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ADEYEMO et al.(10) **Pub. No.: US 2015/0224391 A1**(43) **Pub. Date: Aug. 13, 2015**(54) **MATH CHALLENGER**(71) Applicant: **KIDAXIS LLC**, Hanover, MD (US)(72) Inventors: **Temilade Adesayo ADEYEMO**,
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Adeyemo, Hanover, MD (US)(73) Assignee: **KIDAXIS LLC**, Hanover, MD (US)(21) Appl. No.: **14/177,002**(22) Filed: **Feb. 10, 2014****Publication Classification**(51) **Int. Cl.**
A63F 3/04 (2006.01)(52) **U.S. Cl.**CPC **A63F 3/0415** (2013.01)(57) **ABSTRACT**

A math game helps children learn and practice the four basic arithmetic operations. The gaming pieces of the math game include a box container, a supporter, a plurality of pawns, a first set of dice, a second set of dice, a game board and an instruction sheet. The first set of dice includes two dices with each in a dodecahedron shape and labeled of a number of 1-12 on its faces. The second set of dice includes two dices with each in an icosahedron shape and labeled of a number of 1-20 on its faces. The game board comprises a central square and 28 small squares surrounding the central square. The pawns move along the route made of the small squares that include Start/Finish square, bonus squares and special action squares.



