

Challenge E: SWITCH!

The Destination:

Where This Challenge Will Take You!

Did you ever have to make up your mind? Choose one thing and leave the other behind? Not this time! You *don't* have to make up your mind – you get to try something two different ways! You will test your Structure's strength one way, and then...*SWITCH!* You test your Structure another way. You will also pull some other *SWITCHES* to show how one item can do different jobs! So get ready - *SWITCHING* has never been so much fun!

Points of Interest! Your team will:

- ★ Design and build a **Structure** made completely of **Wood** and **Glue** and test it for strength by stacking weights upon it in two different Orientations.
- ★ Have a two-minute **Stop Time** while the team removes the weights after the first test and places the Structure in a different Orientation for the second test.
- ★ Research a manufactured item, called a **SWITCH! Item** that can serve more than one purpose.
- ★ Create and present a **Story** in which the team demonstrates two different purposes for the **SWITCH! Item**.
- ★ Present a **Freeze-Frame** scene as part of the Story during the Stop Time.
- ★ Create two **Side Trips** and integrate them into the Presentation.

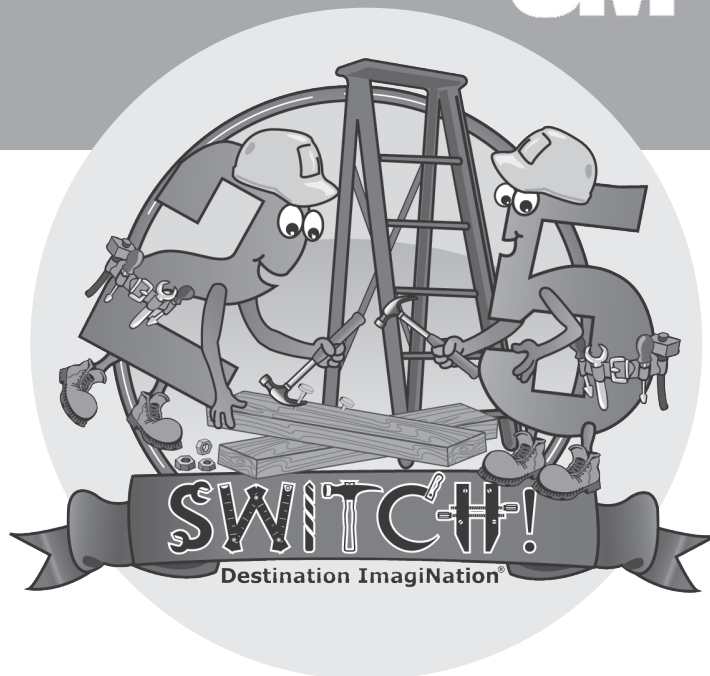
Time Limit: The team must complete the Presentation (including set up, but not including the Stop Time) in **eight minutes**.

Team Budget: The total value of the materials used may not exceed **\$100US**.

Membership

Teams and individuals using these Program Materials must hold a 2007-08 membership. The Destination ImagiNation membership is a license to compete in sanctioned Tournaments and/or to use the Program Materials for educational purposes within your team, school, group, or organization. Online access to Program Materials for registered memberships is on www.idodi.org

- My 2007-08 membership number is:
_____ - _____
- My team is planning to compete in a sanctioned Tournament.
I have registered for that Tournament with the:
- Regional
or
- Affiliate Director.



Roadmap for Success:

This Challenge can be solved on many levels, with solutions ranging from very simple to very complex. In order to successfully solve this Challenge, teams must read and follow:

Team Challenge

- A. Itinerary: The *Central Challenge* (240 points)
- B. Itinerary: *Side Trips* (60 points)
- C. Presentation Site
- D. Reward Points

Rules of the Road

Published Clarifications (online at www.idodi.org)

The information in these materials is binding on all teams. As it says on page 1 of the Challenge, "**If it doesn't say you can't, then you can!**"

Team Managers are strongly encouraged to read and use:

- Team Manager Guide*
- Charting Your Course*
- Instant Challenge Practice Set*
- Travel Guide for Teams* (available online after Jan 1, 2008)

Focus:

Architectural Design, Structural Engineering, Construction, Research, Innovation and Design Process, Mathematics, Theater Arts, Teamwork

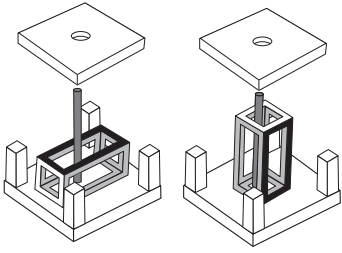


Illustration 1

Note that the Structure shown is for illustration purposes only and does not represent a valid structure for this Challenge.



