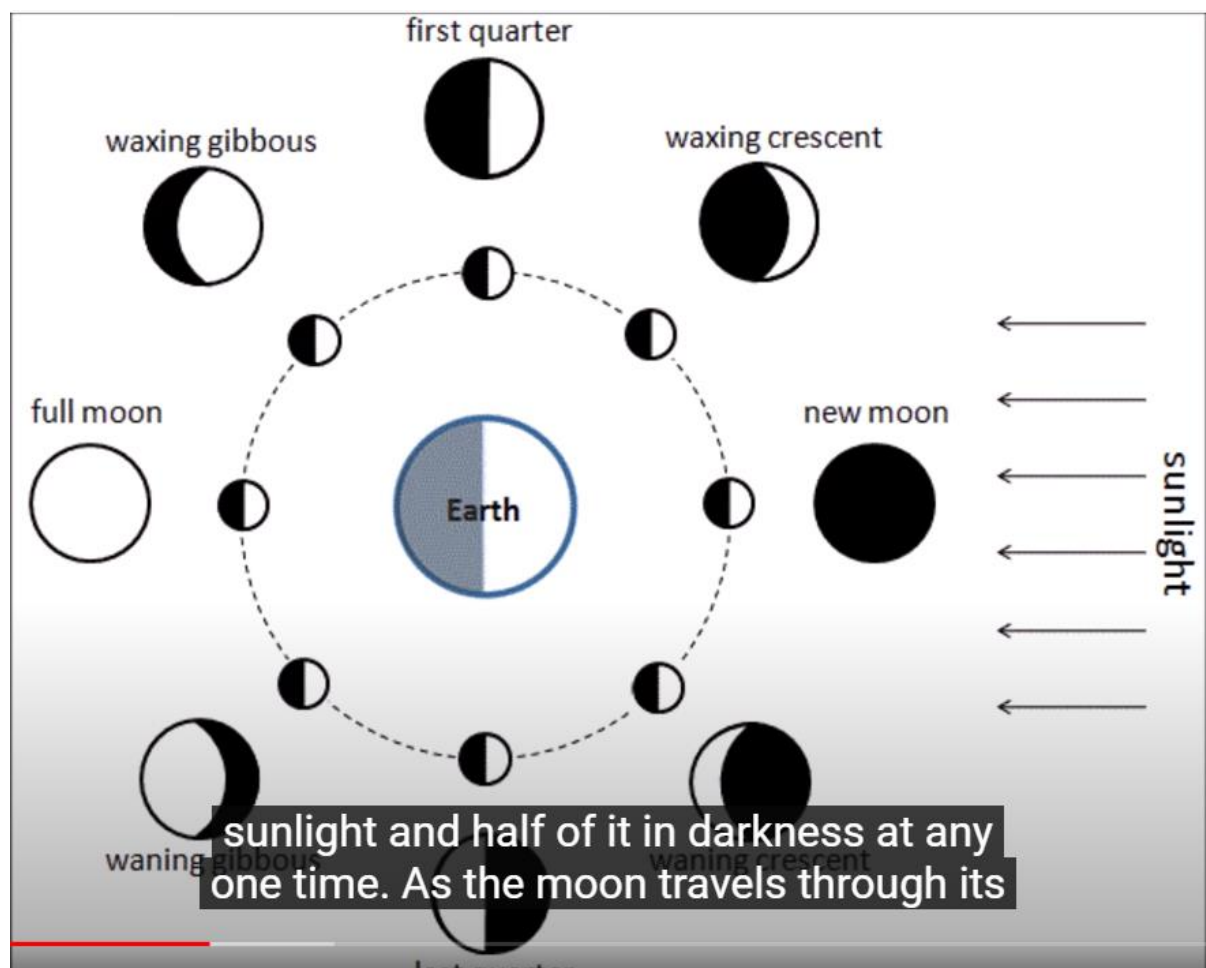
LESSON :11.3,11.4,115

DATE:AUGUST 17

<https://youtu.be/libKVRa01L8> : link for The moving planet



<https://youtu.be/f4ZHdZl6ZWg> ;LINK FOR PHASES OF MOON



ANSWER OF 11.3 ,11.4, 11.5

Topic 11.3 The moving planets

- 1 Earth
- 2 Saturn
- 3 To remember the order of the planets: each word starts with the same letter as a planet, in order from the Sun.
- 4 Uranus and Neptune are too far away and therefore too faint to be seen with the naked eye. Telescopes are needed to see them.