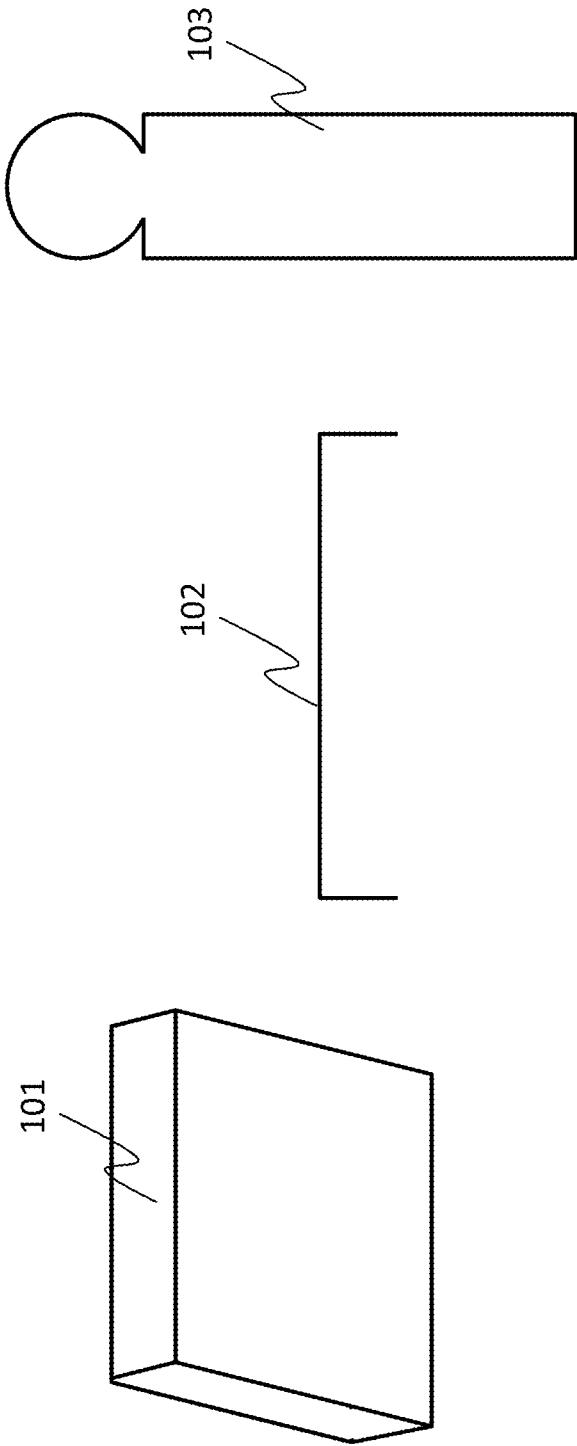


FIG. 1

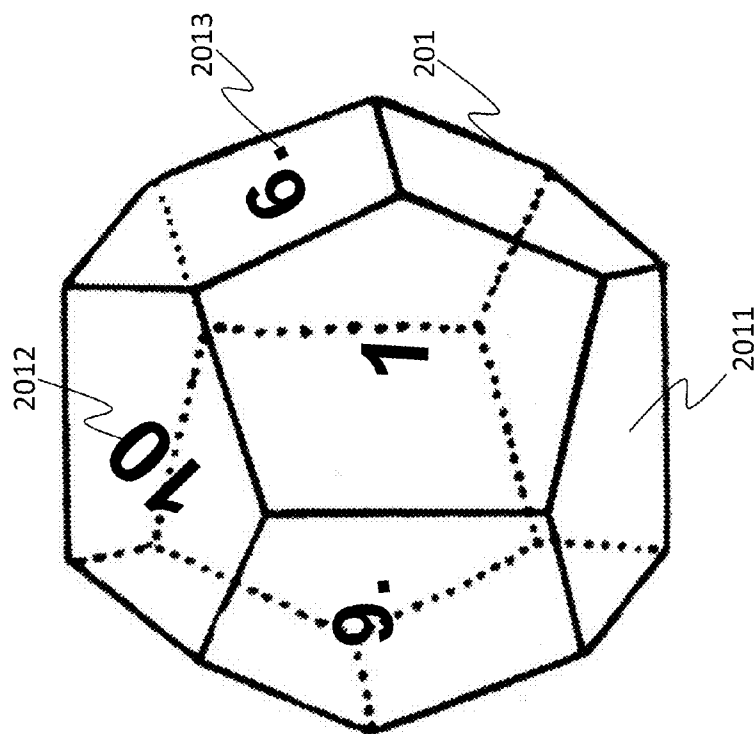


FIG. 2

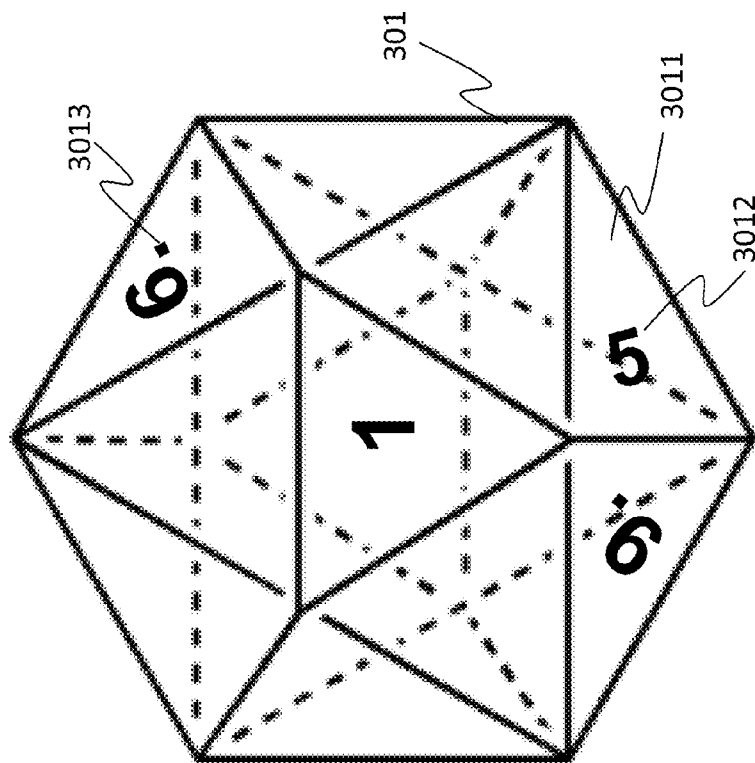


FIG. 3

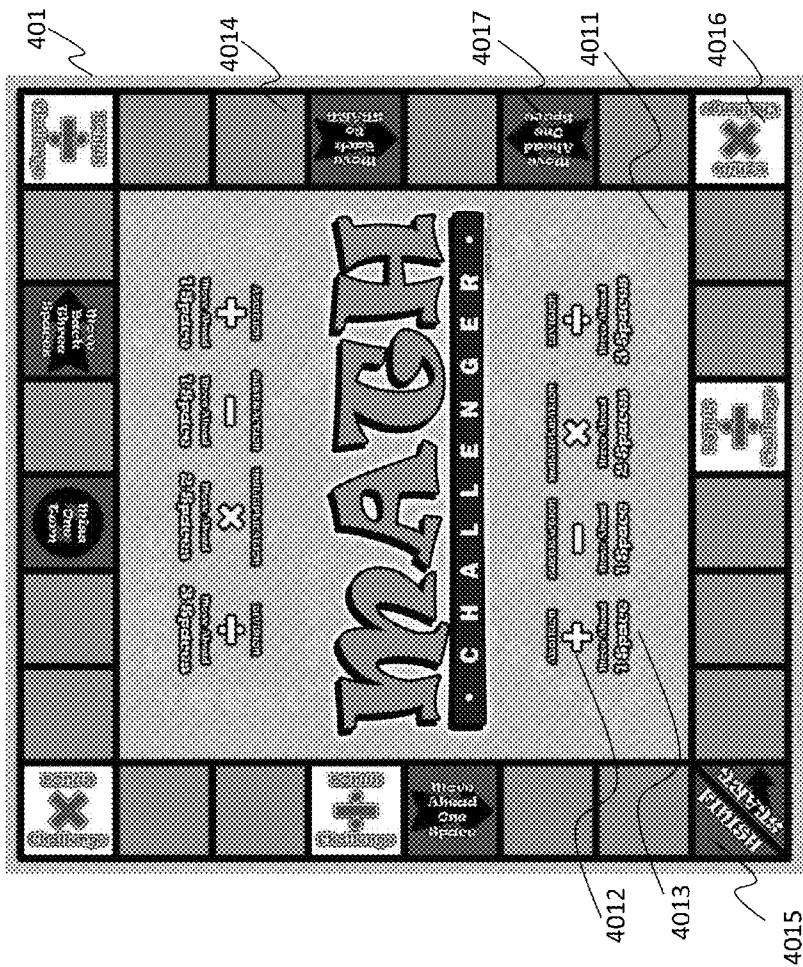


FIG. 4

MATH CHALLENGER

FIELD OF THE INVENTION

[0001] The present invention relates generally to a game for learning and practice math. More specifically, it is a board game for children to learn and practice the four basic arithmetic operations.

BACKGROUND OF THE INVENTION

[0002] It is generally around the age five, when most of the children start to learn the basic math, especially the four basic arithmetic operations, namely addition, subtraction, multiplication and division. When come to contact these arithmetic operations, to most of the children, they would be a challenge for them. One of the major reasons is that the numbers and arithmetic operations are kind of abstract ideas that they seldom meet before.

[0003] Children learn words and language in a quite natural way. Whenever they are talking to each other, talking with parents, teachers or other adults, or even just simply listening when people are talking, they are learning the language, voluntary or involuntarily. From this sense, children are learning the language anywhere and in every day. Accordingly, for most of the children, they do not need any special practice in order to master their native language. However, the learning of math is quite different. The numbers and arithmetic operations are abstract concepts, rather than a real substance that kids can feel and touch, nor are they, like language, what children routinely learn and practice everyday.

[0004] In light of the foregoing, at the starting stage, learning math would be a challenge for many children. In order to master the basic arithmetic operations, children need to understand the concepts of number and arithmetic operation and do many practices to get themselves familiar with the numbers, rules and operations. After having learned the basic concepts and rules, children need to do a lot of calculation practices in order to truly master them. One of the best ways to make children work on learning is to make the learning process like a game. Children always like to play games. And here is where the game disclosed in the present invention can help to make children do the learning and practice of math when they are playing a game.

