بسم اللہ الرحمن الرحیم

Pakistan School
Kingdom of Bahrain

ENVIRONMENT
&
NATURAL RESOURCES

CLASS: 10TH

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**

Lesson Objectives

At the end of this lesson, students should be able to identify and explain each of the following:

- Description of **fossil fuels** or **non-renewable energy resources**
- Description of **minerals** present in Pakistan
- **Conservation** of non-renewable resources and renewable resources

NATURAL & MINERAL RESOURCES

Natural Gas

- It is a mixture of **gaseous hydrocarbons**. It consists of methane, ethane, propane and butane, as well as compounds of sulphur and nitrogen.
- It is usually found along with coal and petroleum deposits.
- It may be present as a separate gas field, like at **Sui** in **Balochistan**.
- It's advantages are that its **cheap**, **clean**, **smokeless** and **handy**. It is used as a source of **energy, chemical products**, **heating** and **cooking purposes**, as well as in **industries** and in making **fertilizers**.
- Pakistan has large reserves of natural gas. In Pakistan, it is the **main source** of energy.
- Around 30% of energy needs are meet by natural gas!
- The **largest** deposits are as Sui, Balochistan.

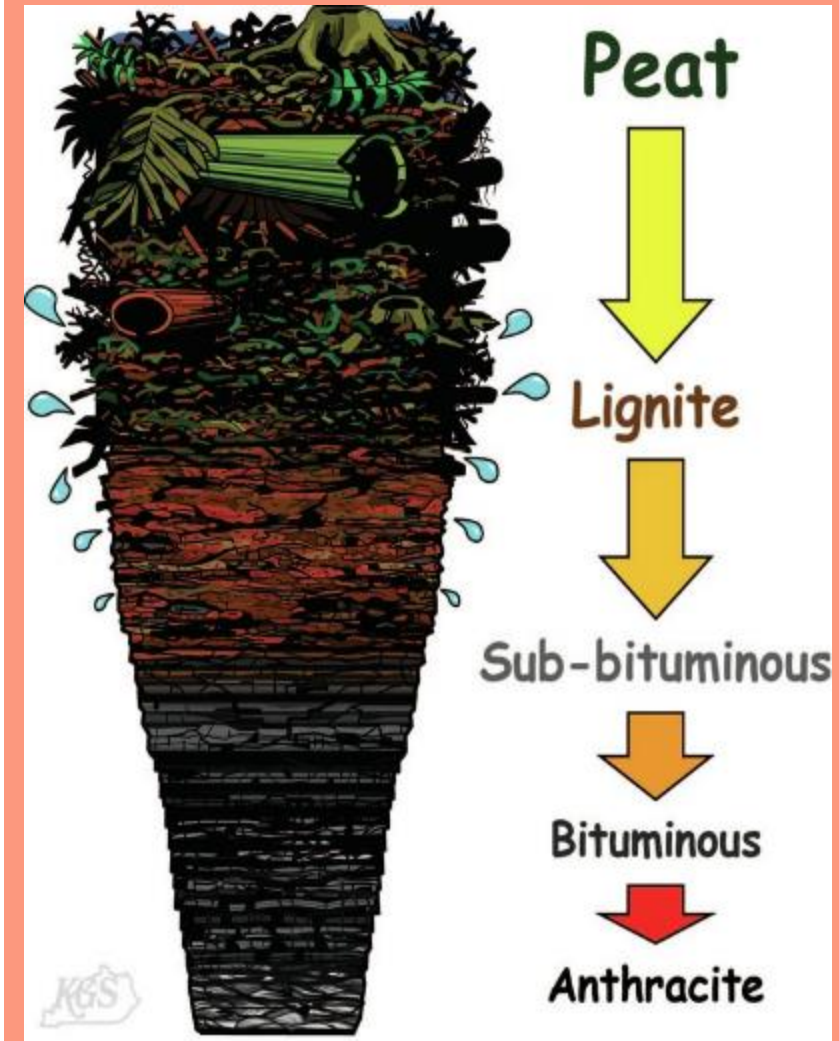
COAL

- It is a **black** colored mineral
- Found in **different depths** under the surface of the Earth
- Pakistan has large deposits of nearly **500 million tonnes** of coal deposits.
- Coal found in pakistan is of bad quality. It has large quantity of moisture and low percentage of carbon in it.
- It is mostly used in **brick kilns** and in **thermal power stations** for electricity.


