Triangle Game

Student Objective

The student

• will be able to explain in his or her own words the meaning of fundamental term and concepts of hydrogen energy

Materials

- Triangle game board
- instructions
- playing pieces
- tape

Key Words:

(Key words depend on game vocabulary used. Below are the key words used in this hydrogen energy version) biomass combustion electricity

electricity electrolysis electron emissions energy carrier energy source fuel cell greenhouse gas hydrogen hydrogen economy inexhaustible molecule oxygen PEM photovoltaics pollution power plant renewable energy transportation water vapor

Time:

1 hour

Internet Sites http://www.wordcentral.com/

Merriam Webster, Word Central student dictionary

Procedure (prior to class)

- 1. Cut out game pieces
- 2. Print out Key Words/Definitions page
- 3. Game board may be enlarged or laminated

Procedure (in class)

- 1. Assign students to small groups
- 2. Distribute a triangle game board, instruction sheet to each group
- 3. Place the terms at the front of the class for the teams to refer to if there are disputed answers
- 4. Discuss the rules of the game with the class and demonstrate a completed triangle using non-technical terms.
- 5. Allow 30-40 minutes for game time.

Triangle Game

Key Words will vary depending on the vocabulary used. Below are the key words/definitions for the hydrogen energy game pieces included in this unit.

biomass - plant material, vegetation, or agricultural waste used as a fuel or energy source.

combustion - a chemical change, especially oxidation, accompanied by the production of heat and light

electricity - the flow of electrons, usually on a wire

electrolysis - chemical change, especially decomposition, produced in an electrolyte by an electric current

electron - an elementary particle with negative charge

emissions - a substance discharged into the air, especially by an internal combustion engine.

energy carrier - any system or substance used to transfer energy from somewhere to somewhere else

energy source - origins of the power used for transportation, for heat and light in dwelling and working areas, and for the manufacture of goods of all kinds, among other applications

fuel cell - an electrochemical cell in which the energy of a reaction between a fuel, such as hydrogen, and an oxidant, such as oxygen, is converted directly and continuously into electrical energy

greenhouse gas - a gas that contributes to the greenhouse effect by absorbing infrared radiation

hydrogen - a colorless, highly flammable gaseous element, the lightest of all gases and the most abundant element in the universe

hydrogen economy - a hypothetical future economy in which the primary form of stored energy for mobile applications and load balancing is hydrogen

inexhaustible - cannot be entirely consumed or used up

molecule - the smallest particle of a substance that retains the chemical and physical properties

of the substance and is composed of two or more atoms; a group of like or different atoms held together by chemical forces

oxygen - an element constituting 21 percent of the atmosphere by volume that occurs as a diatomic gas, O2, combines with most elements, is essential for plant and animal respiration, and is required for nearly all combustion

PEM - Proton Exchange Membrane. Refers to the most common type of fuel cell

photovoltaics - the process of turning the energy of the sun into electricity by using a solar (photovoltaic) cell

pollution - undesirable state of the natural environment being contaminated with harmful substances as a consequence of human activities

power plant - a complex of structures, machinery, and associated equipment for generating electric energy from another source of energy

renewable energy - energy derived from sources that do not use up natural resources or harm the environment

transportation - the business of conveying passengers or goods.

voltage - the rate at which energy is drawn from a source that produces a flow of electricity in a circuit; expressed in volts

Triangle Game

A game to demonstrate connections between vocabulary terms

Individual Player Version

The Object: To be the player with the most points at the end of the game.

The Set Up: Vocabulary terms are placed on small slips of paper and turned face down on the playing surface. Each player writes their name on the back of the triangle game board.

The Play:

- 1. The first player randomly chooses a term, defines that term, and uses it in a sentence.
- 2. The player then attaches (glue or tape) the term to any intersection point on the game board.
- 3. The next player randomly chooses a term, defines the term and uses it in a sentence. If the player is able to demonstrate a relationship between his/her term and another term, they place their term on another point of that same triangle. If the player can not demonstrate a relationship with any of the other terms on the game board they must attach their term to an intersection point on any open triangle.
- 4. Play continues with terms being attached to the game board.
- 5. When a player is able to explain a relationship between his/her term and the other two terms on the points of a triangle he/she initials the completed triangle and receives a game point.

