Title: EDUCATIONAL BATTLE GAME AND METHOD OF TEACHING KEY THEORIES AND FACTS

Abstract: An educational battle game method for teaching key theories and facts in an academic discipline. Game cards import and display key factual data relating to a body of knowledge and are employed in competitive exchanges involving attacks and defenses by the respective players, with the outcome of such exchanges determined by rules applied to the descriptive and/or numerical information about the factual entities that distinguish one factual entity from another. Chance elements and strategic variables may be introduced by chance devices and/or strategic variable cards to allow the outcome of the exchanges.
EDUCATIONAL BATTLE GAME METHOD OF
TEACHING KEY THEORIES AND FACTS

CROSS REFERENCES TO RELATED APPLICATIONS

[0001] The present application claims the benefit of United States Provisional Patent Application Serial Number 60/687,187, filed 06/03/2005 (June 3, 2005).

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] Not applicable.

THE NAMES OR PARTIES TO A JOINT RESEARCH AGREEMENT

[0003] Not applicable.

INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC

[0004] Not applicable.
BACKGROUND OF THE INVENTION

[0005] Field of the Invention: The present invention relates generally to games, and more particularly to educational games, and still more particularly to an educational battle game method of teaching the periodic table of the elements. It can be played with physical cards or, alternatively, with the data from the periodic table in various media, combined with game-specific terminology and characters.

[0006] Discussion of Related Art including information disclosed under 37 CFR §§1.97, 1.98:

In any classroom where chemistry is taught, and in any laboratory or industry where chemistry is practiced, one will almost invariably find a large chart displayed on the wall - the periodic table of the elements. This chart is one of the marvels of visual scientific information and it contains in a very concentrated space a wealth of information about all of the known atomic elements and their relationships to one another. The organizational structure of the periodic table beautifully illustrates the periodic law and contributes immensely to an understanding of the recurring patterns in the properties of the elements according to atomic number. However, the sheer volume of information crowded into the periodic table makes it challenging to master and remember.

[0004] It is well known to provide entertaining teaching devices to teach science. Some might argue that the trend toward making education entertaining is actually compromising the educational process, but most of that criticism is directed at teaching vehicles in which information is delivered to a passive child or student, entertaining educational television being the most common subject of such criticism. Interactive educational teaching devices that are
entertaining and that fully engage the student's senses, however, are heralded as providing an optimum teaching vehicle. Accordingly, a significant investment of time, energy, and money has been made in developing pedagogical games. The list is too replete to set out in detail.

[0007] In recent years role playing and battle card games have become increasingly popular. Among the published documents showing battle game methods, exemplary patents include:

[0008] United States Patent No. 6,601,851 to Sakamoto, et al., issued August 5, 2003, which teaches a card game toy that includes a master card as an alter ego of a player and a plurality of monster cards. It is used in a battle card game by placing it as well as opponents cards in positions on a field of battle. The master card includes a character display portion to display a character, an ability-reducing indication to indicate an ability to reduce the attack power from the opponent, and a card-hand-ability indication to indicate an ability to use a card hand. The monster card includes a character display region to display a character, a position indication indicative of whether of a forward type or backward type, a physical-power indication indicative of a physical-power of the monster, and an ability indication indicative of an ability of the monster.

[0009] United States Patent No. 5,954,332, to Mero, et al., issued September 21, 1999, discloses a role playing dual board game for a plurality of players in which a series of class games are played to determine class winners, then a final game is played in which the class winners unite to battle against a final opponent. The present invention comprises a random number generating device such as dice, and a plurality of game cards. Each of the game cards comprises a plurality of numeric ranges such that the roll of the dice can dictate the relative
utility of that individual playing card. In addition, the invention comprises a plurality of class
game boards and a single final game board, each of said boards having a first and second side.
Each of the class game boards is used to determine a class winner while the final game board is
used by the class winners to unite in a final battle against the final opponent. In accordance with
the above, it is an object of the present invention to provide a role playing game in which class
winners unite to play against a final opponent.

card battle game of chance and strategy involving nature's elements. The device includes a
plurality of nature cards including elements of fire, earth, metal, water and wood wherein fire
destroyed metal, metal cuts down wood, wood covers earth, earth absorbs water, and water puts
out fire. A plurality of advanced cards are also provided. The advanced cards include force of
nature, chaos, and anger of the gods wherein the force of nature counters any nature card, the
chaos card counters the force of nature card or forces the removal of any nature card, and the
anger of the gods card destroys all nature cards in play.

[0011] Several patents include novel methods of deploying character cards in a battle game.
For instance, United States Patent No. 6,554,702, to Mahar, et al., issued April 29, 2003, teaches
a card game of chance and strategy and allows for cards to become collectible, some of which are
provided as rare cards of special appeal. Key rules of the game, such as the flow render the game
a real time card game in which plays are made, not by turn, but by a mechanism which involves
the elements of chance, strategy and players' abilities. The power, effectiveness and functionality
of cards can dynamically change.
Next, United States Patent No. 6,322,077, to Braunlich, et al., issued November 27, 2001, discloses a method of deploying character cards by divided character cards into two groups. One group of character cards includes all the common cards. The common cards represent characters that there are "lots of" in a universe. A second group of character cards includes all the unique character cards. A unique character card may be stackable. A unique character card that is stackable indicates that multiple copies of that unique character card may be used in a particular fight, mission, location or any other event, depending on the particular card game. Alternatively, the common character cards may be stackable. Further, all cards in a playing deck of cards may be stackable, as is desirable, to control the use or deployment of the cards.

