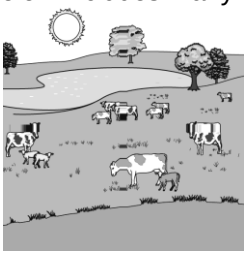
**Lessons 1&2** Test Study Sheet on Unit 2, "Earth's Resources"

Rocks, water, air, minerals, plants, animals, and soil are all examples of a natural resource.

The figure below includes many natural resources. Sunlight could be classified as an **inexhaustible** natural resource.

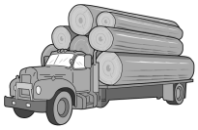


Drilling into the ground, extracting crude oil, processing the oil to make gasoline describes how a product can be made from **a geologic resource**.

Manufacturing steel requires the use of a **material resource**.

Fossil fuels and soil are categorized as geological resources.
Minerals are also considered a geologic resource.

In the picture below, trees can be classified as different kinds of resources. If these logs were used for making paper they would be a material resource.



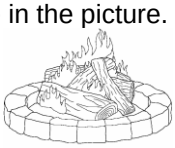
The conservation of natural resources is important because many resources are nonrenewable.

The conservation of nonrenewable natural resources is important because we currently rely on nonrenewable resources to meet many needs.

Coal is a natural resource. Coal is considered **nonrenewable** because coal is being used faster than it is being produced.

Sometimes a renewable resource can be considered nonrenewable because it is used up faster than it can be replenished. Forests being cut down at a quicker rate than they can grow is an example of this.

The picture below shows a scene from a campground. Chemical energy to thermal energy is the energy conversion taking place in the picture.



A unique repeating pattern of carbon atoms gives diamonds their hardness. Although all minerals are not hard, diamonds do share the characteristic of an orderly crystal structure with all minerals.

A scientist is conducting an investigation to identify samples of several unknown minerals. The scientist taps on each sample to determine if it breaks along curved or irregular surfaces. The scientist is using **fracture** to investigate the samples.

A student is shining a light on several different mineral samples. The student should expect the greatest **luster** from a shiny, metallic mineral.

A student is comparing the properties of several mineral samples. Scratching one sample with another sample is useful for analyzing the **hardness** of each sample.

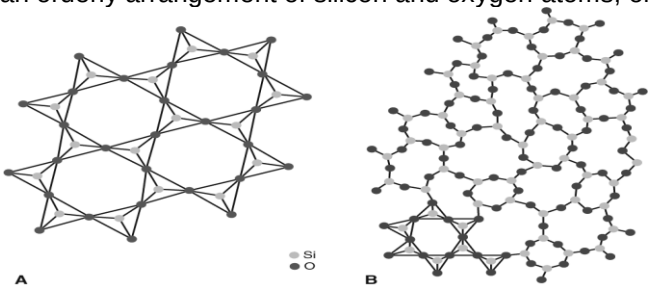
The table below shows part of the Mohs hardness scale.
An unknown mineral scratches feldspar, but not quartz. The hardness of the mineral is at least 6, but below 7.

| Hardness | Mineral |
|---|---|
| 5 | apatite |
| 6 | feldspar |
| 7 | quartz |
| 8 | topaz |
| 9 | corundum |
| 10 | diamond |

The table below shows more of the Mohs hardness scale. A scientist rubs an unknown mineral against samples of calcite and apatite. The mineral leaves a scratch on both samples. Apatite could be the unknown mineral since **like minerals scratch each other**.

| Hardness | Mineral |
|---|---|
| 1 | talc |
| 2 | gypsum |
| 3 | calcite |
| 4 | fluorite |
| 5 | apatite |
| 6 | feldspar |
| 7 | quartz |
| 8 | topaz |
| 9 | corundum |
| 10 | diamond |

These diagrams below show the arrangement of silicon and oxygen atoms in two different materials. Because it is made up of an orderly arrangement of silicon and oxygen atoms, only the material in diagram A is a silicate mineral.




Density is mass/volume. The table below lists the densities of four different mineral samples. A sample of an unknown mineral has a mass of 32 g and a volume of 8.0 mL. Based on the information given in the table, the mineral is garnet.

| Mineral | Density (g/mL) |
|---|---|
| Feldspar | 2.6 |
| Galena | 7.5 |
| Garnet | 4.0 |
| Quartz | 2.7 |

**Essay Topic:**
Determine if each of the following is a mineral or a nonmineral, and explain your answers for each: helium, gold, water, ice.

**Essay Sample Response:**
Helium is not a mineral because it is not a solid and does not have a crystalline form. Gold is a mineral because it is a solid, inorganic, crystalline structure formed in nature. Water is not a mineral because it is not a solid. Ice is considered a mineral when it is formed in nature because it is a solid, inorganic material with a crystalline structure.