[0005] Moreover, there are some specifically designed features in the board game of the present invention, which particularly address the issues may occur during children's playing the game. For example, in the present invention, the numbers that are used to practice are obtained by throwing a dice, which not only boosts children's interest to play the game, but also help the children practice randomly all of the numbers, avoiding the scenario that some children may only practice such numbers that they are already familiar with or they think are the easy ones.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] FIG. 1 is an illustration of the box container box, supporter and pawn of the present invention.

[0007] FIG. 2 is a perspective view of a dice of the first set of dice.

[0008] FIG. 3 is a perspective view of a dice of the second set of dice.

[0009] FIG. 4 is an illustration of the game board of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0010] All illustrations of the drawings and description of embodiments are for the purpose of describing selected versions of the present invention and are not intended to limit the scope of the present invention.

[0011] The present invention is a board game that is aimed to help children aged 5 and older to get familiar with the numbers, and to learn and practice the four basic arithmetic operations, i.e., addition, subtraction, multiplication and division, via playing the board game. However, it is noted that the board game of the present invention has not been designated only for the children as described above; any adult may find interests and fun from playing this game with children or by themselves. Actually, playing math game would be a proactive way to prevent certain neural degenerative diseases, such as the Alzheimer's disease. In light of this, actually almost everyone aged 5 and older could play the game disclosed in the present invention and have fun with it. The game disclosed in the present invention helps people learn and practice math skills in a simple, fun and effective way.

[0012] The present invention comprises both the components of the game and the method of playing the math game with the provided components of the game. The two parts should not be separated from each other. A method cannot be accomplished with no such gaming components; and meanwhile, the components do not make any sense till they are integrated into the playing method of the game disclosed in the present invention.

[0013] The gaming apparatus of the present invention comprises a number of different components: a box container **101**, a supporter **102**, a set of pawn **103**, 2 sets of dices **201** and **301**, a game board **401** and an instruction sheet that describes the method of playing the game. In reference to FIG. 1, the box container **101** of the present invention is with a cuboid shape. Every other component of the gaming apparatus is packed in this box container. In addition, the top and bottom surfaces (two surfaces with the biggest surface area) of the box container have similar surface area to that of the game board. With this design, the box container can therefore be used as an occasional "table" or a support below the supporter **102**, so as to provide, along with the supporter **102**, a flat surface and a convenient height for children or other game players to play the game in a comfortable way. In this way, the board game of the present invention can be played not only on the table, on the floor; but also in the outside, such as on the grass or in a park. Accordingly, this box container is not just a container for holding the gaming pieces together, but also an integral member for playing the game.

[0014] The supporter **102** has a similar surface area to that of the game board. So the game disclosed in the present invention can be played on the supporter. This supporter is usually made of plastic, which is strong enough to provide the needed support, and light enough for the portability of the gaming apparatus of the present invention. In addition, the supporter can also provide some protection for the game board, which is especially useful in the case when the surface under the game board is not even or not clean.

[0015] In reference to FIG. 1, the pawns **103** are the gaming pieces that are moved by the players. Since the game of the present invention is mainly designed for the children, the pawns should be pretty strong, not easily broken; and on the other hand, the pawns should look appealing to children of five years old. In light of this, the pawns of the present invention are made in the shape of an abstract silhouette of a human

being. Moreover, each pawn has a different color, which is not just for the purpose of differentiation, but also appealing to the children with a colorful design. The quantity of the pawn could be from 6-10, and preferably 8. Therefore, there could be up to 10 children who can play together the math game of the present invention.

