

Elements Fact Game

Game Includes:

236 Element Trivia cards (118 true or false and 118 ABC multiple choice), 2 card holders, 1 six-faced die, 1 timer, 1 buzzer, 1 prototype scoresheet, and instructions.

Players and Knowledge Requirements:

3-4 players. Requires basic knowledge of atomic structure, atomic number, bonding between atoms, and radioactivity.

Game Objective:

To have the most points by the end of the game.






Game Set-up:

Shuffle the true or false cards and the ABC multiple choice cards separately. Place the true or false cards in the card holder labeled “2” and the ABC multiple choice cards in the holder labeled “3”. Have each player take a scoresheet and a pen or pencil.

The Cards:

The question cards are also called element cards. Each card corresponds to a particular element. For example, the selenium element card has the word “Selenium” on top, preceded by the selenium’s chemical symbol, “Se.” Right below, there is the number “34” because 34 is selenium’s atomic number. The question on that card will be some subject relating to selenium. There are two cards per element; one is a true or false card, and the other is an ABC multiple choice card. Some of the 236 element cards have a bonus fact or extra information that is not included in the question.

How to Play:

-  Choose a person to ask the questions on the cards; he/she is called the judge. The game proceeds as follows. During the game, only the judge may look at the cards!
-  The judge rolls the die; three sides of the die are marked with 2's, and three sides are marked with 3's. If a 2 is rolled, the judge picks a card from the true or false stack and reads the name of the element, its atomic number, and the question on the card. If a 3 is rolled, the judge picks a card from the ABC multiple choice stack and does likewise. If one card holder is already exhausted of cards, the judge will simply pick a card from the other holder and the die is no longer required to be rolled.
-  After the judge reads the question, he/she sets the timer. The timer can be set to either 10, 20, 30, or 40 seconds. Players should agree on a time control before the beginning of the game. Only after the entire question is read and the timer is started may answering the question be attempted.
-  As soon as the timer is started, the game becomes a race to answer first, because only one player may attempt to answer the question (When an answer is proposed by a player, all other players must be quiet and refrain from giving their own answers.) When a player is ready to answer a question, he/she hits the buzzer and gives his/her answer.
-  If a player answers the question correctly, he/she keeps the card and is awarded 10 points (see scoring section of instructions). If a player does not answer the question correctly, the judge awards the 10 points to the player with the lowest score (other than the player who answered the question incorrectly, of course). However, the judge should put the card itself in the discard pile. If the timer runs out before any answer is proposed, the judge also puts the card in the discard pile. After any of these three occurrences, the judge rolls the die and the cycle goes on. Note that two discard piles should be made, one for each type of card.

- ✚ An added “element” of fun to the game is building molecules. Players can combine two or more non-metallic element cards they have obtained to build a molecule. For example, if a player has one hydrogen card and one bromine card, he/she can combine them to make a hydrogen bromide (HBr) molecule. Players may also build small, polyatomic ions (e.g., OH^- (hydroxide)). **For advanced players:** In addition to building molecules, players may also build functional groups which branch off larger molecules (e.g., NH_2) or polymeric units (e.g., CH_2). In any case, only **covalently bonded** structures are allowed.
- ✚ After any molecule or other structure is built, additional cards may not be added on to it; each card combination should remain individual after it is built. However, a player is **not** required to build a molecule as soon as he/she is able to. For example, a player with one oxygen card and one carbon card does not have to build a carbon monoxide (CO) molecule right away. He/she could wait until he/she had won the second oxygen card, in order to build a carbon dioxide (CO_2) molecule and thus gain more points. Note that players may not build a structure of any kind unless they are **absolutely sure** that their proposed card combination is a real structure that can actually exist. For each 2-card structure that is built, its builder receives 50 points. For each 3-or-more-card structure that is built, its builder receives 100 points.
- ✚ Since the building of structures concerns only the non-metal elements of the periodic table, metals and metalloids must be given a different treatment. If a player manages to obtain both cards for a metal or a metalloid, he/she is awarded the title of “Metal Master” (for that element) and should be given 20 additional points when he/she obtains the second card.