Special Definitions

Jig(s):

A template or guide the team uses to help in building the Structure.

Wood:

A natural growing substance found under the bark of any type of tree. The Wood used in the Structures must be 100% natural. The following are NOT acceptable: Cork, man-made substances that simulate natural wood (examples: plywood, commercially available laminates or fiberboard), substances that are made from wood and any other material (examples: paper, cardboard), and tree-like substances (examples: Bamboo, grasses).

Glue:

Any commercially available adhesive material applied in a non-solid form capable of creating a permanent bond.

Adhesive:

Any material capable of creating a bond between two pieces of wood.

Coating:

A layer over an exposed surface of the wood.

Laminate/Lamination:

Gluing wood together in order to increase strength. Laminating two or more pieces of wood (wood/Glue/wood) would be a legal laminate since the Glue is used only to adhere one piece of wood to another. Laminating two pieces of wood with a layer of Glue on the outside (wood/Glue/wood/Glue) would NOT be legal since the second Glue would be considered a 'coating' on the wood, as it is not an adhesive between two pieces of wood.

A. Itinerary: The *Central Challenge* (240 points)

1. **The Intent of the Challenge:** To solve this Challenge, the team must build one connected Structure made of Wood and Glue and test its strength in two different Orientations by placing weights upon it at the Tournament. The team must also create and perform a Story that demonstrates two different purposes for a *SWITCH!* Item. The team will earn points for:
 - a. The Structure:
 - The total weight the structure holds in both Orientations
 - A Weight Held Bonus
 - The Quality of Workmanship and Uniqueness of Design of the Structure
 - b. The Story:
 - The overall creativity of the Story
 - The creative demonstration of two different purposes of a *SWITCH!* Item
 - The creative portrayal of a Freeze-Frame scene
 - The integration of the Structure testing into the Story

2. **Designing and Building the Structure:**
 - a. The team will design one connected Structure that will support weights. The team must design the Structure so that they can test the strength of the Structure at the Tournament by stacking weights upon a Pressure Board which is resting on the Structure. (Section C.4.a shows a diagram of a Structure Tester.)
 - b. The team must be able to test the one connected Structure in **two different Orientations, Orientation A and Orientation B.** (Illustration 1) For the purpose of this Challenge, Orientation is the way in which the Structure sits on the Structure Tester for testing. The surfaces of the parts of the Structure that touch the Tester Base and the Pressure Board in Orientation A cannot touch the Tester Base or the Pressure Board in Orientation B.
 - c. The team will designate on the Structure which Orientation is Orientation A and which is Orientation B. (See C.2.c) The diagram below illustrates a Structure sitting on the Tester Base in two Orientations.
 - d. To help ensure a "level playing field" for all teams, the team may not use any type of technology which allows the team to input the Challenge specifications and the technology designs, creates or aids in the testing of the Structure. The team must make any *Jig(s)* they use in the construction of the Structure.

3. **Structure Specifications:**
 - a. **Materials:** The only materials the team may use in the Structure are natural **Wood** and **Glue**.
 - i. The Wood may be of any type, size or dimension. The team may build the Structure entirely from one type of Wood, or choose to use a variety of Woods. The team may use sticks, sheets, blocks, or planks of Wood.
 - ii. The team may shape the Wood into any desired size or shape. Team members must do all tooling and/or customized shaping of the Wood.
 - iii. The team may use Glue only as an **Adhesive**. They may not use Glue as a **Coating**. Visible Glue extending 0.25in (0.6cm) beyond a joint will be considered a Coating and is not allowed.
 - iv. Teams may use team-created **Laminates** in the Structure.
 - v. The team may not apply anything other than Glue to the Wood's surface. The team may not soak anything except water into the Wood. Bar Codes stamped onto the Wood and/or incidental pencil marks on the Wood are not considered a Coating and are allowed.

