بسم اللہ الرحمن الرحیم

السلام علیکم ورحمۃ اللہ وبرکاتہ

Pakistan School
Kingdom of Bahrain

Our Life and Chemistry

Grade: 9th

RULES OF THE CLASS!!

- Be on **time**
- Enter the class with your **name** and **CPR number**
- **Respect** all participants
- Do **not** create any disturbance
- **Raise your hands** for questions (the teacher will respond when the time is suitable)
- Pay **attention** to the teacher
- Follow the **time table**
- **BE READY TO SCREENSHOT**
- **NO BACKGROUND NOISES**

Objectives

After completing the chapter, the students will be able to:

1) Describe the compounds of sodium.
2) Determine the different types of iron.
3) Notify the importance of iodine for our health.
4) Understand the importance of phosphorous for human health and in agriculture.

Engaging Starter

1) Percentage of oxygen element in the human body is _____
2) Carbon dioxide is necessary for the life of _____
3) The physical properties of allotropes are _____
4) The water has maximum density at _____
5) Oxygen is responsible for _____ types of fuels.

Engaging Starter

1) Diamond and graphite are impure forms of carbon. _____

2) All types of paper are made of cellulose. _____

3) Nitrogen is very reactive and does not control the combustion process.

   _____

4) Potassium is essential for plants as sodium is for animals. ____

5) Pig iron is the purest form of iron. ____

Engaging Starter

1) The average percentage of carbon in human body is:

a) 16% **b**) 18% **c**) 20%

d) 22%

1) Two major constituent of air are:

