THREE-DIMENSIONAL CUBE PUZZLE

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ABSTRACT
A three-dimensional puzzle cube comprising multiple pieces having various shapes that can be assembled into a cube and various other structures using all or a portion of the puzzle pieces. A first embodiment comprises seven pieces and forms a 3x3x3 cube. A second embodiment comprises five pieces and forms a 3x3x3 cube. A third embodiment comprises seven pieces and forms a 4x4x4 cube. The individual puzzle pieces may be of uniform color, multi-color, or alternately colored.
THREE-DIMENSIONAL CUBE PUZZLE

BACKGROUND OF THE INVENTION

[0001] The present invention relates to the field of games and puzzles. More particularly, the invention relates to puzzles composed of multiple pieces that are to be assembled in a particular order to form a predefined shape or shapes.

[0002] There are many puzzles available on the market, which require a particular order of assembly to achieve completion of the puzzle. Some require just an arrangement of pre-connected pieces in a particular order. Colors may be interposed on certain surfaces of the puzzles, which require that all of the same colors finish on just one side of the puzzle.

[0003] The need for entertainment and amusement is limitless. Many of the prior art puzzles have been marketed for many years and the solution to completing these puzzles is well known to many. Solutions can even be found on the Internet. The entertainment provided by these prior art puzzles reduces significantly as they are solved by an individual on several occasions. The most dedicated of the puzzle solvers require new and constant challenges to their intellectual prowess.

[0004] Therefore there is a need for an inventive puzzle that provides new challenges and entertainment for the puzzle solving public.

SUMMARY OF THE INVENTION

[0005] The present invention is directed to three different embodiments of a three-dimensional cube puzzle.

[0006] The first preferred embodiment of the three-dimensional cube puzzle consists of seven puzzle pieces. The first puzzle piece has three cubic units of volume configured in a V-shape. The second puzzle piece has four cubic units of volume configured in an L-shape. The third puzzle piece has four cubic units of volume configured in a Z-shape. The fourth puzzle piece has four cubic units of volume configured in a T-shape. The fifth puzzle piece has four cubic units of volume configured to form a three-dimensional V-shape. The sixth puzzle piece has four cubic units of volume wherein three cubic units of volume are configured in a second V-shape and the fourth cubic unit of volume is connected to a side of one arm of the second V-shape. The seventh puzzle piece has four cubic units of volume wherein three cubic units of volume are configured in a first V-shape, three of the cubic units of volume are configured to form a second V-shape and the fifth cubic unit of volume is connected to a side of the first arm of the second V-shape. Abutting cubic units of volume in any of the puzzle pieces are configured to form a second three-dimensional V-shape and the fifth cubic unit of volume is connected to an apex of the second three-dimensional V-shape. The third puzzle piece has seven cubic units of volume, wherein three of the cubic units of volume are configured to form a first V-shape, three of the cubic units of volume are configured to form a second V-shape and the seventh cubic unit of volume is connected to an apex of the first V-shape and an apex of the second V-shape, such that the first V-shape and the second V-shape are oriented in the same direction. The fourth puzzle piece has five cubic units of volume, wherein three of the cubic units of volume are configured to form a third V-shape, the fourth cubic unit of volume is connected to a side of a first arm of the third V-shape and the fifth cubic unit of volume is connected to a side of a second arm of the third V-shape, such that the fourth and fifth cubic units of volume are on the same side of the third V-shape. The fifth puzzle piece has five cubic units of volume, wherein four cubic units of volume are configured in an L-shape and the fifth cubic unit of volume is connected to a side of the short leg of the L-shape.

[0009] In this second preferred embodiment, the five puzzle pieces are configured to form a 3x3x3 cube when assembled. Abutting cubic units of volume in any of the puzzle pieces are preferably of alternating colors. When the colors alternate, the five puzzle pieces and the 3x3 cube are configured such that adjacent faces of each cubic volume on a face of the 3x3 cube are of alternating colors. Alternatively, each of the five puzzle pieces may be of different colors.

[0010] The third preferred embodiment of the three-dimensional cube puzzle consists of seven puzzle pieces. The first puzzle piece has eight cubic units of volume configured in a double L-shape. The second puzzle piece has twelve cubic units of volume configured in a quadruple V-shape. The third puzzle piece has twelve cubic units of volume, wherein four of the cubic units of volume are configured in a first L-shape, four of the cubic units of volume are configured in a second L-shape and four of the cubic units of volume are configured in a square with an edge of the square connected to a side of the short leg and apex of the first L-shape and an opposite edge of the square connected to a side of the short leg and apex of the second L-shape such that the first and second L-shapes are oriented in the same direction. The fourth puzzle piece has eight cubic units of volume, wherein three of the cubic units of volume are configured in a first V-shape, three of the cubic units of volume are configured in a second V-shape, and two of the cubic units of volume are connected in-line with matching arms of the first V-shape and the second V-shape such that the first and second V-shapes are oriented in the same direction. The fifth puzzle piece has ten cubic units of volume configured to form a U-shape. The sixth puzzle piece has eight cubic units of volume, wherein six of the cubic units of volume are configured in a double V-shape, one of the cubic units of volume is connected to a side of one arm of the double V-shape, and one of the cubic units of volume is connected to an opposite side of the same arm of the double V-shape. The seventh puzzle piece has six cubic units of volume, wherein three of the cubic units of volume are configured in a third V-shape, three of the cubic units of volume are configured in a fourth V-shape, and the third V-shape is connected along an edge of an arm and apex to an opposite edge of an arm and apex of the fourth V-shape.

[0011] In this third preferred embodiment, the seven puzzle pieces are configured to form a 4x4x4 cube when assembled. Abutting cubic units of volume in any of the puzzle pieces are
preferably of alternating colors. When the colors alternate, the seven puzzle pieces and the 4x4 cube are configured such that adjacent faces of each cubic volume on a face of the 4x4 cube are of alternating colors. Alternatively, each of the seven puzzle pieces may be of different colors.

[0012] Other features and advantages of the present invention will become apparent from the following more detailed description, taken in conjunction with the accompanying drawings which illustrate, by way of example, the principles of the invention.

**BRIEF DESCRIPTION OF THE DRAWINGS**

[0013] The accompanying drawings illustrate the invention. In such drawings:

[0014] FIG. 1 depicts the first puzzle piece of the first preferred embodiment of the three-dimensional cube puzzle;

[0015] FIG. 2 depicts the second puzzle piece of the first preferred embodiment of the three-dimensional cube puzzle;

[0016] FIG. 3 depicts the third puzzle piece of the first preferred embodiment of the three-dimensional cube puzzle;

[0017] FIG. 4 depicts the fourth puzzle piece of the first preferred embodiment of the three-dimensional cube puzzle;

[0018] FIGS. 5 and 5A depict the fifth puzzle piece of the first preferred embodiment of the three-dimensional cube puzzle;

[0019] FIG. 6 depicts the sixth puzzle piece of the first preferred embodiment of the three-dimensional cube puzzle;

[0020] FIG. 7 depicts the seventh puzzle piece of the first preferred embodiment of the three-dimensional cube puzzle;

[0021] FIG. 8 is an exploded view of the 3x3x3 cube of the first preferred embodiment.

