THREE DIMENSIONAL OBSTACLE COURSE
AND NAVIGATION GAME KIT

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Applied No.: 15/014,823

Filed: Feb. 3, 2016

Related U.S. Application Data

Continuation-in-part of application No. 13/743,089, filed on Jan. 16, 2013.

Provisional application No. 61/591,174, filed on Jan. 26, 2012.

Publication Classification

Int. Cl.
A63F 9/14 (2006.01)
A63H 27/00 (2006.01)

U.S. Cl.
CPC A63F 9/14 (2013.01); A63H 27/12 (2013.01); A63H 27/02 (2013.01)

ABSTRACT

A three dimensional obstacle course and navigation game kit is disclosed. The game kit includes a hoop member, a hanging rod with a hanging base member that can secure the hoop member, a hook member with a portion that can secure the hoop member and a stand with a standing base member that can secure the hoop member. The standing base member has a cavity that secures a suction cup that can secure the standing base member to a relatively flat surface. The hoop member is sized to allow an object such as a toy drone to pass through. The hanging rod can secure to a top portion of a door.
FIG. 1
FIG. 4
FIG. 5

Elastic bands

Vertical Hoop Stand

1 1/2 inches

1 1/4 inches
THREE DIMENSIONAL OBSTACLE COURSE AND NAVIGATION GAME KIT

CROSS-REFERENCE TO RELATED APPLICATIONS


BACKGROUND

[0002] This application relates generally to systems and methods for providing a recreational activity. More specifically, this application relates to systems and methods for a three dimensional obstacle course and navigation game kit that provide a recreational game involving the throwing and/or maneuvering objects through a series of obstacles such as hoops or gates. These objects can include paper airplanes, toy aircraft, drones, balls, darts, and other similar objects or projectiles. This application also relates to a kit having a set of articles that can be used to play this recreational game. This application still further relates to one or more obstacles, hoops, targets, and/or boundaries useful in this recreational game, which can be located on various objects in a playing environment.

[0003] Toy aircraft can range from relatively simple machines that are made out of paper, paperboard, card stock or other similar materials to sophisticated remote controlled flying machines such as remote controlled toy drones. Some of the simplest toy aircraft, paper airplanes, can be made, for example, by folding one or more sheets of paper to create flying machines having one or two wings with a fold of paper below the wing(s) that can be held as the user throws the paper airplane. Numerous styles of paper airplanes are known that can be made by folding one or more sheets of paper using a predetermined pattern. More sophisticated toy aircraft can include toy gliders, toy airplanes, toy helicopters, and other types of toy flying machines. Some of these more sophisticated toy aircraft can be remote controlled and can include one or more gas, electric, and/or mechanically powered propellers and/or rotors for lift, propulsion and/or guidance.

BRIEF SUMMARY

[0004] In some embodiments, the present disclosure relates to a three dimensional obstacle course and navigation game kit comprising a hoop member, a hanging rod comprising a hanging base member configured to selectively and detachably secure the hoop member, a hook member comprising a portion configured to selectively and detachably secure the hook member, and a stand comprising a standing base member configured to selectively and detachably secure the stand member. The standing base member can comprise a cavity configured to selectively and detachably secure a suction cup. The hoop member can be sized to allow a projectile object to pass therethrough. The hoop member can comprise one or more of a triangular shape, an elliptical shape, and a rectangular shape. The hanging rod can be configured to selectivity and detachably secure to a top portion of a door. The suction cup can be configured to secure the standing base member to a relatively flat surface. The projectile object can comprise a remote-controlled toy aircraft. The game kit can comprise a toy drone.

[0005] In some embodiments, a three dimensional obstacle course and navigation game kit can comprise a plurality of hoops of various sizes, a plurality of base members, one or more hanging rods, one or more table bases, and one or more suction cups. Each base member can comprise a channel disposed on a top surface with the channel configured to selectively and detachably secure an edge portion of a hoop such that the base member can selectively and detachably couple hoops of various sizes. Each base member can also be configured to selectively and detachably couple at a bottom surface with each of the hanging rods, the table bases, and the suction cups. Each base member can comprise a first band attachment disposed on a first side surface and a second band attachment disposed on an opposite second side surface with the first band attachment configured to selectively and detachably couple a first loop of a circular band and the second band attachment configured to selectively and detachably couple a second loop of the circular band and with a remaining portion of the circular band traversing an opening of the hoop to secure the hoop to the base member. The hoop member can comprise one or more of a triangular shape, an elliptical shape, and a rectangular shape. The game kit can further comprise a plurality of scorecards. Each circular band can comprise an elastomeric band configured to provide flexibility and configured to reduce the likelihood that the hoop detaches from the base member. Each base member can comprise a generally triangular cross-section. The band attachments can comprise one or more of knobs and hooks. Each table base is configured to maintain the hoop in a substantially vertical position. The hoop member can be sized to allow a toy aircraft to pass therethrough.

[0006] In some embodiments, a three dimensional obstacle course and navigation game kit comprises a plurality of hoops of various sizes and a plurality of base members. Each base member can comprise a pair of rising walls that form a channel with the channel configured to selectively receive a portion of the hoop and detachably couple the hoop with a snap fit or a press fit. The rising walls can comprise one or more protrusions that protrude into the channel with the protrusions configured to mate with portions of the hoop. The hoops can comprise one or more channels, holes, and indents configured to mate with the protrusions. The rising walls can be configured to flex outward during insertion of the hoop and to bias inward to selectively and detachably couple the hoop. The rising walls can further comprise a pair of rising walls that form a channel with the channel configured to selectively receive a portion of the hoop and detachably couple the hoop. The base member can further comprise a stand with a cut-away portion with the cut-away portion disposed at a bottom portion of the channel and with the cut-away portion configured to selectively receive a portion of the hoop when the hoop is detachably coupled with the base member.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] In order that the manner in which the above recited and other features and advantages of the present disclosure are obtained, a more particular description of the disclosure will be rendered by reference to specific embodiments thereof, which are illustrated in the appended drawings. Understanding that the drawings depict only typical embodiments of the present disclosure and are not, therefore, to be considered as limiting the scope of the disclosure, the present
Disclosure will be described and explained with additional specificity and detail through the use of the accompanying drawings in which:

[0008] FIG. 1 illustrates a set of components included in a representative kit used in a paper airplane game;

[0009] FIG. 2 illustrates a perspective view of a representative instance of a paper airplane game having a set of hoops disposed within a playing environment;

[0010] FIG. 3 illustrates a perspective view of a representative hanging loop, according to some embodiments;

[0011] FIG. 4 illustrates a front and side views of a series of representative hoops of various sizes, according to some embodiments;

[0012] FIG. 5 illustrates a side view of a base member, according to some embodiments;

[0013] FIG. 6 illustrates a partial front view of a hanging rod, according to some embodiments;

[0014] FIG. 7 illustrates a perspective view a representative standing hoop, according to some embodiments;

[0015] FIG. 8 illustrates a side view of a base member connected to a stand, according to some embodiments;

[0016] FIG. 9 illustrates a partial front view of a standing hoop, according to some embodiments;

[0017] FIG. 10 illustrates a perspective view of a representative suction cup hoop, according to some embodiments;

[0018] FIG. 11 illustrates a perspective view of an integrated hoop and base member, according to some embodiments;

[0019] FIG. 11 illustrates a front view of an integrated hoop and base member, according to some embodiments;

[0020] FIG. 12 illustrates a partial perspective view of another embodiment of a base member and hoop member, according to some embodiments;

[0021] FIG. 13 illustrates a side view of the embodiments of the base member and the hoop member of FIG. 12, with the hoop member being separated from the base member;

[0022] FIG. 14 illustrates a perspective view of a representative suction hoop, according to some embodiments;

[0023] FIG. 15 illustrates a perspective view of a representative door hanging hoop, according to some embodiments;

[0024] FIG. 16 illustrates a perspective view of a representative hanging hoop, according to some embodiments;

[0025] FIG. 17 illustrates at least some components included in another representative kit used in a paper airplane game;

[0026] FIG. 18A illustrates a front view of a triangular-shaped standing hoop, according to some embodiments;

[0027] FIG. 18B illustrates a front view of an elliptically-shaped standing hoop, according to some embodiments;

[0028] FIG. 18C illustrates a front view of a rectangular-shaped standing hoop, according to some embodiments;

[0029] FIG. 19 illustrates a toy drone maneuvering through a series of rectangular-shaped standing hoops, according to some embodiments;

[0030] FIG. 20 illustrates a side view of a base member, according to some embodiments;

[0031] FIG. 21 illustrates a top view of a base member, according to some embodiments;

[0032] FIG. 22 illustrates a detailed view of a hoop member, according to some embodiments;

[0033] FIG. 23 illustrates side views of a base member and a hoop member, according to some embodiments;

[0034] FIG. 24 illustrates a side view of a hoop member engaged with a base member, according to some embodiments;

[0035] FIG. 25 illustrates a side view of a hoop member engaged with a base member, according to some embodiments;

[0036] FIG. 26 illustrates a side view of a hoop member engaged with a base member, according to some embodiments.

Detailed Description

[0037] A description of embodiments of the present disclosure will now be given with reference to the Figures. It is expected that the present disclosure may be embodied in other specific forms without departing from its spirit or essential characteristics. The described embodiments are to be considered in all respects only as illustrative and not restrictive. The scope of the disclosure is, therefore, indicated by the appended claims rather than by the foregoing description. All changes that come within the meaning and range of equivalency of the claims are to be embraced within their scope.

[0038] The disclosure may use perspective-based descriptions such as up/down, back/front, left/right and top/bottom. Such descriptions are merely used to facilitate the discussion and are not intended to restrict the application or embodiments of the present disclosure.

[0039] For the purposes of the present disclosure, the phrase “A/B” means A or B. For the purposes of the present disclosure, the phrase “A and/or B” means “(A), (B), or (A and B).” For the purposes of the present disclosure, the phrase “at least one of A, B, and C” means “(A), (B), (C), (A and B), (A and C), (B and C), or (A, B and C).”

[0040] Various operations may be described as multiple discrete operations in turn, in a manner that may help in understanding embodiments of the present disclosure; however, the order of description should not be construed to imply that these operations are order dependent.

[0041] The disclosure may use the phrases “in an embodiment,” or “in various embodiments,” which may each refer to one or more of the same or different embodiments. Furthermore, the terms “comprising,” “including,” “having,” and the like, as used with respect to embodiments of the present disclosure, are synonymous with the definition afforded the term “comprising.”

[0042] The terms “coupled” and “connected,” along with their derivatives, may be used. It should be understood that these terms are not intended as synonyms for each other. Rather, in particular embodiments, “connected” may be used to indicate that two or more elements are in direct physical contact with each other. “Coupled” may mean that two or more elements are in direct physical or electrical contact. However, “coupled” may also mean that two or more elements are not in direct contact with each other, but yet still cooperate or interact with each other.

[0043] As used herein, the term “toy aircraft” refers to any toy flying machine. Non-limiting examples of toy aircraft include toy gliders, toy airplanes, toy helicopters, toy drones, and any other type of toy aircraft. Toy aircraft can be unpiloted and can be flown by being thrown by a user (or a player) or by being launched by a catapult or similar launcher. Toy aircraft can be self-propelled and/or powered and can include gas powered, electric powered, mechanically powered (e.g., a rubber band powered, or spring powered), and/or pneumatically powered (e.g., powered by compressed gas) toy aircraft. Toy aircraft can be configured to be remotely controlled and/or flown by wireless signals such as radio signals, Bluetooth signals, WiFi signals, infrared (IR) signals, near field com-
communication (NFC) signals, and other wireless signals. Toy aircraft can also be configured to be programmed to follow a predetermined flight path.

[0044] As used herein the term “paper airplane” refers to any toy aircraft comprising folded paper, cardboard, cardboard or another suitable material. Non-limiting examples include toy aircraft such as paper airplanes, paper planes, paper gliders, and paper darts.

[0045] As used herein, the term “projectile object” refers to any object or body that can be thrown forward that is suitable for use with the described recreational game. Non-limiting examples include paper airplanes as defined above, non-powered toy aircraft, powered toy aircraft, self-propelled toy aircraft, remote-controlled toy aircraft (e.g., remote-controlled toy helicopters, remote-controlled toy airplanes, and remote-controlled toy drones), wadded paper, toy balls, sports balls, darts, foam darts, NERF® foam darts, flying discs, FRISBEE® flying discs, arrows, bean bags, ping pong balls, base- balls, raquet balls, golf balls, footballs, rubber balls, and toy balls sold under the trademark WIFFLE™.