A commercially available trading card game, entitled, Adventures of the Elements, is made available through Learning for Life, Three Rivers Council, #578, BSA, of Beaumont, Texas. This trading card game employs the use of colorful characters associated with selected elements. The game commences with each player arbitrarily assigned 5,000 life points, and the object of the game is to destroy an opponent’s points on his or her character card or send his collected cards to an atomic waste field. However, the game suffers several limitations and is of very limited pedagogic value. This is principally due to the fact that the initial assignment of points and the means whereby points are subtracted from an opponent during play bear no relationship to the properties of the elements themselves. However, it suffers other limitations as well. It does not teach the principles behind making molecules and compounds. In fact, players cannot even make compounds without a specific compound card for the specific compound. Players cannot conduct play based on any series of the periodic table. Further, the game does not
employ character names with mnemonic import (with few exceptions, memorable variants on the names of the elements are not inherent in the character names). The trading card set used in the game is incomplete and provides only a very small sampling of the elements. Thus, the nature of the atomic families and periods cannot be appreciated. It does not make any use of constants in the periodic table, such as atomic number or first ionization potential, and therefore does not incorporate such information into the mechanics of game play. The game does not employ the concept of valence electrons, and therefore it does not teach anything about the aufbau principle and its relation to the periodic table. Neither does the game teach anything about the three phases of matter. Accordingly, such information is not conveyed to the users. Thus, while the game has a certain charm and a commendable purpose, it cannot be said to be a means of teaching the periodic table.

[0014] The foregoing patents and prior art products reflect the current state of the art of which the present inventors are aware. Reference to, and discussion of, these patents is intended to aid in discharging Applicants’ acknowledged duty of candor in disclosing information that may be relevant to the examination of claims to the present invention. However, it is respectfully submitted that none of the above-indicated patents disclose, teach, suggest, show, or otherwise render obvious, either singly or when considered in combination, the invention described and claimed herein.

20 **Brief Summary of the Invention**

[0015] The present invention addresses the current needs for a system for teaching key theories
and facts in a new and improved physical version of an educational battle game. An exemplary embodiment is described for teaching the periodic table of the elements. The game, known as Elementals, pits the knowledge and strategies of each player against the knowledge and strategies of opponents. While this illustration focuses on teaching the periodic table, the same method may be used to teach any subject that requires knowledge of characteristics of specified theories and sets of key facts in rigorous academic disciplines where such knowledge is systematized and highly organized in a classification scheme. Accordingly, the inventive card game and method may be adapted for use in teaching subject matter in geography, history, physics, biology, or the social sciences, among many others.

[0016] It is therefore an object of the present invention to provide a new and improved method of teaching key theories and facts of an academic discipline using a battle card game.

[0017] It is another object of the present invention to provide a new and improved battle card game method that is both entertaining and has a high pedagogic value and effect.

[0018] It is yet another object of the present invention to provide a new and improved battle card game that employs character cards associated with specific elements on the periodic table of the elements, each having play characteristics associated with the properties of a particular elements.

[0019] A further object or feature of the present invention is a new and improved method of teaching key theories and facts, in which fanciful character cards are provided with mnemonic names, images, and personal characteristics for aiding in the mastery of the chemical properties of an element.
[0020] Other novel features which are characteristic of the invention, as to organization and method of operation, together with further objects and advantages thereof will be better understood from the following description considered in connection with the accompanying drawings, in which preferred embodiments of the invention are illustrated by way of example. It is to be expressly understood, however, that the drawings are for illustration and description only and are not intended as a definition of the limits of the invention. The various features of novelty that characterize the invention are pointed out with particularity in the claims annexed to and forming part of this disclosure. The invention does not reside in any one of these features taken alone, but rather in the particular combination of all of its structures for the functions specified.

[0021] There has thus been broadly outlined the more important features of the invention in order that the detailed description thereof that follows may be better understood, and in order that the present contribution to the art may be better appreciated. There are, of course, additional features of the invention that will be described hereinafter and which will form additional subject matter of the claims appended hereto. Those skilled in the art will appreciate that the conception upon which this disclosure is based readily may be utilized as a basis for the designing of other structures, methods and systems for carrying out the several purposes of the present invention. It is important, therefore, that the claims be regarded as including such equivalent constructions insofar as they do not depart from the spirit and scope of the present invention.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

[0022] The invention will be better understood and objects other than those set forth above will
become apparent when consideration is given to the following detailed description thereof. Such description makes reference to the annexed drawings wherein:

[0023] FIG. 1 is a perspective view showing the game board and playing apparatus of the educational board game method of teaching key facts and theories of the present invention, including various stacks of playing cards, dice cups, the game board itself, and a handle employed for carrying the game when packaged as shown in FIG. 2;

[0024] FIG. 2 is a perspective view showing the game board rolled into a cylindrical container, container game elements within the container, and held into such form with a novel handle apparatus;

[0025] FIG. 3 is a top plan view of the game board of the present invention;

[0026] FIG. 4 is a schematic plan view showing an exemplary element character card;

[0027] FIG. 5 is a schematic plan view showing another exemplary element character card;

[0028] FIG. 6 is a schematic plan view showing yet another element card;

[0029] FIG. 7A is a schematic plan view showing an exemplary mole card;

[0030] FIG. 7B is a schematic plan view showing another mole card;

[0031] FIG. 7C is a schematic plan view showing yet another mole card; and

[0032] FIG. 8 is a schematic plan view showing the game chart, with fanciful characters organized and displayed identically to the periodic table according to families and periods.

DetaileD Description of the Invention

[0033] In the detailed description that follows, several unique and novel terms are employed.
The following definitions are provided to assist in better understanding the disclosure.