[0022] FIG. 9A is a perspective view of the assembled 3x3x3 cube of the first preferred embodiment of the three-dimensional cube puzzle illustrating alternating colors;

[0023] FIG. 9B is a perspective view of the assembled 3x3x3 cube of the first preferred embodiment of the three-dimensional cube puzzle from the opposite corner of FIG. 9A illustrating alternating colors;

[0024] FIG. 10A is a perspective view of the assembled 3x3x3 cube of the first preferred embodiment of the three-dimensional cube puzzle illustrating each of the puzzle pieces having uniform yet different colors;

[0025] FIG. 10B is a perspective view of the assembled 3x3x3 cube of the first preferred embodiment of the three-dimensional cube puzzle from the opposite corner of FIG. 10A illustrating each of the puzzle pieces having uniform yet different colors;

[0026] FIG. 11 depicts the first puzzle piece of the second preferred embodiment of the three-dimensional cube puzzle;

[0027] FIG. 12 depicts the second puzzle piece of the second preferred embodiment of the three-dimensional cube puzzle;

[0028] FIG. 13 depicts the third puzzle piece of the second preferred embodiment of the three-dimensional cube puzzle;

[0029] FIG. 14 depicts the fourth puzzle piece of the second preferred embodiment of the three-dimensional cube puzzle;

[0030] FIG. 15 depicts the fifth puzzle piece of the second preferred embodiment of the three-dimensional cube puzzle;

[0031] FIG. 16 is an exploded view of the 3x3x3 cube of the second preferred embodiment.

[0032] FIG. 17A is a perspective view of the assembled 3x3x3 cube of the second preferred embodiment of the three-dimensional cube puzzle illustrating alternating colors;

[0033] FIG. 17B is a perspective view of the assembled 3x3x3 cube of the second preferred embodiment of the three-dimensional cube puzzle from the opposite corner of FIG. 17A illustrating alternating colors;

[0034] FIG. 18A is a perspective view of the assembled 3x3x3 cube of the second preferred embodiment of the three-dimensional cube puzzle illustrating each of the puzzle pieces having uniform yet different colors;

[0035] FIG. 18B is a perspective view of the assembled 3x3x3 cube of the second preferred embodiment of the three-dimensional cube puzzle from the opposite corner of FIG. 18A illustrating each of the puzzle pieces having uniform yet different colors;

[0036] FIG. 19 depicts the first puzzle piece of the third preferred embodiment of the three-dimensional cube puzzle;

[0037] FIG. 20 depicts the second puzzle piece of the third preferred embodiment of the three-dimensional cube puzzle;

[0038] FIG. 21 depicts the third puzzle piece of the third preferred embodiment of the three-dimensional cube puzzle;

[0039] FIG. 22 depicts the fourth puzzle piece of the third preferred embodiment of the three-dimensional cube puzzle;

[0040] FIG. 23 depicts the fifth puzzle piece of the third preferred embodiment of the three-dimensional cube puzzle;

[0041] FIG. 24 depicts the sixth puzzle piece of the third preferred embodiment of the three-dimensional cube puzzle;

[0042] FIG. 25 depicts the seventh puzzle piece of the third preferred embodiment of the three-dimensional cube puzzle;

[0043] FIG. 26 is an exploded view of the 4x4x4 cube of the third preferred embodiment.

[0044] FIG. 27A is a perspective view of the assembled 4x4x4 cube of the third preferred embodiment of the three-dimensional cube puzzle illustrating alternating colors;

[0045] FIG. 27B is a perspective view of the assembled 4x4x4 cube of the third preferred embodiment of the three-dimensional cube puzzle from the opposite corner of FIG. 27A illustrating alternating colors;

[0046] FIG. 28A is a perspective view of the assembled 4x4x4 cube of the third preferred embodiment of the three-dimensional cube puzzle illustrating each of the puzzle pieces having uniform yet different colors;

[0047] FIG. 28B is a perspective view of the assembled 4x4x4 cube of the third preferred embodiment of the three-dimensional cube puzzle from the opposite corner of FIG. 28A illustrating each of the puzzle pieces having uniform yet different colors;

[0048] FIG. 29 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

[0049] FIG. 30 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

[0050] FIG. 31 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

[0051] FIG. 32 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

[0052] FIG. 33 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

[0053] FIG. 34 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;
FIG. 35 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

FIG. 36 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

FIG. 37 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

FIG. 38 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

FIG. 39 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

FIG. 40 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

FIG. 41 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

FIG. 42 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

FIG. 43 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

FIG. 44 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

FIG. 45 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

FIG. 46 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

FIG. 47 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

FIG. 48 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

FIG. 49 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

FIG. 50 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

FIG. 51 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

FIG. 52 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

FIG. 53 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

FIG. 54 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

FIG. 55 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

FIG. 56 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

FIG. 57 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

FIG. 58 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

FIG. 59 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

FIG. 60 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

FIG. 61 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

FIG. 62 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

FIG. 63 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

FIG. 64 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

FIG. 65 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

FIG. 66 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

FIG. 67 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

FIG. 68 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

FIG. 69 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

FIG. 70 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

FIG. 71 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

FIG. 72 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

FIG. 73 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

FIG. 74 illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment;

FIG. 74A illustrates in perspective view a structure than can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment; and
In FIG. 74B illustrates in perspective view a structure that can be assembled using all or a portion of the puzzle pieces of the first preferred embodiment.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

With reference to FIGS. 1-28A, the three-dimensional cube puzzle of the present invention is generally referred to by reference numerals 100, 130, and 150. Each cube puzzle is comprised of five or seven geometric pieces with each piece consisting of a configuration of cubic units of volume as described below. The cubic units of volume may be of any size but must be uniform. Preferably, the cubic units of volume are 1-inch by 1-inch by 1-inch.

The puzzle pieces may be built from any materials including metal, plastic or wood. Preferably, the puzzle pieces are constructed from recycled wood and have a smooth and shiny texture to highlight the various colors as described below. The cube puzzle has been designed with the objective of stimulating the imagination, as well as, developing memory skills, creativity skills, spatial recognition, observation and analytical skills in children and adults.