a) Nitrogen and carbon dioxide **b**) nitrogen and oxygen

c) carbon dioxide and oxygen **d**) oxygen and argon

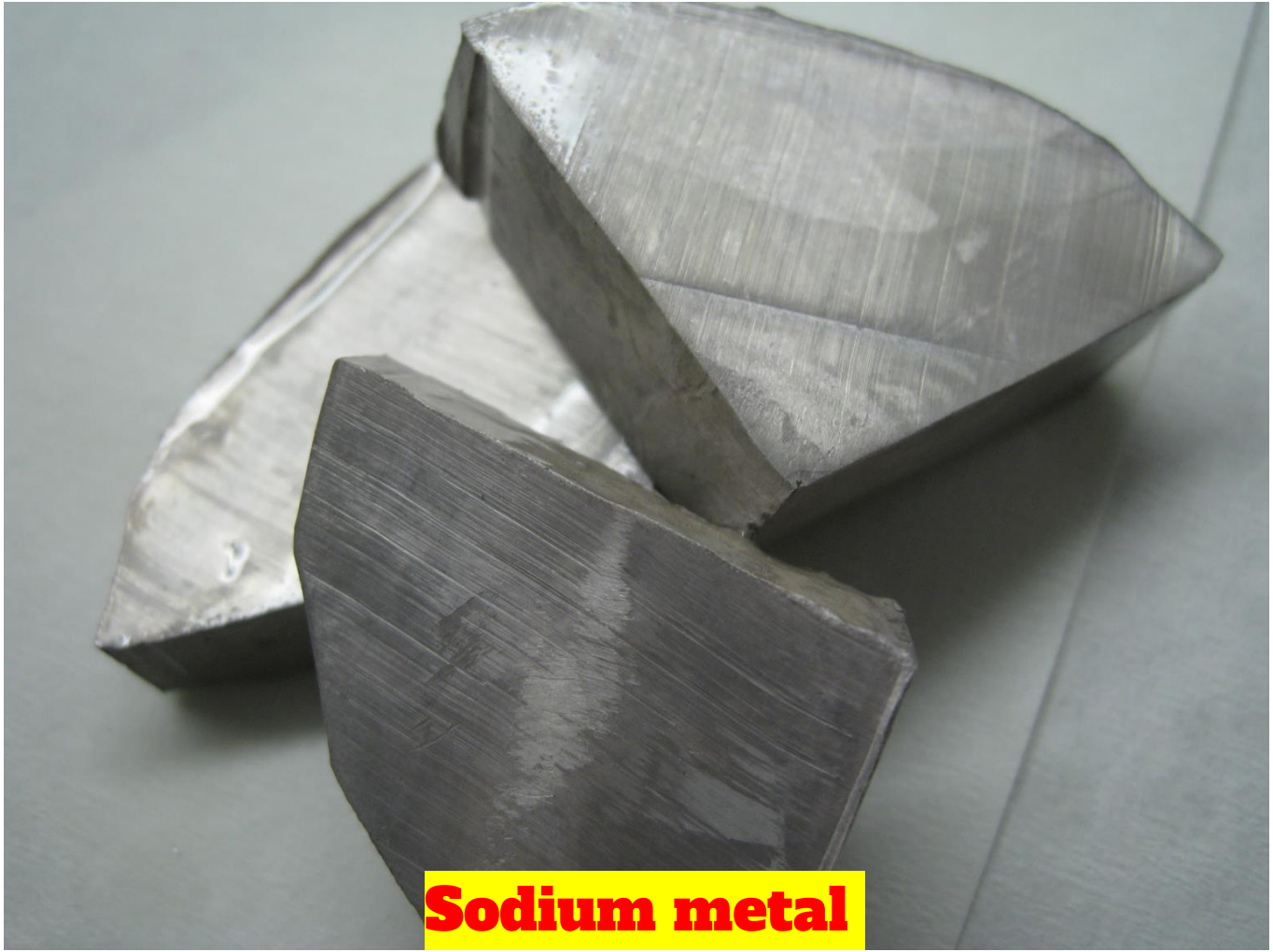

OUR LIFE & CHEMISTRY

4 ELEMENTS

- Sodium
- Phosphorus
- Iron
- Iodine

Sodium