Coal

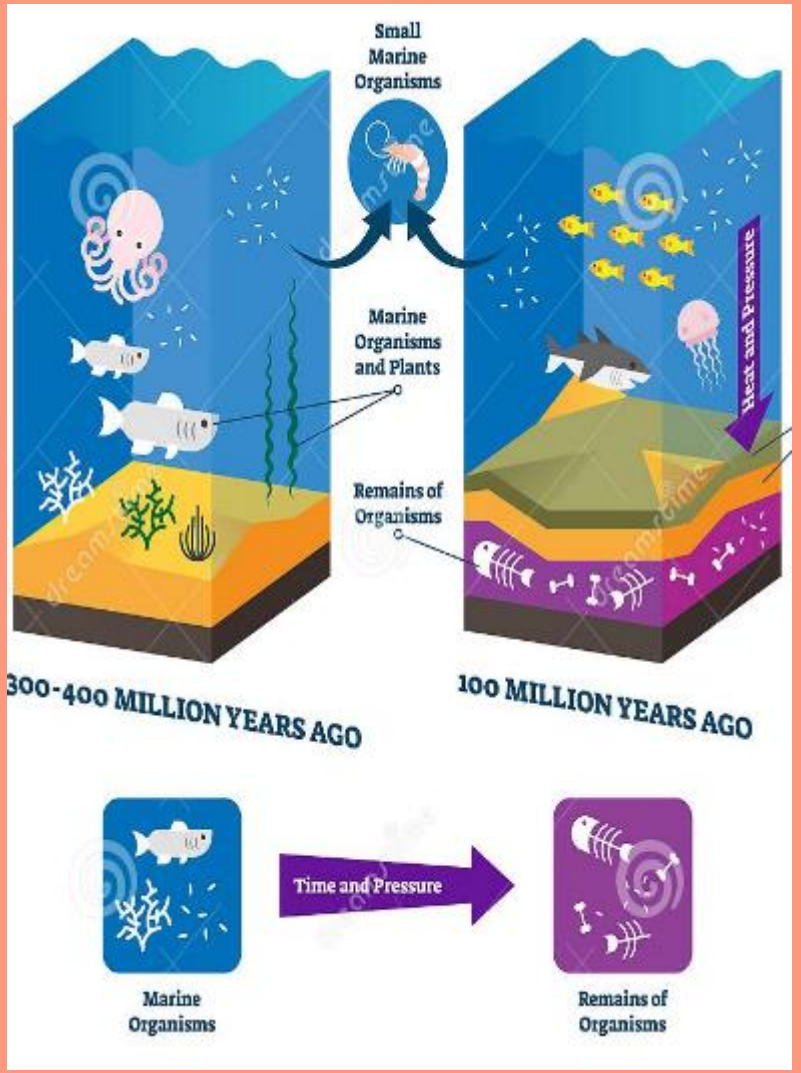
FORMATION OF COAL

- Formation of coal began **millions** of years ago:
- Decaying plants formed a soft brownish material called **peat**, which changed under the pressure and heat into a soft coal called **lignite**
- With continued pressure and heat, it changed into **bituminous coal**. This is harder and brownish black in color. Under more pressure, bituminous coal turned into a hard and black form called **anthracite** (has highest number of carbon and top quality coal)