[0034] "Elementals" - a game utilizing the components, as shown in the drawings and described in this detailed description, in which players use Element character cards based on the periodic table of the elements. A player wins by accumulating more cards in the first or second phases of the game, respectively, or by combining the cards as compound combo's, alloy allies, and fraternal factions in the last of the three phases of the three-phase game to score the most points. Elementals (frequently referred to herein simply as "the game") uses various learning and mnemonic techniques as a method of teaching the principals of general science, the period table of the elements, atomic properties, and the basic terminology and concepts of physics and chemistry. The game is also a form of recreational entertainment independent of its educational value and techniques, which further enhances its teaching potential.

[0035] "Elemon" - refers to the abstract content of the Element cards and card characters, including all the characteristics and attributes of the characters as indicated on the card; each elemon is associated with only one element in the periodic table.

[0036] "ATN" - a number based on the atomic number of respective elements in the periodic table. This number is used to determine the order of attack sequences in the second (intermediate) phase of the game. ATN is the abbreviation for attack number.

[0037] "Attack number" - a number based on the atomic number of respective elements that determines the order of attack sequences in the intermediate phase of the game.

[0038] "Injury points" - abbreviated as "IP," is a number based on the first ionization potential of respective elements used to determine injury (reduction to IP) an elemon can sustain before
being liberated in the second (intermediate) phase of the game Elementals.

[0039] “Electro-shield” - abbreviated as “ES”, a fictitious shield based on the electron shells of respective atoms that allow the elemon to mitigate "damage" (i.e., reductions to their IP).

[0040] “Damage” - any reduction in an elemon character’s IP.

[0041] “Liberated” - a term applied to an elemon that is not triumphant or whose IP reaches zero in the first or second phase of the game. Liberated Elementals cards are placed on the player's liberated elemon space.

[0042] “Triumphant elemon” - an Element character cards which advances from the first to the second phase of the game. The triumphant elemon is found in the first phase of the game when at each turn players pit Elemont card against Element card. The triumphant elemon is determined by identifying the phase of matter that the base element would be in at 1400°C (the default melting pot temperature), and then comparing it to the phase of matter of the opponent's elemon phase of matter in the melting pot. While variations can be elected, gas triumphs over liquid, and liquid triumphs over solid. If the result is a tie, both elemon are considered to be triumphant.

[0043] “Elemont base pile” - the pile of Elementals cards that begins the game on the elemon start space at the beginning of the game.

[0044] “Mole hill” - also known as the “mole play” card space on the game board; the starting space for the mole cards if mole cards are to be used in the game.

[0045] “Mole hole” - the space on the game map for earned mole cards if mole cards are to be used; also referred to as the “Mole Discard Pile” card spaces on the game board.

[0046] “Melting pot” - a cardspace onto which Elementals cards are played in the first phase of
the game. The melting pot is usually understood to have an imaginary temperature of 2250°C, unless this imaginary temperature has been altered by the use of optional mole card rules, present on individual optional mole cards, sold separately.

[0047] “Order” - a battle is considered to be in order when the player holding the card with the lowest ATN announces that he will use attack equations in the exact order (read from top to bottom) in which they are listed on the cards.

[0048] “Chaos” - a battle is considered to be in chaos when the player holding the card with the lowest ATN announces that the property attack equations may be used in any order, as long as each attack equation is used only once before each of the others are used.

[0049] “Microindo” - a term to describe the imaginary window “scienauts” look through to see the imaginary actions and events of the element characters in the microindojo space in the game.

[0050] “Microindojo” - a space into which Element cards are placed for the second phase of the game.

[0051] “Victorious element” - a term used to describe an Element card which advances from the second to the third phase of the game.

[0052] “Mole card” - an optional card containing specific instructions for its play in all phases of the game. Mole card instructions delineate which and in how many of the three phases the mole card may be played, and how it is incorporated into play. Mole cards are not necessary for game play, but merely enhance game strategy and variations of regular game play.

[0053] “Mole discard pile” - a card space where mole cards are placed after use in the first or
second phase of the game.

[0054] "Mole play space" - a space, adjacent to the melting pot and/or microindojo where optional mole cards are to be played in the first and second phases of the game.

[0055] "Soliga/The Triple Pot" - a name for the first phase of play of the three phases of the game.

[0056] "Winodo" - a term used to describe the second phase of play of the game; may also be called "Table Phase."

[0057] "Ligaso/Final conflict" - a term used to identify the third phase of play of the game.

[0058] "Attack equations" - an equation using variables to prescribe potential values for various game-based "property" attacks. The variables include the top dice number range value and the "EC" and "FM" variables. Occasionally, attack equations may contain another game-specific variable such as ATN.

[0059] "Property attack" - this term describes the various imaginary attacks of elemon characters based on the actual properties and real world uses of the base element of the elemon character, but sometimes based simply on the elemon character itself.

[0060] "Top dice number range value" - a range of numbers consisting of a range of two to six numbers in sequence from lowest to highest. The top dice range value uses the first and last numbers in the range, respectively, separated by the preposition (to). The range is determined by the attack equation. The value is determined with a six-sided die roll or a spinning dice called a top dice, which may be spun instead of being rolled like a traditional die, as per the rules.

[0061] "Top dice" - a special six sided die that may be spun like a top, or rolled like a
traditional dice.

[0062] "Electro-coins" - two-sided disks with a + sign on one side and a - sign on the other, flipped to determine the EC variable for attack equations. Electro-coins are also flipped to determine electro-shield value and sometimes to determine if or how an event in the game takes place. Regular coins may be substituted in place of actual game electro-coins. Heads results are recorded as +, and tails are recorded as minus.