[0046] As used herein, the term “hoop” refers to any structure configured to allow a toy aircraft, paper airplane and/or projectile object to pass through. A hoop can include an elliptical ring with an opening configured to allow a toy aircraft, paper airplane and/or projectile object to pass through. A hoop can comprise a structure of any suitable shape. Likewise, a hoop can comprise an opening of any suitable shape. For example, a hoop can be elliptical, circular, triangular, square, or rectangular in shape with an opening that can be elliptical, circular, triangular, square, or rectangular in shape. A hoop can comprise more than one opening.

[0047] As used herein, the term “obstacle” refers to any structure configured to allow a toy aircraft, paper airplane, and/or projectile object to pass through, around, over and/or under as part of the three dimensional obstacle game. Non-limiting examples include hoops as described above, gates, flags, wickets, goals, pylons, goal posts, cones, reflectors, markers, boundaries, and posts.

[0048] This application relates generally to systems and methods for providing a recreational activity. More specifically, this application relates to systems and methods for providing a recreational game involving the throwing of projectile objects through a series of hoops and/or obstacles as part of a three dimensional obstacle game. In general, the paper airplane game (herein simply “game”) can be played by placing a series of hoops and/or obstacles within a playing environment and then throwing the projectile objects through the hoops in order. Each participant may count the number of throws that it takes him/her to successfully throw a projectile object through each successive hoop. After each participant passes his/her projectile object through the first hoop, the number of throws taken to successfully pass the projectile object through the first hoop can be recorded. The participant can then proceed to throw his or her projectile object through the second hoop, repeating this process until each participant has thrown his or her projectile object through each hoop. If a single throw does not successfully pass through the target hoop, the participant may make the subsequent throw from the location of where the projectile object landed. The participant who successfully throws his/her paper airplane through each of the successive hoops in the lowest number of throws can be designated as the winner of the game or of the round.

[0049] Reference will first be made to FIG. 1, which illustrates a representative paper airplane game kit (or simply “kit”) 26 which includes several articles that can be used to play the game. For instance, the kit 26 can include one or more sheets of paper 22 that can be formed into one or more paper airplanes 20. The kit 26 can also include a set of hoops, such as one or more standing hoops 30, one or more door hanging hoops 32, one or more hanging hoops 37 (shown in FIGS. 2 and 16), and/or one or more suction hoops 34. In some instances, the hoops of the kit 26 can include modifiable and/or interchangeable parts, such that the kit 26 includes a set of parts that can be used to make a customized set of hoops for each instance of the game. For example, the kit 26 can include one or more hoops of one or more sizes, one or more pieces of base materials 40, one or more hanging rods 48, and/or one or more suction cups 58. In instances where one or more bands 44, such as rubber bands are used to secure the hoop member 42 to the base member 40, one or more bands 44 can also be included in the kit 26. In some instances, the kit 26 can include obstacles such as gates, flags, wickets, goals, pylons, goal posts, cones, reflectors, markers, and posts. In some instances, the kit 26 can further include a container (not shown), such as a box, a bag, or other suitable container for holding the articles of the kit 26. Also, the kit 26 can optionally include a set of scorecards 36, a pen or other writing instrument, instructions on how to fold one or more types of paper airplanes, and/or instructions on how to play the game.

[0050] In some embodiments, the kit includes other types of suitable projectile objects such as those described above. For example, the kit can be supplied with one or more toy drones that are configured to be flown and/or maneuvered through the hoops. The toy drones and/or hoops can be configured to be sized such that the toy drones can be flown and/or maneuvered through the hoops. In some instances, the kit can include darts that are configured to be thrown and/or launched through the hoops. In other cases, the kit can include balls that are configured to be thrown and/or launched through the hoops.

[0051] Reference will now be made to FIG. 2, which depicts a playing environment in which six hoops 30, 32a, 32b, 34a, 34b, and 37 have been strategically positioned in a preparation for the game. It is contemplated that the game be played in a variety of playing environments, such as within a single room, within a set of rooms, in an outdoor environment (e.g., a backyard), or in various other suitable environments. The illustrated playing environment is a relatively large room, such as a living room or a great room. It is further contemplated that the game can be played with any number of hoops, such as, for example, with 1 hoop, 2 hoops, 3 hoops, 4 hoops, 5 hoops, 6 hoops, 8 hoops, 10 hoops, 12 hoops, 14 hoops, or more than 18 hoops.

[0052] In preparation for the game, one or more persons can strategically place hoops located within the playing environment. The person or persons who place the hoops can be game participants 38 or neutral third parties. It will be understood that the placement of the hoops may determine the difficulty of the game. For instance, when hoops are placed very far apart, placed on moving objects, or placed behind objects or barriers, it may be more difficult for participants 38 to complete the game in a relatively small number of throws. Moreover, the size of the hoops placed in the playing environments can provide additional challenges to game participants.

[0053] Turning now to the placement of hoops in the playing environment shown in FIG. 2, in some instances, during
game setup, hoops can be placed on any accessible object, surface, or location in the playing environment. Representative locations for placing hoops include, for instance, on top of an object, beneath an object, attached to the side of an object, or hanging from an object. For example, hoops can be placed on the ground, on the ceiling, or within an object (e.g., a bookshelf or armoire). Specifically, in the illustrated playing environment, a standing hoop 30 is shown as sitting on top of a table, while a suction hoop 34a is depicted as hanging from the bottom of the table. Additionally, another suction hoop 34b is depicted as hanging from a fan within the playing environment. Two additional hoops, hanging hoops 32a and 32b, are depicted as hanging on two doors within the playing environment. A hanging hoop 37 is also shown as hanging from a ceiling or other roof structure.

[0054] It will be understood that the present hoops, including the standing hoops 30, door hanging hoops 32, hanging hoops 37 (shown in FIGS. 2 and 16), and/or suction hoops 34, can be used with a variety of games and activities having a variety of rules. However, herein, these hoops are described in reference to the disclosed paper airplane game.

