How to Read a Periodic Table

Lesson Concept The periodic table shows elements organized in periods and families based on their properties

Link Students have previously learned that everything is made of matter and that the properties of matter of matter help to identify matter. Now students will learn that the properties of matter help to organize matter on the periodic table.

Time 80 minutes

Materials

Whole class

Color copy of periodic table for teacher demonstration

Crayons

Chart paper

Individual

Copy of the student periodic table

15 Paper clips

Science Notebooks

Per Group (groups of 4)

Chart paper

Crayons

Advance Preparation

1. Copy student periodic table
2. Copy BINGO template
3. Collect cereal boxes (keep for last lesson)

Procedure:

Engage ***(10 minutes) Information about elements is found on the periodic table.***

1. Display a color copy of the periodic table. Explain to students that the periodic table is a chart of everything that makes matter.
2. Distribute student copies of periodic table and paperclips.
3. Have students find the following: Fe, Atomic Number 8, gold, helium, and Na. Once students have located the elements have them place a paperclip on the symbol for each element.

Explore ***(30 minutes) The Periodic Table is an arrangement of all elements based on chemical and physical properties.***

4. Distribute BINGO template to students. Have students select 15 elements from the first 36 elements. Have students fill in the BINGO template with atomic symbols.
5. Explain to students that they will play Periodic Table Bingo by identifying the element from the clues given by the teacher. Direct students to place a paperclip on the element described by the teacher.
6. Give the students clues, e.g., this element has 6 protons (Carbon), this element is used to fill balloons (Helium), we need this element to survive (oxygen), etc.
7. Continue play until one or more students achieve BINGO on their template.
8. Displays color copy of periodic table.
9. Ask students to ***think, pair, share*** about how scientists might have organized the elements.
10. Share ideas with whole group
11. Point out to students that sections of the periodic table are different colors. Explain that some elements are called metals, some are non-metals, and some are called metalloids.
12. On student copies, students will follow teacher directions to color the sections of the periodic table to indicate metals, non-metals, or metalloids, and create a key on the table.
13. Draw an element square on chart paper. Use carbon. Explain that the information given for each element on the periodic table helps us to quickly know the following about the element:
    a. Abbreviation
    b. Name of the element (based on Latin/Greek names)
    c. Atomic number- indicates number of protons and electrons
    d. Atomic weight
14. Have students, in groups of four, select an element from the first 36 elements on the periodic table. Have each group draw an element square with the following:
    a. Abbreviation
    b. Name of the element (based on Latin/Greek names)
    c. Atomic number- indicates number of protons and electrons
    d. Atomic weight

Explain ***(30 minutes) The Periodic Table is an arrangement of all elements based on chemical and physical properties.***

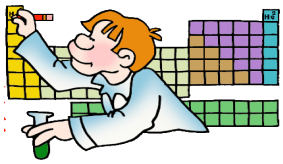
15. Direct each student to use their last name to create a "new" element, e.g., if the student's last name is Smith, the element might be "Smithium". Have each student draw an element square for their new element with the following:
    a. Abbreviation
    b. Name of the element (based on Latin/Greek names)
    c. Atomic number- indicates number of protons and electrons
    d. Atomic weight

Extend ***(10 minutes) Elements make up matter including cereal.***

16. Have students collect empty cereal boxes and bring them to school. Have students read the labels to find elements in their cereal. Direct students to make a data table to record the elements they have found.

Evaluate ***(5 minutes) Elements make up all the matter around us.***

17. Have students use their science notebooks to respond to the following prompt:
    "I used to think elements were _____. Now I think elements are _____."



BINGO