[0063] "+EC" - this indicates an electro-coin toss must take place. If the result is a plus (+), the action takes place. If this part of an attack equation, one (1) is added to the + result.

[0064] "-EC" - this indicates that an action takes place in the game if the result of an electrocoin toss is a minus (-). If this is part of an attack equation, one (1) is subtracted from the result.

[0065] "+-EC" - this indicates that one of two game actions will take place depending on whether an electrocoin toss results in a plus (+) or a minus (-). If this is part of an attack equation, one (1) is added to the result if the result is a plus (+), and one (1) is subtracted from the result if the result is a minus (-).

[0066] "Faction Monifier" - a chart used to determine the Faction Monifier(FM) variable for attack equations and faction fraternities, based on the series of the periodic table.

[0067] "Scienzaught" - the term used to describe a player at any level of the game.

[0068] "Scenate" - a beginning player of the game. A scenate is capable of playing only the first phase of the game.

[0069] "Scieman" - an intermediate player of the game. A scieman is capable of playing only
the first and second phases of the game.

[0070] "Scielate" - a player capable of playing all three phases of the game.

[0071] "Oscie" - someone who teaches others to play the game in all of the three phases of the game.

[0072] "Master Oscie" - a player who has reached a prescribed number of victories in tournament play.

[0073] "Liberated elemon space" - a place on the game board where liberated Element cards of the respective scienata are placed. The liberated elemon space is further delineated in the game map.

[0074] "Game map" (also "game board") - a foldable game mat which outlines all the prospective spaces for respective cards into the various phases of the game. A game map is helpful to, but not necessary for game play.

[0075] Referring now to FIGS. 1 through 8, wherein like reference numerals refer to like components in the various views, there is illustrated therein a new and improved battle card game for teaching key theories and facts, the carrying apparatus and components for which are collectively denominated 10 herein. Those components include top dice 20, cups for throwing top dice 30, a printed set of rules 40, Electro-coins 50, Element cards 60, a carry handle 70 having a strap 80 with a ring 90 disposed on each end, and a game board, or game map, 100.

[0076] FIG. 2 shows how the game map 100, may be rolled into a cylinder to create a cylindrical void into which the smaller game components 30, 40, 50, 60 may be placed for storage and transport. Cups 90 are placed over the ends of the rolled game board and the board is
allowed to unrolled sufficiently to be urged against the insides of the cups. Its cylindrical shape is thus maintained and the contents are captured inside. The handle 80 may then be employed to carry the game about.

[0077] FIGS. 1 and 3 each illustrate a preferred embodiment of the board that may be employed in the inventive game. These views shows that the board 100 includes a game map having a first side 110 and second side 120, symmetrical around a center portion 130, referred to alternatively as the melting pot or Windojo. The Windojo includes a faction polygon 132 with associated faction abbreviations 134. The game map further includes a plurality of card spaces upon which game cards can be laid, including elemon start spaces 140, mole card start spaces 150a, mole discard spaces 150b, compound attack combo spaces 160a, 160b, triumphant element card spaces 170, earned mole card spaces 180, strategic play set spaces 190, first and second alloy allies/frat fraction/rhythm run spaces 190a, 190b, liberated elemon spaces 200, and mole play spaces 210.

[0078] The game map allows players to “map” or track play progression by placing cards in appropriate spaces as the game advances. However, the first phase of the game may be played with only cards.

[0079] The game cards employed in the inventive game are variously referred to synonymously herein as game cards, battle cards, Element character cards, and Element cards. Every card is artistically designed to have significant aesthetic appeal to identified users, and the cards are thus less likely to be treated casually or lost.

[0080] FIGS. 4-6 show examples of Element character cards used in the battle game method of
the present invention. The cards illustrated in FIGS. 4-6, as well as all such companion cards in the Element character card set, includes an ornamental but generic first side (not shown) and an informational Element character side, as depicted in each of the illustrated cards. The information and character depicted on each card is based on an element in the periodic table. For example,

FIG. 4 shows a card 300 based on the base element carbon. For didactic and mnemonic purposes, the element is expressly identified by name in the element name portion 330. The cards further include an element character name 340, an element image 350, a designation of the ATN 360, an indication of the IP 370, an attack equation 375, a phase indicator portion 380, which defines the state(s) of matter in which the base element occurs at the melting pot temperature 385, as well as the temperatures at which the element undergoes phase changes. The Element character card further includes: an Attack Equation table 390; an electro-shield indicator 400; a Faction Monifier chart 410, including a character faction 412, a faction polygon 415 comprising faction lines 416, 417, 418, and 419 connecting the character’s faction to other possible factions; and a talent list 420.

[0081] FIGS. 7A-C show exemplary mole cards 500. Like the element character cards, these cards are provided with fanciful and memorable images 510 that bears some relationship to its game properties. Each card includes an instruction panel 520 that sets out the effect of employing the card in any battle exchange at particular phases of play, the numbered diagram of the mole card 530; and the mole name 540.

[0082] FIG. 8 shows a game chart 600, in which all of the element character cards are
substituted for the base element from which they are derived. Accordingly, they are organized and displayed according to same principles that govern the vertical and horizontal groupings of
the elements into chemical series, groups, and periods.