There are multiple color patterns that can be used in connection with the cube puzzle. In a particularly preferred embodiment, a two-color or alternating color design is used as described below. The alternating color design makes the cube puzzle more appealing and entertaining because as different shapes are constructed from the puzzle pieces, each cubic unit of volume must be adjacent to a cubic unit of volume having an opposite color. In another preferred embodiment, a uniform color design is used wherein each puzzle piece is painted a uniform color that differs from the other puzzle pieces as described below. In yet another preferred embodiment, a multicolor design is used wherein each cubic unit of volume on a particular puzzle piece is of a different color. Colors may be repeated across puzzle pieces. Any of the color embodiments are pleasing to the eye and can help toddlers identify and memorize names of colors. While the accompanying drawings are illustrated indicating specific colors, such colors may be varied, so long as the indicated pattern of alternating, uniform, or different colors is adhered to.

In the following description, the shapes of the various puzzle pieces from each of the three preferred embodiments of the three-dimensional cube puzzle 100, 120 and 150 will be explained. In general, basic shapes, i.e., V-shape, T-shape, Z-shape, L-shape, etc., are understood to be two-dimensional. Stated another way, the cubic units of volume of these basic shapes will all be arranged in the same plane. If another cubic unit of volume is described as extending from or otherwise connected to an “edge” of a portion of one of these basic shapes, that is, to be understood as being in the same plane as the other cubic units of volume that comprise the basic shape. If another cubic unit of volume is described as extending from or otherwise connected to a “side” of a portion of one of these basic shapes, that is, to be understood as being out of the two-dimensional plane in which the other cubic units of volume that form the basic shape are arranged.

FIGS. 1-103 illustrate the three-dimensional cube puzzle 100 of the first preferred embodiment. This three-dimensional cube puzzle 100 consists of seven puzzle pieces that, when assembled form a 3x3x3 cube 100. FIGS. 1-7 illustrate the seven puzzle pieces of this puzzle 100.

In FIG. 1, the first puzzle piece 104 consists of three cubic units of volume. In the first puzzle piece 104, the three cubic units of volume are arranged in a V-shape having an apex 104a and two arms 104b, 104c. In this preferred embodiment, the colors of the three cubic units of volume alternate such that the arms 104b, 104c are the same color and the apex 104a is a different color. Alternatively, the first puzzle piece 104 can be all one color. In FIG. 2, the second puzzle piece 106 consists of four cubic units of volume. In the second puzzle piece 106, the four cubic units of volume are arranged in an L-shape having an apex 106a, a short leg 106b, and a long leg 106c. In this preferred embodiment, the colors of the four cubic units of volume alternate such that the apex 106a and the end of the long leg 106c are the same color, and the short leg 106b and the middle of the long leg 106c are a different color. Alternatively, the second puzzle piece 106 can be all one color, but different from the first puzzle piece 104.

In FIG. 3, the third puzzle piece 108 consists of four cubic units of volume. In the third puzzle piece 108, the four cubic units of volume are arranged in a Z-shape having a first end 108a, a second end 108b, and a middle portion 108c. In this preferred embodiment, the colors of the four cubic units of volume alternate such that the first end 108a and a non-adjacent volume in the middle portion 108c are the same color and the second end 108b and a non-adjacent volume in the middle portion 108c are a different color. Alternatively, the third puzzle piece 108 can be all one color, but different from the first puzzle piece 104 and the second puzzle piece 106.

In FIG. 4, the fourth puzzle piece 110 consists of four cubic units of volume. In the fourth puzzle piece 110, the four cubic units of volume are arranged in a T-shape having a vertical leg 110a and a horizontal leg 110b. In this preferred embodiment, the colors of the four cubic units of volume alternate such that the ends of the vertical leg 110a and the horizontal leg 110b are the same color and the middle volume of the horizontal leg 110b is a different color. Alternatively, the fourth puzzle piece 110 can be all one color, but different from the first puzzle piece 104, the second puzzle piece 106 and the third puzzle piece 108.

In FIGS. 5 and 5A, the fifth puzzle piece 112 consists of four cubic units of volume. In the fifth puzzle piece 112, the four cubic units of volume are arranged in a three-dimensional V-shape having an apex 112a and three arms 112b, 112c, 112d. In this preferred embodiment, the colors of the four cubic units of volume alternate such that the ends of the three arms 112a, 112c, 112d are the same color and the apex 112a is a different color. Alternatively, the fifth puzzle piece 112 can be all one color, but different from the first puzzle piece 104, the second puzzle piece 106, the third puzzle piece 108 and the fourth puzzle piece 110.

In FIG. 6, the sixth puzzle piece 114 consists of four cubic units of volume. In the sixth puzzle piece 114, three of the cubic units of volume are arranged in a V-shape having an apex 114a and two arms 114b, 114c, and the fourth cubic unit of volume 114d is connected to a side of one arm 114c of the V-shape. In this preferred embodiment, the colors of the four cubic units of volume alternate such that the ends of the arms 114b, 114c are the same color and the apex 114a and the fourth cubic unit of volume 114d are a different color. Alternatively, the sixth puzzle piece 114 can be all one color, but different from the first puzzle piece 104, the second puzzle piece 106, the third puzzle piece 108, the fourth puzzle piece 110 and the fifth puzzle piece 112.
In FIG. 7, the seventh puzzle piece 116 consists of four cubic units of volume. In the seventh puzzle piece 116, three of the cubic units of volume are arranged in a V-shape having an apex 116a and two arms 116b, 116c, and the fourth cubic unit of volume 116d is connected to a side of one arm 116c of the V-shape. The seventh puzzle piece 116 is a mirror image of the sixth puzzle piece 114. In this preferred embodiment, the colors of the four cubic units of volume alternate such that the ends of the arms 116b, 116c are the same color and the apex 116a and the fourth cubic unit of volume 116d are a different color. Alternatively, the seventh puzzle piece 116 can be all one color, but different from the first puzzle piece 104, the second puzzle piece 106, the third puzzle piece 108, the fourth puzzle piece 110, the fifth puzzle piece 112 and the sixth puzzle piece 114.

FIG. 8 illustrates an exploded view of the 3x3x3 cube 100 as it is assembled. By following the dotted lines one can see how the seven puzzle pieces 104, 106, 108, 110, 112, 114, 116 are assembled to form the 3x3x3 cube 100.

As depicted in FIGS. 9A, 9B, 10A, 10B, the seven puzzle pieces 104, 106, 108, 110, 112, 114, 116 of this first preferred embodiment are configured to form a 3x3x3 cube 100 when assembled. FIGS. 9A and 10A depict a perspective view from the same corner of the 3x3x3 cube 100 illustrating three faces 100a, 100b, 100c thereof. The first face 100a, designated the top face is comprised in part of the fourth puzzle piece 110, the fifth puzzle piece 112, and the seventh puzzle piece 116. The second face 100b, designated the left front face is comprised in part of the second puzzle piece 106, the third puzzle piece 108, the fifth puzzle piece 112, and the seventh puzzle piece 116. The third face 100c, designated the right front face is comprised in part of the third puzzle piece 108, the fourth puzzle piece 110, the fifth puzzle piece 112, and the sixth puzzle piece 114. FIG. 9A illustrates where the puzzle pieces comprise alternating colors and are configured such that when assembled to form the 3x3x3 cube 100, adjacent faces of each cubic volume on a face 100a of the 3x3x3 cube 100 are of alternating colors. FIG. 10A illustrates where each of the seven puzzle pieces 104, 106, 108, 110, 112, 114, 116 are of uniform yet different colors.