Safety Note: The team must be sure to read and follow all the instructions and precautions on the labels of Glue that they use. If

the team uses Epoxy Glue or “Super Glues,” they must use them in ventilated areas, with a de-bonder close at hand. Team members must be careful not to touch their eyes or anything else if Glue gets on their hands. The team should have adult supervision while using Glue.

- b. **Weight of Structure:** The total weight of the Structure may not exceed **22.0 grams**.
 - c. **Height of Structure:** The Structure’s height in one Orientation must be at least **7.5in. (19.1cm)** and no more than **8.0in. (20.3cm)**. The Structure’s height in the other **Orientation** must be at least **8.5in. (21.6cm)** and no more than **9in. (22.9cm)**. The Structure must be at least **1.0 in. (2.54cm)** taller in one Orientation than in the other.
 - d. The Structure must fit on the Structure Tester. (See C.4) **An opening that can accept a circular column with an outside diameter of 2in. (5.1cm) must run the entire height of the Structure in each of the Structure’s Orientations.** This is to be sure the Structure will fit easily around the 1in. (2.54cm) Safety Pole on the Structure Tester.
 - e. When the Structure sits on the Tester Base in either Orientation, it must fit completely within the Tester Base, around the Safety Pole and rest only on the Tester Base.
 - f. The only places the Structure may make contact with the Structure Tester, when it is initially placed in either Orientation, are the top surface of the Tester Base and the bottom surface of the Pressure Board.
 - g. To designate the parts of the Structure that will contact the Structure Tester during testing, the team will put a colored mark on the Structure parts that will contact the Pressure Board and the Tester Base in each Orientation, using a different color for each Orientation. They will do this at the beginning of the Structure Check-In procedure. (See C.2.c)
4. **Weight Held Measurement Procedure:** The intent of the Weight Held Measurement is to reward Structures for the total weight held in both Orientations while also rewarding Structures for holding close to the same amount of weight in both Orientations.
- a. Just before the Presentation time begins, the Weight Placement Appraiser will toss a coin to determine whether the team will test Orientation A or Orientation B first (heads is Orientation A, tails is Orientation B). The Weight Placement Appraiser will announce the results of the coin toss and the color of the Orientation the team will test first. After the Presentation time starts, the team will place the Structure in Orientation A or Orientation B, depending on the coin toss, upon the Tester Base and around the Safety Pole so that the Structure rests only on the Tester Base. The team may then start weight placement at any time.
 - b. **Stop Time:** When weight placement ends for the first Orientation (See C.4.i) the team will indicate to the Timekeeper to stop the eight-minute Presentation timer and begin the Stop Time period, using the method they describe on the *Tournament Data Form*. For the purpose of this Challenge, Stop Time is the period of time between when a team member indicates to the Timekeeper to stop the timer measuring the eight-minute Presentation time and when the timer starts again. (See A.4.c)
 - c. During Stop Time, the Weight Placement Appraiser will note the weight the Structure held (including the Pressure Board) in this Orientation. The team (with the help of the Adult Assistant, if used) will then remove all weights and the Pressure Board from the Structure Tester, placing the weights back in the weight storage area. Stop Time will end and the Timekeeper will restart the eight-minute Presentation timer when the hole in the Pressure Board is no longer over the Safety Pole or the Stop Time reaches two minutes, whichever occurs first.
 - i. **Safety Note:** If the team has used extension(s) to the Safety Pole, they may remove them at any time during the weight removal as long as

What materials can be used in the Structure?



What is the maximum total weight of the Structure?



What is the minimum and maximum height of the Structure in each Orientation?



Does your Structure have the required 2-inch opening in each Orientation?





Be sure that your team practices the weight placement procedures.



For example, if the Weight Held for the first Orientation is 365 pounds and the Weight Held for second Orientation is 270 pounds, the Official Weight Held is:

Total Weight Held: $365 + 270 = 635$
 Weight Held Bonus: 270
 Official Weight Held: $635 + 270 = 905$.



For example, a claw hammer can drive nails but can also remove nails. Another example is the automobile – its primary purpose is to provide transportation, but a secondary purpose is to provide safety for the passengers in case of an accident.

the 1 in. mark on the pole or extension that is below the extension they are removing is visible.