[0016] The gaming pieces of the present invention contain two sets of dice. In each set, there are two dice with different colors. A traditional dice is a rounded cube, with each of its six faces showing a different number or number of dots from 1 to 6. In contrast, each of the dice of the first set of dice of the present invention, in reference to FIG. 2, is a dodecahedron **201** with rounded corners. The dices can be made of any material that is suitable for a gaming dice. On each face **2011** of the dodecahedron, a number **2012** from 1 to 12 has been marked on the surface of respective face, with a color different from the color of dice body. Concerning the dodecahedron dice of the first set, each of its 12 faces is a regular pentagon. The sum of the numbers on opposite faces is usually 13. For example, as for a face marked with number 12, its opposite face would be a face with number 1; and for face with 6, its opposite face would be the face with 7. In this way, the sum of these two numbers on the opposite faces would always be 13. In addition, due to the reason that the numbers of 6 and 9 are easily confused when the orientation is hard to determine, a small yet clear dot **2013** has been added next to the bottom of these two numbers. In this way, the number 6 and the number 9 can be easily differentiated.

[0017] As a small throwable object, the dice of the present invention is used to generate random numbers from 1 to 12. The dice contains multiple resting positions. When thrown or rolled, the dice comes to rest showing on its upper surface a random integer from one to twelve, each value being equally likely. In this way, the number presented on the upper face would be truly randomly chosen.

[0018] In addition to the first set of dice, which contains the numbers 1-12, the gaming apparatus of the present invention also comprises a second set of dice. Similarly, the second set also includes two dices. While the difference is that, for the second set, each dice is an icosahedron **301**, which has 20 faces **3011** and with rounded corners. In reference to FIG. 3, the dice is marked with the number 1-20 **3012**. The color of the numbers is distinguishable from the color of the dice body. The dices are also made of any material that is suitable for a gaming dice. For a dice of the second set, each of its 20 faces is an equilateral triangle. The sum of the numbers on the opposite faces is usually 21. For example, as for a face marked with number 20, its opposite face would be the face with number 1; and for the face with 5, its opposite face would be the face with 16. In this way, the sum of these two numbers on the opposite faces would always be 21. In addition, due to the same reason that the number 6 and number 9 are easily confused when the orientation is hard to determine, a small yet clear dot **3013** has been marked next to the bottom of the number 6 and number 9. In this way, the number 6 and the number 9 can be easily differentiated.

[0019] The second set of icosahedron shaped dice also contains multiple resting positions. When thrown or rolled, the dice comes to rest showing on its upper surface a random integer from one to twenty, each value being equally likely. In this way, the number presented on the upper face would be truly randomly chosen.

[0020] The two sets of dices of the present invention have offered the flexibility that makes the math game of the present

invention suitable for players with various ages. For the first set of dice, the arithmetic operations between numbers 1-12 are perfect for the 5 years and those are a little older, who just start to learn the basic arithmetic knowledge. While the second set of dices contains numbers 1 to 20, which the older children or the old people may find some interests, as the operations, especially the multiplication and division of the numbers greater than 10, are somewhat more challenging. In this way, the gaming apparatus of the present invention can therefore be played by people with different ages, and with different arithmetic skills.

[0021] The game board **401** is the central piece of the game disclosed in the present invention. The game board is in a square shape. It is made of a suitable material that is sturdy enough to stand for a long period of time; yet also pretty light, which offers the children players with a high portability. The game board, as a square, has four sides. Each side has the same length. In the middle of the game board, there is a central square **4011** whose side length is six eighth of the length of the board. The central square is labeled with a second color that is different from other parts of the game board. In addition, it has been labeled with the four basic arithmetic operations **4012**, i.e., "addition +, subtraction −, multiplication ×, and division /". Moreover, each operation has been assigned with a award value of moving ahead distance **4013** that is associated with the respective operation. Wherein the operation of addition is for moving ahead 1 space; the subtraction is for moving ahead 1 space; the multiplication is for moving ahead 2 spaces; and the division is for moving ahead for 3 spaces. Two sets of such labels have been printed on the game board, for the convenience of the two players who face to each other.