FIGS. 9B and 10B depict a perspective view from the same corner of the 3x3x3 cube 100 but opposite corner from FIGS. 9A and 10A illustrating three different faces 100d, 100e, 100f thereof. The fourth face 100d, designated the bottom face is comprised in part of the second puzzle piece 106, the third puzzle piece 108, and the sixth puzzle piece 114. The fifth face 100e, designated the left rear face is comprised in part of the first puzzle piece 104, the second puzzle piece 106, the fourth puzzle piece 110, and the seventh puzzle piece 116. The sixth face 100f, designated the right rear face is comprised in part of the first puzzle piece 104, the second puzzle piece 106, the third puzzle piece 108, the fourth puzzle piece 110, and the sixth puzzle piece 114. FIG. 9B illustrates where the puzzle pieces comprise alternating colors and are configured such that when assembled to form the 3x3x3 cube 100, adjacent faces of each cubic volume on a face 100a of the 3x3x3 cube 100 are of alternating colors. FIG. 10B illustrates where each of the seven puzzle pieces 104, 106, 108, 110, 112, 114, 116 are of uniform yet different colors.

FIGS. 11-15 illustrate the five puzzle pieces of this puzzle 130. In FIG. 11, the first puzzle piece 132 consists of five cubic units of volume. In the first puzzle piece 132, four of the cubic units of volume are arranged to form a three-dimensional V-shape having three arms 132a, 132b, 132c and an apex (not shown). The three-dimensional V-shape is similar to that illustrated and described in FIGS. 5 and 5A. The fifth cubic unit of volume 132d is connected to an arm 132a of the three-dimensional V-shape. Given the configuration of this three-dimensional V-shape, it is not possible to define the fifth cubic unit of volume 132d as being attached to a “side” or an “edge” of the arm 132a. In a preferred embodiment and orienting the first puzzle piece 132 as illustrated in FIG. 11, the fifth cubic unit of volume 132d should be connected to the right-hand back face of the cubic unit of volume comprising the arm 132a. The fifth cubic unit of volume 132d may be attached to any of the arms 132a, 132b, 132c, provided that it is attached to the right-hand, back face of the cubic unit of volume comprising that arm when the three-dimensional V-shape is oriented as depicted in FIG. 11. If the fifth cubic unit of volume 132d is attached to another face of one of the arms 132a, 132b, 132c, a different overall shape will be created which likely will not cooperate with the other puzzle pieces in this embodiment to form the 3x3x3 cube 130 described herein. If the position of the fifth cubic unit of volume 132d is changed, a person skilled in the art will realize that the other puzzle pieces will need to be modified accordingly in order to properly form the 3x3x3 cube 130 when assembled. In this preferred embodiment, the colors of the five cubic units of volume alternate such that the ends of the arms 132a, 132b, 132c are the same color, and the apex (not shown) and fifth cubic unit of volume 132d are a different color. Alternatively, the first puzzle piece 132 can be all one color.

In FIG. 12, the second puzzle piece 134 has five cubic units of volume. In the second puzzle piece 134, four of the cubic units of volume are arranged to form a three-dimensional V-shape having three arms 134a, 134b, 134c and an apex (not shown). The three-dimensional V-shape is similar to that illustrated and described in FIGS. 5 and 5A. The fifth cubic unit of volume 134d is connected to the apex of the three-dimensional V-shape. Because of the nature of the three-dimensional V-shape, it is not important which face of the cubic unit of volume forming the apex the fifth cubic unit of volume 134d is connected to. Connection of the fifth cubic unit of volume 134d to any face of the cubic unit of volume forming the apex will form the same shape when oriented as depicted in FIG. 12. In this preferred embodiment, the colors of the five cubic units of volume alternate such that the ends of the arms 134a, 134b, 134c and the fifth cubic unit of volume 134d are the same color and the apex (not shown) is a different color. Alternatively, the second puzzle piece 134 can be all one color but different from the first puzzle piece 132.

In FIG. 13, the third puzzle piece 136 has seven cubic units of volume. In the third puzzle piece 136, three of the cubic units of volume are arranged to form a first V-shape 136a having an apex 136b and arms 136c, three of the cubic units of volume are arranged to form a second V-shape 136d having an apex (not shown) and arms 136e, and the seventh cubic unit of volume 136f is connected to the apex 136b of the first V-shape 136a and the apex (not shown) of the second V-shape 136d. When connected this way, the first V-shape
136a and the second V-shape 136d are superposed and oriented in the same direction such that the arms 136c, 136e of each V-shape 136a, 136d align. In this preferred embodiment, the colors of the seven cubic units of volume alternate such that the ends of the arms 136c, 136e and the seventh cubic unit of volume 136f are the same color and the apexes 136b and (not shown) are a different color. Alternatively, the third puzzle piece 136 can be all one color but different from the first puzzle piece 132 and the second puzzle piece 134.

[0114] In FIG. 14, the fourth puzzle piece 138 has five cubic units of volume. In the fourth puzzle piece 138, three of the cubic units of volume are arranged to form a V-shape 138a, having an apex 138b and arms 138c, 138d. The first face 138a of the V-shape 138a is connected to a first arm 138c of the V-shape 138a. The fifth cubic unit of volume 138c is connected to a second arm (not shown) of the V-shape 138a, such that the fourth and fifth cubic units of volume 138d, 138e are on the same face of the V-shape 138a. In this preferred embodiment, the colors of the five cubic units of volume alternate such that the ends of the arms 138a are the same color and the apex 138a, the fourth cubic unit of volume 138b, and the fifth cubic unit of volume 138d are a different color. Alternatively, the fourth puzzle piece 138 can be all one color but different from the first puzzle piece 132, the second puzzle piece 134, and the third puzzle piece 136.

[0115] In FIG. 15, the fifth puzzle piece 140 has five cubic units of volume. In the fifth puzzle piece 140, four cubic units of volume are arranged in an L-shape 140a having an apex 140b, a short leg 140c, and a long leg 140d. The fifth cubic unit of volume 140e is connected to a side of the short leg 140c of the L-shape 140a. Given the configuration of the L-shape 140a, it is not sufficient to determine the fifth cubic unit of volume 140e as being attached to the “side” of the short leg 140c. In a preferred embodiment and orienting the fifth puzzle piece 140 as illustrated in FIG. 15, the fifth cubic unit of volume 140e should be connected to the right-hand, back-face of the cubic unit of volume comprising the short leg 140c. If the fifth cubic unit of volume 140e is attached to another face of the short leg 140c, a different overall shape will be created which likely will not cooperate with the other puzzle pieces in this embodiment to form the 3x3x3 cube 130 described herein. If the position of the fifth cubic unit of volume 140e is changed, a person skilled in the art will realize that the other puzzle pieces will need to be modified accordingly in order to properly form the 3x3x3 cube 130 when assembled. In this preferred embodiment, the colors of the five cubic units of volume alternate such that the apex 140b, the end of the long leg 140d and the fifth cubic unit of volume 140e are the same color and the end of the short leg 140c and the middle of the long leg 140d are a different color. Alternatively, the fifth puzzle piece 140 can be all one color but different from the first puzzle piece 132, the second puzzle piece 134, the third puzzle piece 136 and the fourth puzzle piece 138.