- d. After the eight-minute Presentation timer has been restarted the team may continue to remove weights if they have not all been removed during Stop Time. Once the weights and the Pressure Board are removed, the team can then remove the Structure from the Structure Tester and place it in the second Orientation on the Tester Base, as indicated by the colored marks on the Structure, and around the Safety Pole so that the Structure rests only on the Tester Base. The team may then start weight placement for the second Orientation at any time.
 - e. The team may not modify or adjust the Structure in any way between the testing of Orientation A and Orientation B.
 - f. After the weight placement portion for the testing of the Structure ends (See C.4.i), the Weight Placement Appraiser will note the weight that the Structure held (including the Pressure Board) in the second Orientation.
 - g. **The Official Weight Held:**
Total Weight Held is the combined weight held by the Structure in both Orientations.
Weight Held Bonus is the weight held by the Structure in whichever Orientation held less weight.
Official Weight Held is the Total Weight Held plus the Weight Held Bonus
 - h. Only the weights that are physically on the Pressure Board when weight placement ends for each Orientation are included in the Official Weight Held. (See C.4. for weight placement details.)
5. **Structure Scoring:** It is the intent of the Challenge that the team will create a Structure according to the specifications in A.2 and A.3, and will test the Structure at the Tournament.
- a. If the Structure does not meet the specifications in A.2 and A.3, and if the team is unable to bring the Structure into compliance with the specifications, the Official Weight Held will be zero. However, the team may still present their solution and earn points for other Challenge requirements.
 - b. Any team that does not make a “good faith” attempt to present a Structure for testing may earn points for other Challenge requirements, but they may not advance to the next level of Tournament competition. The Appraisers will make this determination, and their decision is final.
 - c. The team will earn points for the Structure in two ways:
 - i. For the Official Weight Held.
 - ii. For the Structure’s Quality of Workmanship and Uniqueness of Design.
6. **Story:** The team will create and theatrically present an original Story that includes the demonstration of two purposes of a *SWITCH!* Item. The Story will integrate the testing of the Structure and will include a Freeze-Frame scene.
- a. As part of the Story, the team must demonstrate two purposes of a *SWITCH!* Item. For the purpose of this Challenge, a *SWITCH!* Item is a real manufactured item that the team will research and whose design includes more than one purpose or function. The team will list the two purposes that they will demonstrate on the *Tournament Data Form*.
 - i. The team does not need to use the actual manufactured item in their Presentation, but may use a theatrical facsimile.
 - c. During the Stop Time, while the team is changing the Structure’s Orientation on the Tester, one or more team members must creatively present a Freeze-Frame scene. The team member(s) performing this scene must stay frozen in place for a minimum of 5 seconds. No other portion of the Story or *Side Trips* may occur during the Stop Time, and the team may not manipulate costumes or props, except to present the Freeze-Frame scene. (Note: incidental movement of team member(s) does not violate

- the Freeze-Frame requirement.)
- d. The team will earn points for:
 - i. The overall creativity of the Story
 - ii. The creative demonstration of the two purposes of the *SWITCH!* Item in the Story
 - iii. The creative use of the Freeze-Frame scene in the Story
 - iv. The integration of the Structure testing into the Story.
7. **Team Identification Sign:** The team should provide a free-standing Identification Sign of approximately 2ft. x 3ft. (0.6m x 0.9m) displaying your team's Team Name, Team Number, School/Organization (if different from Team Name), and Level. The team cannot use the sign as a scoring element. See "Team Identification Sign" section in *Rules of the Road* for further information.

B. Itinerary: Side Trips (60 points)

The team must present **TWO** creations called '*Side Trips*' that show off their interests, skills, areas of strength, and talents. **The team may create anything they wish for *Side Trips*** including props, music, technical gadgets, costumes, and physical actions, etc.

1. The team must present both *Side Trips* as part of the eight-minute Presentation and **each *Side Trip* should have a meaningful connection to the team's Central Challenge solution.** The team must briefly describe each *Side Trip* on the *Tournament Data Form* found at the end of this Challenge.
2. A *Side Trip* may not be a specific item that is already scored in the *Central Challenge*. A *Side Trip* MAY be a single unique PART of a required item, as long as it can be evaluated as a stand-alone item. The team may present both *Side Trips* at the same time ONLY IF both can be easily identified and scored separately. The team can find examples of these in the *Rules of the Road*.
3. The team will earn points for Each *Side Trip* in two ways: for the Creativity and Originality of the *Side Trip*, and for the Quality, Workmanship, and/or Effort that is evident. Evaluation of *Side Trips* is subjective.

