



पुर्णिमा International School

Shree Swaminarayan Gurukul, Zundal

CLASS - VIII

SUBJECT - SCIENCE

[SAMPLE PLAN]

**TEXTBOOK OF SCIENCE
(NCERT PUBLICATIONS)**

JUNE - JULY

SESSION - 2021 - 2022

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		CH – 2 MICROORGANISMS : FRIEND AND FOE
		CH – 3 SYNTHETIC FIBRES AND PLASTIC
2.	JUNE – JULY	CH – 4 MATERIALS: METALS AND NON METALS
		CH - 5 COAL AND PETROLEUM
3.	AUGUST	CH – 6 COMBUSTION AND FLAME
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CLASS - 8
SUB - SCIENCE

CH - 4 METALS AND NON-METALS

Q1. Tick the correct option –

i. Which of the following can be beaten into thin sheets ?

- a) Zinc b) Phosphorus c) Sulphur d) Oxygen

Ans – (a) Zinc

ii. Which of the following statements is correct?

- (a) All metals are ductile.
(b) All non-metals are ductile.
(c) Generally, metals are ductile.
(d) Some non-metals are ductile.

Ans - (c) Generally, metals are ductile

iii. Metals are generally solid. Which of the following metals is in the liquid state at room temperature ?

- a) Mercury b) Silver c) Aluminum d) Sodium

Ans – a) Mercury

Q 2. Fill the blanks -

- i. Phosphorus is a very reactive non-metal.
ii. Metals are good conductors of heat and electricity.
iii. Iron is more reactive than copper.
iv. Metals react with acids to produce hydrogen gas.

Q 3. Mark 'T' if the statement is true and 'F' if it is false.

- i. **Generally, non-metals react with acids. (False)**
ii. **Sodium is a very reactive metal. (True)**
iii. **Copper displaces zinc from zinc sulphate solution. (False)**
iv. **Coal can be drawn into wires. (False)**

Q 4. Answer in one or two word –

i. Name two soft metals which can be cut with a knife.

Ans. (i) sodium (ii) potassium

ii. Which non-metal is essential for our life and all living beings inhale it during breathing?

Ans. Oxygen gas

iii. Name two major non-metals which are present in fertilisers and enhance the growth of plants.

Ans. (i) nitrogen (ii) phosphorus

iv. Which non-metal is used to disinfect water?

Ans. Chlorine

v. Which of the following metals can displace the other two metals from their salt solutions?

zinc, iron, copper

Ans. Zinc

Q 5. Short Answer questions –

i. Why are bells made of metals?

Ans. Bells are made of metal because metals are sonorous (produce sound while strike on it).

ii. In the Fig you find that the bulb glows when an iron nail is placed between two ends of wire. Complete the following sentences on the bases of this fact.



(a) _____ is a metal.

(b) Metals are good _____ of electricity.

Ans. (a) iron (b) conductor

iii. Can you store pickle in an aluminium utensil? Explain.

Ans. Aluminium is a metal. Metals are more reactive with acids. So acidic foodstuffs like lemon pickles can not be stored in aluminium utensils.

iv. List the uses non-metals.

Ans. Non-metals are

- a. Essential for our life which all living beings inhale during breathing.
- b. Used in fertilisers to enhance the growth of plants.
- c. Used in water purification process.
- d. Used in the purple coloured solution which is applied on wounds as an antiseptic.
- e. Used in crackers.

Q 6 . Long Answer questions–

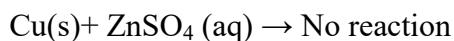
i. Give reasons for the following.

- (a) Aluminium foils are used to wrap food items.**
- (b) Immersion rods for heating liquids are made up of metallic substances.**
- (c) Copper cannot displace zinc from its salt solution.**
- (d) Sodium and potassium are stored in kerosene.**

Ans. (a) Aluminium is one of the least reactive metals, so it does not react with food items and does not alter the taste. Moreover, being a metal; aluminium is highly malleable and can be made into very thin foils which are perfect for wrapping food.

(b) Immersion rods for heating liquids are made up of metallic substances because metals are good conductors of heat and electricity. The immersion rod needs electric supply to get heated and in turn to heat liquids.

(c) A metal can displace a less reactive metal from its salt in an aqueous solution. But zinc is more reactive than copper. Therefore, copper cannot displace zinc from its salt solution.



(d) Sodium and potassium are highly reactive metals. If kept in open, they readily react with oxygen in the atmosphere. The reaction is so quick and that sodium and potassium easily catch fire when exposed to air. To prevent accidental fire, they are stored in kerosene.

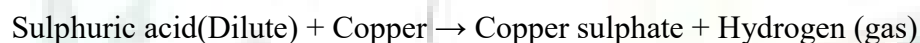
ii. What happens when

(a) Dilute Sulphuric acid is poured on a copper plate?