[0116] FIG. 16 illustrates an exploded view of the 3x3x3 cube 130 as it is assembled. By following the dotted lines one can see how the five puzzle pieces 132, 134, 136, 138, 140 are assembled to form the 3x3x3 cube 130.

[0117] As depicted in FIGS. 17A, 17B, 18A, 18B, the five puzzle pieces 132, 134, 136, 138, 140 of this second preferred embodiment are configured to form a 3x3x3 cube 130 when assembled. FIGS. 17A and 18A depict a perspective view from the same corner of the 3x3x3 cube 130 illustrating three faces 130a, 130b, 130c thereof. The first face 130a, designated the top face is comprised in part of the first puzzle piece 132, the fourth puzzle piece 138, and the fifth puzzle piece 140. The second face 130b, designated the left front face is comprised in part of the first puzzle piece 132, the second puzzle piece 134, the third puzzle piece 136, and the fifth puzzle piece 140. The third face 130c, designated the right front face is comprised in part of the first puzzle piece 132, the second puzzle piece 134, and the fifth puzzle piece 140.

FIG. 17A illustrates where the puzzle pieces comprise alternating colors and are configured such that when assembled to form the 3x3x3 cube 130, adjacent faces of each cubic volume on a face 130a of the 3x3x3 cube 130 are of alternating colors. FIG. 18A illustrates where each of the five puzzle pieces 132, 134, 136, 138, 140 are of uniform yet different colors.

[0118] FIGS. 17B and 18B depict a perspective view from the same corner of the 3x3x3 cube 130 but opposite corner from FIGS. 17A and 18A illustrating three different faces 130a, 130b, 130c thereof. The fourth face 130d, designated the bottom face is comprised in part of the second puzzle piece 134 and the third puzzle piece 136. The fifth face 130e, designated the left rear face is comprised in part of the first puzzle piece 132, the third puzzle piece 134, and the fourth puzzle piece 136. The sixth face 130f, designated the right rear face is comprised in part of the second puzzle piece 134, the third puzzle piece 136, the fourth puzzle piece 138, and the fifth puzzle piece 140. FIG. 17B illustrates where the puzzle pieces comprise alternating colors and are configured such that when assembled to form the 3x3x3 cube 130, adjacent faces of each cubic volume on a face 130a of the 3x3x3 cube 130 are of alternating colors. FIG. 18B illustrates where each of the five puzzle pieces 132, 134, 136, 138, 140 are of uniform yet different colors.

[0119] FIGS. 19-28B illustrate the three-dimensional cubic puzzle 150 of the first preferred embodiment. This three-dimensional cubic puzzle 150 consists of seven puzzle pieces that, when assembled form a 4x4x4 cube 150. FIGS. 19-25 illustrate the seven puzzle pieces of this puzzle 150.

[0120] In FIG. 19, the first puzzle piece 152 consists of eight cubic units of volume. In the first puzzle piece 152, the eight cubic units of volume are arranged in a double L-shape comprising a first L-shape 152a having an apex 152b, a short leg 152c and a long leg 152d abutting a second L-shape 152e having an apex (not shown), a short leg 152f and a long leg 152g. In this preferred embodiment, the colors of the eight cubic units of volume alternate such that in the first L-shape 152a, the apex 152b and the end of the long leg 152d are the same color and the short leg 152c and the middle of the long leg 152d are a different color. The second L-shape 152e is oppositely colored from the first L-shape 152a. Alternatively, the first puzzle piece 152 can be all one color.

[0121] In FIG. 20, the second puzzle piece 154 consists of twelve cubic units of volume. In the second puzzle piece 154, the twelve cubic units are arranged in a quadruple V-shape comprising four V-shapes 154a each having an apex 154b, a first arm 154c and a second arm 154d. The sides of the four V-shapes 154a abut against each other to form the quadruple V-shape 154. In this preferred embodiment, the colors of the twelve cubic units of volume alternate such that each V-shape 154a has an apex 154b of one color and arms 154c, 154d of a different color. Abutting V-shapes 154a alternate colors so that adjacent arms 154c, 154d on abutting V-shapes 154a are of alternating colors. Alternatively, the second puzzle piece 154 can be all one color yet different from the first puzzle piece 152.
In FIG. 21, the third puzzle piece 156 has twelve cubic units of volume. In the third puzzle piece 156, four cubic units of volume are arranged in a first L-shape 156a. The first L-shape 156a has an apex 156b, a short leg 156c, and a long leg 156d. Another four of the cubic units of volume are arranged in a second L-shape 156e having an apex (not shown), a short leg 156f, and a long leg 156g. The last four of the cubic units of volume are arranged in a square 156h with an edge of the square 156h connected to the short leg 156c and an apex 156h of the first L-shape 156a and an opposite edge of the square 156h connected to the short leg 156i and apex (not shown) of the second L-shape 156i such that the first and second L-shapes 156a, 156e are superposed and oriented in the same direction such that the long legs 156d, 156g and short legs 156c, 156f are aligned. In this preferred embodiment, the colors of the twelve cubic units of volume alternate such that the first L-shape 156a has an apex 156b and end of the long leg 156d of the same color and short leg 156c and middle of the long leg 156d arms of a different color. The second L-shape 156i has coloring the reverse of the first L-shape 156i. The square 156h has alternating colors such that abutting cubic volumes on the square 156h and the short legs 156c, 156f are alternating. Alternatively, the third puzzle piece 156 can be all one color yet different from the first puzzle piece 152 and the second puzzle piece 154.

In FIG. 22, the fourth puzzle piece 158 has eight cubic units of volume. In the third puzzle piece 158, three of the cubic units of volume are arranged in a first V-shape 158a having an apex 158b and arms 158c. Another three of the cubic units of volume are arranged in a second V-shape 158d having an apex 158e and arms 158f. The last two cubic units of volume are connected in-line 158g with matching arms 158c, 158e of the first V-shape 158a and the second V-shape 158d such that the arms 158c, 158e of the first and second V-shapes 158a, 158d are oriented in the same direction. In this preferred embodiment, the colors of the eight cubic units of volume alternate such that the first V-shape 158a has an apex 158b of one color and arms 158c: of a different color. The second V-shape 158d has coloring the reverse of the first V-shape 158a. The two cubic units of volume in-line 158g has alternating colors such that abutting cubic volumes on the square 158g and the arms 158c, 158d are alternating. Alternatively, the puzzle piece 158 can be all one color yet different from the first puzzle piece 152, the second puzzle piece 154 and the third puzzle piece 156.

