Teacher Notes:

✔Use these elements when you randomly assign elements to partners. This way, it is easier to predict and control how many candies you will need. You can differentiate the work by assigning certain elements to certain teams, adjusting the required number of elements that each team must complete, providing a Bohr model outline with nucleus and energy levels already drawn, removing the "have your teacher check your work" from certain steps, adding reflection questions, etc.

✔This data page will also speed up the checking process when students complete a step on the activity page.

✔Materials:

- Estimate an average of 10 Tic-Tacs per partnership.
- M&Ms. (I like to use green for protons and yellow for neutrons, but if you don't want to have to purchase as many M&Ms you can just give each team a different set of colors) (You could also use mini marshmallows, skittles, etc. You can also use non-consumable items such as beads) Each group will need two different colors.
- Mini cups to hold "protons/electrons/neutrons"

✔Point out to students that the Tic-Tacs are much smaller than the M&Ms (just like electrons). Also, Tic-Tacs are shaped like a negative sign, and electrons have a negative charge! ☺

✔I use the participation points number line to help keep students on task. When a team is off-task, mark off one of the numbers on the number line. I factor in the participation points into their grade for the activity. Each student can also have their own worksheet, and then you can award participation points individually.

| Element Name | Protons | Neutrons | Electrons | Energy Levels | Valence Electrons |
|---|---|---|---|---|---|
| **Lithium** | 3 | 4 | 3 | 2 | 1 |
| **Beryllium** | 4 | 5 | 4 | 2 | 2 |
| **Boron** | 5 | 6 | 5 | 2 | 3 |
| **Carbon** | 6 | 6 | 6 | 2 | 4 |
| **Silicon** | 14 | 14 | 14 | 3 | 4 |
| **Phosphorous** | 15 | 16 | 15 | 3 | 5 |
| **Potassium** | 19 | 20 | 19 | 4 | 1 |
| **Calcium** | 20 | 20 | 20 | 4 | 2 |
| **Sulfur** | 16 | 16 | 16 | 3 | 6 |
| **Chlorine** | 17 | 18 | 17 | 3 | 7 |
| **Neon** | 10 | 10 | 10 | 2 | 8 |
| **Nitrogen** | 7 | 7 | 7 | 2 | 5 |
| **Oxygen** | 8 | 8 | 8 | 2 | 6 |
| **Fluorine** | 9 | 10 | 9 | 2 | 7 |
| **Argon** | 18 | 10 | 18 | 3 | 8 |

Participation Points: 10 9 8 7 6 5 4 3 2 1 0

Name _____ Date _____ Period _____

**Activity: Edible Atomic Structure**

**Objective**: To create a Bohr and Lewis diagram of an atom using the periodic table.

**Materials**:

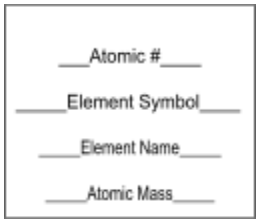
- Two colors of M&M candies (_____ = Protons & _____ = Neutrons).
- Tic-Tacs (to represent electrons).
- 3 mini-cups to hold the materials. Also, one cup will serve as the nucleus in your Bohr diagram.

**Procedure**:

1. Your teacher will assign you elements from the Periodic Table.
   Required elements to complete:
   1.
   2.
   3.

**For each element:**

2. Fill in the **information box** about your element using a periodic table.




3. In the **Bohr Diagram box,** trace the bottom of a plastic cup and leave it there to be the nucleus.
4. Using the information from the Periodic Table, and our class discussion, draw the correct number of energy levels**.**
5. Physically arrange the materials in the correct places on your Bohr diagram. **STOP and have your teacher check the placement of these particles before you go to the next step.**
6. Write the atomic symbol of your element in the **Lewis Dot Diagram box**. Using just the Valence Electrons from your Bohr diagram, arrange them in the correct place for a Lewis Dot Diagram. **STOP and have your teacher check the placement of these particles before you go to the next step.**
7. Remove your materials from the diagrams, and then draw how your materials were arranged so that you have full diagrams. **STOP and have your teacher check the placement of these particles before you go to the next step.**
8. You may eat your Protons, Neutrons and Electrons while you and your partner fill out the reflection questions on the back.

**Information Box**

_____

_____

_____

_____

**Lewis Dot Diagram (Electron Dot Structure)**

**Bohr Diagram**

Information Box

Bohr Diagram

Lewis Dot Diagram (Electron Dot Structure)

Information Box

Bohr Diagram

Lewis Dot Diagram (Electron Dot Structure)

**Reflection Questions**:

1. How did you and your partner figure out the number of protons?

_____

2. How did you and your partner figure out the number of neutrons?

_____

3. How did you and your partner figure out the number of electrons?

_____

4. How did you and your partner figure out the number of energy levels?

_____

5. How did you and your partner figure out the number of valence electrons?

_____

6. What does a Bohr Diagram show?

_____

7. What does a Lewis Dot Diagram show?

_____