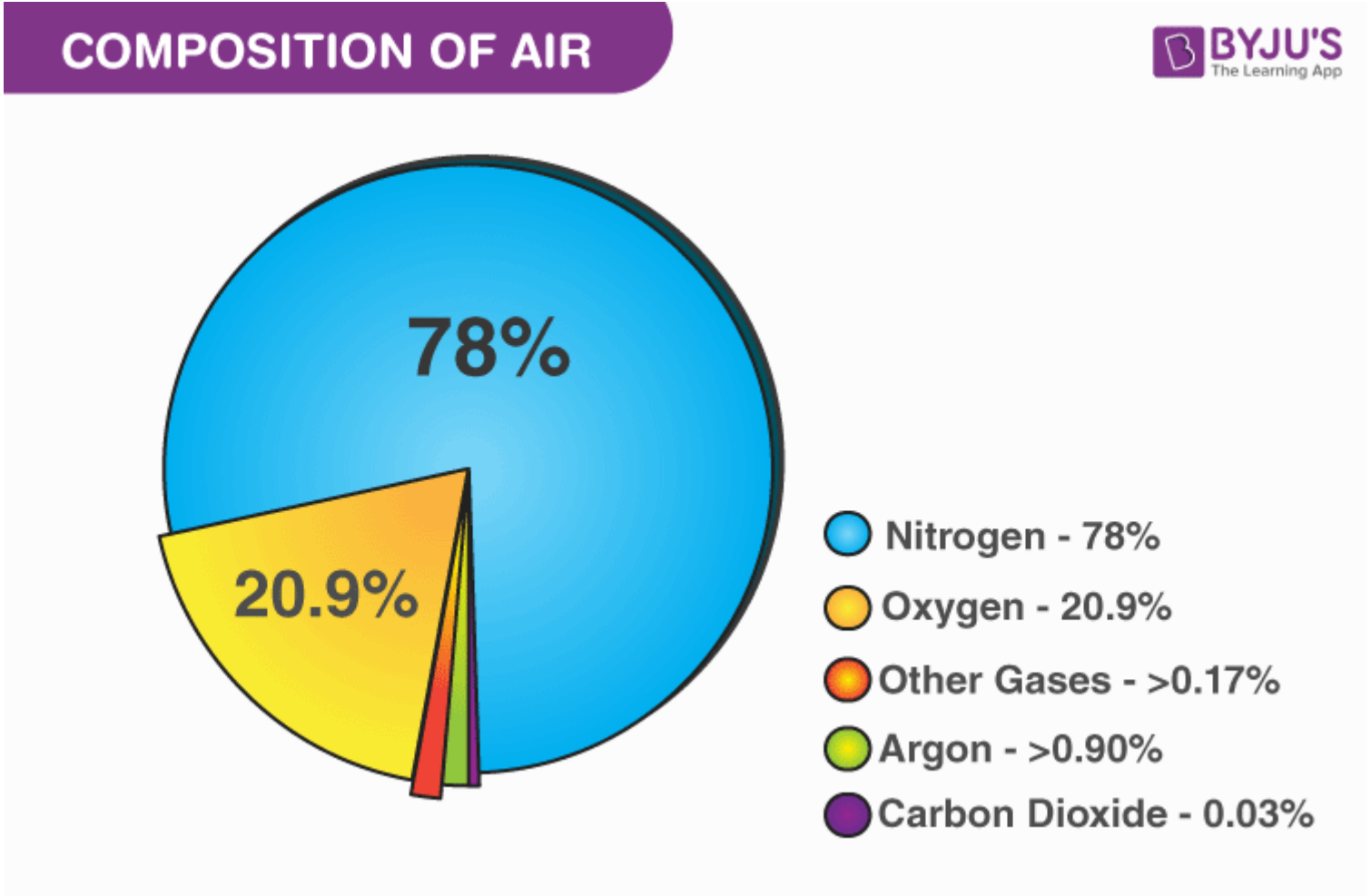
- Molten sodium is used as coolant in some reactors
- Sodium vapour lamps are used for street lighting
- They are also used to prepare different chemicals such as sodamide and sodium-cyanide