In FIG. 23, the fifth puzzle piece 160 has ten cubic units of volume. In the fifth puzzle piece 160, the ten cubic units of volume are arranged to form a U-shape 160a having a first arm 160a, a second arm 160b and a bottom 160c. In this preferred embodiment, the colors of the ten cubic units of volume alternate such that the end of the first arm 160a is of one color and the end of the second arm 160b is of another color. The color of adjacent cubic unit of volumes alternates along the first arm 160a, across the bottom 160c and up the second arm 160b. Alternatively, the fifth puzzle piece 160 can be all one color yet different from the first puzzle piece 152, the second puzzle piece 154, the third puzzle piece 156 and the fourth puzzle piece 158.

In FIG. 24, the sixth puzzle piece 162 has eight cubic units of volume. In the sixth puzzle piece 162, six of the cubic units of volume are arranged in a double V-shape 162a. The double V-shape 162a is comprised of a first V-shape 162b and a second V-shape 162c. The first V-shape 162b has an apex 162d and arms 162f. The second V-shape 162c has also has an apex (not shown) and arms 162f. The sides of the first and second V-shapes 162b, 162c abut against each other to form the double V-shape 162a. The two remaining cubic units of volume 162g are connected to opposite sides of one arm 162e. 162f of the double V-shape 162a. In this preferred embodiment, the colors of the eight cubic units of volume alternate such that the first V-shape 162b has an apex 162d of one color and arms 162f of a different color. The second V-shape 162c has coloring the reverse of the first V-shape 162c. The two cubic units of volume 162g have alternating colors such that abutting cubic volumes on the arms 162e, 162f are alternating. Alternatively, the sixth puzzle piece 162 can be all one color yet different from the first puzzle piece 152, the second puzzle piece 154, the third puzzle piece 156, the fourth puzzle piece 158, and the fifth puzzle piece 160.

In FIG. 25, the seventh puzzle piece 164 has six cubic units of volume. In the seventh puzzle piece 164, three of the cubic units of volume are arranged in a first V-shape 164a having an apex 164b and arms 164c. The other three cubic units of volume are arranged in a second V-shape 164d having an apex 164e and arms 164f. The first V-shape 164a is connected along an edge of an arm 164c and apex 164b to an opposite edge of an arm 164f and apex 164e of the second V-shape 164d. Preferably, the arms 164c, 164f abut and the apexes 164b, 164e abut. In this preferred embodiment, the colors of the six cubic units of volume alternate such that the first V-shape 164a has an apex 164d of one color and arms 164f of a different color. The second V-shape 164d has coloring the reverse of the first V-shape 164a. Alternatively, the seventh puzzle piece 164 can be all one color yet different from the first puzzle piece 152, the second puzzle piece 154, the third puzzle piece 156, the fourth puzzle piece 158, the fifth puzzle piece 160, and the sixth puzzle piece 162.

FIG. 26 illustrates an exploded view of the 4×4×4 cube 150 as it is assembled. By following the dotted lines one can see how the seven puzzle pieces 152, 154, 156, 158, 160, 162, 164 are assembled to form the 4×4×4 cube 150.

As depicted in FIGS. 27A, 27B, 28A, 28B, the seven puzzle pieces 152, 154, 156, 158, 160, 162, 164 of this third preferred embodiment are configured to form a 4×4×4 cube 150 when assembled. FIGS. 27A and 28A depict a perspective view from the same corner of the 4×4×4 cube 150 illustrating three faces 150a, 150b, 150c: thereof. The first face 150a, designated the top face is comprised in part of the second puzzle piece 154, the fifth puzzle piece 160, and the sixth puzzle piece 162. The second face 150b, designated the bottom face is comprised in part of the first puzzle piece 152, the fifth puzzle piece 158, the sixth puzzle piece 162, and the seventh puzzle piece 164. FIG. 27A illustrates where the puzzle pieces comprise alternating colors and are configured such that when assembled to form the 4×4×4 cube 150, adjacent faces of each cubic volume on a face 150a of the 4×4×4 cube 150 are of alternating colors. FIG. 28A illustrates where each of the seven puzzle pieces 152, 154, 156, 158, 160, 162, 164 are of uniform yet different colors.

FIGS. 27B and 28B depict a perspective view from the same corner of the 4×4×4 cube 150 but opposite corner from FIGS. 27A and 28A illustrating three different faces 150a, 150c, 150b thereof. The fourth face 150d, designated the bottom face is comprised in part of the first puzzle piece
The fifth face 150f designated the right rear face is comprised in part of the second puzzle piece 154 and the third puzzle piece 156, the fourth puzzle piece 158, the fifth puzzle piece 160, the sixth puzzle piece 162, and the seventh puzzle piece 164. The sixth face 150f designated the right rear face is comprised in part of the second puzzle piece 154 and the third puzzle piece 156. FIG. 27B illustrates where the puzzle pieces comprise alternating colors and are configured such that when assembled to form the 4x4x4 cube 150, adjacent faces of each cubic volume on a face 150c-f of the 4x4x4 cube 150 are of alternating colors. FIG. 28B illustrates where each of the seven puzzle pieces 152, 154, 156, 158, 160, 162, 164 are of uniform yet different colors.

FIGS. 29-74B illustrate various structures that can be built using all or a portion of the puzzle pieces 104, 106, 108, 110, 112, 114, 116 from the three-dimensional cube puzzle 100 of the first preferred embodiment. The shading in these figures does not indicate color or any other surface feature on the cubic units of volume.

FIG. 29 illustrates a structure using puzzle pieces 106 and 116. This structure consists of eight cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of four cubic units of one color and four cubic units of another color.

FIG. 30 illustrates a structure using puzzle pieces 114 and 116. This structure consists of eight cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of four cubic units of one color and four cubic units of another color.

FIG. 31 illustrates a structure using puzzle pieces 106 and 116. This structure consists of eight cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of four cubic units of one color and four cubic units of another color.

FIG. 32 illustrates a structure using puzzle pieces 104 and 112. This structure consists of eight cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of three cubic units of one color and five cubic units of another color.

FIG. 33 illustrates a structure using puzzle pieces 106 and 114. This structure consists of eight cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of four cubic units of one color and four cubic units of another color.

FIG. 34 illustrates a structure using puzzle pieces 112 and 114. This structure consists of eight cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of three cubic units of one color and five cubic units of another color.

FIG. 35 illustrates a structure using puzzle pieces 104, 112, 114 and 116. This structure consists of fifteen cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of nine cubes of one color and six cubes of another color.

FIG. 37 illustrates a structure using puzzle pieces 104, 108 and 112. This structure consists of eleven cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of five cubes of one color and six cubes of another color.

