**Teacher Worksheet**

**Periodic Table of the Elements Bingo!**

**¡Tabla Períodica de los Elementos Bingo!**

*The following lesson is a common chemistry activity that has been easily modified to incorporate the needs of English language learners (ELL). Where multiple options are provided, the italicized option is recommended for ELL:*

**Background:**

* Periodic table bingo is an activity that should follow instruction on the basics of the periodic table. Before beginning this activity, students should have background knowledge in the arrangement of the periodic table including groups, periods, common group names, atomic number, and atomic mass.
* This activity can be extended to cover more abstract information that the student will have to deduce using the basic information displayed on the periodic table. Examples include valence electron number, electronegativity, atomic size, and ionization energy.
* The best use of this activity would be to either formatively assess student learning or summarize the end of a lesson and/or unit. For formative assessments, teachers can select which ‘bingo cards’ to show and when to show them. For example, after teaching students about how the periodic table is arranged by groups and periods, teachers can quiz the students using cards displaying both group number and period number and have the students select the corresponding element on their game pieces. To summarize an entire lesson on the periodic table or unit on chemical periodicity, teachers can play the game using all of the cards.

**Materials:**

* Bingo game boards
* Bingo game pieces (i.e. checkers)
* Bingo game cards
* *Spanish (or other language as appropriate) translated periodic table*
* Optional: students will need paper and pencil if required to write down their answers

**Instructions**

1. Give each student a game board and game pieces. There are several options here:
   1. Each student can have multiple game boards.
   2. Students can be given blank game boards and choose elements to fill in to the squares.
   3. *Students can sit in groups mixed with both English-speaking students and English language learners to work as a team during this activity.*
2. *Provide English language learners with copies of the Spanish-translated (or other language as appropriate) periodic table. It is also recommended to provide all students with a copy of the periodic table, even if one is displayed in the classroom, so as to not ‘single out’ those needing extra support.*
3. *The teacher begins this activity by holding up a game card displaying information pertaining to the content covered along with the answer on the reverse side. For example, the card can read “Group 2, Period 3.” For English language learners, there should also be a translated version for each side of the card. Therefore, underneath the previous example, the card for Spanish speakers, for example, should read, “grupo 2, período 3.”*
4. After calling out the first card (the teacher should always do the first one so the students know what is expected of them), the teacher can call on a student who was able to correctly fill in a square on their game board to call out the next card, and so on.
5. Once a student correctly fills in a row, column, or diagonal, they call out, “Bingo!”
   1. If game boards are made using random assignment of the elements, then every student in the class will not have an opportunity to ‘win.’ In this case, playing multiple rounds and providing each student will a small prize (candy, HW pass, etc.) at the end is recommended to ensure student engagement
   2. *To better assess the students’ knowledge of the material, each student can be given the same elements on their game board but in a different order. Therefore, the teacher can use only those game cards corresponding to those specific elements. This option will enable all students to eventually ‘win’ a round. Also, each student should have the entire board covered at the end of the game, which will help the teacher assess which students understand the material.*
6. *Another way of assessing the students’ knowledge is to have them write down their answers on paper as they play. The teacher can review their answers after the game to assess the students, and even use their responses as an opportunity to assign a ‘quiz’ grade.*

***English Language Learner (ELL) Modifications:***

Four key strategies for addressing the needs of ELL are used in this activity:

1. **Vocabulary and language development**: Students are provided with a translated periodic table and also asked questions using translated cards so that they can build on their knowledge of the English language.
2. **Guided interaction:** Students are allowed to play this activity in a group setting so they can use their peers as a resource in facilitating their learning.
3. **Metacognition and authentic assessment:** Students are asked to write their responses to the questions so that they are thinking about their answers and assessing their own learning even if the answers are not displayed on their game boards.
4. **Modeling, graphic organizers, and visuals:** Students are given a visual of the periodic table to refer to as well a visual of the questions and answers containing translations. Therefore, they are better equipped to understand the questions and have the resources available to answer them.