**Science – Elements, Reactivity, and the Periodic Table**

Locate the position of each of the elements listed below on the Periodic Table below the list.

Colour all of these elements on the Periodic Table all the same colour..

carbon (C)

phosphorus (P)

chlorine (Cl)

nitrogen (N)

xenon (Xe)

neon (Ne)

sulfur (S)

helium (He)

selenium (Se)

argon (Ar)

oxygen (O)

krypton (Kr)

bromine (Br)

radon (Rn)

fluorine (F)

hydrogen (H)

iodine (I)

The remaining elements, those not listed above, are all **metals**.

Shade the metal elements all a different colour

1. Come up with a ‘rule’ that explains where you can find all of the **non-metals** on the Periodic Table.

2. What is the ‘rule’ that explains where you can find all of the **metals** on the Periodic Table?

The boxes below list elements of the periodic table and the chemical reactivity of the element. Cut out each box and glue it into the appropriate part of the table below.

The position of the element on the periodic table will tell you if the element is a metal or non-metal, and the info with the element allows you to judge it’s reactivity. You are essentially sorting these elements into two categories – metal vs non-metal, and reactive vs non-reactive.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Lithium**  **(Li)**  very  reactive |  | **Chlorine**  **(Cl)**  very reactive |  | **Xenon**  **(Xe)**  not reactive |  | **Iron**  **(Fe)**  slightly  reactive |  | **Calcium**  **(Ca)**  reactive |  | **Iodine**  **(I)**  very  reactive |
|  |  |  |  |  |  |  |  |  |  |  |
| **Chromium**  **(Cr)**  slightly  reactive |  | **Carbon**  **(C)**  slightly  reactive |  | **Cesium**  **(Cs)**  very  reactive |  | **Fluorine**  **(F)**  very  reactive |  | **Gold**  **(Au)**  V slightly  reactive |  | **Krypton**  **(Kr)**  not  reactive |
|  |  |  |  |  |  |  |  |  |  |  |
| **oxygen**  **(O)**  reactive |  | **Potassium**  **(K)**  very  reactive |  | **Neon**  **(Ne)**  not  reactive |  | **Sulphur**  **(S)**  reactive |  | **Copper**  **(Cu)**  slightly  reactive |  | **Magnesium**  **(Mg)**  reactive |

**Table of metallic vs non-metallic character and reactivity**

|  |  |  |
| --- | --- | --- |
|  | **Metal** | **Non-Metal** |
| **Very Reactive** | (shade red on periodic table) | (shade blue on periodic table) |
| **Reactive** | (shade yellow on periodic table) | (shade green on periodic table) |
| **Slightly**  **reactive** | (shade orange on periodic table) | (shade grey on periodic table) |
| **Unreactive** |  | (shade pink on periodic table) |



QUESTIONS: Note – these Qs are not necessarily hard, but they do require you to observe colosely and reach conclusions.

1. **Very Reactive Metals** (red): What do you notice about the location of these elements?

1. **Very Reactive Non Metals** (blue): What do you notice about the location of these elements?
2. **Reactive Metals** (yellow): What do you notice about the location of these elements?

1. **Slightly Reactive Metals** (orange): What do you notice about the location of these elements?
2. **Reactive non-metals** (green): What do you notice about the location of these elements?

1. **Unreactive Non Metals** (pink): What do you notice about the location of these elements?
2. **Slightly reactive Non Metals** : What do you notice about the location of these elements?

**Hypotheses:** Write a hypothesis (a testable explanation) explaining the how reactivity is connected (related) to the position of an element in the periodic table

**Predict the reactivity of the following elements.**

Bromine (Br):

Sodium (Na):

Berylium (Be):

Nickel (Ni):