[0055] During setup of the paper airplane game, hoops within the playing environment can be numbered or otherwise assigned an order that will determine the order in which the game is played. Generally, each participant 38 throws his/her paper airplane through each hoop starting with the first hoop and proceeding through each hoop to the last hoop. Accordingly, during play, each participant 38 can attempt to throw his or her paper airplane 20 through the first hoop. Once the participant 38 successfully throws his/her paper airplane 20 through the first hoop, that participant 38 can then attempt to throw his/her paper airplane 20 through the second hoop, and so on to the last hoop. Alternatively, in some instances, the game is played in a free-for-all style, in which each participant 38 is only required to throw his/her paper airplane through all of the hoop, without regard to order.

[0056] The game may begin with each game participant 38 making one or more paper airplanes 20 that he/she will use during the game. In some instances, the participant 38 is required to use only the paper airplane(s) 20 that he/she made. In other instances, the participants 38 may not be required to make additional paper airplanes 20 thereafter. However, during play, the participant 38 may be allowed to repair or adjust his/her paper airplane(s) 20. In some embodiments, the kit 26 includes instructions on how to make one or more styles of paper airplanes 20. The instructions can include printed lines on paper that show the user where to fold the sheet of paper 22 to form the paper airplane 20. In some embodiments, instructions or airplane templates can also be downloaded from a related website, printed, and used to make the paper airplanes 20 for the game. The kit 26 can also include colored paper, colored markers, colored pencils, or other such tools for providing color to a paper airplane 20.

[0057] With continued reference to FIG. 2, after the one or more paper airplanes 20 are assembled, each participant 38 can throw a paper airplane 20 at each hoop. The participants 38 can take turns throwing according to a predetermined order, they may throw sporadically, or a first participant 38 can play until his/her paper airplane passes through the first hoop. In the latter example, the first participant 38 can then continue to the next hoop, and a second participant 38 can then begin to throw his/her paper airplane through the first hoop, and so on. In another example, each participant 38 can take turn throwing to a common hoop. After each participant has made his/her initial throw, the participant 38 with the paper airplane farthest from the hoop can be the first to make a second throw. Similarly, the participant 38 with the next farthest paper airplane will go second, and so on, until each participant 38 has thrown the paper airplane 20 a second time or has made their paper airplane 20 through the hoop.

[0058] When throwing towards the first hoop, the participants 38 may each line up behind a start line 60 and attempt to throw their respective paper airplanes 20 through the first hoop 34. As illustrated, the first hoop can be the suction hoop 34a hanging under table in the center of the playing environment. In some instances, there is also a designated starting line 60 for each subsequent hoop. In other instances, the general start place for each hoop after the first hoop is an area near the last hoop.

[0059] In some instances, the object of the game can be for a participant 38 to throw his/her paper airplane 20 through each of the hoops in order in the least number of throws. Thus, the participant 38 with the lowest score number of total throws at the end of the game will be the winner. Scoring can be recorded any number of ways, including on a scoreboard 36.

[0060] In some embodiments, the game is played as described above, but with a projectile object replacing the paper airplane. For example, the game can be played as described above but with foam darts. After the hoops are strategically placed within the playing environment, each participant 38 can take turns launching a foam dart through the first hoop. Upon successfully passing his or her foam dart through the first hoop, the participant 38 can move on to successive hoops. The game can be configured so that scoring and winning can be in any suitable manner. For example, in some cases, a participant 38 can win by passing his or her foam dart through all of the hoops in the least amount of attempts. In other cases, a participant 38 can win by passing his or her foam dart through all of the hoops in the least amount of time. In yet other cases, individual hoops can be assigned different point values and the participant 38 with the most points can be the winner.

[0061] In some embodiments, the game is played as described above, but with a remote-controlled toy aircraft taking the place of the projectile object. For example, the game can be played as described above, but with each participant 38 maneuvering a toy drone through the hoops and or obstacles. Each participant 38 can take turns maneuvering his or her toy drone through each hoop and or obstacle. The game can be configured so that scoring and winning can be in any suitable manner. For example, in some cases, a participant 38 can win by passing his or her toy drone through all of the hoops in the least amount of time. In other cases, individual hoops are assigned different point values and a participant 38 gains points for passing his or her toy drone through the respective hoop with the participant 38 that earns the most points winning the game. In yet other cases, the scoring can be based on a combination of time that it takes to maneuver through the hoops of the playing environment and points earned by maneuvering through individual hoops. In some instances, the participant 38 can earn a bonus of points or time for flying through certain hoops and a penalty of points or time for not successfully traversing certain hoops.

[0062] In general, some embodiments of the described systems and methods relate to a three-dimensional obstacle game and kit for playing the same. While the described game can comprise any suitable component or characteristic, some embodiments of hoop structures are shown in FIGS. 3 to 11.
It will be understood, however, that the present disclosure is not limited to the illustrated and described embodiments. Turning now to FIG. 3, a door hanging hoop 32 is illustrated, which can be hung on various objects during game setup. For example, the door hanging hoop 32 can be hung on a door, a cabinet, other furniture, a clothing line, a pipe, a shelf, a tree, or numerous other objects. This door hanging hoop 32 can provide wide-ranging versatility to the number of locations onto which this hoop can be hung. This same versatility can provide challenge and diversity to the game. As shown, the door hanging hoop 32 can include a hanging rod 48 that is connected to a base member 40, which in turn is connected to a hoop member 42. The hoop member 42 can be removable and can be secured to the base member 40 with one or more bands (e.g., rubber bands, string, elastic strips) 44 that can allow the hoop member 42 to be removed and replaced with a different sized hoop. Also, when incorporated into a kit 26, the removeability of the bands allows a user to customize the various hoops used in a game. Alternatively, in some embodiments, the hoop member 42 is fixedly connected to the base member 40, as shown in FIG. 11. In such embodiments, the hoop and base member 40 can form an integrated hoop and base member. Similarly, the base member 40 can be fixedly or removably coupled to the hanging rod 48. As shown, the hanging rod 48 can include a hook portion 50 that forms a hook.

