8807Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Core: \_\_\_\_\_\_\_\_\_

Building an Atom Webquest

Define the following terms:

Atom: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Proton: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Neutron: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Electron: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Go to bit.ly/Build-An-Atom and click on “Atom”. Click and drag a proton into the circle. Click and drag a neutron. What is the name of the element that you have made? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Fluorine atom with a -1 charge

Look up and to the right of the circles. Is the atom you made a positive ion (+), a negative ion (-), or a neutral atom? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Add an electron. Now what kind of charge does the atom have? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# of Protons: 9

# of Neutrons: 9

# of Electrons: 10

The number of protons in an atom determines which element it is. For example, any atom with six protons is always an atom of carbon and any atom with one proton is always an atom of hydrogen. A neutral atom has the name number of positive charges as negative charges. An ion is an atom that is not neutral, but has an overall charge. Find the box labeled “Net Charge” and make sure that it is open by clicking the “+” icon.

Beryllium ion with a +1 charge

Neutral lithium atom

How do you think you can make an atom into a negative ion? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# of Protons: 3

# of Neutrons: 3

# of Electrons: 3

How do you think you can make an atom into a positive ion? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

In the space below, draw the atom you created.

Now, continue adding protons, neutrons and electrons until you have made each of the following. Then, draw your atom and complete the information in the bottom corner. HINT: Use the “Net Charge” box to help you. All atoms should be STABLE.

# of Protons: 8

# of Neutrons: 8

# of Electrons: 8

Neutral oxygen atom

# of Protons:

# of Neutrons:

# of Electrons:

# of Protons: 4

# of Neutrons: 4

# of Electrons: 3

Science in Action: Elements and Compounds

Bit.do/S-in-A-Elements

1. What are some differences you notice between the drawings for the sodium (Na) and the chlorine (Cl) atoms?
2. Two things can happen when elements get together. They can be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ where they keep their same \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and can be easily \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Or, they can be joined together \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and are much harder to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. This is called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
3. Femi thought she found gold in the mine. What did she really find?
4. After the gold is mined, it is separated easily by shaking the tiny particles of minerals away. Why is gold so easy to separate from the other elements around it?
5. Why was it so much harder to separate lead from the lead oxide?
6. What are the combinations of individual atoms found in compounds called?
7. How do scientists know that the elements found in space are the same as the ones found on Earth?
8. Why might the tap water here in Clayton taste different from the tap water in Asheville, NC?
9. Did any of the kids actually have a pure substance as their drink?
10. What is an alloy?

Science in Action: Mixtures

Bit.do/S-in-A-Mixtures

1. Where does Trish go to investigate?
2. How easily did Trish separate the water and salt?
3. How did Trish separate the water and salt?
4. Where did the salt come from?
5. Scientists say that nail polish will / will not dissolve (mix into) water because the nail polish is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in water.
6. Scientists would say that nail polish will / will not dissolve (mix into) propanone (acetone) because the nail polish is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in propanone.
7. When a liquid is used to dissolve something it is called a solution. The chemical doing the dissolving is called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, while the chemical being dissolved is called a solute.
8. What is the difference in appearance between a solution that has completely dissolved and one that has not?
9. Why doesn’t the salt just keep dissolving?
10. Why can you continue to add more sugar to water than you’d think without it overflowing?