[0022] Surrounding the central square, on the game board, there are 8 small squares **4014** of equal size on each of the four sides of the game board. Accordingly, there are total 28 small squares surrounding the central square. Among these 28 small squares, there is one small square has been designated as the Start/Finish square **4015**. The game starts from here, and will be end at here. In addition, there is a plurality of small squares designated as the bonus squares **4016**. One bonus operation has been labeled in the bonus square. For example, a bonus square may have the bonus operation of division. Usually, the bonus operation needs a higher level of arithmetic skill, such as multiplication and division. Furthermore, a plurality of small squares, other than the Start/Finish square and the bonus squares have been labeled with special actions **4017**, in order to make the math game of the present invention more interesting. The special actions may include move ahead one space, move ahead two spaces, and so on; move back one space, move back two spaces and so on; move back to the Start; miss one turn; and etc.

[0023] In addition to the aforementioned gaming pieces, the math game of the present invention also comprises an instruction card. It provided a recommended set of game rules how the math game is supposed to be played. However, any player can create a new method to play the game.

[0024] With the gaming pieces, the math game of the present invention could be played in multiple different ways. One would be suggested as the following. Firstly, place the game board on a place with a flat surface, such as on a table or on the floor. The supporter may be placed under the game board. This is particularly helpful when the surface is not flat. The game can be played timed or untimed. If timed, 30-90 seconds is recommended for the player under the age 12, and

for the older players, the time period may be set as 15-45 seconds. The math game can be played by multiple players, though usually there are two players challenging each other. In addition, the players should decide the playing order before hand, and choose the set of dice that they are going to play with, from the first set and second set of dices.

[0025] When the game starts, each player places his or her pawn in the Start/Finish Square. Then the first player rolls the first dice of the selected dice set. When the first dice settles on a resting surface, the number on the upper surface is the first number. Next, the same player rolls the second dice of the selected dice set. Similarly, when the second dice settles on a resting surface, the number on the upper surface is the second number. Following the determination of the first number and the second number, the player selects one operation that he or she wants to do, which including the four basic arithmetic operations labeled on the board, i.e., addition, subtraction, multiplication and division. Alternatively, the operation of the first number and the second number may be selected by the second player (a challenger of the first player). Each operation has been assigned with a corresponding award value as set forth previously. Addition moves ahead one space; subtraction, moves ahead one space; multiplication moves two spaces, and division, moves three spaces. When the calculated result is correct, the player will move his or her pawn according to the corresponding award value associated with that operation. While if the result is not correct, the pawn stay still. For example, when a player gets a correct result of addition, he or she would move his/her pawn forward one space. Similarly, when a player gets a correct result of division, the respective pawn would be moved forward 3 spaces.

[0026] The selection of operation would be a fun part of the game. It is a trade-off. If the player wants to choose a relatively easy operation, such as addition and subtraction, this may increase the chance that he or she will get a correct result; while at the same time, it actually has reduced the award value that he or she can receive following offering the correct result, since the easy operations like addition and subtraction are only assigned with an award value of one space. On the other hand, if a relatively tough operation has been chosen, though it may reduce the chance of getting the correct result, while when a correct result has been reached, the player would be offered for 3 spaces, which is three fold of the value has been assigned to those easy operation. And this is particularly interesting when the operation has to be selected prior to the selections of the first number and the second number, since in such a case, the players do not know which numbers would be selected to perform the operation.

[0027] In addition, if the result the player reaches is not correct, the corresponding pawn would stay in the same square, with no forward moving. When the first player finishes, the next player would follow suite, according to exactly the same rule, to select the first number, select the second number, select the operation and calculate the result. In certain circumstances, a pawn may land on a square with special directions. For example, if a pawn lands in a bonus square, the player of that pawn gets an extra chance to do a bonus calculation. The operation labeled on that square will be used as the selected operation, and the first number and second number can be either the player's current first and second numbers, or being determined by rolling the dice again. Another case would be the squares with special actions. The player just need to follow the special direction labeled on that particular square. If it is labeled with "move forward one space", the

pawn landing on that square would be moved forward one more space, with no calculation needed. Similarly, if a pawn lands in a special square labeled as "move backward three space", the pawn would be moved backward for three spaces. As for the special action "miss a turn", the pawn will stay in that special square when it is his or her turn, until this round of playing has been finished by all other players.