In some embodiments, the hoop member 42 is secured to the base member 40 at any suitable angle with respect to the hanging rod 48 to add variety and difficulty to the game. For example, in some cases, the hoop member 42 can be secured relative to the hanging rod 48 so that the projectile object can pass through the hoop member 42 with a relatively horizontal flight path. In other cases, the hoop member 42 can be secured relative to the hanging rod 48 so that the projectile object can pass through the hoop member 42 with a relatively vertical flight path. In yet other cases, the hoop member 42 can be secured relative to the hanging rod 48 so that the projectile object can pass through the hoop member 42 with a flight path somewhere between horizontal and vertical.

In general, the hoop member 42 can be selectively and detachably secured to the base member 40 in any suitable manner. For example, the base member 40 can be configured with a channel or slot configured to receive the hoop member 42. In some cases the hoop member 42 selectively and detachably attaches to the base member 40 with one or more magnets and electromagnets. In other cases, the hoop member 42 selectively and detachably attaches to the base member 40 with one or more bands, elastomer bands, cords, ties, wire, string, and rope. In yet other cases, the hoop member 42 selectively and detachably attaches to the base member 40 with one or more fasteners (e.g., clasps, clips, bolts, screws, brads, connectors, cotter pins and similar fasteners).

Reference will now be made to FIG. 4, which illustrates three representative hoop members 42 having different sizes. These hoop members can be interchangeably used with each of the types of hoops: the standing hoop 30, the door hanging hoop 32, the hanging loop 37, and the suction loop 34. The top-most hoop member 42 includes an eight-inch center opening. The middle hoop member 42 includes a ten-inch center opening. The bottom-most hoop member 42 includes a twelve-inch center opening. In other embodiments, the center opening can have various other sizes or shapes. For instance, the center opening can include about a 4-inch opening, about a 6-inch opening, about an 8-inch opening, about a 12-inch opening, about an 18-inch opening, or a greater than about an 18-inch opening. Moreover, the shape of the center opening can be a triangle, square, or other polygon, in addition to an ellipse, oval, circle, or other suitable shape. As further shown, the hoop member 42 can include a 1.5-inch frame that forms the body of the hoop member. The size of this frame can be increased or decreased depending on the material (e.g., plastic, metal, wood, etc.) used to form the hoop member 42. For example, the frame of the hoop member 42 can be less than about 0.25 inches wide, about 0.25 inches wide, about 0.5 inches wide, about 0.75 inches wide, about 1 inch wide, about 1.25 inches wide, about 1.75 inches wide, about 2.0 inches wide, about 2.25 inches wide, about 2.5 inches wide, and greater than 2.5 inches wide.

Reference will now be made to FIG. 5, which depicts a side view of some embodiments of a base member 40 coupled to a hoop member 42. In some embodiments, the base member 40 can be interchangeable used with each of the types of hoops: the standing hoop 30, the door hanging hoop 32, and the suction loop 34. As shown, the base member 40 can have a generally triangular or other such cross-section that provides stability to the hoop member 42. A channel 52 can be formed through the base member 40, which is configured to receive the hoop member 42. After a hoop member is placed with the channel 52, a band 44 can secure the hoop member 42 in place. For example, one or more band attachment members 46 can be formed on opposing sides of the base member 40. The band attachment members 46 can be configured to selectively receive and hold in place one or more bands 44. The band attachment members 46 can include knobs, hooks, or other features configured to receive and hold a band. In some configurations the bands 53 are rubber bands that can be attached to a band attachment member 46, looped over the hoop member 42, and attached to an opposing band attachment member 46. As shown, the base member 40 can include a base width of approximately 1.25 inches and a height of approximately 1.5 inches. It will be understood that these dimensions can be modified based on the desired size of the base member 40. As described above, the base member 40 can be configured to secure the hoop member 42 at any suitable angle with respect to the base member 40.

Reference will now be made to FIG. 6, which illustrates a partial front view of a door hanging hoop 32. As shown, the base member 40 can include two or more band attachment members 46 on a side. This can provide additional stability to the hoop member 42 particularly when hoop member 42 is supported by the base member 40 on a side portion of the hoop member 42. As mentioned, the bands 44 can be rubber bands or another elastomeric band that have elastic properties that can provide flexibility to the door hanging hoop 32 or other hoop structure and reduce the likelihood that the hoop member 42 breaks away from the base member 40. As described above, the base member 40 can be configured to secure the hoop member 42 at any suitable angle with respect to the door hanging hoop 32.

Reference will now be made to FIG. 7, which illustrates some embodiments of a standing hoop 30, which can hold the hoop member 42 upright and be placed on any horizontal or relatively horizontal surface during set up. As shown, the base member 40 can be coupled to a stand 56 and assists in maintaining the hoop member 42 in a substantially vertical position, even in instances when the hoop member 42 is struck with a paper airplane 20. Accordingly, the stand 56
can form a base that is larger than the bottom of the base member 40. For example, the stand 56 can have widths and/or lengths between about 1 inch to about 2 inches, about 2 inches to about 3 inches, about 3 inches to about 4 inches, about 4 inches to about 6 inches, about 6 inches to about 8 inches, about 8 inches to about 12 inches, and greater than about 12 inches. Moreover, the stand 56 can be fixedly or removably coupled to the hoop attachment member 40. FIG. 8 illustrates a side view of a standing hoop 30 with a stand 56 and the dimensions thereof, and FIG. 9 illustrates a front view of a standing hoop 30 with a stand 56 and the dimensions thereof. It will be understood that these dimensions can be modified based on the desired size of the standing hoop 30. As described above, the base member 40 can be configured to secure the hoop member 42 at any suitable angle with respect to the standing hoop 30.

[0069] Reference will now be made to FIG. 10, which illustrates some embodiments of a suction hoop 34 which can be stuck on a variety of relatively flat surfaces during the game setup. For example, the suction hoop 34 can be attached to a window pane, a flat horizontal surface, a flat inclined surface, a ceiling, or other flat surfaces of various objects. The suction cups 58 can enable the suction hoop 34 to provide wide-ranging versatility to the number of locations onto which hoops can be hung during the game. This same versatility can provide challenge and diversity to the game by allowing the suction hoop 34 to be oriented in nearly any manner. As shown, the suction hoop 34 can include one or more suction cups 58 fixedly or removably coupled to the base member 40. As described above, the base member 40 can be configured to secure the hoop member 42 at any suitable angle with respect to the suction hoop 34.