[0083] In a first preferred embodiment of the inventive method, the battle game is divided into
three phases. Rules for each phase of the game are set forth as follows:

[0084] The inventive game and method includes three linked phases named, respectively,
“Soliga” the first phase; “Windojo,” the second phase; and “Final Conflict”, the third phase.
Each phase may be played separately from the other phases in a stand alone and self-contained

[0085] Optionally, over fifty mole cards may be introduced and brought into play. Mole cards
can affect game play in any of the three phases depending upon which of the over fifty mole
cards the is being played. Mole card instructions supercede all normal rules. If a mole card
mandates an action, it must be performed. The mole card may be played once by following the
instructions for play in the phase in which it is being played. It is then discarded. If not played in
an early phase, mole cards can be saved and played later in the third phase.

[0086] First Game Phase: In the first game phase, referred to as Soliga, players agree upon the
number of element character cards that each will play from his starting deck. Each player has the
same number. However, players are free to choose the particular character cards to be included in
the starting deck, and each player endeavors to keep this information hidden from his opponent.
Each player stacks the starting deck in the order desired and then places it on the Elemon Start
space 140 on the game map 100.
After compiling their respective starting decks, each player draws his top card for comparison with his opponent’s. The state of matter is shown in the center of the phase indicator portion 380, or Triplepot, as it may be called, and the indication will be either a liquid (L), solid (S), or a gas (G). A liquid triumphs over a solid; a solid triumphs over a gas; and a gas triumphs over a liquid. If the two cards shown have the same state of matter, the Triplepot temperature cools from the default temperature of 1400°C to room temperature, 25°C, and the phases are read for that temperature. If the states have changed, then a new comparison must be made. If both cards are still in a tie, their respective crystalline structures may be compared, and a crystalline structure hierarchy is employed to determine the triumphant card. The crystalline structure of a base element is identified in the base element name box 330. The crystalline structure hierarchy is set out in the game rules and generally corresponds to the systems of dominant symmetry elements found in crystalline solids. The number 1 structure is superior to all others. The number 2 structure is superior to numbers 3 and all succeeding numbers, and so on. Thus, the lower number triumphs over the higher number. The hierarchy is as follows: (1) Diamond; (2) Ortho; (3) Rhombo; (4) Tetr; (5) Hex; (6) Complex; (7) Cube; (8) Unknown (automatic tie); and (9) Mono.

Alternatively, at the option of the players, both may be considered triumphant.

Play continues in this manner until all the character cards in each player’s deck have been played. Triumphant cards advance to the second game phase. If the first phase of the game is played as a stand alone game, the winner is the player with the most triumphant cards.

Second Game Phase: The triumphant cards from the first game phase advance to the
second phase, termed Windojo. Inside the central Windojo space 130, element character cards engage in a prolonged and involved battle in which they pit their respective IP (injury points) against attacks launched at them by an opposing card. When IP is entirely diminished by successful attacks, the character is “ionized away” to the discard pile or “liberated” from control of its player. The victorious character remains in the Windojo as a spectator to subsequent battles.

[0091] Windojo battles commence in the following manner: Each player uses his triumphant cards from the first game phase as the starting deck. If Windojo is played as a stand alone game, players simply agree upon starting deck size.

[0092] The player with the most cards advancing from Soliga places a element character card in the Windojo first. Alternatively, players secretly choose an element character card from their hand of cards to play in the first Windojo battle. The first cards are simultaneously placed in the Windojo.

[0093] The ATN 360 indicated on each element character cards is compared to that of the other card. The card with the lowest ATN attacks first and also decides and announces whether an “order” or “chaos” battle is to take place. In an “order” battle both of the element character card attacks and electroshields must be used in the “order” in which they are listed from first to last, one at a time. In a “chaos” battle both of the element character card attacks and electroshields may be chosen as desired, but they are deployed one at a time.

[0094] In the Windojo, the first played element character begins battle with the opponent’s element character card when its controlling player announces an attack. One of the attack
equations 375 listed on the character card is chosen, and the player then rolls a range die 20 and the indicated number of electro-coins to determine a “damage” number. If an attack equation has not been chosen in advance, any rolling of die or coins is nullified. In such an instance, the attack equation must first be announced and the dice and/or coins thrown again.

The damage is then calculated by rolling a single range die 20 and the number of electrocoins at the same time to obtain a damage number. Any leaning coins or dice are re-rolled. A botched equation (i.e., one which after announced has the incorrect amount of coins or dice) is considered a “zilch,” unless some kind of accident has happened. A zilch also occurs when a player rolls a non-scoring equation; in an order battle this allows the opposing player to reserve the available electroshield and substitute it later for another shield layer, or to add it to the available shield layer for a better defense. When substituted for another layer in a later defense, the shield replaced then becomes a new “floating” [read: reserved] shield. A player may have only one floating shield at any time and may not earn a floating shield from a recharging center shield.

The damage number calculated at this stage of the game is then applied to the opponent’s element character card. In defense, the controlling player for that card employs the indicated electroshield number to absorb some or all of the damage energy. The electroshield is used defensively by flipping the indicated number of electrocoins for that shield. If the electroshield is a single digit number, the indicated number of electrocoins are flipped; if it is a two digit number, the numbers are added to determine the number of electrocoins flipped.

For example if a player has a 2 electroshield to defend with, he simultaneously flips two
electrocoins in defense. Each electrocoin has one side with a plus sign and one side with a minus sign. Each minus sign flip result absorbs one point of damage. If both electrocoins flipped show minus signs, two damage points are absorbed.

[0098] A defensive player must use and rotate shields in the proper order when play is conducted in an “order” battle. The number of coins to be flipped is determined by reading the indicated numbers beginning with the tip of the illustrated electron orbit ellipse point at the 10:30 position 405 and then moving counter-clockwise until all outer shields are used. The center shield is used last and then as many times as needed.