C. At the Tournament: Special Procedures for the Structure Challenge

1. **The Presentation Site:**
 - a. The minimum dimensions of the Presentation Site will be 16ft. x 16ft. (4.88m x 4.88m). This area will not be marked on the floor. When possible, the Tournament may provide a larger Presentation Site. The team may use all of the Presentation space available at their site, but they must be prepared to present in the minimum area specified. The team should keep in mind that the weights and Structure Tester will occupy a portion of the Presentation Site.
 - b. The team may not move the Structure Tester from its location.
 - c. A 3-prong AC electrical outlet will be provided at least to the edge of the Presentation Site.
2. **The Structure Check-In Procedure:**
 - a. Prior to the team's Presentation time, at a time designated by the Tournament Director of each Tournament, the team will bring their Structure and a completed copy of Page 2 of the *Tournament Data Form* to the Structure Check-In Area. The purpose of Structure Check-In is to determine whether the Structure meets the Challenge specifications. The Structure Check-In Area may be at a separate location from the Presentation Site.

See the *Rules of the Road* for more info on *Side Trips*.



At your team meetings, practice the complete Check-In and Structure Testing Procedure.



- b. The Structure Check-In Appraisers **will always avoid touching the Structure.**
- c. The team must first designate which Structure Orientation is Orientation A and which is Orientation B, and mark the Structure as stated in A.3.g. Teams may use colored markers, colored pens or pencils to mark these parts, using a different color for each Orientation. The team will state the color for each Orientation on the *Tournament Data Form*. The intent of this requirement is that the team marks the structure so that it is clear to the Appraisers which Orientation they will test first (A or B) based on the flip of the coin. (See A.4.a)
- d. The Structure Check-In Appraisers will instruct the team to place their Structure on the scale. Once the scale reading stabilizes, the Structure Check-In Appraisers will read the measured weight, verify that it does not exceed 22.0 grams, and record the official Structure weight on the Structure Check-In Form.
- e. Next, the Structure Check-In Appraisers will make sure that the team can legitimately test the Structure using a representation of the Tester Base. **A team member must place the Structure on the representation of the Tester Base in each Orientation so that a 2in. (5.1 cm) outside diameter cylinder passes through the Structure (without binding) in each Orientation.** The Appraisers will also validate that the Structure will not touch the Safety Supports or Safety Shields in either Orientation. The team must test the Structure during the Presentation in this same manner.
- f. While the Structure rests on the representation of the Tester Base, the Appraisers will measure it. They will verify that the Structure is at least 7.5in. (19.1 cm) and not more than 8 in (20.3 cm) high in one Orientation and at least 8.5in (21.6 cm) and not more than 9 in. (22.9 cm) high in the other Orientation, and that the heights of the two Orientations differ by at least 1.0in. (2.54 cm).
- g. The Structure Check-In Appraisers will make sure that the team constructed the Structure using only Wood and Glue. The Check-In Appraisers will reserve the right to recall the Structure to the Check-In Area after the team's Presentation to verify the team used only Wood and Glue. If the Check-In Appraisers want to verify this, they will note it on the Structure Check-In Form.
- h. The Structure Check-In Appraisers will make every effort, within reasonable scheduling constraints, to allow the team the time to bring their Structure into compliance with the above specifications. Any team whose Structure does not meet the above specifications will receive an Official Weight Held of zero. However, the team may still present their solution and earn points for other Challenge requirements.
- i. The Structure Check-In Appraisers will evaluate the Structure's Quality of Workmanship and Uniqueness of Design and note the score on the Structure Check-In Form. (A.5.c.ii)
- j. When Structure Check-In is complete, the team will place their Structure into a team-supplied storage container and the Structure Check-In Appraisers will seal the container. The Structure and the Structure Check-In Form must remain in a designated place in the Structure Check-In Area until approximately 20 minutes before the team's scheduled Presentation time.
- k. Approximately 20 minutes before the team's scheduled Presentation time, one or more team members must return to the Structure Check-In Area to collect the Structure and carry it to the Prep Area at the Presentation Site. Team members may not break the seal on the storage container until the Prep Area Appraiser directs the team to do so.
- l. The team may not modify or add anything to the Structure once they have placed it in the storage container.