FIG. 38 illustrates a structure using puzzle pieces 106, 112 and 114. This structure consists of twelve cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of five cubes of one color and seven cubes of another color.

FIG. 39 illustrates a structure using puzzle pieces 106 and 110. This structure consists of eight cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of five cubes of one color and three cubes of another color.

FIG. 40 illustrates a structure using puzzle pieces 108 and 112. This structure consists of eight cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of three cubes of one color and five cubes of another color.

FIG. 41 illustrates a structure using puzzle pieces 104, 106, 114 and 116. This structure consists of fifteen cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of eight cubes of one color and seven cubes of another color.

FIG. 42 illustrates a structure using puzzle pieces 106, 112, 114 and 116. This structure consists of sixteen cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of nine cubes of one color and seven cubes of another color.

FIG. 43 illustrates a structure using puzzle pieces 106, 114 and 116. This structure consists of twelve cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of six cubes of one color and six cubes of another color.

FIG. 44 illustrates a structure using puzzle pieces 104, 110 and 112. This structure consists of eleven cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of five cubes of one color and six cubes of another color.

FIG. 45 illustrates a structure using puzzle pieces 104, 108, 112 and 116. This structure consists of fifteen cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of eight cubes of one color and seven cubes of another color.

FIG. 46 illustrates a structure using puzzle pieces 104, 110, 112, 114 and 116. This structure consists of nineteen cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of nine cubes of one color and ten cubes of another color.
[0149] FIG. 47 illustrates a structure using puzzle pieces 106, 108, 112 and 116. This structure consists of sixteen cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of nine cubes of one color and seven cubes of another color.

[0150] FIG. 48 illustrates a structure using puzzle pieces 104, 112, 114 and 116. This structure consists of fifteen cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of eight cubes of one color and seven cubes of another color.

[0151] FIG. 49 illustrates a structure using puzzle pieces 104, 106, 110, 112 and 114. This structure consists of nineteen cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of nine cubes of one color and ten cubes of another color.

[0152] FIG. 50 illustrates a structure using puzzle pieces 104, 106, 110, 112 and 114. This structure consists of nineteen cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of nine cubes of one color and ten cubes of another color.

[0153] FIG. 51 illustrates a structure using puzzle pieces 108 and 110. This structure consists of eight cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of three cubes of one color and five cubes of another color.

[0154] FIG. 52 illustrates a structure using all seven puzzle pieces 104, 106, 108, 110, 112, 114 and 116. This structure consists of twenty-seven cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of fourteen cubes of one color and thirteen cubes of another color.

[0155] FIG. 53 illustrates a structure using all seven puzzle pieces 104, 106, 108, 110, 112, 114 and 116. This structure consists of twenty-seven cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of fourteen cubes of one color and thirteen cubes of another color.

[0156] FIG. 54 illustrates a structure using all seven puzzle pieces 104, 106, 108, 110, 112, 114 and 116. This structure consists of twenty-seven cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of fourteen cubes of one color and thirteen cubes of another color.

[0157] FIG. 55 illustrates a structure using puzzle pieces 104, 108, 112, 114 and 116. This structure consists of nineteen cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of ten cubes of one color and nine cubes of another color.

[0158] FIG. 56 illustrates a structure using all seven puzzle pieces 104, 106, 108, 110, 112, 114 and 116. This structure consists of twenty-seven cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of fourteen cubes of one color and thirteen cubes of another color.

[0159] FIG. 57 illustrates a structure using all seven puzzle pieces 104, 106, 108, 110, 112, 114 and 116. This structure consists of twenty-seven cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of fourteen cubes of one color and thirteen cubes of another color.

[0160] FIG. 58 illustrates a structure using all seven puzzle pieces 104, 106, 108, 110, 112, 114 and 116. This structure consists of twenty-seven cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of fourteen cubes of one color and thirteen cubes of another color.

[0161] FIG. 59 illustrates a structure using all seven puzzle pieces 104, 106, 108, 110, 112, 114 and 116. This structure consists of twenty-seven cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of fourteen cubes of one color and thirteen cubes of another color.

[0162] FIG. 60 illustrates a structure using all seven puzzle pieces 104, 106, 108, 110, 112, 114 and 116. This structure consists of twenty-seven cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of fourteen cubes of one color and thirteen cubes of another color.

[0163] FIG. 61 illustrates a structure using all seven puzzle pieces 104, 106, 108, 110, 112, 114 and 116. This structure consists of twenty-seven cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of fourteen cubes of one color and thirteen cubes of another color.

[0164] FIG. 62 illustrates a structure using all seven puzzle pieces 104, 106, 108, 110, 112, 114 and 116. This structure consists of twenty-seven cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of fourteen cubes of one color and thirteen cubes of another color.

[0165] FIG. 63 illustrates a structure using all seven puzzle pieces 104, 106, 108, 110, 112, 114 and 116. This structure consists of twenty-seven cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of fourteen cubes of one color and thirteen cubes of another color.

[0166] FIG. 64 illustrates a structure using all seven puzzle pieces 104, 106, 108, 110, 112, 114 and 116. This structure consists of twenty-seven cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of fourteen cubes of one color and thirteen cubes of another color.

[0167] FIG. 65 illustrates a structure using all seven puzzle pieces 104, 106, 108, 110, 112, 114 and 116. This structure consists of twenty-seven cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of fourteen cubes of one color and thirteen cubes of another color.
FIG. 66 illustrates a structure using all seven puzzle pieces 104, 106, 108, 110, 112, 114 and 116. This structure consists of twenty-seven cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of fourteen cubes of one color and thirteen cubes of another color.

FIG. 67 illustrates a structure using all seven puzzle pieces 104, 106, 108, 110, 112, 114 and 116. This structure consists of twenty-seven cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of fourteen cubes of one color and thirteen cubes of another color.

FIG. 68 illustrates a structure using all seven puzzle pieces 104, 106, 108, 110, 112, 114 and 116. This structure consists of twenty-seven cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of fourteen cubes of one color and thirteen cubes of another color.

FIG. 69 illustrates a structure using all seven puzzle pieces 104, 106, 108, 110, 112, 114 and 116. This structure consists of twenty-seven cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of fourteen cubes of one color and thirteen cubes of another color.

FIG. 70 illustrates a structure using all seven puzzle pieces 104, 106, 108, 110, 112, 114 and 116. This structure consists of twenty-seven cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of fourteen cubes of one color and thirteen cubes of another color.

FIG. 71 illustrates a structure using puzzle pieces 106 and 110. This structure consists of eight cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of five cubes of one color and three cubes of another color.

FIG. 72 illustrates a structure using all seven puzzle pieces 104, 106, 108, 110, 112, 114 and 116. This structure consists of twenty-seven cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of fourteen cubes of one color and thirteen cubes of another color.

