Contributors

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Intended Audience

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>K-4</td>
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<tr>
<td>5-8</td>
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</tr>
<tr>
<td>9-12</td>
<td>X</td>
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</tbody>
</table>

Activity Characteristics

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Classroom Setting</td>
<td>X</td>
</tr>
<tr>
<td>Requires special equipment</td>
<td></td>
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<tr>
<td>Uses hands-on manipulatives</td>
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<tr>
<td>Requires mathematical skills</td>
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<tr>
<td>Can be performed individually</td>
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<tr>
<td>Requires group work</td>
<td>X</td>
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<tr>
<td>Requires more than one (45 min class) period</td>
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<tr>
<td>Appropriate for special needs student</td>
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Introduction

Description

Students will review the different components of the periodic table through playing an interactive game.

Abstract

Modeled after the classic card game Taboo, students will try to guess components of the periodic table like atomic name, atomic mass, and atomic number without using the keywords on the index card. In this version of the game students will have to rely on their knowledge of periodic table organization, group names, and valence electrons to correctly answer each keyword on the index cards.

Core Themes Addressed

<table>
<thead>
<tr>
<th>Structure of Atom</th>
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<tbody>
<tr>
<td>Structure and properties of matter</td>
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<tr>
<td>Chemical Reactions</td>
<td></td>
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<tr>
<td>Motions and Forces</td>
<td></td>
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<tr>
<td>Conservation of Energy and Increase in Disorder</td>
<td></td>
</tr>
<tr>
<td>Interactions of energy and matter</td>
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<tr>
<td>Other-Periodic Table</td>
<td>X</td>
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</tbody>
</table>

Keywords

Elements, Atomic Mass, Atomic Number

Learning Objectives

At completion of this activity, learner will:

1. List the different categories of the periodic table.

2. Locate specific elements on the periodic table.

National Science Education Standards Addressed

Standard B: Physical Science

- Structure of atom
Student Prior Knowledge

Students should have the following knowledge prior to completing this activity:

1. The parts of an atom

Teacher Background Information

The periodic table is made up of 118 chemical elements and are organized by their atomic number, periods (arranged horizontally), and groups (arranged vertically). There are eight different elemental categories in the period table: alkali metals, alkaline earth metals, transition metals, metalloids, halogens, noble gases, lanthanide, and actinides. The elements that are grouped together in each category share unique chemical properties. For example, metalloids have properties of both metals and nonmetals. Conveniently the periodic table is arranged in a way to interpret different trends in chemistry. For instance, electronegativity and ionization energy increase as you move across the periods to the right and up the groups.

Class Time

This activity will require a minimum of one 45 minute class period.

1. Introduction Powerpoint- 15 minutes
2. Game Explanation/Put students into groups- 5 minutes
3. Students play the game- 20 minutes
4. Wrap-Up/Review-5 minutes

Teacher Preparation Time

This lesson will require approximately 15 minutes of preparation time.

1. Using cardstock print out the desired sets of taboo cards (one set per group).
2. Along the black lines cut out the cards.
3. Make sure each group has one complete set of taboo cards (25 cards).

Materials and Equipment (Four Students/Group)

1. A complete set of taboo game cards (25 cards) for each group.
2. A handout with a periodic table on it.
Methods

1. Assign students into groups of four at their desks.
2. Place the cards face down on one of the student’s desk.
3. Have one student pick up a card without looking at it and place it on their forehead.
4. The student to the right of the cardholder will give one clue about the underlined word on the index card without using any of the words listed on the card.
5. If the cardholder does not correctly guess the underlined word, then in counterclockwise fashion the next students will give a clue.
6. If the cardholder gets the clue right on the first try they are awarded three points, on the second try they are awarded two points, and on the third try one point. If the word has been correctly guessed, place the card in a new stack.
7. If the cardholder does not guess the word they get zero points and the card is placed face-down under the original stack to be used again.
8. Any time a student uses a taboo word (any word on the card) as a clue, they will lose one point.
9. Have the students in each group police themselves when awarding or deducting points.

Tips/Suggestions

1. This activity can used as an individual lab or can be combined with the entire module.
2. This activity can be modified to have 2-3 or 5-6 people in a group, but it is best played with 4 people in one group.

Answers to Student Handouts

1. List the eight different categories that are found on the periodic table.

The eight different categories on the periodic table are Alkali Metals, Alkaline Earth Metals, Transition Metals, Metalloids, Halogens, Noble Gases, Lanthanide, and Actinides.

2. Explain how you would locate the element Iron on the periodic table without using its abbreviation Fe or its atomic number.

Fe is located in the transition metals of the periodic table. Fe is located in the fourth row on the periodic table. Fe has a mass of 55.85.

3. Explain how you would locate the noble gases on the periodic table without using what group they are in or the word inert.

This is a category of elements that is located on the far right of the periodic table. This category contains the elements helium, neon, argon, krypton, xenon, and radon.
Student Handout

Periodic Table Taboo

Introduction
The periodic table is made up of 118 chemical elements and are organized by their atomic number, periods (arranged horizontally), and groups (arranged vertically). There are eight different elemental categories in the period table: alkali metals, alkaline earth metals, transition metals, metalloids, halogens, noble gases, lanthanide, and actinides. The elements that are grouped together in each category share unique chemical properties. For example, metalloids have properties of both metals and nonmetals. Conveniently the periodic table is arranged in a way to interpret different trends in chemistry. For instance electronegativity and ionization energy increase as you move across the periods to the right and up the groups.

Student Background Knowledge
Students should have the following knowledge prior to completing this activity:

1. Be able to read a periodic table.

Vocabulary
Periodic Table: A tabular arrangement of elements organized by their atomic number, electron configuration, and chemical properties.

Periods: The rows on the periodic table where elements are arranged with other elements of similar chemical properties.

Groups: The columns on the periodic table where elements are arranged with other elements of similar electron configuration.

Materials Checklist
| (1) Complete set of Taboo game cards |
| (4) Handout with Periodic Table |
Procedure

1. Be assigned into groups of four. Arrange your desk to face each other.
2. Place the cards face down on one person’s desk.
3. Have one person pick up a card without looking at it and place it on their forehead.
4. The person to the right of the cardholder will give one clue about the underlined word on the index card without using any of the words listed on the card.
5. If the cardholder does not correctly guess the underlined word, then in counterclockwise fashion the next person will give a clue.
6. If the cardholder gets the clue right on the first try they are awarded three points, on the second try they are awarded two points, and on the third try one point. If the cardholder does not guess the word they get zero points and the card is placed face-down in a different pile.
7. Any time a clue giver uses a taboo word (any word on the card) as a clue, they will lose one point.
8. Police each other when awarding or deducting points. Don’t cheat!

Results

Student Score Sheet

<table>
<thead>
<tr>
<th>Name</th>
<th>Tally Points</th>
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2. Explain how you would locate the element Iron on the periodic table without using its abbreviation Fe or its atomic number.

3. Explain how you would locate the noble gases on the periodic table without using what group they are in or the world inert.