3. Testing the Structure:

- During the Presentation, the team will demonstrate the Structure's weight-bearing capacity in each Orientation using the Structure Tester and weights that the Tournament Director provides.
- After the Presentation time begins, the team will place the Structure around the Safety Pole and on the Tester Base in the first Orientation in the same manner as described in C.2.e. The team may adjust their Structure on the Tester Base as needed to place the Structure to their satisfaction.
- The team may not use the weights or the Structure Tester for any purpose other than testing the Structure during the Presentation.

4. Weight Placement Specifics:

- Structure Tester and Weights:** The Tournament will provide a Structure Tester shown to the right in Figures A, B, and C and with the dimensions listed in **Table 1**. All weights will be **Olympic style metal plates with a 2in. (5.1cm) hole in the center**. The range of weights available may vary from Tournament to Tournament. The team may check with their Tournament Director for specific weights available.

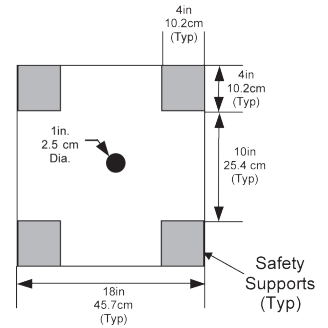


Figure A: Top View Structure Tester

Table 1: Dimensions of Tester

All Structure Testers Should Meet These Specifications

Tester Component	Feet/inches	Centimeters	Notes
Tester Base	1ft. 6in x 1ft. 6in.	45.7cm x 45.7cm	The thickness may vary at different Tournaments
Pressure Board	1ft. 6in x 1ft. 6in.	45.7cm x 45.7cm	The thickness may vary at different Tournaments
Pressure Board hole	2in.	5.1cm	
Safety Support height	7in.	17.8cm	Measured from the top surface of the Tester Base to the top of the Support.
Safety Support width	3.25in.-4in.	8.3cm-10.2cm	
Safety Pole height	2ft. 4in.	71.1cm	Measured from the floor to the top of the pole.
Safety Pole diameter	1in.	2.5cm	The Representation of the Tester Base used in Structure Check-In will use a 2in. (5.1cm) cylinder.

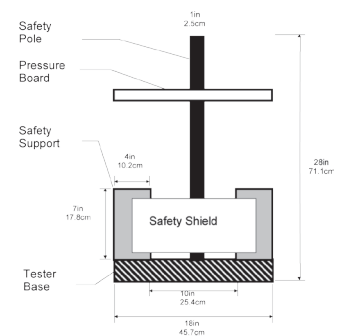


Figure B: Side View Structure Tester

- The Structure Tester will sit within the Presentation Area. The team may not move the Structure Tester from its location.
- During the weight placement, team members must:
 - Use the Structure Tester and weights the Tournament Director provides
 - Determine the order in which they will place weights on the Structure Tester
 - Select the weights they will place on the Structure Tester
 - Place weights over the Safety Pole one at a time onto the Structure Tester
- The Pressure Board will be the first weight the team places upon the Structure. (See Figure B). **The Pressure Board will be clearly marked with its official weight, rounded to the nearest pound.** One or more team members may touch the Structure while they place the Pressure Board upon the Structure. The team must place the Pressure Board upon the Structure so that the Pressure Board does not touch the Safety Pole. Note: If the team wishes to know the specifics of the Structure Tester for their Tournament (i.e., the height of the Tester Base, the thickness of the Pressure Board, and/or the actual weight of the Pressure Board), they may check with their Tournament Director.
- The Team may remove the Safety Shields as they place their Structure on the Structure Tester. They must put them back into place before they add

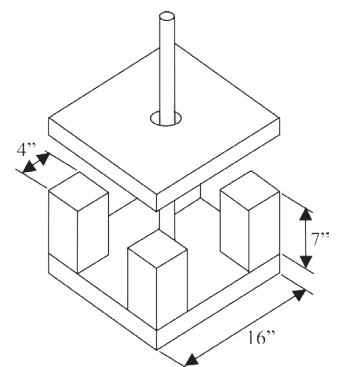


Figure C: Isometric View Structure Tester



Be sure to follow all safety procedures with your team.



