**Earth’s Materials**



**Homework**

**Homework 1 – Rocks**

1. Copy and complete the following sentence:

The three main types of rocks are igneous, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and sedimentary. **1**

1. Name the two conditions necessary to change rocks from one type to another. **2**
2. Copy and complete the following table to show two examples of **igneous** and **sedimentary** rocks.

|  |  |
| --- | --- |
| **Examples of Rocks** | |
| **Igneous Rocks** | **Sedimentary**  **Rocks** |
|  |  |
|  |  |

**4**

1. Using the information below, draw a bar graph showing the % composition of different compounds in granite. (Collect graph paper from your teacher)

|  |  |
| --- | --- |
| **Compound in granite** | **Percentage Composition (%)** |
| Silicon dioxide | 65 |
| Aluminium oxide | 15 |
| Potassium oxide | 10 |
| Sodium oxide | 5 |
| Other compounds | 5 |

**4**

1. Copy and complete the following information and match each rock type on the right with a correct property on the left by drawing a straight line between them.

**Rock Type** **Property**

Igneous One colour throughout

Metamorphic May contain fossils

Sedimentary Glass appearance with grains **3**

1. Choose one of the rock types above and state a use of it. **1**

**/15**

**Homework 2 – Soil, Minerals & Ores**

1. Rewrite the following sentences with the correct choice of word in the brackets to make the sentences correct:

Loam based compost contains soil which is ( good / bad) at storing nutrients.

(Clay / Sand) soils have good drainage due to large spaces between soil particles. **2**

1. Using a named example of a soil type, describe its composition and a disadvantage of using it. **3**
2. Copy and complete the following paragraph using two of the words in the box below.

**Potassium Gold Ores Non-metals**

Some metals are chemically unreactive and are found by themselves, for example \_\_\_\_\_\_\_\_\_. However, most metals are so reactive they react with other elements to form compounds called \_\_\_\_\_\_\_\_\_\_\_\_. **2**

1. Ravenscraig was a local steel works that was closed down a number of years ago. Inside Ravenscraig there was a Blast Furnace.

What is the purpose of a Blast Furnace? **1**

1. If 200 tonnes of iron ore contain 20% iron, calculate the ,ass in tonnes of iron that is? **1**

1. What property of a metal determines the method of extraction of the metal from its ore? **1**

1. Read the following passage and answer the questions

**Rock, mineral or chemical element?**

A mineral is a naturally occurring substance, with a particular chemical formula and crystal structure. Minerals are made up of one or more different elements, and rocks are composed of one or more different minerals. We can extract certain minerals from rocks and separate out chemical elements from them. In the United Kingdom, the average person benefits from the use of about 10 tonnes of minerals and metals every year. There are over 5,000 known minerals, many of these are extremely rare and some occur in a single location on Earth. The entire global supply of some of the rarest (such as ‘hazenite’ and ‘fingerite’) would fit into a thimble, less than 50 grams. By comparison, we may think of gold as rare, but humans mine about 3,000 tonnes of it every year. Fuels and metal ores are not the only geological materials we extract for their commercial value. Others known as Industrial and Construction Minerals and can be used for an enormous range of uses.

|  |  |  |
| --- | --- | --- |
| **Technology** | **Chemical extracted from the mineral** | **Where do we get them from?** |
| Solar’ (Photovoltaic) panels | Tellurium, selenium | By-products of copper mining |
| Wind turbines | Neodymium (very rare) | Minerals monazite and bastnäsite |
| Steam turbines used in Geothermal Energy | Nickel, titanium, ruthenium, rhenium | Mining for nickel and titanium. Rhenium and ruthenium by-products of copper and platinum mining. |
| Energy storage (batteries) | Lithium | By product from mining for the minerals spodumene & lepidolite or extraction from brine pools by electrolysis. |

1. State a difference between a mineral and a rock? **1**
2. What tells us that minerals are not synthetically man-made? **1**
3. What do minerals give us which are useful? **1**
4. Name technologies which use chemicals extracted from minerals obtained from the mining of copper. **2**

**/15**

**Homework 3 – Fossil Fuels and Pollution**

1. What is a fuel? **1**
2. What name is given to a reaction that releases energy from a fuel? **1**
3. What three things are needed for a fuel to burn? **3**
4. Fuels are used in a variety of different ways. Gas is commonly used in household cooking but is also used for heating. Cars can run on two different fuels, petrol, and diesel. Another fuel used in industry is coal.

Present the above information in a table with 2 suitable headings. **3**

1. The table shows information about alternative fuels.

|  |  |
| --- | --- |
| Fuels | State |
| Hydrogen | Gas |
| Ethanol | Liquid |
| Peat | Solid |
| Compressed wood chips | Solid |

Which fuel would be a suitable alternative to petrol? **1**

1. Fossil fuels can be described as a finite resource. What does finite mean? **1**
2. Copy and complete, the following paragraph into your jotter, using words from the word bank.

Word Bank

Light Heat Smell Swamps Pressure

Water Lakes Dirt Coal Plants

\_\_\_\_\_\_\_ with giant plants, hundreds of millions of years ago covered the earth. Water and \_\_\_\_\_\_ covered the plant remains 100 million years ago. Rocks, dirt and sediment created \_\_\_\_\_\_\_\_ and \_\_\_\_\_ to form coal deep in the ground.**4**

1. Give an example of the damaging effects caused by acid rain when harmful gases are released into the atmosphere when fossil fuels are burned. **1**

**/15**