[0028] Although the invention has been explained in relation to its preferred embodiment, it is to be understood that many other possible modifications and variations can be made without departing from the spirit and scope of the invention as hereinafter claimed.

What is claimed is:

1. A collection of gaming pieces for playing a math game, comprising
 - a box container;
 - a supporter;
 - a plurality of pawns;
 - a first set of dice;
 - a game board; and
 - an instruction sheet.
2. The collection of gaming pieces for playing a math game as set forth in claim 1, wherein
 - said box container is in a cuboid shape; and
 - said box container comprises a surface area that is equal to an area of said game board.
3. The collection of gaming pieces for playing a math game as set forth in claim 1, wherein
 - said supporter comprises a surface area that is equal to an area of said game board.
4. The collection of gaming pieces for playing a math game as set forth in claim 1, wherein
 - each member of said plurality of pawns has a different color.
5. The collection of gaming pieces for playing a math game as set forth in claim 1, further comprising
 - a second set of dice.
6. The collection of gaming pieces for playing a math game as set forth in claim 5, wherein
 - said first set of dice comprises two first set dices;
 - said second set of dice comprises two second set dices;
 - said two first set dices have different colors; and
 - said two second set dices have different colors.
7. The collection of gaming pieces for playing a math game as set forth in claim 6, wherein
 - each of said two first set dices is in a dodecahedron shape, which comprises 12 faces with equal area;
 - each of said 12 faces is in a regular pentagon shape;
 - numbers of 1 to 12 are marked on said 12 faces respectively, with one number on a face;
 - a sum of numbers on two opposite faces is equal to 13; and
 - a mark is labeled next to a bottom of number 6, and a mark is labeled next to a bottom of number 9, so as to differentiate the number 6 from the number 9.
8. The collection of gaming pieces for playing a math game as set forth in claim 6, wherein
 - each of said two second set dices is in an icosahedron shape, which comprises 20 faces with equal area;
 - each of said 20 faces is in an equilateral triangle shape;
 - numbers of 1 to 20 are marked on said 20 faces respectively, with one number on a face;
 - a sum of numbers on two opposite faces is equal to 21; and

a mark is labeled next to a bottom of number 6, and a mark is labeled next to a bottom of number 9, so as to differentiate the number 6 from the number 9.

9. The collection of gaming pieces for playing a math game as set forth in claim 1, wherein

said game board is in a square shape;

said game board comprises a central square and 28 small squares;

said 28 small squares are arranged surrounding said central square, with 8 small squares at each side, wherein small squares at four corners are shared by two perpendicular sides, and each of said 28 small squares is a space;

said central square is labeled with four arithmetic operations and a pre-determined corresponding award value for each of the four arithmetic operations; and said four arithmetic operations being addition, subtraction, multiplication and division.

10. The collection of gaming pieces for playing a math game as set forth in claim 9, comprising

a corresponding award value for addition being move ahead one space;

a corresponding award value for subtraction being move ahead one space;

a corresponding award value for multiplication being move ahead two spaces; and

a corresponding award value for division being move ahead three spaces.

11. The collection of gaming pieces for playing a math game as set forth in claim 9, comprising

one of said 28 small squares being designated as a Start/Finish space;

a plurality of said 28 small squares being bonus spaces, wherein a bonus space is labeled with a bonus operation;

a plurality of said 28 small squares being special action spaces;

each of said special action spaces being labeled with one of special actions; and

said special actions comprising move ahead one or more spaces, move back one or more spaces, move back to said Start/Finish space, and miss one turn.

12. The collection of gaming pieces for playing a math game as set forth in claim 1, wherein

said instruction sheet comprises a recommended set of game rules.

13. A collection of gaming pieces for playing a math game, comprising

a box container;

a supporter;

a plurality of pawns;

a first set of dice;

a game board; and

an instruction sheet, wherein said instruction sheet comprises a recommended set of game rules.

14. The collection of gaming pieces for playing a math game as set forth in claim 13, wherein

said box container is in a cuboid shape; and

said box container comprises a surface area that is equal to an area of said game board.