Sodium metal

Important Compounds of Na and their Uses

Compound	Common name	Uses
Sodium hydroxide	Castic soda	Used in manufacturing of soap, paper and artificial silk, to purify petroleum and vegetable oil. Softening of hard water to prepare glass, paper, soaps and detergents
Sodium carbonate	Washing soda	Used to soften hard water, to prepare glass papers, soaps and detergents. Baking purposes.
Sodium bicarbonate	Baking soda	Used as fertilizer and for manufacturing of nitric acid.
Sodium nitrate	Chile salt peter	Used for developing and printing of photo graphic films.

COMPOSITION OF AIR

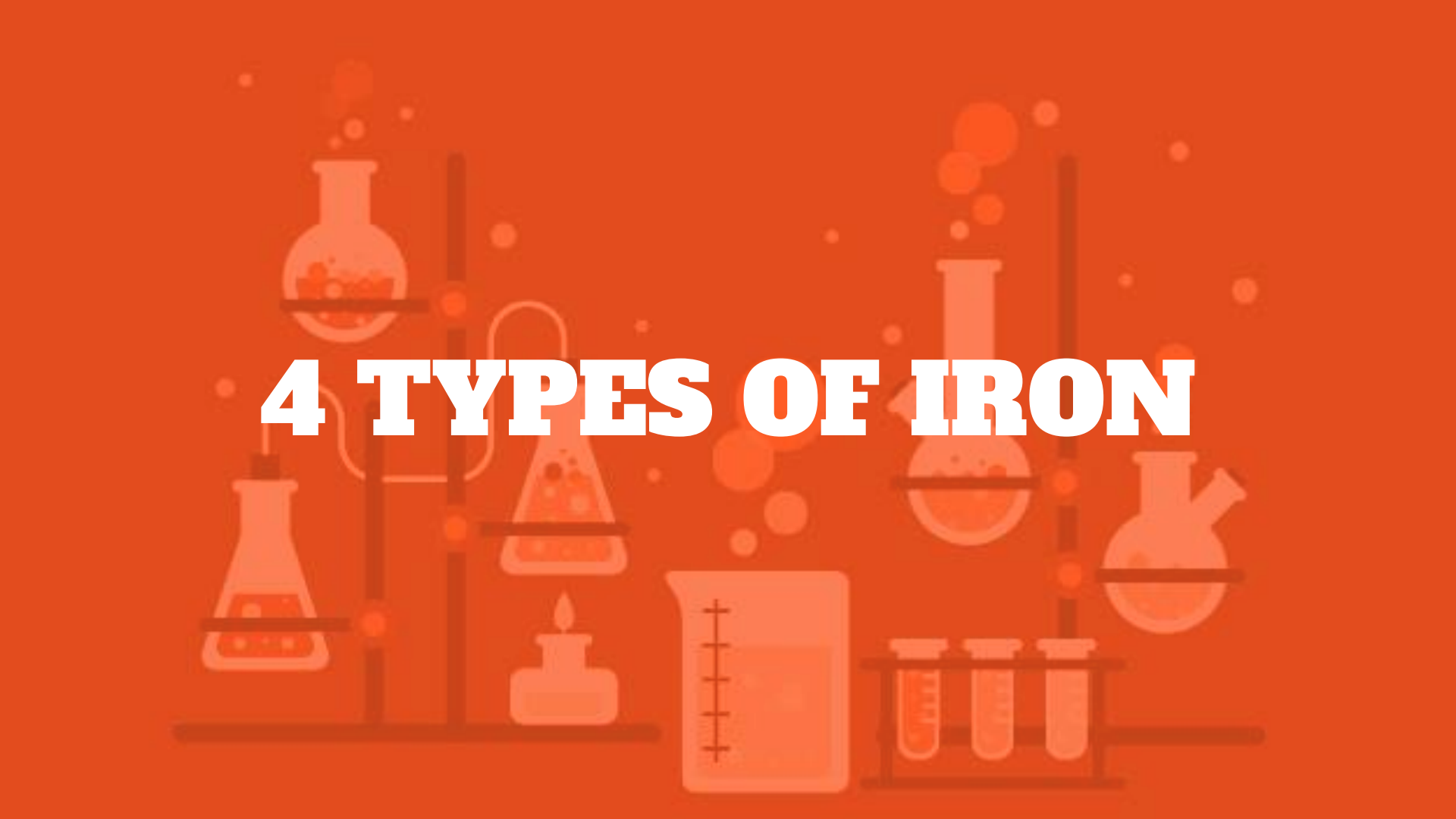


Phosphorus

- It is an essential element like calcium.
- It is needed for formation and proper growth of bones and teeth.
- It hards and strengthens the bones.
- It is necessary and controls the joints and muscles activity.
- Its deficiency stiffens the joints, makes the bones brittle and growth of the bones is affected adversely.
- It is found in fish, dry fruit and eggs.

Iron

- It is an important component of hemoglobin found in blood of animals.
- It acts as an oxygen carrier and transport oxygen to the body cells.
- Deficiency of iron, reduce the formation of blood, which causes anemia.
- Iron is found in liver in large quantity.
- It is also found in meat and yellow of eggs.


4 TYPES OF IRON

PIG IRON

- It is most impure form of iron.
- It contains impurities like phosphorus, sulphur and manganese.
- It is hard and brittle, so it is converted to cast iron and steel.

CAST IRON

- It is obtained from pig iron.
- It is also brittle and can’t be welded or forged.
- It has low tensile strength.
- It is used to make stoves, cooker, radiators, lamp posts, and railing etc.

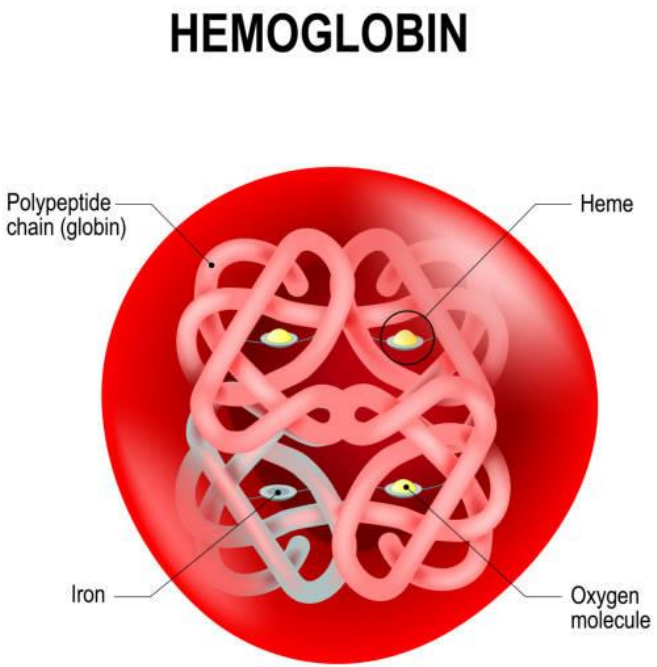
WROUGHT IRON

- It is the purest commercial form of iron.
- It is obtained by heating cast iron in a furnace.
- Impurities are removed.
- It is soft but tough and malleable.
- It can be welded and forged.
- It is used to make nails, chains, iron rods and sheets, agriculture implements.