[0070] FIG. 11 illustrates some alternative hoop embodiments, in which the hoop member 42 and the base member 40 are combined into an integrated hoop and base member 72. In these various embodiments of the integrated hoop and base member 72 and the base member 40 (as described above), the base member 40 can include weights 66, one or more cavities 68 for receiving a suction cup 58, and/or a support channel 70 for selectively coupling to a support, such as a hanging rod 48 or a stand 56. These various embodiments can reduce the need for bands 44 and may reduce the overall part count of the kit 26. As described above, the base member 40 can be configured to secure the hoop member 42 at any suitable angle with respect to the integrated hoop and base member 72.

[0071] Reference will now be made to FIGS. 12 and 13, which illustrates other representative embodiments of a base member 40. As shown, the base member 40 can be coupled to the hoop member 42 via a press fit or snap fit type fitting. For example, the channel 52 of the base member 40 can include one or more protrusions 80, bumps, ridges, springs, or other outwardly directed structures that press against or mate with portions of the hoop member 42. The hoop member 42 can alternatively include one or more channels 82, holes, indent, or other inwardly directed structures that mate with or at least partially receive the outwardly directed structures (e.g., the channels 82). As shown, the hoop member 42 can include one or more channels 82 that extend completely or partially around one or both sides of the hoop member 42. To accommodate the press fit or snap fit connection, the rising walls 84 of the base member 40 that form the channel 52 can be configured to flex outward during the insertion of the hoop member 42 into the channel 52 and apply an inward pressure on the hoop member 42 after it is situated within the channel 52. The rising walls 84 can be substantially parallel and form the channel 52 between the two walls. The shape and size of the rising walls 84, the channel 52, the outwardly directed structures, and inwardly directed structures can be made so that the base member 40 can retain the hoop member 42 therein in any orientation. These components can also be shaped and sized to allow an average user to insert and remove the hoop member 42 from the base member 42 without requiring excessive force.

[0072] FIGS. 12 and 13 further show that the stand 56, a platform, or other such structure can be integrated into the base member 40. In some embodiments, this stand 56 can be used with the suction hoop 34, as shown, to support two or more suction cups 58.

[0073] FIGS. 14 through 16 illustrate embodiments of the suction hoop 34, door hanging hoop 32, and hanging hoop 37, which include the representative base member 40 depicted in FIGS. 12 and 13. FIG. 14 illustrates a base member 40 secured to a relatively flat surface with suction cups 58. A hoop member 42 is selectively and detachably coupled to the base member 40. FIG. 15 illustrates a base member 40 affixed to a hanging rod 48. The hanging rod 48 is selectively and detachably coupled to a top portion of a door by hook 50. A hoop member 42 is selectively and detachably coupled to the base member 40. Referring specifically to FIG. 16, the hanging hoop 37 can include a hook member 90 in addition or alternative to the base member 40. The hook 90 can be shaped and sized to receive a hoop member 42 and selectively and detachably secure the hoop member 42. For example, the hook 90 can be configured to wrap completely around one wide face of the hoop member 42 and have a portion 94 that partially wraps around an opposite face of the hoop member 42. The hook 90 can be coupled to an extension 92 such as a string, cord, rope, or other such structure that attached to a base member 40 or other attachment device or which wraps around an object from which the hanging hoop 37 hangs.

[0074] FIG. 17 illustrates a complete or partial kit for the paper airplane game, with airplanes, various sized hoop members 42, and various base members 40.

[0075] In addition to the aforementioned features, the described hoop members 42 can be modified in any suitable manner that allows them to function as intended. By way of non-limiting illustration, FIGS. 18A, 18B, and 18C show embodiments in which the hoop members 42 are configured in different overall shapes. For example, FIG. 18A illustrates that a hoop member 42 can be configured with an overall triangular shape. FIG. 18B illustrates that a hoop member 42 can be configured with an overall elliptical shape. FIG. 18C illustrates that a hoop member 42 can be configured with a square or rectangular shape. In some embodiments, the hoop member is configured in any suitable shape, including, but not limited to, a triangular shape, a circular shape, an elliptical shape, a rectangular shape, a square shape, a hexagonal shape, a star-shape, an octagonal shape, or any other suitable shape that allows the hoop member to function 42 as described.