15. The collection of gaming pieces for playing a math game as set forth in claim 13, wherein

said supporter comprises a surface area that is equal to an area of said game board.

16. The collection of gaming pieces for playing a math game as set forth in claim 13, wherein

each member of said plurality of pawns has a different color.

17. The collection of gaming pieces for playing a math game as set forth in claim 13, further comprising a second set of dice.

said first set of dice comprises two first set dices;

said second set of dice comprises two second set dices;

said two first set dices have different colors;

said two second set dices have different colors;

each of said two first set dices is in a dodecahedron shape, which comprises 12 faces with equal area;

each of said 12 faces is in a regular pentagon shape;

numbers of 1 to 12 are marked on said 12 faces respectively, with one number on a face;

a sum of numbers on two opposite faces is equal to 13;

each of said two second set dices is in an icosahedron shape, which comprises 20 faces with equal area;

each of said 20 faces is in an equilateral triangle shape;

numbers of 1 to 20 are marked on said 20 faces respectively, with one number on a face;

a sum of numbers on two opposite faces is equal to 21; and

a mark is labeled next to a bottom of number 6, and a mark is labeled next to a bottom of number 9, so as to differentiate the number 6 from the number 9.

18. The collection of gaming pieces for playing a math game as set forth in claim 13, wherein

said game board is in a square shape;

said game board comprises a central square and 28 small squares;

said 28 small squares are arranged surrounding said central square, with 8 small squares at each side, wherein small squares at four corners are shared by two perpendicular sides, and each of said 28 small squares is a space;

said central square is labeled with four arithmetic operations and a pre-determined corresponding award value for each of the four arithmetic operations;

said four arithmetic operations being addition, subtraction, multiplication and division;

a corresponding award value for addition being move ahead one space;

a corresponding award value for subtraction being move ahead one space;

a corresponding award value for multiplication being move ahead two spaces;

a corresponding award value for division being move ahead three spaces;

one of said 28 small squares being designated as a Start/Finish space;

a plurality of said 28 small squares being bonus spaces, wherein a bonus space is labeled with a bonus operation;

a plurality of said 28 small squares being special action spaces;

each of said special action spaces being labeled with one of special actions; and

said special actions comprising move ahead one or more spaces, move back one or more spaces, move back to said Start/Finish space, and miss one turn.

19. A method of playing a math game, comprising

providing a set of game pieces, wherein said set of game pieces comprises a box container, a supporter, a plurality of pawns, a first set of dice; a second set of dice, a game board, and an instruction sheet;

providing a plurality of players;

determining a playing order for said plurality of players;

placing said game board on a flat surface;
 selecting a corresponding pawn for each of said plurality of players;
 selecting a set of dice from said first set of dice and said second set of dice as a playing set of dice, wherein said playing set of dice comprises a first playing dice and a second playing dice, and said first playing dice and said second playing dice have different colors;
 placing corresponding pawns in a Start space on said game board;
 rolling said first playing dice to obtain a first number;
 rolling said second playing dice to obtain a second number;
 selecting a playing operation from four arithmetic operations comprising addition, subtraction, multiplication and division; wherein each of the four arithmetic operation has a corresponding award value;
 calculating a result of said first number and said second number with said playing operation;
 determining if said result is correct;
 moving the corresponding pawn according to the corresponding award value associated with said playing operation when said result is correct, or

staying if said result is not correct; and
 declaring a winner whose corresponding pawn arrives at a Finish space first.

20. The method of playing a math game as set forth in claim **19**, further comprising

moving the corresponding pawn according to a special action when the corresponding pawn arrives at a space with special action, wherein said special action is one of special actions comprising move ahead one or more spaces, move back one or more spaces, move back to said Start space, and miss one turn;

calculating a bonus calculation to obtain a bonus result when the corresponding pawn arrives at a space with the bonus calculation;

determining if said bonus result is correct; and

moving the corresponding pawn according to a corresponding bonus value associated with said bonus calculation when said bonus result is correct, or

staying if said bonus result is not correct.

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