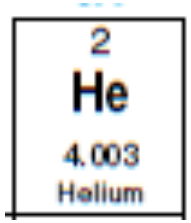
More About the Periodic Table

The Periodic Table of Elements tells us a great deal about each element. We know the atomic number tells us the number of protons and the number of electrons. The period number tells us the number of energy levels found in each element and the group number tells us the number of valence electrons. Remember that 8 valence electrons typically make an atom stable. So, when we look at group numbers, we look at the one's column for the valence electrons.

How can we find the number of neutrons? We must use the atomic mass and the atomic number to calculate the number of neutrons.

Let's take a look at Helium from the periodic table.



1. What is its atomic number? _____
2. How many protons does it have? ___
3. How many electrons does it have? ____

4. To determine the number of neutrons you must first round the atomic mass to a whole number. Standard rules apply. Next subtract the atomic number from the atomic mass.

Atomic mass – Atomic number = number of neutrons

Do the math for Helium below.

How many neutrons does Helium have? _____

You can remember these things about atoms by remembering the Short Cut APE MAN.

Atomic Number = **P**rotons = **E**lectrons

Mass Number – **A**tomic Number = **N**eutrons

Materials: Periodic Table

What To Do:

1. Find the following elements on the periodic table and answer the following questions.

Lithium

1. What is its atomic number? _____
2. How many protons does it have? ___
3. How many electrons does it have? ____
4. How many neutrons does it have? _____
5. How many valence electrons does it have? _____
6. How many energy levels does it have? _____

Chlorine

1. What is its atomic number? _____
2. How many protons does it have? ___
3. How many electrons does it have? ____
4. How many neutrons does it have? _____
5. How many valence electrons does it have? _____
6. How many energy levels does it have? _____

Argon

1. What is its atomic number? _____
2. How many protons does it have? ___
3. How many electrons does it have? ____
4. How many neutrons does it have? _____
5. How many valence electrons does it have? _____
6. How many energy levels does it have? _____

Sandwich Bag Elements

Materials: 5 bags with varying numbers of beans and popcorn kernels, Periodic Table

DO NOT OPEN THE BAGS!

What to Do:

1. Take a look at one of the bags.
2. Notice that it has a number on it.
3. Find the number in the data table.
4. Count the different types of beans and place the number in the correct column in the correct row of the data table.
5. Use this information to determine the Atomic Number and the Atomic Mass.
6. Use your Periodic Table to determine the element symbol and the element name.

Questions:

1. How did you determine the atomic number of the element?

_____

2. How did you determine the atomic mass of the element?

_____

3. What is the relationship between the number of protons and the number of electrons in the element?

_____

Bag #	# Of Protons Dark Beans	# Of Neutrons Light Beans	# Of Electrons Popcorn	Atomic Number	Atomic Mass	Element Symbol	Element Name
Example	17	18	17	17	35	Cl	Chlorine
1							
2							
3							
4							
5							

Name _____ period _____

EXIT TICKET

More Periodic Table

1. The identity of an element can be determined by counting the number of –

A. neutrons
B. protons
C. mass units

Use your periodic table to answer the following questions

2. The number of protons in the element gold is –

A. 47
B. 197
C. 79

3. The number of electrons in the element Krypton is –

A. 36
B. 84
C. 83.80

4. The atomic number of the element Iodine is –

A. 126.904
B. 127
C. 53

5. The number of valence electrons in Neon is –

A. 8
B. 10
C. 18

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Name _____ period _____

EXIT TICKET

More Periodic Table

1. The identity of an element can be determined by counting the number of –

A. neutrons
B. protons
C. mass units

Use your periodic table to answer the following questions

2. The number of protons in the element silver is –

A. 47
B. 197
C. 107.868

3. The number of electrons in the element Xenon is –

A. 36
B. 54
C. 131.29

4. The number of valence electrons in Neon is –

A. 8
B. 10
C. 18

5. The atomic number of the element Bromine is –

A. 35
B. 79.904
C. 53