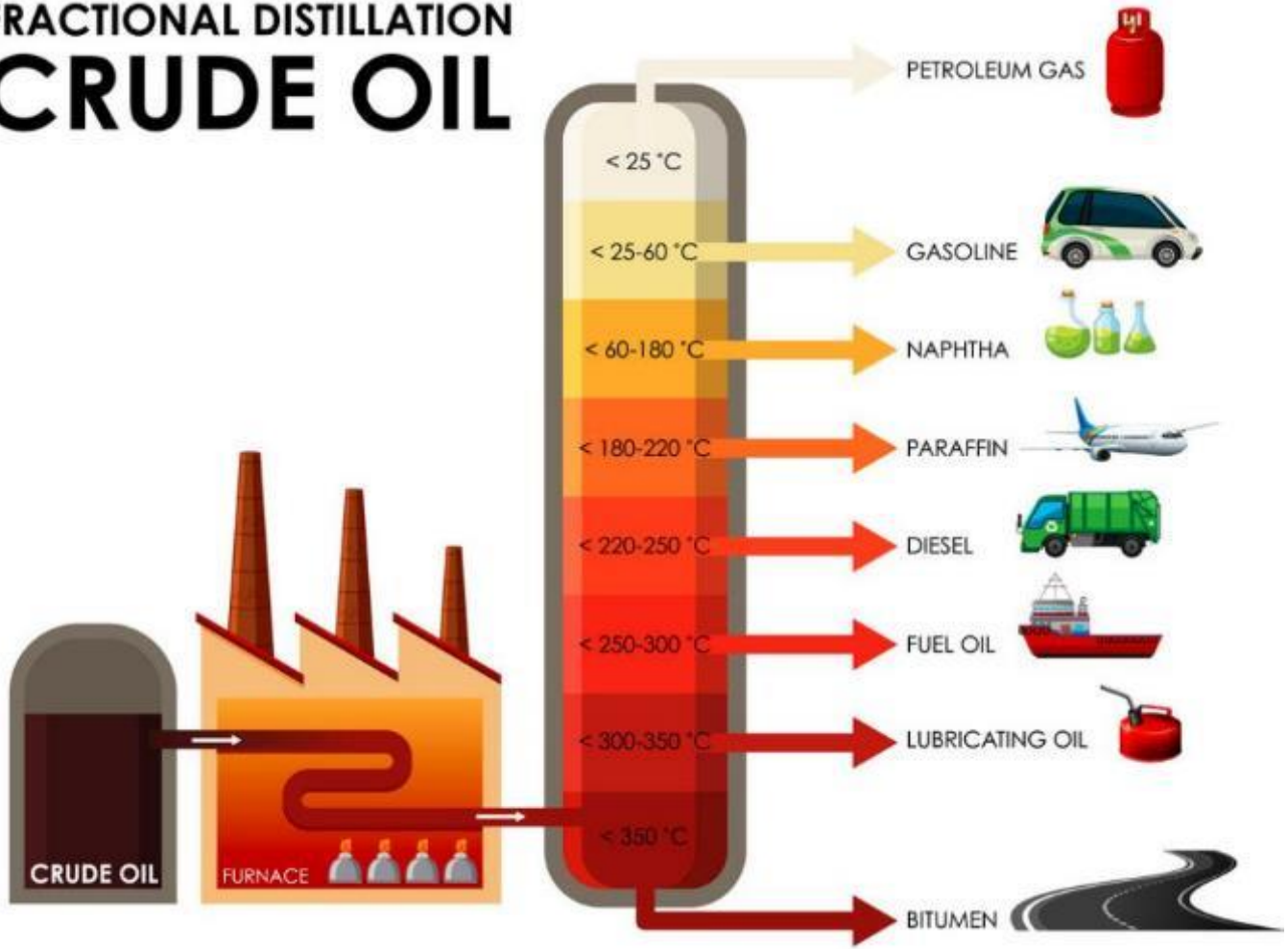
Petroleum

- **Petroleum** is a mixture of gases, liquid and solid hydrocarbons
- It is **brownish** to **greenish** **black** in **color**
- The petroleum mineral began to form millions of years ago:
- Remains of dead plants and animals got buried **deeper and deeper** at the bottom of the **sea** under mud and sand. Heat and pressure slowly changed them into black liquid called **crude oil**.
- Petroleum is the **chief source** of **energy**
- Pakistan has large deposits of it