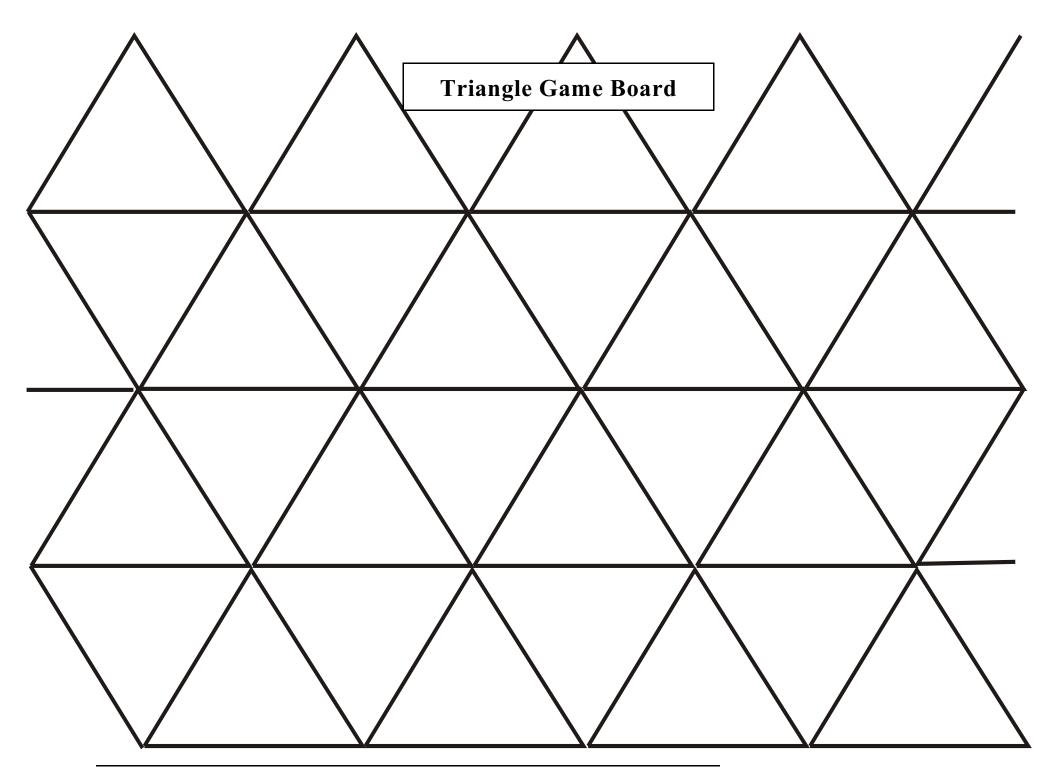
The Winner: When the time allotted for play is complete, the player with the most game points (or completed triangles) wins.

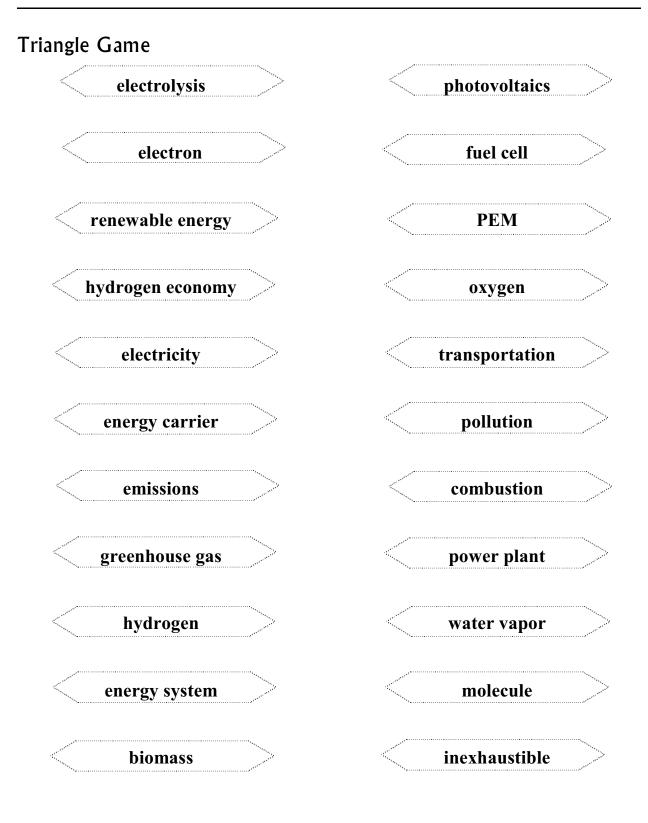
Team Version

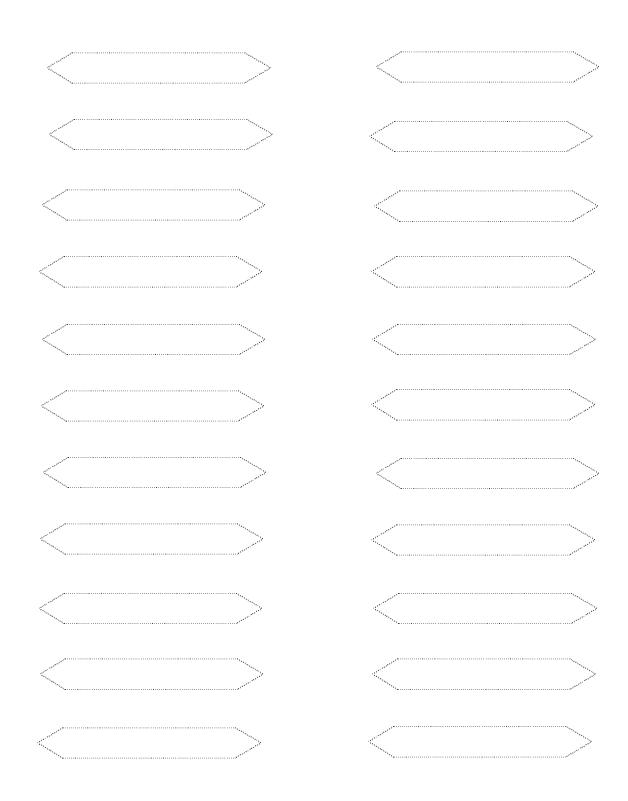
The Object: To be the team with the most completed triangles at the end of the game.

The Set Up: Same as Individual Player Version

- The Play: The same as Individual Player Version, except that cooperation between team members is encouraged and players do not put their initials in completed triangles.
- The Winner: When the time allotted for play is complete, the team with the most completed triangles wins.







Florida Solar Energy Center