

# LEARNING WITH PERIODIC

## ABOUT THE GAME

# of Players: All    Grade: 7<sup>th</sup>- HS    Time: 45 min    Subject: ELA

Periodic turns the periodic table of elements into a chess-like game board. For this lesson plan we will not go over the full rules for how to play the game of Periodic, which can be extensive. We have “hacked” this game to make it more suitable to be played in the classroom as a group game.



## WHAT THE GAME TEACHES

Students will be able to identify and understand basic Periodic Table knowledge. This objective is mainly for beginners to gain basic familiarity with the Periodic

Table. This is achieved by speaking the names of the elements out loud, identifying their chemical symbol and learning the broad organization of the periodic table which is easily identified by colors on the game board (i.e. all Transition Metals are coral). Students will be able to Identify and Apply Periodic Trends. This is the primary objective for intermediate learners. There are 3 “types” of trends we are looking for the student to learn. First, understand the atomic numbers. Our desire is for students to understand through play that atomic numbers increase or decrease depending on the number of protons in each element, this is easily visualized but concretely shown through game movement. Left or right (Atomic Number Change), up to the right (Ionization Energy Increase), down to the left (Atomic Radii Increase), Down to the Right (Atomic Mass Increase) and Up to the Left (Atomic Mass Decrease). Identifying the periodic trend before moving and then testing it out by moving the token is a simple way to gage and clarify a student’s understanding of Periodic Trends.

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Please contact us if you have any questions about this game, or if you would like to know about more games that can help make learning fun!

## EXAMPLE LESSON PLAN

Prep Time:

Material Usage:

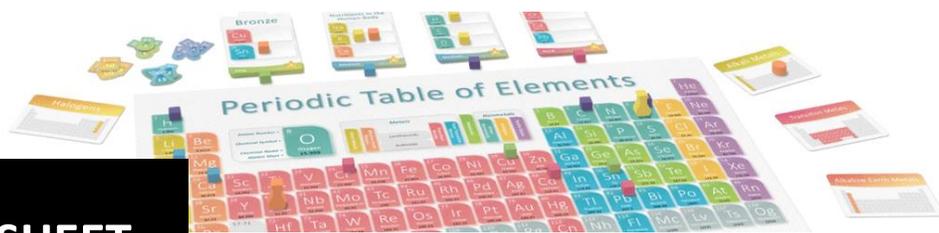
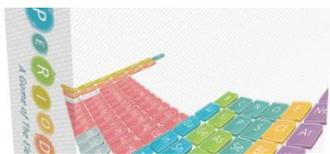
**Standards and Learning Objectives:** 7th grade (7.P.2.A.1) Conceptual understanding of matter and the elements. High school students will be able to solidify their understanding of the periodic table (H.C.2A) and use the game as a refresher for how the periodic table is organized.

**Instruction:** Set up the game board so that all the students can see it. Choose four of each color goal cards and place them into piles. There should be one of each color in each pile. Shuffle these piles. Split the class into four groups. The original game only uses one piece for the players to move around the board. Your students will work in groups and have two pieces to move. This will speed the game up a considerable amount. Once the students are grouped up, explain that they will be acting as researchers for a lab and will be researching different items to invent/discover them, these will be represented by the goal cards. When the first card in each pile is visible, disperse the goal markers on each of the elements represented on the face up goal cards. These will show the students where they need to move in order to fulfill the goals. Explain that the goal cards have different elements on them, and these elements are used in the items the goal cards represent. Explain the different movements the students can make with their pieces and that they have three moves total during their turn. They can move one of their pieces three times or one two times and another once. During each move, the students can move their piece up to 5 spaces. Diagonal movement is not allowed, movement must first be made left or right, and then up or down depending on the movement they are making. For example, if a student is using the "Increase Atomic Mass" movement, they must first move right, then down. They still may only move five spaces on the table using this method.

In order to research an element, students must stop one of their movements on the element and declare that they are researching it. Once this is done, they put one of their colored research markers on the goal card for the element they researched. An item is fully researched when one group has researched all the elements on the card. Once this is done, points are scored, the next card is turned face-up and the research markers are dispersed on the elements corresponding to that goal card. Goal cards are scored with the group that researched all the elements on the card getting the full amount of points on the bottom right of the card. Groups with one research cube on the card receive three points, and groups with two research cubes on a card (cards with three elements) receive five points. This is a great way to show that even through competition, the science community still works together to achieve common goals.

**Assessment:** On the worksheet provided the students will be able to demonstrate their knowledge of the properties that make up the periodic table by showing they know where certain items can be found about any element. This works best for younger students just discovering the periodic table, or for older students as a refresher.





# PERIODIC WORKSHEET

NAME: \_\_\_\_\_ DATE: \_\_\_\_\_

**INSTRUCTIONS:** As you work through the game in class, fill out the appropriate portions of the worksheet.

## Elements we researched as a group:

Chemical Name	Chemical Symbol	Atomic Mass	Atomic Number	What goal did you research it for?

In the squares provided draw an element as it appears on the periodic table of elements. Make sure to place the correct numbers and terms in their appropriate spots.