Petroleum

FRACTIONAL DISTILLATION
CRUDE OIL

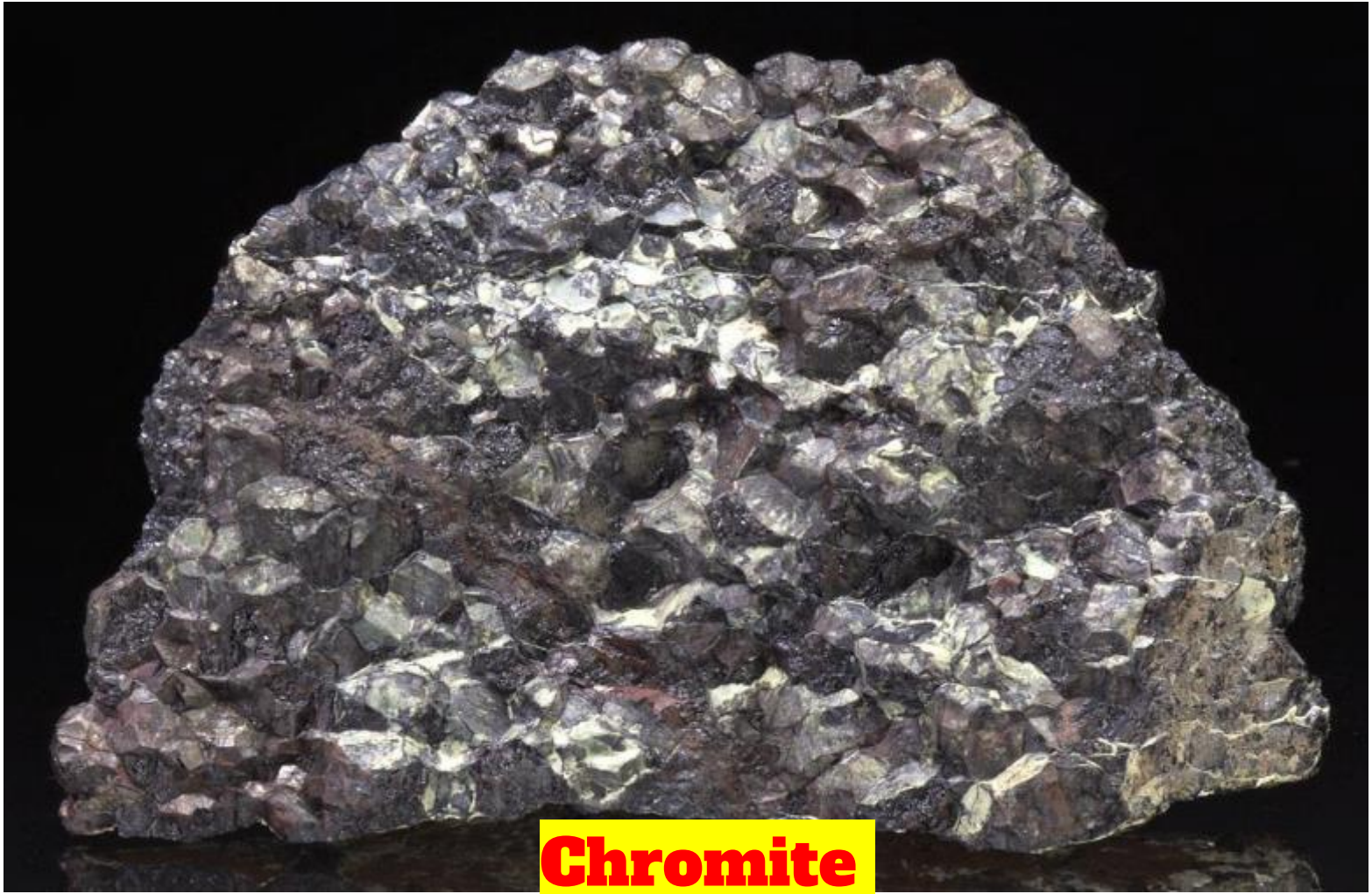


Chromite

- **Ore** is a naturally occurring solid material from which a metal or valuable mineral can be extracted
- Ores have **metal inside** them and they are extracted by being **mined**
- **Chromite** is a brown or dark black mineral
- Pakistan has the **largest deposits** in the world and it is exported
- This ore is used to make a special type of steel. **Chromium metal** is extracted from this ore

Cont'd...