How many extension pipes are allowed at each Tournament level?

weights to the Pressure Board. Team members may not touch the Structure or the Structure Tester once they begin weight placement unless they first remove all weights (including the Pressure Board). If the team wants to make any adjustment to the Structure's placement during the Presentation, the team must first remove all weights (including the Pressure Board). Presentation time will not stop.

Safety Notes:

- *When a team member's head is below the level of the Pressure Board **AND** the Safety Shield in front of the team member's face is not in place, that team member must wear protective goggles for safety. When the team member's head is no longer below the level of the Pressure Board, or when the Safety Shield is in place, the team member may remove the goggles. The team must provide their own goggles. Because they are used only for safety, goggles are exempt from cost on the Expense Report form.*
 - *Under no circumstances may a team member touch or come into contact with a weight stack that is rotating or moving.*
 - *When placing a weight, team members should keep their fingers on the sides of the weight so that they do not pinch their fingers.*
 - *When moving weights, teams should check that there is a clear path to the Structure Tester.*
- f. The Structure must support a weight for a minimum of **four seconds**, as counted by an Appraiser, to be included in the Structure's Official Weight Held. The Appraiser's count is final.
- g. **Safety Pole Extension Pipes:**
- At Regional Level Tournaments, the team may use **No** extension pipes.
 - At Affiliate Level Tournaments, the team may use **One 12in. (30.5cm)** extension pipe.
 - At the Global Finals Tournament, the team may use **Two 12in. (30.5cm)** extension pipes.
 - For safety, teams must add the extension pipe, if allowed as stated above, to the top of the Safety Pole once the weight stack reaches the 1-inch (2.5cm) mark on the original Safety Pole or the extension pipe.
- h. **Adult Assistant:** Elementary Level and Middle Level teams may elect to use an Adult Assistant to help place or remove weights of **25lbs. (11.34kg) or more**. Team members must direct the placement or removal and support the weight to the best of their ability if they use an Adult Assistant. i.
- The Adult Assistant:
- i. May assist in the placement or removal of weights weighing 25lbs. (11.34kg) or more. For the purpose of this Challenge, **assist** means that an adult may **help** a child lift, move, and set a weight that he/she might not otherwise be able to handle alone.
 - ii. Must wait in an area the Appraisers designate until a team member directs them to move towards the weights. The team member will direct the Adult Assistant to the specific weight for which they want assistance.
 - iii. Must return to the designated waiting area between each weight placement or removal.
 - iv. May only respond to directions from team members or Appraisers.
 - v. May not direct weight placement or removal in any way. If, in the opinion of the Appraisers, the Adult Assistant is directing **ANY** aspect of weight selection or placement or removal, the Appraisers will halt weight placement or removal, warn the Adult Assistant of the inappropriate action and remind him/her of the team's responsibility. The Appraiser will instruct the team to remove any weight(s) that they placed with excess adult assistance or direction.

- Weight placement or removal will then resume. Presentation time will not stop.
- vi. If the Adult Assistant engages in any further inappropriate activity, the Appraisers will direct him/her to withdraw from the Presentation Site. Team members must then place or remove any additional weights **without** the aid of an Adult Assistant and will be limited to weights of **less than 25lbs. (11.34kg)**.
 - vii. Weights placed with inappropriate adult assistance or direction will not count towards the calculation of the Official Weight Held.
- i. **The weight placement portion for the testing of each structure Orientation will end when any of the following occur:**
- i. The team elects to stop weight placement. The team may do this at any time during the eight-minute Presentation.
 - ii. The Pressure Board or the Structure touches any of the four Safety Supports or any of the Safety Shields of the Structure Tester. A weight that causes the Pressure Board or the Structure to touch the Safety Supports prior to the completion of the 4-second count will not count towards the Official Weight Held total. If the Weight Placement Appraiser cannot slide a single sheet of paper between the Pressure Board and the Safety Support, this means that the Pressure Board is touching the Safety Supports.
 - iii. The placed weights reach the mark that is 1in. (2.5cm) below the top of the Safety Pole or the extension poles, when used. The team may not place any further weights on the stack once the weights reach the 1.0in. (2.54cm) mark below the top of the original safety pole or the topmost extension pole, when used. The mark does not have to be visible at that point, but the team may not add any more weights once the weight stack is at or above the mark.
 - iv. The eight-minute time limit ends.