[0099] Any damage points remaining after the defensive electroshield flips are subtracted from the opponent element character card's IP (Injury Points). When an element character card's IP points are reduced to zero or below, then that character is instantly ionized or “liberated” to the discard pile.

[0100] The battle continues with the other element character taking the attack and its opponent defending. These turns continue, with one character attacking and the other defending, switching roles in turn until one element character is “liberated” to the discard pile by having its IP (Injury Points) eliminated or exceeded.

[0101] The victorious element characters stay in the Windojo to watch the other battles and move on to the third phase, known as The Final Conflict. However, if Windojo was played by the players as a stand alone game, the player with the most victorious element character cards at game’s end wins.

[0102] Attack Equations: Attack equations look complex initially, but they are one of the
easiest parts of the game to understand and master. They have two basic parts. The first part is a number range represented by one die the “Topdice” or “T-Bone”. The second part is represented by a number of electrocoins shown as discs in the equation. The die and coins are shaken together in the dice cup or in a player’s hand and simultaneously thrown to determine the results of that equation. The following equations will serve as examples:

Example 1: 6 to 10 + OOO: In this example one die and 3 electrocoins are rolled. The die covers the 6 to 10 range value. The die has 6 sides and for this range would read: T-Bone = 10 (highest value in the range), T-1 = 9, T-2 = 8, T-3 = 7, T-4 = 6, T-5 = 6. The T means top range value with the minus number subtracting from that on a T-#. In this example, T-4 and T-5 have the same value because the bottom of the range is listed as 6 (one cannot go any lower than the bottom value of the listed range). In this example, if a T-3 is rolled, the calculated value is 7.

The three electrocoins are rolled at the same time as the die, and in this example only the plus (+) side of the coins are counted. If the electrocoin roll results in two plus (+) and one minus (−) as results, the equation requires that only the plus sides are counted, so the result is a 2 value.

Thus, in this first example, the final damage number is the 7 from the range die plus the 2 from the electrocoin flips, or Damage = 7 + 2 = 9.

Example 2: 5 to 9 – In this example one die and 3 electrocoins are rolled. The die covers the range value of 5 to 9. The die has six sides and for this the range would read: T = 9 (for Top, highest value in the range), T-1 = 8, T-2 = 7, T-3 = 6, T-4 = 5, T-5 = 5. The T means top range value with the minus number subtracting from that on a T-#. In this example, T-4 and
T-5 have the same value because the bottom of the range is listed as 5 (again, one cannot go any lower than the bottom value of the listed range). In this example if the roll of the dice showed a T-4, then the value would be 5. The attack equation requires that both plus (+) and minus (−) be counted on the three electrocoins flipped during or after the die are rolled. If the coins showed two plus (+) and one minus (−) for results, the one minus cancels out one plus, leaving one plus result. The final number is 5 from the range die plus 1 from the electrocoin flips, and so Damage = 5 + 1 = 6.

[0107] Factions: In the inventive game the element characters are divided up into factions based upon their periodic series. A faction is basically a predetermined group of element characters which shows how these characters relate to each other in the game. Each element character card includes a faction polygon 415 as part of the faction modifier 410, which shows how the character's faction polygon would relate to the other factions. Characters never change factions in the standard rules.


[0109] The faction polygon 415 also shows that card's faction 412 and the electrocoin modifier to an equation that has an FM (faction modifier) number of coins in it (for example, see the attack equation in FIG. 4). The longest line between two factions (directly opposed) is a 3 coin modifier, the next longest line is a 2 coin modifier, and the shortest line is a 1 coin modifier. The
faction adjacent to a faction on the polygon must be flipped for in order to gain a plus 1 coin modifier. Thus, if a player flips one coin and get a plus (+), then a 1 electrocoin FM results; otherwise there is no modifier for the faction for that battle. Each player makes his own flip in this case. Characters in the same faction have a 0 faction modifier. Summarized: the longest faction line 416 is a 3 modifier (3 FM); the next longest faction line 417 is a 2 modifier (2 FM); the shortest faction line 418 is a 1 modifier (1 FM); and the adjacent faction line 419, requires that the player flip to gain a 1 FM.

[0110] Third Game Phase: The victorious cards from game phase two advance to game phase three, named Final Conflict. In Final Conflict, players attempt to score points by using the victorious element character cards and any mole cards they have saved. In a stand alone Final Conflict game, starting element character cards and mole cards must be agreed upon and randomly dealt out. A time limit for setting the starting deck set may also be agreed upon.

[0111] Turns are not taken in this game. Rather, each player plays his cards as desired. Once played for score, cards may not be used again. Points are earned in the following way:

[0112] Alloy Allies – Some elements bond together and form “real” alloys. An alloy is a new mixture with different desirable properties. If a player possesses cards sufficient to make a real alloy, a successful combination can be worth many points. To score points making such combinations, a player flips one coin for each card in the Alloy Ally, and for each positive result the player scores 10 points. The player may also dedicate one mole card per each Alloy member before any flips are made to try to score 50% more points per successful positive result flip (15 points).
Frat Factions – Element character cards of the same faction can be played for score. A minimum number of three cards of the same faction must be played. Scoring derives from the number of cards in the faction played multiplied by that same number. Thus, if a player has three Non-Metal Faction cards, they may be played together for a score of \(3 \times 3 = 9\) points. Five played cards of the same faction would score \(5(\text{cards}) \times 5(\text{the same number}) = 25\) points. There is an extra full faction bonus of 50 points for playing all the cards of a faction as a Frat Faction in Final Conflict. Depending upon the faction, this play can become nearly impossible.