[0076] FIG. 19 illustrates some embodiments of a playing environment configured for play with a toy drone 100. The playing environment comprises a circular hoop member 42, a square hoop member 42, and a triangular hoop member 42, each with their respective base members 40. Although the hoop members 42 can be arranged within the playing environment in any suitable fashion, in some instances, the hoop members 42 can be arranged such that a participant must maneuver his or her toy drone 100 through successive hoop
members 42. FIG. 19 also illustrates a potential flight path (dotted arrow) that the participant 38 can use to maneuver his or her toy drone 100 through the successive hoop members 42. [0077] In addition to the aforementioned features, the described base members 40 can be modified in any suitable manner that allows them to function as intended. By way of non-limiting illustration, FIGS. 20 to 26 show embodiments of a base member 40 configured to selectively and detachably couple a hoop member 42 with the base member 40. In some embodiments, FIGS. 20 to 26 illustrate a snap fit and/or a press fit. FIG. 20 shows some embodiments of a side view of a base member 40. FIG. 20 shows that, at least in some embodiments, the base member 40 is affixed to a stand 56 and comprises rising walls 84. The rising walls 84 can also comprise protrusions 80. The protrusions 80 can be configured as semi-hemispherical structures that protrude into the channel 52 created between the rising walls 84. The rising walls 84 can also comprise bracing supports 86. The bracing supports 86 can be configured to stiffen and/or support the rising walls 84. The bracing supports 86 can also be configured to inwardly bias the rising walls 84 (and therefore the protrusions 80) towards the channel 52. The base 56 can be configured as described above and can be configured to selectively and detachably couple with attachment structures such as suction cups and/or hanging supports. [0078] FIG. 21 shows some embodiments of a top view of the base member 40 described in FIG. 20. FIG. 21 illustrates the affixed stand 56 and the rising walls 84 with the protrusions 80. FIG. 21 illustrates that, at least in some embodiments, the protrusions 80 comprise two semi-hemispherical structures arranged on each rising wall 84. In some embodiments, the two semi-hemispherical structures arranged on each rising wall 84 can be configured to secure the hoop member 42 at two separate points to reduce movement of the hoop member 42 while allowing for hoop members of different sizes (e.g., different diameters) to be selectively and detachably coupled. FIG. 21 also illustrates that the rising wall 84 can comprise three bracing supports 86 disposed on a side of the rising wall opposite the channel 52. FIG. 21 further illustrates that, at least in some embodiments, the stand 56 comprises a cut-away portion 88. The cut-away portion 88 can be disposed on the stand 56 between the rising walls 84. The cut-away portion 88 can be formed by removing material from the stand 56. In some embodiments, the cut-away portion 88 can be configured to selectively receive at least a portion of the hoop member 42. [0079] FIG. 22 shows some embodiments of a detailed side view of a hoop member 42. FIG. 22 illustrates that, at least in some embodiments, the hoop member 42 comprises one or more channels 82 that extend at least in part around one or both sides of the hoop member. In some embodiments, the hoop member 42 comprises first channels 82A, second channels 82B, and third channels 82C. The first channels 82A can be disposed adjacent to an outer edge 83. The second channels 82B can be disposed between the first channels 82A and the second channels 82C. The third channels 82C can be disposed adjacent to an inner edge of the hoop member 42. In some embodiments, the first channels 82A, second channels 82B, and third channels 82C are configured with a shape to selectively mate with the protrusions 80. In some embodiments, the first channels 82A, second channels 82B, and third channels 82C are configured with a concave shape to selectively mate with semi-hemispherical protrusions 80. [0080] FIG. 23 shows some embodiments of a detailed side view of a hoop member 42 positioned to selectively and detachably couple with a base member 40. A cross-sectional view of hoop member 42 is shown. The hoop member 42 can comprise first channels 82A, second channels 82B, and third channels 82C. The first channels 82A, second channels 82B, and third channels 82C can be configured with a semi-hemispherical concave shape configured to selectively mate with semi-hemispherical protrusions 80. The outer edge 83 can be configured as a tapered surface to effectively enter channel 52 and selectively traverse protrusions 80. [0081] With continued reference to FIG. 23, to selectively and detachably couple the hoop member 42 to the base member 40, a person can align the hoop member 42 above the channel 52 as shown along the axis A. The person can then translate the hoop member 42 along the axis A until the outer edge 53 enters the channel 52 and encounters the protrusions 80. The person can then continue translating the hoop member 42 such that the outer edge 83 traverses the protrusion 80 by outwardly biasing the rising walls 84 to insert the hoop member 42 between the protrusions 80 such that the first channels 82A selectively and detachably engage the protrusions 80. The hoop member 42 is thusly selectively and detachably coupled to the base member 40 in a first position as illustrated in FIG. 24. [0082] In some embodiments, the person can further translate the hoop member 42 along axis A to selectively and detachably disengage the first channels 82A from the protrusions 80 and selectively and detachably engage the second channels 82B within the protrusions 80 in a second position as shown in FIG. 25. In other embodiments, the person can further translate the hoop member 42 along axis A to selectively and detachably disengage the second channels 82B from the protrusions 80 and selectively and detachably engage the third channels 82C within the protrusions 80 in a third position as shown in FIG. 26. In yet other embodiments, the person reverses the process to move the hoop member 42 from a third position to a second position and/or from a second position to a first position. In some cases, the outer edge 83 and/or at least a portion of the hoop member 42 can protrude into the cut-away portion 88 in any one of the first position, second position, and third position. In other cases, the outer edge 83 and/or at least a portion of the hoop member 42 can selectively and detachably engage into the cut-away portion 88 in any one of the first position, second position, and third position. [0083] As described above, at least in some embodiments, the three dimensional obstacle course and navigation game comprises self-propelled toy aircraft (e.g., toy drones) that are maneuvered through hoops and/or obstacles. The toy aircraft can be maneuvered through the hoops and/or obstacles in any suitable manner. For example, the toy aircraft can be maneuvered through the hoops and obstacles by remote control by a player. The remote control can operate by wireless signals such as radio signals, Bluetooth signals, infrared (IR) signals, near field communication (NFC) signals, and other wireless signals. In some embodiments, the location of the toy aircraft is tracked as the toy aircraft traverses the obstacle course. The toy aircraft can be tracked with any suitable method including, but not limited to, global positioning system (GPS), radio frequency identification (RFID), and infrared (IR). Tracking the toy aircraft can aid in one or more of maneuvering the toy aircraft through a hoop and/or an obstacle, ascertaining the location of the toy aircraft relative
to one or more hoops, obstacles, or other parts of the obstacle course, determining if the toy aircraft has completed a particular hoop or obstacle, determining if the toy aircraft has failed to complete a particular hoop or obstacle, determining if the toy aircraft is following a desired flight path, calculating a player’s time in completing the obstacle course, and calculating a player’s score.

In some embodiments, the positions of the hoops and/or obstacles can be tracked with any suitable method including, but not limited to, global positioning system (GPS), radio frequency identification (RFID), infrared (IR). Tracking the positions of the hoops and/or obstacles can aid in one or more of maneuvering the toy aircraft through the hoop and/or the obstacle, determining if the toy aircraft has completed a particular hoop or obstacle, determining if the toy aircraft is following a desired flight path, calculating a player’s time in completing the obstacle course, and determining a difficulty of a particular three dimensional obstacle course. In other embodiments, tracking the positions of the hoops and/or obstacles can aid in calculating a player’s score by indicating when the toy aircraft has passed through, over, under, and/or around a particular hoop or obstacle.

In some embodiments, the three dimensional obstacle course and navigation game comprises a computing network configured to perform one or more of receiving position data from the toy aircraft, receiving position data from the hoops or obstacles, sending data to the toy aircraft, sending data to the hoop or obstacle, communicating with one or more personal computing devices (e.g., smart phones), communicating with one or more servers, and communicating with the internet. The computing network can include any number and configuration of network components (e.g., switches and routers) and can represent any type of computing network (e.g., a subnet, a LAN, a WAN, or other similar networks). In other embodiments, the computing network performs one or more of calculating each player’s score, displaying each player’s score, monitoring each player’s progress through the obstacle course, displaying each player’s progress through the obstacle course, determining and/or displaying each player’s ranking relative to other players, determining and/or displaying recommended flight paths, capturing and/or displaying each player’s run through the obstacle course, capturing, displaying, and/or sharing video of a player’s run through the obstacle course. For example, the computing network can track progress of a player’s toy aircraft through the obstacle course, calculate time elapsed and/or score, display time elapsed and/or score during a player’s run, and then display the player’s final time and/or score along with the player’s ranking relative to other players. The computing system can also allow a player to share one or more of his or her time, score, ranking, and videos with other players on the same obstacle course or with other players worldwide.