FIG. 73 illustrates a structure using all seven puzzle pieces 104, 106, 108, 110, 112, 114 and 116. This structure consists of twenty-seven cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of fourteen cubes of one color and thirteen cubes of another color.

FIGS. 74, 74A and 74B illustrate a structure using all seven puzzle pieces 104, 106, 108, 110, 112, 114 and 116. Two different figures need to be created and the stacked one upon the other. The first figure, shown in FIG. 74A, is built with puzzle pieces 106 and 108, which is then placed upon the second figure, shown in FIG. 74B, built with the remaining puzzle pieces 104, 110, 112, 114 and 116. This structure consists of twenty-seven cubic units of volume. In the multicolor design, each cubic unit of volume has its own unique color. In the two-color, alternating design, the structure consists of fourteen cubes of one color and thirteen cubes of another color.

Many other structures can be built using the same puzzle pieces in different combinations and configurations. In addition, similar structures can be built using the puzzle pieces from the second preferred embodiment 130 and the third preferred embodiment 150. A person skilled in the art will realize the differences in the structures to be built using the various embodiments. These variations in the possible structures to be built and the different combinations that can be created will maintain long-lasting enjoyment from the use of the puzzle described herein.

Although several embodiments of the invention have been described in detail for purposes of illustration, various modifications of each may be made without departing from the spirit and scope of the invention. Accordingly, the invention is not to be limited, except as by the appended claims.

What is claimed is:

1. A three-dimensional cube puzzle consisting of:
   a first puzzle piece having three cubic units of volume configured in a V-shape;
   a second puzzle piece having four cubic units of volume configured in an L-shape;
   a third puzzle piece having four cubic units of volume configured in a Z-shape;
   a fourth puzzle piece having four cubic units of volume configured in a T-shape;
   a fifth puzzle piece having four cubic units of volume configured to form a three-dimensional V-shape;
   a sixth puzzle piece having four cubic units of volume, wherein three of the four cubic units of volume are configured in a second V-shape and the fourth cubic unit of volume is connected to a side of one arm of the second V-shape; and
   a seventh puzzle piece having four cubic units of volume, wherein three of the four cubic units of volume are configured in a third V-shape and the fourth cubic unit of volume is connected to a side of one arm of the third V-shape to form a mirror image of the sixth puzzle piece.

2. The three-dimensional puzzle cube of claim 1, wherein the seven puzzle pieces are configured to form a 3x3x3 cube when assembled.

3. The three-dimensional puzzle cube of claim 2, wherein each of the seven puzzle pieces are of different colors.

4. The three-dimensional puzzle cube of claim 2, wherein abutting cubic units of volume in any of the puzzle pieces are of alternating colors.

5. The three-dimensional puzzle cube of claim 4, wherein the seven puzzle pieces and the 3x3x3 cube are configured such that adjacent faces of each cubic volume on a face of the 3x3x3 cube are of alternating colors.

6. A three-dimensional cube puzzle consisting of:
   a first puzzle piece having five cubic units of volume, wherein four of the cubic units of volume are configured to form a first three-dimensional V-shape and the fifth cubic unit of volume is connected to an arm of the first three-dimensional V-shape;
   a second puzzle piece having five cubic units of volume, wherein four of the cubic units of volume are configured to form a second three-dimensional V-shape and the fifth cubic unit of volume is connected to an apex of the second three-dimensional V-shape;
a third puzzle piece having seven cubic units of volume, wherein three of the cubic units of volume are configured to form a first V-shape, three of the cubic units of volume are configured to form a second V-shape and the seventh cubic unit of volume is connected to an apex of the first V-shape and an apex of the second V-shape, such that the first V-shape and the second V-shape are oriented in the same direction;

a fourth puzzle piece having five cubic units of volume, wherein three of the cubic units of volume are configured to form a third V-shape, the fourth cubic unit of volume is connected to a side of a first arm of the third V-shape and the fifth cubic unit of volume is connected to a side of a second arm of the third V-shape, such that the fourth and fifth cubic units of volume are on the same side of the third V-shape; and

a fifth puzzle piece having five cubic units of volume, wherein four cubic units of volume are configured in an L-shape and the fifth cubic unit of volume is connected to a side of the short leg of the L-shape.

7. The three-dimensional puzzle cube of claim 6, wherein the five puzzle pieces are configured to form a 3x3x3 cube when assembled.

8. The three-dimensional puzzle cube of claim 7, wherein each of the five puzzle pieces are of different colors.

9. The three-dimensional puzzle cube of claim 7, wherein abutting cubic units of volume in any of the puzzle pieces are of alternating colors.

10. The three-dimensional puzzle cube of claim 9, wherein the five puzzle pieces and the 3x3x3 cube are configured such that adjacent faces of each cubic volume on a face of the 3x3x3 cube are of alternating colors.

11. A three-dimensional cube puzzle consisting of:
   a first puzzle piece having eight cubic units of volume configured in a double L-shape;
   a second puzzle piece having twelve cubic units of volume configured in a quadruple V-shape;
   a third puzzle piece having twelve cubic units of volume, wherein four of the cubic units of volume are configured in a first L-shape, four of the cubic units of volume are configured in a second L-shape and four of the cubic units of volume are configured in a square with an edge of the square connected to a side of the short leg and apex of the first L-shape and an opposite edge of the square connected to a side of the short leg and apex of the second L-shape such that the first and second L-shapes are oriented in the same direction;

   a fourth puzzle piece having eight cubic units of volume, wherein three of the cubic units of volume are configured in a first V-shape, three of the cubic units of volume are configured in a second V-shape, and two of the cubic units of volume are connected in-line with matching arms of the first V-shape and the second V-shape such that the first and second V-shapes are oriented in the same direction;

   a fifth puzzle piece having ten cubic units of volume configured to form a U-shape;

   a sixth puzzle piece having eight cubic units of volume, wherein six of the cubic units of volume are configured in a double V-shape, one of the cubic units of volume is connected to a side of one arm of the double V-shape, and one of the cubic units of volume is connected to an opposite side of the same arm of the double V-shape; and

   a seventh puzzle piece having six cubic units of volume, wherein three of the cubic units of volume are configured in a third V-shape, three of the cubic units of volume are configured in a fourth V-shape, and the third V-shape is connected along an edge of an arm and apex to an opposite edge of an arm and apex of the fourth V-shape.

12. The three-dimensional puzzle cube of claim 11, wherein the seven puzzle pieces are configured to form a 4x4x4 square when assembled.

13. The three-dimensional puzzle cube of claim 12, wherein each of the seven puzzle pieces are of different colors.

14. The three-dimensional puzzle cube of claim 12, wherein abutting cubic units of volume in any of the puzzle pieces are of alternating colors.

15. The three-dimensional puzzle cube of claim 14, wherein the seven puzzle pieces and the 4x4x4 cube are configured such that adjacent faces of each cubic volume on a face of the 4x4x4 cube are of alternating colors.