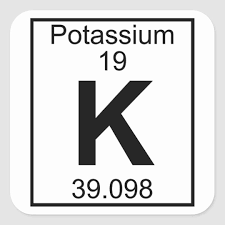
**HMH Unit 1 Lesson 2 Exploration 2: Analyzing the Properties of Elements**

1. Write a statement describing how elements are similar.

2. Write a statement describing how elements differ.

3. Vocabulary (use the exploration to define the following terms)

| Vocabulary | Definition, description, example (if you think it will help you) |
| --- | --- |
| Atomic Number |  |
| Periodic Table |  |
| Period |  |
| Column or group |  |
| Atomic Symbol |  |
| Atomic Name |  |
| Atomic Mass |  |

**Use the vocabulary and exploration to complete the following:** 

Potassium is the \_\_\_\_\_\_\_\_\_\_\_\_\_ of the element

19 is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the element

K is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the element

39.098 is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the element.

Potassium exists as K-40. In this symbol, 40 is the mass number.

**Periodic Table Vocabulary**

| Family | Another name for a column of the periodic table |
| --- | --- |
| Radioactive isotope | Elements with mass number in parentheses |
| Synthetic elements | Do not occur in nature; man made in machines called particle accelerators (colliders) |
| Mass Number | Mass of an isotope of an element |
| Isotope | Form of an element with a different number of neutrons; protons and electrons remain the same; added neutrons change the mass and stability |

**What are the basic parts of an atom?**

| **Nucleus** | small, positively charged center of an atom. contains most of the atom's mass |
| --- | --- |
| **Electron Cloud** | regions outside of the nucleus that contain the electrons; negatively charged region |
| **Modern Atomic Theory** | electrons do not travel in a set path; electrons are likely to be found in regions around the nucleus called electron clouds |

**What is the structure of an atom?**

| Atomic Particle | Location | Charge | Mass (amu) |
| --- | --- | --- | --- |
| Proton |  |  |  |
| Neutron |  |  |  |
| Electron |  |  |  |

**Forces in Atoms**

| **Force** | **Strength in an Atom** | **Direction** |
| --- | --- | --- |
| **Gravitational** | *weak* | *Between particles* |
| **Electromagnetic** | *Strong between protons & electrons; repels protons in nucleus* | *Opposites attract; like charges repel* |
| **Strong** | *Strong in nucleus* | *Holds nucleus together* |
| **Weak** | *Occurs in radioactive atoms* | *Causes changes* |