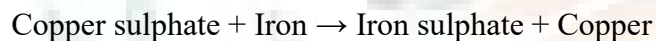
(b) Iron nails are placed in copper sulphate solution?

Write word equations of the reactions involved.

Ans. (a) When dilute sulphuric acid is poured on a copper plate, bubbles appear on the surface of plate. This happens because sulphuric acid reacts with copper to produce hydrogen gas. This can be shown by following equation:



(b) When iron nails are placed in copper sulphate solution, the blue colour of copper sulphate solution fades and turns into light green. This happens because iron displaces copper from copper sulphate solution. This can be shown by following equation:



iii. Write any five difference between - metals and non-metals.

Metals	Non-Metals
They are lustrous in appearance.	They are not lustrous in appearance.
They are sonorous, i.e. they produce a typical metallic sound when hit with something.	They are not sonorous.
They are good conductors of heat and electricity.	Non-metals are bad conductors of heat and electricity.
They are malleable and ductile in nature.	They are not malleable and ductile in nature.
Iron, copper, aluminium etc. are examples of metals.	Coal, pencil, sulphur etc. are examples of non-metals.

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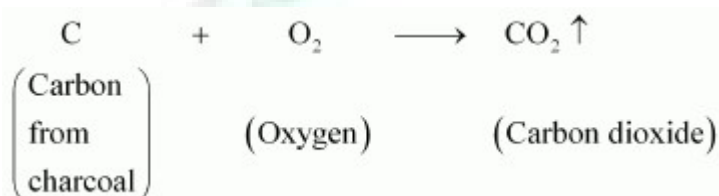
i. Saloni took a piece of burning charcoal and collected the gas evolved in a test tube.

(a) How will she find the nature of the gas?

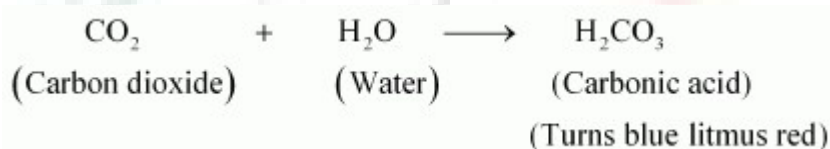
(b) Write down word equations of all the reactions taking place in this process.

Ans - (a) Add a few drops of water in the test tube containing gas. Now, cover the test tube and shake it well. After shaking, test the solution with blue litmus and red litmus. It will turn blue litmus red. Thus, the gas is acidic in nature.

(b) Charcoal reacts with oxygen to form carbon dioxide gas.



Carbon dioxide reacts with water to form carbonic acid, which turns blue litmus paper red.

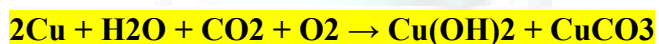


ii. One day Reeta went to a jeweller's shop with her mother. Her mother gave an old gold jewellery to the goldsmith to polish. Next day when they brought the jewellery back, they found that there was a slight loss in its weight. Can you suggest a reason for the loss in weight?

Ans - To polish a gold ornament, it is dipped in a liquid called aqua regia (a mixture of hydrochloric acid and nitric acid). On getting the environment of aqua regia, the outer layer of gold dissolves and the inner shiny layer appears. The dissolving of the layer causes a reduction in the weight of the jewellery.

iii. A greenish deposit is found on copper substance if it is exposed to moist air for a long time. Why?

Ans. This is because when a copper substance is exposed to moist air, copper reacts to water, carbon dioxide and oxygen and forms hydroxide and carbonate of copper. The green coat is a mixture of copper hydroxide and copper carbonate.



iv. Why is sodium always stored in kerosene?

Ans. Sodium metal is very reactive. It reacts vigorously with oxygen and water. A lot of heat is generated in the reaction. It is, therefore, stored in kerosene.

CH – 5 COAL AND PETROLEUM

Q1. Tick the correct options –

i) Ignition temperature is the lowest temperature at which a substance catches fire. Identify the correct option regarding the ignition temperature of a good fuel.

- A. Ignition temperature below room temperature
- B. Ignition temperature above room temperature
- C. Ignition temperature equal to 100°C
- D. Ignition temperature equal to room temperature

Ans - (B) Ignition temperature above room temperature

ii. Combustion of a substance releases heat and ____.

- A. oxygen
- B. wood
- C. light
- D. water

Ans - (C) light

iii. The suspended particles released by combustion of coal in air may lead to a health disease. Select the correct option.

- A. Goitre
- B. Arthritis
- C. Asthma
- D. Bone cancer

Ans - (C) Asthma

iv. How many naturally occurring elements are there?