- Chromium metal is a precious metal
- It has wide application for its white and **shining luster**, **resistance** to **rusting** and **corrosion**
- It is also used to make a protective layer for **door knobs**, **car parts** etc
- Compounds of chromium like alums are used for **photography**, **paints** etc


Chromite

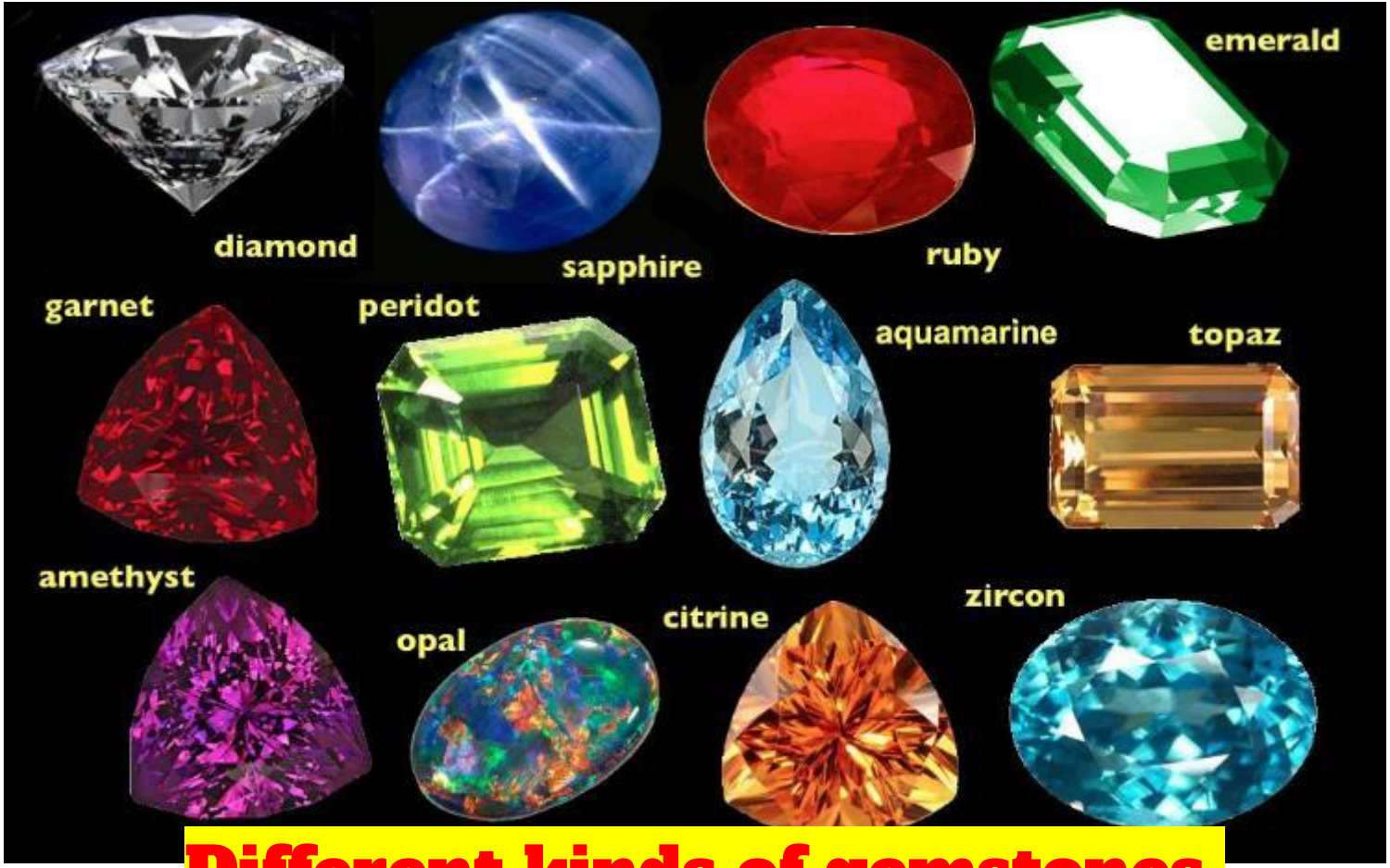
Gypsum

- Gypsum is a **soft**, **shiny white** or **yellowish** material
- It is used for the manufacturing of **cements**, **glass**, **plaster of paris**
- Gypsum is applied to **control salinity** in waterlogged (filled with water) areas


Gypsum

Gem Stone

- It is a mineral compound of **aluminum**, **beryllium** and **silicon**
- This mineral is famous for its **shine** and **beauty**
- It resists to scratches, wear and tear
- It has extraordinary property of **reflection of light**, which gives it shine and brilliance
- It is used in **jewellery**



Different kinds of gemstones

Mica

- It is a **group of minerals** of aluminum, potassium and silicon compounds
- It is a **shiny** mineral with a **layered structure**
- It is a **non-conductor** of electricity
- It is used as **insulator** in electronic and electrical devices such as **transistor**, **dynamos**, **fans**, **heaters** and **irons**


Mica

Iron

- It is a **blackish brown** mineral
- The development of a country depends upon this mineral
- **Karachi** has the largest steel mills in Pakistan
- It is used to make **steel** and a number of other **alloys**
- Alloy is a metal made by **combining two or more** metallic elements (especially to give strength or resistance to corrosion)