Rhythm Runs – There are two types of Rhythm Runs, named “Cross Run” and “House Run”. In a Cross Run, element character cards with sequential ATNs may be played together for a score. A minimum of three cards must be played. But any number of cards above the three may be played for a “Cross Run”. If, for instance, a player were to play Bearrayium ATN 4, Boronicle ATN 5, and Carbone ATN 6, they could be played together as a Cross Run. The first three cards score \(3 \times 3 = 9\) points. For each card after the first three, there is an additional multiplier of two (2). So for a five card Cross Run, the scoring would include \(3 \times 3\) for the first three cards, or 9 points, multiplied by two (x 2) for the fourth card, and 18 points x 2 for the fifth and last card, for a total of 36 points. A five card Cross Run is scored: \(3 \times 3 \times 2 \times 2 = 36\) points.

In a House Run, element character cards are scored in precisely the way they are scored in a Cross Run, except that the ATNs are in progression only inside a particular faction. So a House Run inside the Noble Gasses Faction could be Baron Helios ATN 2, Czar Neonoff ATN 10, and Senator Argonaut ATN 18, because these element characters are the next highest progression of ATN numbers inside that faction.
[0116] Combo Compounds – Elements also form compounds, indicated by “real” chemical molecular formulas such as H₂O. To make any Compound Combo a player needs a “real” chemical formula, all of the element character cards comprising the formula (the letters part or atomic symbols which is specific to that element), and the correct mole number of atoms (add the numbers in the formula and also add 1 for each atomic symbol without a number).

[0117] Scoring for a Compound Combo is: [number of elements in the formula] x [Number of mole atoms] x 2 [for each mole legally used in the equation adding up to the correct number of mole atoms] = total points.

[0118] The above disclosure is sufficient to enable one of ordinary skill in the art to practice the invention, and provides the best mode of practicing the invention presently contemplated by the inventor. While there is provided herein a full and complete disclosure of the preferred embodiments of this invention, it is not desired to limit the invention to the exact construction, dimensional relationships, and operation shown and described. Various modifications, alternative constructions, changes and equivalents will readily occur to those skilled in the art and may be employed, as suitable, without departing from the true spirit and scope of the invention. Such changes might involve different materials, components, structural arrangements, sizes, shapes, forms, functions, operational features, and the like, all of which may be preferred for purely design purposes.

[0119] Additionally, it will be appreciated that the battle card game, including the card decks and game map, could be modified and changed substantially to teach other key theories and facts drawn from numerous academic disciplines, such as astronomy, physics, biology, geology,
geography, sociology, psychology, literature, and so forth. For instance, the game structure lends itself nicely to teaching astronomy and astronomical phenomena. A game utilizing the essential aspects of the above-described battle game for teaching the periodic table could easily be devised to teach key facts in astronomy relating to constellations, galaxies, quasars, black holes and super massive black holes, stars, planetary systems, planets, moons, comets, asteroids, and so forth. It could be called, for instance, “Astro Wars,” or “Star Wars,” or some similarly original name. In such a game, rather than having battle cards include anthropomorphic characters, the “character” cards could be “star cards” and could include, among other things, actual photographic images or artistic renderings of the astral entity represented, especially now that a large body of high quality astronomical photographs and telescope images are available. A star card might further include the star name, distance from the Sun in light years, the type of star (super giant, cephids, red giants, subgiants, subdwarfs, red dwarfs, hot subdwarfs, white dwarfs, brown dwarfs, neutron), spectral type, surface temperature, mass, diameter, luminosity, predicted death process, probable form of remnant, etc. Galaxies could be also be featured on “character” cards and information content might include form (spiral [Sa, Sb, Sc], barred spiral [SBa, SBB, Sbc], elliptical (E0-E7), size, internal motion (random or rotational), total kinetic energy, mass, nuclear activity, luminosity, and so forth. Other astronomical phenomena and entities could also be featured, and in all instances, the numerical components used by scientists to develop the respective classification schemes could then be employed to pit star against star, galaxy against galaxy, and similarly for planets, comets, asteroids, and so forth. In a “melting pot” type of encounter (game phase 1), giants could triumph over dwarfs, but variables could be introduced that utilize wild
cards, other relevant physical parameters, to alter a too predictable outcome. More advanced phases of the game could entail the use of increasingly arcane cards and astronomical information combined in not-entirely-fictionalized complex ways. Then, as with the battle game for teaching the periodic table, "wild cards" analogous to the mole cards described above could be introduced. For example, a "Black Hole" card could be employed to consume the controlling information derived from the face of the card during battle, in which case the information would metaphorically slip past the event horizon, only then to be spit out in a different form in Hawking radiation, which process would affect the rules of the then present battle. Wormhole cards could be employed to import entities from other parts of the game universe. A parallel universe card could employed invert rules and/or outcomes. The possibilities are vast. In an advanced phase of the game, stars could be combined to form star clusters (analogous to compounds in the foregoing game), galaxies and stars could be combined to form constellations, and so on. Black Hole cards saved from earlier phases could be enlisted to assist in such combinations. In effect, such a game would employ the same principles governing the establishment of game components and the behavior of those components as were used in forming the components and rules governing the battle card game for teaching the periodic table.

[0120] It will be appreciated that in its most essential aspect, the present invention comprises a battle game constructed and tailored for pedagogic use in teaching many systematized bodies of knowledge generally amenable to communication using numerical information and in which a natural or artificial classification scheme has been devised to classify entities in the subject discipline. Such classification schemes may be definitional (artificial classification) in which
classification of factual entities consists of selecting only one or a few attributes and grouping the entities according to whether they possess the attributes. Alternatively, the scheme may be typological, namely, one in which the classes of entities are predicated on a notional type, and groupings are made by calculating resemblance using coefficients of similarity. In any event, the result is generally presented in tables, graphs, hierarchical lists, and so forth, which indicate the attributes that justify placement and ordering of particular factual entities in relations to other entities in the set.