- a). 81
- b) 69
- c). 94
- d) 42

Ans. C) 94

Q2. Fill in the blanks.

i Fossil fuels are Coal, Petroleum and Natural gas.

ii. Process of separation of different constituents from petroleum is called Refining.

iii. Least polluting fuel for vehicle is CNG.

Q 3. . Tick true/False against the following statements.

- i.** Fossil fuels can be made in the laboratory. (False)

- ii. CNG is more polluting fuel than petrol. (False)
- iii. Coke is almost pure form of carbon. (True)
- iv. Coal tar is a mixture of various substances. (True)
- v. Kerosene is not a fossil fuel. (False)

Q 4. Short answer questions –

i. What does CNG stand for and why is it considered to be a better fuel than petrol?

Ans. CNG stands for Compressed Natural Gas. It is considered to be a better fuel because it creates less pollution on heating or burning.

ii. Name the petroleum product used as fuel for stoves, lamps and jet aircrafts.

Ans. Kerosene is used as fuel for stoves, lamps and jet aircrafts.

iii. Write two important uses of coke.

Ans. It is used for the manufacture of steel and also in extraction of many metals.

iv. Some natural resources are given in a box. Classify them into the exhaustible and inexhaustible natural resources.

air, coal, natural gas, sunlight, petroleum, minerals, forests, oxygen.

Ans. Exhaustible natural resources are coal, natural gas, petroleum, minerals, forests. Inexhaustible natural resources are air, sunlight, oxygen.

iv. Name the petroleum product used for surfacing of roads.

Ans. A petroleum product 'Bitumen' is used for surfacing of roads.

v. What are the advantages of using CNG and LPG as fuels?

Ans. The advantage of using CNG and LPG are as follows:

- A non-polluting fuel for vehicles .
- These are used for power generation.
- These are used directly for burning in homes and factories.
- These are easily available.

vi. . Describe characteristics and uses of coke.

Ans. Characteristics of coke are:

- Tough
- Porous
- Black in colour

Uses of coke:

- In manufacture of steel.
- In the extraction of metals (as a reducing agent).

Q 4. Long Answer questions –

i. Write the characteristics and some important uses of coal.

Ans. Coal is black in colour and hard as stone. It is one of the fuels used to cook food. Earlier it was used in railway engines to produce steam to run the engine. It is used as fuel in thermal power plants to produce electricity and in various other industries.

ii. Write some important uses of the various constituents of petroleum.

Ans. Petroleum gas in liquid form (LPG) — used as fuel for home and industry.

- Petrol — used as fuel for automobile and aviation.
- Kerosene — used as fuel for stoves, lamps and for jet aircrafts.
- Diesel — used as fuel for heavy motor vehicles, electric generators.
- Lubricating oil — used for lubrication
- Paraffin wax — used in ointments, candles, vaseline etc.
- Bitumen — used in paints and road surfacing.

iii. Describe how coal is formed from dead vegetation. What is this process called?

Ans. About 300 million years ago the earth had dense forests in low lying wetland areas. Due to earthquakes, floods and volcanic eruptions, these forests got buried under the soil. As more soil deposited over them, they were compressed. The temperature also raised as they sank deeper and deeper. Due to high temperature and lack of oxygen dead plants inside the earth got slowly converted to coal. This process of coal formation is called carbonization.

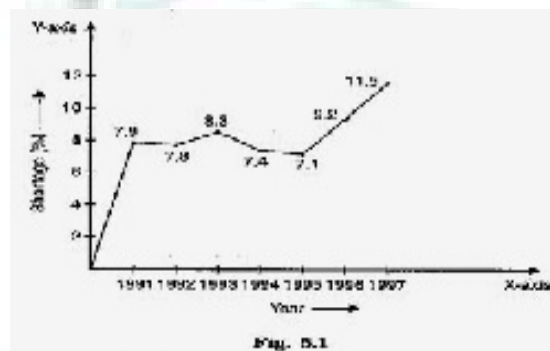
iv. Explain the process of formation of petroleum.

Ans. Petroleum was formed from dead organisms that got buried in the sea millions of years ago. These dead bodies got covered with layers of sand and clay. Lack of air, high temperature, and high pressure transformed these dead organisms into petroleum and natural gas.

v. The following table shows the total power shortage in India from 1991-1997. Show the data in the form of a graph. Plot shortage percentage for the years on the Y-axis and the year on the X-axis.

Ans.

S.No.	Year	Shortage
1	1991	7.9
2	1992	7.3
3	1993	8.3
4	1994	7.4
5	1995	7.1



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i. Coal reserves are said to be enough to last for another hundred years. Do you think we need to worry in such case? Why or why not?

Ans. Yes, we do need to worry towards this threat looming large because coal is needed in our day-to-day life and its not possible to make it again on earth .

