**Absence work**

**14 April 2020**

**Noble Gases**

**Read the information below, then answer the questions that follow.**

The elements in Group 0 (sometime called group 8) of the periodic table are called the noble gases. They are unreactive – inert - and do not easily form molecule. This is because the noble gases all have a full outer shell. Helium has two electrons in its outer shell and the reminding noble gases all have 8 electrons**.** The boiling points of the noble gases increase with increasing relative atomic mass (going down the group). The noble gases have a variety of uses, due to their properties. For example, helium is less dense than air and so is used in balloons and airships, so that they rise. It is also non-flammable so the helium cannot set on fire. Previously, air ships used hydrogen as hydrogen is very light by, however, hydrogen is also very flammable and its use was stopped after major airship accidents, such as the Hindenburg disaster. Argon is used inside light bulbs because it doesn’t react with oxygen and is not flammable. This is important because the filament in a light bulb gets very hot and the metal can react with oxygen in the air. Neon is used in lamps to produce coloured lights. Different colours can be produced using different mixtures of noble gases.

**Copy out the questions below and write your answers in full sentences.**

**Checkpoint questions:**

1. Which group of elements is referred to as the noble gases?
2. What does the word inert mean?
3. Why are noble gases unreactive?
4. Write one use of helium
5. Why is argon used in light bulbs?
6. Which noble gas is used in lamps to produce coloured lights?

**Copy the key knowledge table into your exercise books.**

**Key knowledge- Do your look, cover, write check by learning the answers to the questions below.**

|  |  |
| --- | --- |
| What are the elements in group 0 called? | The noble gases |
| What is another word for unreactive? | Inert |
| Why are the noble gases unreactive? | They have a full outer shell of electrons and so are stable |
| How many outer shell electrons do the noble gases have? | All have 8, except Helium, which has 2. |
| What happens to the boiling point as you go down the group? | It increases |
| Uses of noble gases: | Helium - less dense than air, so balloons and airships rise and is non-flammable so the helium cannot set on fire  Argon – used inside light bulbs because it doesn’t react with oxygen and is not flammable  Neon – used in lamps to produce coloured light |

**Complete the sentences below in your exercise book.**

Recall Quiz:

1. *Elements in group 0 are called…*
2. *They are unreactive, in other words \_\_\_\_\_, because…*
3. *As you go down the group, the boiling point…*
4. *All noble gases have \_ electrons in their outer shell, other than Helium which has \_.*
5. *Helium is used in… whereas Argon is used in… because…*

**Application Task – Write your answer as a paragraph in your exercise books.**

Describe the key differences in properties of group 1, 7 and 0 elements.

**Success criteria:**

* State the names given to each group of elements.
* State the number of outer shell electrons in each group.
* Describe the trends in boiling and melting points in each group.
* Describe the physical states of the elements in each group, at room temperature.
* Describe the trends in reactivity including an explanation of the reactivity of group 0 elements.

