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)

anode
biomass
cathode
combustion
distributed generation
electrolysis
electrode
electron
emissions
energy carrier
energy source
fuel cell
greenhouse gas
hydrogen economy
inexhaustible
metal hydride
nafion
peak oil
PEM
photovoltaics
renewable energy
voltage

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.

anode - the negative terminal or chamber, as in a fuel cell

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

cathode - the positive terminal or chamber, as in a fuel cell

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

distributed generation - refers to the generation of power from smaller individualized sites rather than large central power plants

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

electrode - a collector or emitter of electric charge or of electric-charge carriers, as in a semiconducting device

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 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

metal hydride - compounds containing hydride ions, usually in combination with metals

nafion - Nafion® is DuPont's trademark of a sulfonated tetrafluorethylene polymer modified from Teflon® used as an ion-exchange membrane for applications such as Proton Exchange Membrane (PEM) fuel cells.

peak oil - the time when the world's oil production will reach its greatest possible output and begin to decline

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

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

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

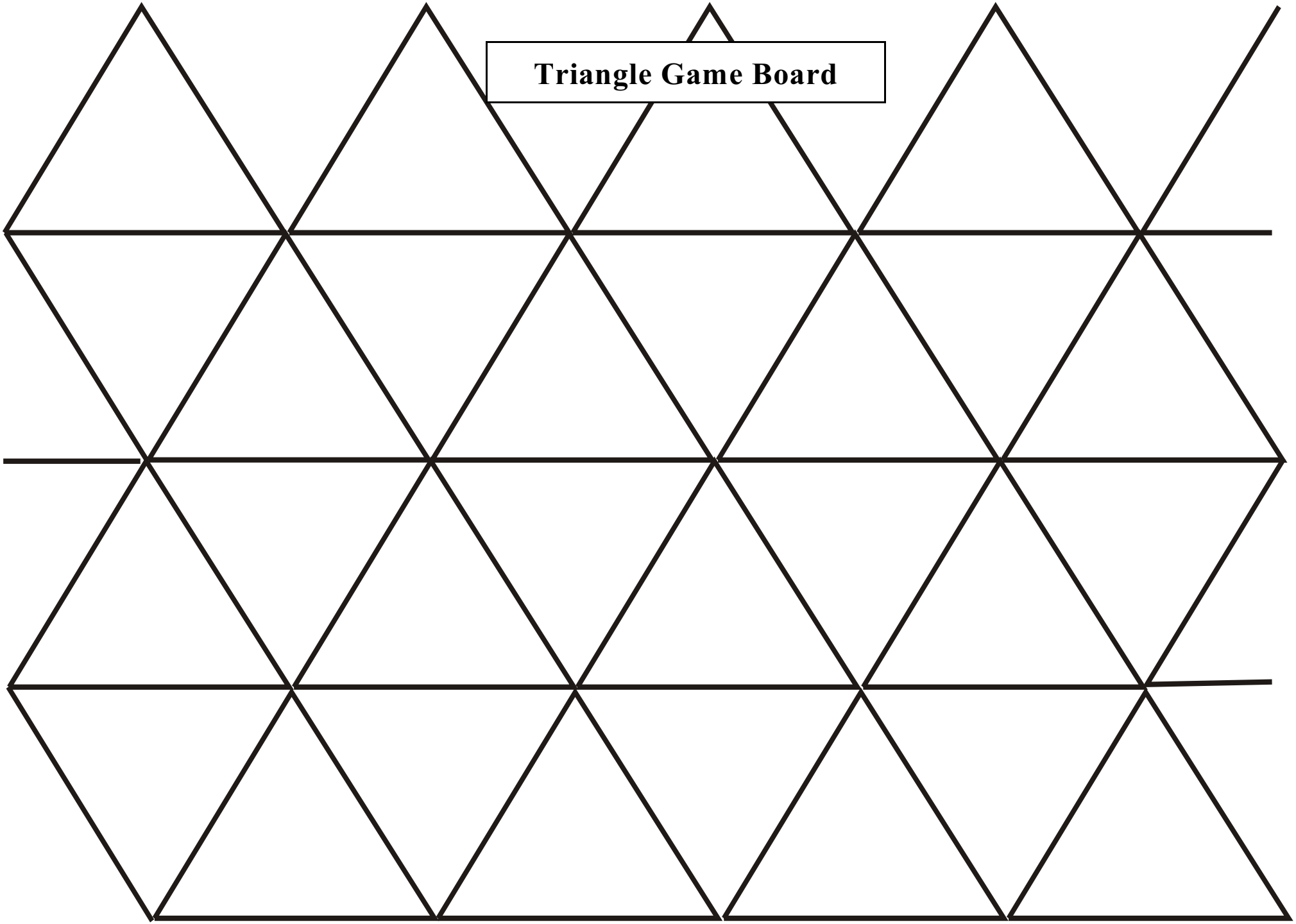
The Object: To be the team with the most completed triangles at the end of the game.

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.

Triangle Game Board



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