STEEL

- It is an alloy of iron.
- It is made from pig iron.
- Steel is hard, tough and strong.
- It is used to make stainless steel, which resists rusting.
- Stainless steel is used to make cutlery, scissors, saws, machinery and permanent magnets.

HAEMOGLOBIN



HAEMOGLOBIN

- It is a protein molecule in red blood cells that **carries oxygen** from the lungs to the body's tissues and return carbon dioxide from the tissues back to the lungs.
- Red blood cells are red because of the red colored compound called **heme**.
- **Heme** contains an **iron atom** which binds to oxygen and it transports oxygen in your body.
- Iron deficiency is one of the causes of **anemia** (low hemoglobin).
- Normal range for hemoglobin for men is **13.5 to 17.5 g/dL** and for women it is **12.0 to 15.5 g/dL**.

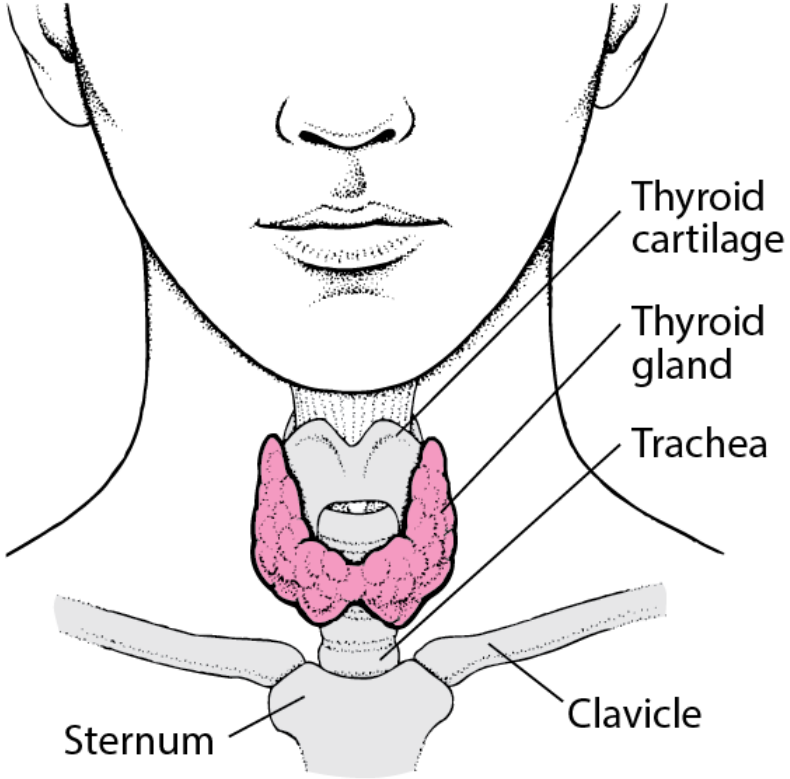
IODINE


GENESTRA
BRANDS
Liquid Iodine
Dietary Supplement
Promotes proper function of the thyroid gland†
1 FL OZ (30 ML)