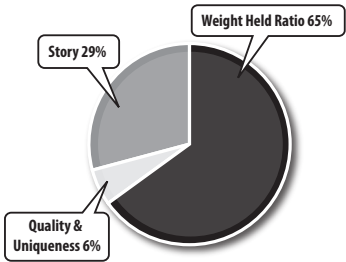
When does weight placement end?



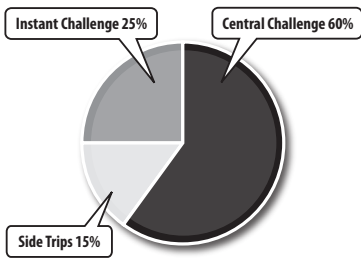
Note: Teams may use the entire eight-minute Presentation time for weight placement, regardless of whether or not they have ended the performance of their Story.



Central Challenge Scoring at a Glance



Putting It All Together



D. Reward Points

ELEMENT	POINTS	DETAIL
Central Challenge		
1. The Structure's Official Weight Held	Up to 155	A
<ul style="list-style-type: none"> In each competitive Level, the Structure with the highest Official Weight Held score will receive 155 points. The score for all other teams in that Level will be based on the percentage of their Structure's Official Weight Held compared to the highest. <p>Team's score = (OWH ÷ highest OWH in Level) × 155</p> <ul style="list-style-type: none"> This score added to the scores the team earns for the items listed below will equal the total Raw Score. 		
2. Structure:	Up to 15	A.5
a. Quality of Workmanship and Uniqueness of Design	Up to 15	A.5.c.ii
3. The Story	Up to 70	A.6
a. The overall creativity the Story	Up to 20	A.6.i
b. The creative demonstration of the SWITCH! Item's first purpose in the Story	Up to 15	A.6.ii
c. The creative demonstration of the SWITCH! Item's second purpose in the Story	Up to 15	A.6.ii
d. The creative use of the Freeze-Frame scene in the Story	Up to 10	A.6.iii
e. The integration of the Structure testing into the Story	Up to 10	A.6.iv
Side Trips		
1. Side Trip 1	Up to 30	B.3
a. Creativity and Originality	Up to 15	B.3
b. Quality, Workmanship, or Effort that is evident	Up to 15	B.3
2. Side Trip 2	Up to 30	B.3
a. Creativity and Originality	Up to 15	B.3
b. Quality, Workmanship, or Effort that is evident	Up to 15	B.3

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Tournament Data Form

Challenge: SWITCH!

Team Name: _____

Team Number: _____ - _____ Level: **EL ML SL UL**

School/Organization: _____

To our Teams and Team Managers: Help your Appraisers identify the required elements of your Challenge solution so they can award you all of the points you have earned. Please fill this form out completely and neatly. For Elementary Level teams only: Team Managers MAY fill out the form, writing out the words dictated by the team.

PART ONE: Required Paperwork

At the Tournament Presentation Site, the Prep Area Appraiser will ask for your team's forms. A complete checklist of the required forms is below.

Your team needs:

_____ **Five copies** of this completed two-page *Tournament Data Form*. **Be sure to copy both pages of this form.** This is PAGE ONE of the form. Page Two may be copied onto the back of this sheet. This form may not be used as a scoring item.

_____ **TWO Copies** of the completed *Declaration of Independence*. Blank copies of this form can be found in the *Rules of the Road*. One copy of this form is for *Team Challenge*, the other copy of is for you to take to *Instant Challenge*.

_____ **One Copy** of the completed *Expense Report*. This form can be found in the *Rules of the Road*. Be sure to bring copies of your receipts in case you are asked for them, but **it is not necessary to attach them to the form.**

_____ **Team Identification Sign:** This will tell the Appraisers and the audience who you are. It must list your Team Name, Team Number, School/Organization (if different from Team Name), and Level. It cannot be scored. See the *Rules of the Road* for more information.

PART TWO: Side Trip Choices: Brief Description of each Side Trip

Side Trip 1: What is your Side Trip? _____

Please write a brief Description of your *Side Trip*. Make sure that Appraisers know **exactly** what you want them to evaluate. What would you like them to know about each *Side Trip*?

Side Trip 1: What is your Side Trip? _____

Please write a brief Description of your *Side Trip*. Make sure that Appraisers know **exactly** what you want them to evaluate. What would you like them to know about each *Side Trip*?