Ending the Game:

The game ends when none of the cards are left in the holders. At this point, the players hand in their scoresheets to the judge and he/she tallies the scores, considering both the element card points and molecule/other structure points. After tallying the scores, the judge declares the winner!

Using the Scoresheet:

The scoresheet is divided into 2 columns. The left-hand column is for the question card scores; each time a player gets a new card, he/she writes a “10” in the column. If the card obtained by a player is the second card for a metal or metalloid, he/she writes a “10 + 20” in the column. The right-hand column is for the molecule and other structure scores; each time a player builds a molecule or another type of structure, he/she writes a “50” or “100” in the column, depending on the number of cards used. There is one prototype scoresheet included in the game set. Players can copy the scoresheet electronically or copy the design by hand.

Things to Remember:

-  If the building of structures proves to be too great of a challenge, players should consider extending the concept of “Metal Master” to the non-metals as well. If a player obtains both of the cards for **any** element, they are awarded the title of “Element Expert” (for that element) and are given 20 additional points when they obtain the second card. This method is able to accommodate a range of player abilities while still giving special treatment to all of the elements.
 -  Reference the **periodic table** sheet (included with the game package) for classifications of metals, metalloids, and non-metals.
 -  Copied scoresheets may **NOT** be sold without the permission of the distributor and are strictly designated for use in the Elements Fact Game.
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Extra Information:

A list of the 118 known chemical elements so that players can be familiar with their names.

Hydrogen, Helium, Lithium, Beryllium, Boron, Carbon, Nitrogen, Oxygen, Fluorine, Neon, Sodium, Magnesium, Aluminum, Silicon, Phosphorus, Sulfur, Chlorine, Argon, Potassium, Calcium, Scandium, Titanium, Vanadium, Chromium, Manganese, Iron, Cobalt, Nickel, Copper, Zinc, Gallium, Germanium, Arsenic, Selenium, Bromine, Krypton, Rubidium, Strontium, Yttrium, Zirconium, Niobium, Molybdenum, Technetium, Ruthenium, Rhodium, Palladium, Silver, Cadmium, Indium, Tin, Antimony, Tellurium, Iodine, Xenon, Cesium, Barium, Lanthanum, Cerium, Praseodymium, Neodymium, Promethium, Samarium, Europium, Gadolinium, Terbium, Dysprosium, Holmium, Erbium, Ytterbium, Lutetium, Hafnium, Tantalum, Tungsten, Rhenium, Osmium, Iridium, Platinum, Gold, Mercury, Thallium, Lead, Bismuth, Polonium, Astatine, Radon, Francium, Radium, Actinium, Thorium, Protactinium, Uranium, Neptunium, Plutonium, Americium, Curium, Berkelium, Californium, Einsteinium, Fermium, Mendelevium, Nobelium, Lawrencium, Rutherfordium, Dubnium, Seaborgium, Bohrium, Hassium, Meitnerium, Darmstadtium, Roentgenium, Copernicium, Nihonium, Flerovium, Moscovium, Livermorium, Tennessine, Oganesson

—and all the other elements that still await to be discovered...

A Note of Thanks:

First and foremost, I am extremely grateful to my Mom, Dad, and brother for supporting me and helping my dream to become a reality. I am also infinitely appreciative of my three primary fact research sources. The Elements, by Theodore Gray, www.periodicvideos.com, produced by chemists at Nottingham University and filmed by video journalist Brady Haran, and last but not least, good old Wikipedia (we all use it at some point).

Most of all, I thank **you**, customer, for your purchase of this game. I hope it will help you to have a deeper appreciation and awe for the elements, which were created by God, the supreme master of the universe.

Please note that the instructions are not 100% rigid and fixed; you are free to create your own “house rules” at any time (except during the game). After all, the instructions themselves have gone through many changes during product development.

Enjoy the game!

—*Ethan*