Iron ore

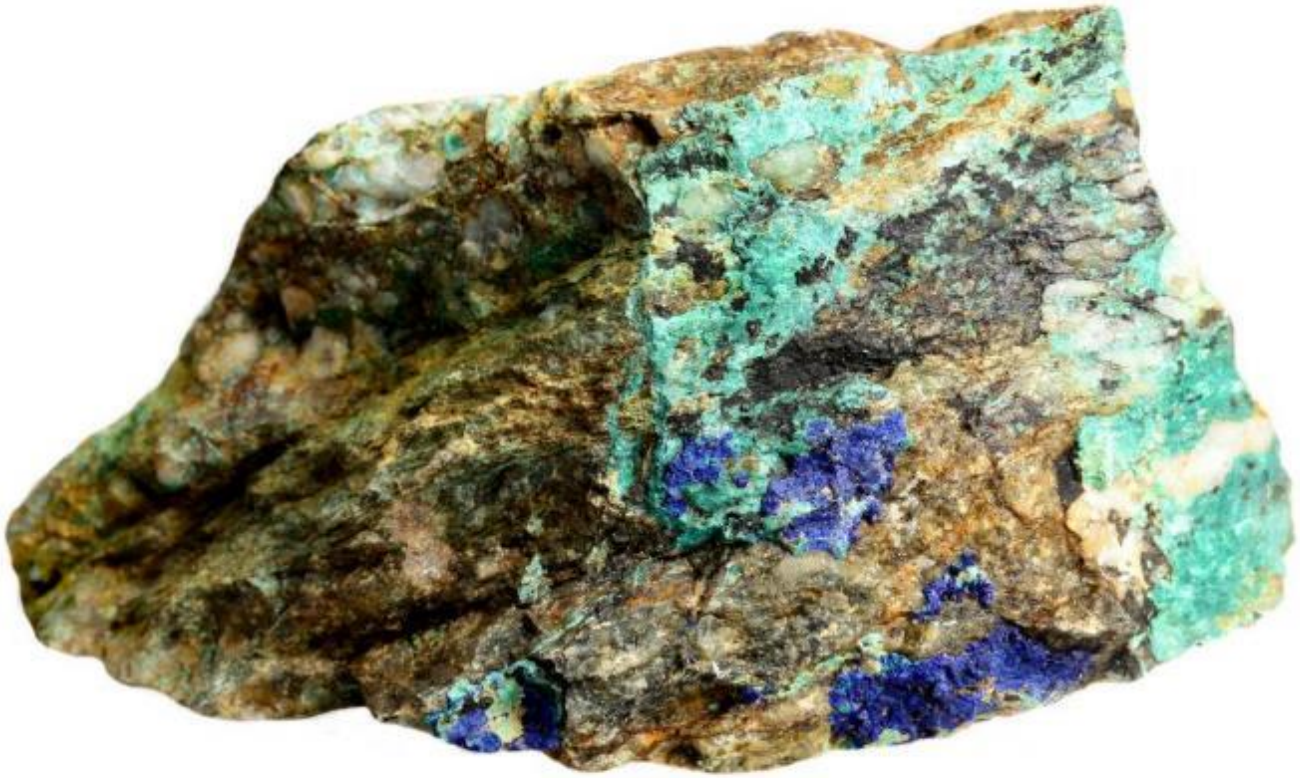
Salt

- **Khewra (Jhelum)** has the largest deposits in Pakistan
- It is considered the **biggest source** of salt in the world
- It is commonly used as **table salt**
- It is also used to manufacture **caustic soda**, **washing soda** and **baking soda**

Salt rock

Copper

- This metal is **second** in elements to iron
- Pakistan has vast deposits of copper in **Sandak** and **Baluchistan**
- Copper metal is a **high conductor** of electricity and heat
- It is used to prepare **electrical cables** and **wires** and other **telecommunication devices**



Copper rock

Conservation of Renewable Resources

- Resources that **can be replaced** and never run out are called **renewable resources**
- However, they should still be use effectively to get more and more benefit form them:

1. Efficient & Careful: This always plays a vital role in conserving resources
2. Recycling: Most of the minerals used do not destroy. They should be recycled to form other items
3. Application of Artificial Materials: Most of the minerals can be conserved by using plastics and polymers

Conservation of Non-Renewable Resources

- Resources that **cannot be replaced** are called **non-renewable resources**
- However, they can be conserved by getting **maximum** output and **minimum** input:

1. Efficient and careful: use of such resources is necessary
2. Construction: Building that have proper ventilation and layout should be made so that energy is not expanded