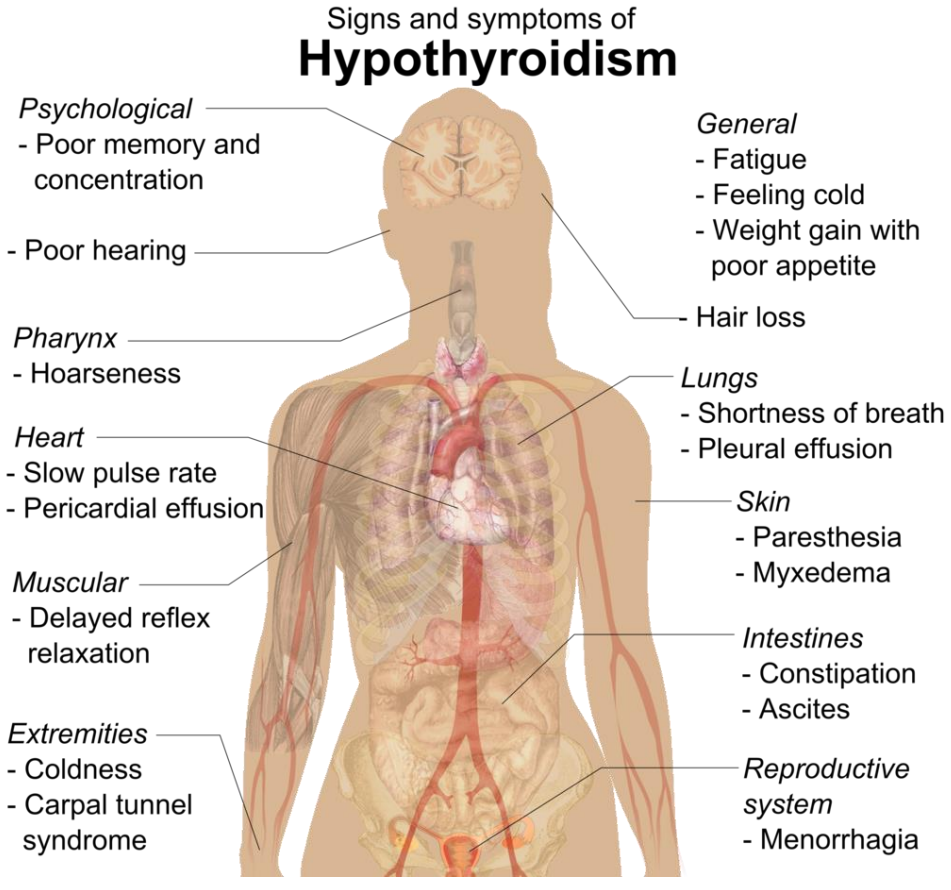
IODINE

- Iodine is required in a very small amount by our body.
- Thyroid gland functions in the presence of iodine, and produce thyroxine.
- Thyroxine plays a very important role in the proper growth of body.
- Your body does not make iodine. You get iodine from your diet.
  - Hypothyroidism is due to less secretion of thyroxine by the thyroid gland.
  - Hyperthyroidism is due to more secretion of thyroxine by the thyroid gland.

THYROID GLAND



HYPOTHYROIDISM



DEFICIENCY OF IODINE

- If you do not have enough iodine in your body, you cannot make enough thyroid hormone.
- Deficiency of iodine hinders mental physical growth.
- The body dries up and skin thickens.
- Body gives ugly look in old age, face gets disfigured, and wrinkled.
- Goiter disease is especially due to deficiency of iodine.