[0121] Thus, any embodiment of the present invention includes discrete factual entities that have been selected and printed on a set of key fact battle cards, each card bearing a mnemonic image and name for each factual entity. Then, characteristics of the factual entity used to distinguish it from similar entities in a classification scheme (key facts) are selected and presented on the battle card along with the image. In the case of a battle card game for the elements, key facts comprise such things as first ionization potential, phase change temperatures, valence electron structure and so forth. In battle card game for astronomy, key facts can be such things as star type, luminosity, mass, surface temperature, and so forth.

[0122] The preferred embodiment next includes rules which set out ways to determine the order of play, how attacks are initiated, which key facts will be involved and in what order when battles pit one card or groups of cards against another card or group of cards, how defenses are effect, and so on. The rules include hierarchies, relating to and employing the actual, real world, key facts, and such hierarchies are established for determining battle card triumphs (solid vs. liquid, diamond vs. rhombo crystal structure; or, alternatively, super giant vs. brown dwarf, and
so forth). Tie breaking information and the means by which it is invoked are included. Because the game is directed to teaching facts, while the hierarchy itself may be arbitrarily established to facilitate game progression and interest, the information used in the hierarchy are key facts. Then, algorithms for calculating battle outcomes are set out in the rules (e.g., an IP of 6.2 can absorb 4.5 damage points, quasars absorb stars, etc.).

[0123] Preferably, a complete set of battle cards includes strategic variable elements, so that some uncertainty can be introduced to affect battle outcome (mole card, Black Hole card). The rules thus include algorithms for determining how to treat a chance outcome (such as a dice throw, a coin toss, a random number generation, rotating pointer, rotating disk, and the like).

[0124] Then objects for advancing from one phase of the game to the next, or for winning the game, are determined.

[0124] Therefore, the above description and illustrations should not be construed as limiting the scope of the invention, which is defined by the appended claims.
CLAIMS

What is claimed as invention is:

1. A method of teaching a set of key theories and facts in which the facts are divided into factual entities and each factual entity has characteristics and attributes that distinguish it from all other factual entities in the set, said method comprising the steps of:
   (a) assigning a character to each entity;
   (b) providing a set of rules for determining the powers of each character based on the characteristics and attributes of the factual entity to which the character is assigned;
   (c) using the rules to determine the powers of each of the characters; and,
   (d) employing a set of characters so assigned in a role playing game in which at least two players execute turns alternately or in sequence and wherein the outcome of a turn is governed, at least in part, by the powers of one or more assigned characters that have been brought into play.

2. A battle card game teaching a set of key facts concerning factual entities in which the numerical and/or descriptive information distinguishing factual entities from one another is set out in a classification scheme, said game comprising:
   a set of key fact playing cards, said key fact cards including a visual image conceptually related to the key fact, numerical and/or descriptive information of the key fact distinguishing it from other key facts; and
   a set of game rules including hierarchies for determining how one key fact playing card triumphs over another key fact playing card when pitted in a card battle by using said numerical
and/or descriptive information on said playing cards, and further including rules on how to resolve ties.

3. The game of claim 2, further including strategic variable elements for altering the effect of rules in any card battle.

4. The game of claim 2, further including at least one chance component and rules for using said chance component to alter the outcome of card battles.

5. The game of claim 4, wherein said chance component is selected from the group consisting of dice, coins, random number generator, rotating pointer, and rotating disk.

6. An educational battle card game, comprising:

a set of battle cards, each of said cards related to a key fact derived from a body of knowledge in which a classification scheme has been employed to distinguish factual entities, said battle card including a visual image relating to the key fact, characteristics of the factual entity used to distinguish it from similar entities in the classification scheme;

a set of rules to determine which key facts will be involved, and in what order, in battles pitting one card or groups of cards against another card or group of cards.

7. The educational battle card game of claim 6, wherein said rules include hierarchies for
determining battle card triumphs.

8. The educational battle card game of claim 7, wherein said rules further include tie breaker rules.

9. The educational battle card game of claim 6, wherein said rules include algorithms for calculating battle outcomes.
Ytterbug \{340

ATTACK
Scarab Laser E
X-Ray Humm E
Steel Pincher Crush P
Buzz Bomb P

EQUATION
\[
\begin{align*}
0 \text{ to } 3 & \times \oplus \oplus \oplus \\
5 \text{ to } 9 & \circ \circ \circ \\
3 \text{ to } 8 & \times \text{FM#} \oplus \\
1 \text{ to } 5 & \times \oplus \oplus \circ
\end{align*}
\]

TRIPLE POT
IP 6.2 \} 370

Base Element: Ytterbium
Crystal Form: Cube

1194° C
G
1400° C
S
824° C
823° C

TALENT
415

FIG. 5
**CALCIUMOO**

**Base Element:** Calcium

**Crystal Form:** Cube

**ATTACK**
- Milk Mortar P
- Cement Ceiling P
- Stalagmite Horns P
- Hard Water Cannon P

**EQUATION**
- 0 to 3 x + + +
- 5 to 9 $ $ $ $ $ $ $
- 3 to 8 x FM# +
- 1 to 5 x + + + $ $ $ $

**TALENT**

**FIG. 6**
Gravity Mole

*Reclaim one of your element cards from the discard pile at any time.

Fusion: Enhancer bonus plus 1 for one formula