3. Renewable Resources: We should not only rely *only* on natural resources but make use of renewable resources!
4. Using Modern Techniques: to double petroleum resources

ACTIVITIES

Fill In The Blanks

1) _____ is a naturally occurring element or compound in soil or rocks.
2) Pakistan has nearly _____ million tonnes of coal deposits.
3) _____ is a chief source of energy.
4) Ore is a mineral having _____ inside of it.
5) Alloy is made by combining two or more than two _____.

True / False

1) Chromium metal is extracted from chromite ore. **T / F**
2) Gypsum is not used for making of cement, glass, etc. **T / F**
3) Gemstone is not a mineral compound of aluminum, beryllium and silicon. **T / F**
4) Mica is a group of aluminum, potassium and silicon. **T / F**
5) Copper metal is not a conductor of heat and electricity. **T / F**

FINALLY...

Plenary

Questions:

Q1) Name the methods to control renewable resources.

Q2) Name the methods to control non-renewable resources.

Q3) Give a brief description about the types of the fossil fuels.

Q4) Name some of the minerals present in Pakistan.

Homework

Do any 2 questions:

Q1) Write a note on: a) copper b) mica c) gypsum

Q2) Give a brief description of: a) chromite b) gemstone c) iron d) natural gas

Q3) Describe the ways to conserve both types of resources.

As-salamu Alaikum!

MAY ALLAH SWT BLESS YOU ALL!

Keep on working hard!

Allah SWT is with you!