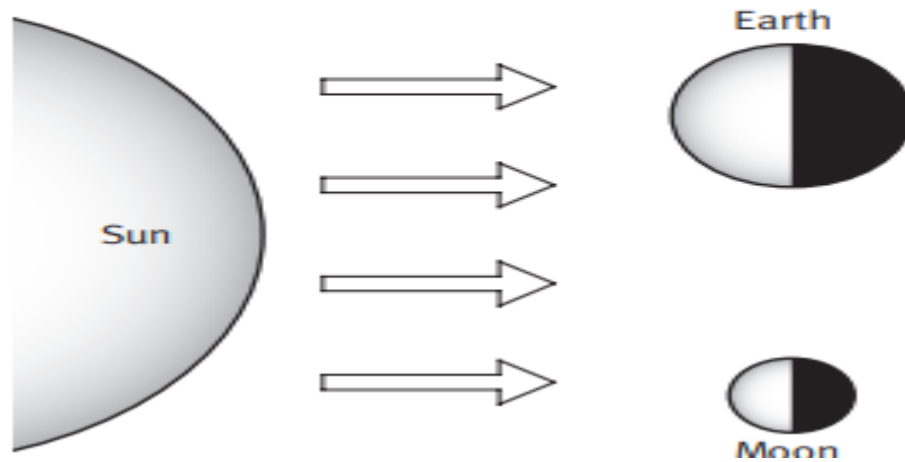
Topic 11.4 Seeing stars and planets

- 1 The Sun is the nearest star to the Earth.
- 2 From Neptune, the Sun would look much smaller.
- 3 reflects

Topic 11.5 The Moon and its phases

1 four weeks

2



Topic 11.6 A revolution in astronomy

- 1 For example: geography (the study of the Earth); geology (the study of the Earth's rocks).
- 2 Mercury, Venus, Earth, Mars, Jupiter, Saturn
- 3 the Moon

ASSIGNMENT 2

UNIT 11.6 ,11.7 11.8 & End of unit question Date: August21

11.6 A revolution in astronomy

Topic 11.6 A revolution in astronomy

- 1 For example: geography (the study of the Earth); geology (the study of the Earth's rocks).
- 2 Mercury, Venus, Earth, Mars, Jupiter, Saturn
- 3 the Moon

11.7 400 years of astronomy

Topic 11.7 400 years of astronomy

- 1 Asteroid, planet, star, the solar system, galaxy, the Universe
- 2 the Big Bang
- 3 13.7 billion years

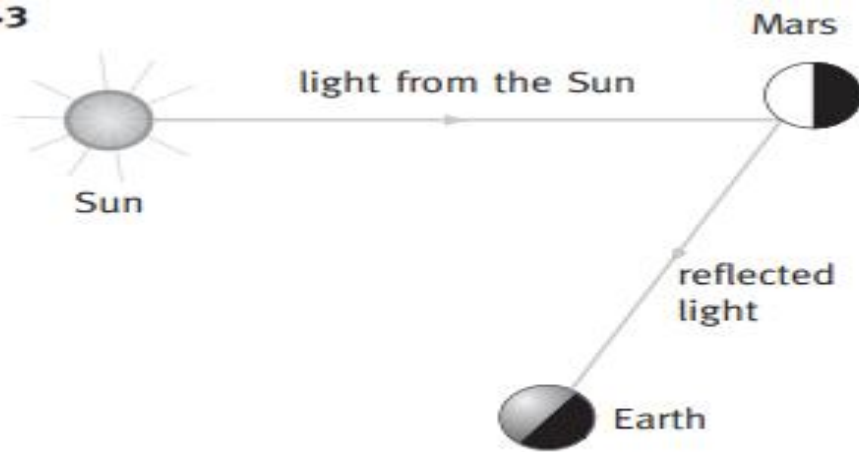
Topic 11.8 Journey into space

- 1 water, food, toilets, washing facilities, sleeping quarters
- 2 chemical
- 3 gravitational potential
- 4 On the Moon, there is no atmosphere so no air to breathe.

End of unit questions

- 11.1 a** the East [1]
b The Earth turns around once every day. [1]
c The stars appear to move steadily across the sky at night, from east to west. [2]
- 11.2 a** Earth
b Milky Way
c Sun
d Earth, Jupiter
e Sun, Milky Way
f Sun, Moon, Earth, Jupiter

11.3



Ray from Sun to Mars, from Mars to Earth

[2]