In some embodiments, the computing network comprises or utilizes special purpose or general-purpose computers including computer hardware, such as, for example, one or more processors and system memory. The computing network can also include physical and other computer-readable media for carrying or storing computer-executable instructions and/or data structures. Such computer-readable media can be any available media that can be accessed by a general purpose or special purpose computer system and include computer storage media and transmission media. Computer storage media (devices) include RAM, ROM, EEPROM, CD-ROM, solid state drives (“SSDs”) (e.g., based on RAM), Flash memory, phase-change memory (“PCM”), other types of memory, other optical disk storage, magnetic disk storage or other magnetic storage devices, or any other similarly storage medium which can be used to store desired program code means in the form of computer-executable instructions or data structures and which can be accessed by a general purpose or special purpose computer. Transmission media include signals and carrier waves. Computer-executable instructions comprise, for example, instructions and data which, when executed by a processor, cause a general purpose computer, special purpose computer, or special purpose processing device to perform a certain function or group of functions. The computer executable instructions may be, for example, binaries, intermediate format instructions such as assembly language or P-Code, or even source code.

The computing network can comprise network computing environments with many types of computer system configurations, including, personal computers, desktop computers, laptop computers, message processors, hand-held devices, multi-processor systems, microprocessor-based or programmable consumer electronics, network PCs, minicomputers, mainframe computers, mobile telephones, PDAs, tablets, pagers, routers, switches, and other similar devices. The computing network can also comprise distributed system environments where local and remote computer systems, which are linked (either by hardwired data links, wireless data links, or by a combination of hardwired and wireless data links) through a network, both perform tasks. In a distributed system environment, program modules may be located in both local and remote memory storage devices. An example of a distributed system environment is a cloud of networked servers or server resources. Accordingly, the computing network can be hosted in a cloud environment.

The present disclosure may be embodied in other specific forms without departing from its spirit or essential characteristics. The described embodiments are to be considered in all respects only as illustrative and not restrictive. The scope of the disclosure is, therefore, indicated by the appended claims, rather than by the foregoing description. All changes which come within the showing and meaning range of equivalency of the claims are to be embraced within their scope.

1. A three dimensional obstacle course and navigation game kit comprising:
   a. a hoop member;
   b. a base member configured to selectively and detachably secure the hoop member;
   wherein the base member comprises an attachment structure configured to selectively and detachably secure the hoop member, and
   an attachment structure for selectively and detachably securing the base member to a fixed object,
   wherein the hoop member is sized to allow a projectile object to pass therethrough.
2. The game kit of claim 1, wherein the hoop member comprises one or more of a triangular shape, an elliptical shape, and a rectangular shape.
3. The game kit of claim 1, further comprising a hanging rod configured to selectively and detachably secure to a top portion of a door.
4. The game kit of claim 1, further comprising a suction cup configured to secure the standing base member to a relatively flat surface.

5. The game kit of claim 1, wherein the projectile object comprises a remote-controlled toy aircraft.

6. The game kit of claim 5, wherein the remote-controlled toy aircraft comprises at least one of a remote controlled drone, a remote control helicopter, or a remote controlled airplane.

7. A three dimensional obstacle course and navigation game kit comprising:
   a plurality of hoops of various sizes;
   a plurality of base members;
   one or more hanging rods; and
   one or more table bases.

8. The game kit of claim 7, wherein each base member comprises a channel disposed on a top surface, the channel configured to selectively and detachably receive an edge portion of a hoop such that the base member can selectively and detachably couple hoops of various sizes,
   wherein each base member is also configured to selectively and detachably couple at a bottom surface with each of the hanging rods, the table bases, and the suction cups,
   wherein each base member comprises a first band attachment disposed on a first side surface and a second band attachment disposed on an opposite second side surface, the first band attachment configured to selectively and detachably couple a first loop of a circular band and the second band attachment configured to selectively and detachably couple a second loop of the circular band, a remaining portion of the circular band traversing an opening of the hoop to secure the hoop to the base member.

9. The game kit of claim 7, wherein the hoop member comprises one or more of a triangular shape, an elliptical shape, and a rectangular shape.

10. The game kit of claim 7, further comprising a plurality of scorecards.

11. The game kit of claim 7, wherein each circular band comprises an elastomeric band configured to provide flexibility and configured to reduce the likelihood that the hoop detaches from the base member.

12. The game kit of claim 7, wherein each base member comprises a generally triangular cross-section.

13. The game kit of claim 7, wherein the band attachments comprise one or more of knobs and hooks.

14. The game kit of claim 7, wherein each table base is configured to maintain the hoop in a substantially vertical position.

15. The game kit of claim 7, wherein the hoop member is sized to allow a toy aircraft to pass therethrough.

16. A three dimensional obstacle course and navigation game kit comprising:
   a plurality of hoops of various sizes; and
   a plurality of base members,
   wherein each base member comprises a pair of rising walls that form a channel, the channel configured to selectively receive a portion of the hoop and detachably couple the hoop with a snap fit or a press fit.

17. The game kit of claim 16, wherein rising walls comprise one or more protrusions that protrude into the channel, the protrusions configured to mate with portions of the hoop.

18. The game kit of claim 16, wherein the hoops comprise one or more channels, holes, and indent shapes configured to mate with the protrusions.

19. The game kit of claim 16, wherein the rising walls are configured to flex outward during insertion of the hoop and to bias inward to selectively and detachably couple the hoop.

20. The game kit of claim 16, wherein the rising walls further comprise bracing supports configured to inwardly bias the rising walls towards the channel.

21. The game kit of claim 16, wherein the base member further comprises a stand with a cut-away portion, wherein the cut-away portion is disposed at a bottom portion of the channel, and wherein the cut-away portion is configured to selectively receive a portion of the hoop when the hoop is detachably coupled with the base member.

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