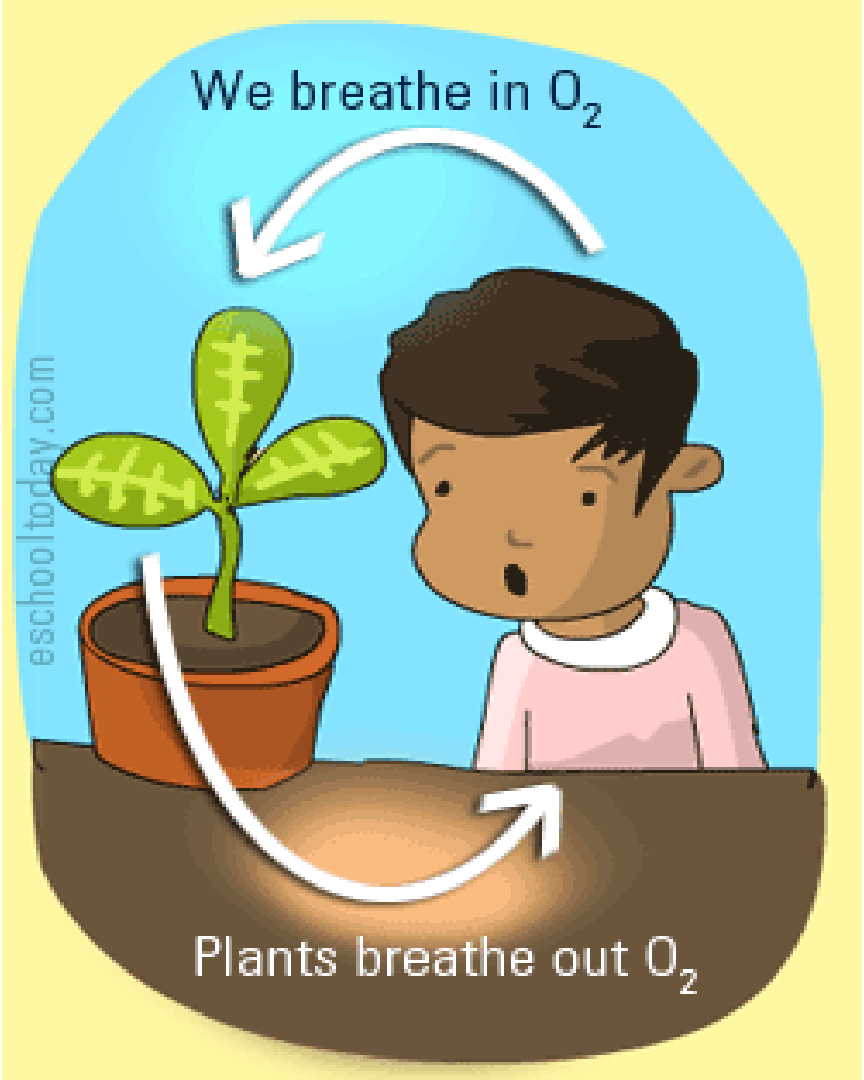
Uses of Iodine

- It is used in making dyes for colour photography.
- It is used in pharmaceutical chemicals.
- Iodine tincture is used as antiseptic.
- Other compounds of iodine such as sodium iodide and potassium iodide are used in medicines.

QUESTIONS & ANSWERS

What is the Importance of Oxygen in Air?

Oxygen plays a critical **role** in respiration, the energy-producing chemistry that drives the metabolisms of most living things. We humans, along with many other creatures, need **oxygen** in the **air** we breathe to stay alive. ... Plants both use **oxygen** (during respiration) and produce it (via photosynthesis).


We breathe in O_2
eschooltoday.com
Plants breathe out O_2

What is an Organic Compound?

Organic compound, any of a large class of chemical **compounds** in which one or more atoms of carbon are covalently linked to atoms of other elements, most commonly hydrogen, oxygen, or nitrogen. The few carbon-containing **compounds** not classified as **organic** include carbides, carbonates, and cyanides.

What are the 5 Main Organic Compounds?

Organic compounds, which are the compounds associated with life processes, are the subject matter of organic chemistry. Among the numerous types of organic compounds, four major categories are found in all living things: **carbohydrates**, **lipids**, **proteins**, and **nucleic acids**.

ACTIVITIES

Activity 1: FIB

1) Deficiency of _____ causes sun stroke and irregular heat beat.

2) _____ _____ is the chemical name of our table salt.

3) _____ is important for proper growth of bones and teeth.

4) Phosphorus is found in fish, _____ and in _____.

5) Iron is important part of _____ found in the blood.

Activity 2: T/F

1) Iron does not act as an oxygen carrier. T/F

2) Phosphorus transports the oxygen to the body cells. T/F

3) Phosphorus controls the joint and muscles activity. T/F

4) Iodine is not used to make medicines and photography dyes. T/F

5) Deficiency of iron leads to anaemia. T/F


ALMOST THERE...

Plenary

1) Name different types of iron.
2) Name some important compounds of sodium.
3) Describe briefly any two uses of iodine.
4) What is the result of low levels of phosphorus in our body?

Homework

Q1) Describe the importance of sodium metal and its compounds in daily life.

Q2) Describe the different forms of iron.

Q3) Explain the importance of iodine for our health.

Q4) What is importance of phosphorus for our health and agriculture?

As-salamu Alaikum

MAY ALLAH SWT BLESS YOU ALL