

JUNK BOX WARS

Super Slinger

Create a device that will launch a ball at a target!

Competition Rules:

Each team will be provided with a junk box filled with materials that could be used to create a launching device. Each team will receive only one set of materials. Teams may use all or part of the materials in their junk box and are not allowed to share materials with other teams. All unused materials should be saved in case repairs are needed during competition.

Teams will be allowed time to build and test their device. Competitors are allowed to bring diagrams to help them build their device. After the time is up, all devices will be impounded and no changes will be allowed.

Device Requirements:

Your device must be powered by the energy stored in the device and may not be aided by a helping hand.

Testing Procedure:

Each team will be allowed 5 minutes to prepare for the first trial. Teams will be allowed 5 minutes between trials to make repairs using the remaining materials in their junk box. No new construction or major design changes are allowed once competition begins.

Teams will be allowed three trials to earn points. The device must remain behind the launch area boundary during the launch. Points will be awarded based on the location of the ball on the target. Balls that do not remain on the target will not receive points. The team with the most points (sum of all three trials) will be declared the winner. In the case of a tie, teams will be allowed one additional trial to earn points.

Junk Box Possible Supplies

Straws
Film canisters
Rubber bands
Surgical supply tubing
Plastic spoons
String
Milk cartons
Masking tape
Index cards
Paper
Pipe cleaners
Hot glue
Styrofoam cups
Wooden craft sticks
CDs
Mousetrap

Event Score Sheets



Super Slingers

Team Name: _____

Team Members : _____

Trial 1 = _____ points

Tie Breaker Points = _____

Trial 2 = _____ points

Trial 3 = _____ points

Total Points = _____



Super Slingers

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Team Members : _____

Trial 1 = _____ points

Tie Breaker Points = _____

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Team Members : _____

Trial 1 = _____ points

Tie Breaker Points = _____

Trial 2 = _____ points

Trial 3 = _____ points

Total Points = _____



Super Slingers Teacher Notes

Recommended Supply List:

25 Straws	200 cm of String	20 Pipe cleaners
5 Film canisters	2 Milk cartons	5 Hot glue sticks
10 Rubber bands	500 cm of Masking tape	5 Plastic cups
4' Surgical supply tubing	20 Index cards	25 Wooden craft sticks
10 Plastic spoons	5 Pieces of paper	4 CDs
1 Mousetrap		

Teams will also need ping pong balls and velcro to create their projectiles.

Notes:

(1) Students may use all or part of the materials in the junk box. I allow the students to use any material inside the box. For example, if any of the materials come in wrappers or boxes, teams may use those for the device. The materials may be modified with the understanding that if a goof is made they will not receive new materials. Leftover materials may be used to make repairs if the device breaks during competition.

(2) Students may build a variety of “slinging” devices, such as catapults or sling shots. The key is to build a device that will launch the ball to the target with the greatest accuracy.

(3) You will need to decide if you want your target to hang on a wall or lay on the floor. Your target can be made in a variety of ways. (A variety of ideas have been provided on the next page.) You will need to determine a method for awarding points if the ball attaches to two different point areas.

(4) Establish a launch area using string or other material. Devices must remain outside of the launch area boundary during the launch. If the team members or devices cross the line, no points should be awarded!

(5) Teams are not allowed to give the ball an added push as it is launched. They are allowed to use a helping hand to prepare for the launch, i.e. pull it back to load it before the launch.

Safety Note: Be sure all participants are behind the launching area! Team members must wear safety goggles during the launch!

Modifications:

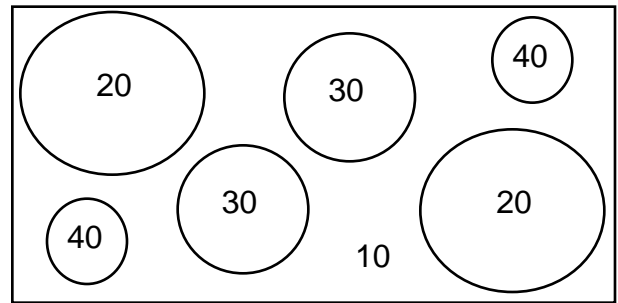
(1) If you don't have velcro balls available, you can have students launch other items. For example, this year I had the kids launch marshmallow Peeps since we did the project a week before Easter. You could also use regular marshmallows, circus peanuts, or gum drops. I used a twin-sized bed sheet as a target and placed it in the center of our gym floor. I used string to create a launch area around the sheet. I followed the free-form target pattern on the next page and used a fabric paint marker to draw circles of different sizes and labeled with points ranged from 10 to 50 points. The largest circles were worth 10 points and the smallest were worth 50 points. If a Peep landed on the sheet, but not on a point circle the team was awarded 5 points. The winning teams received packages of Peeps as prizes.

(2) If you have extra time available, allow the kids to test more than 3 trials. After the first round (3 trials), allow the kids 5 minutes to make modifications to their devices using the materials they have left in the junk box and try another round. Some years we are able to have 3-4 rounds. You can award prizes for each round as well as the recognize the team with the most points overall.

Target Idea Page

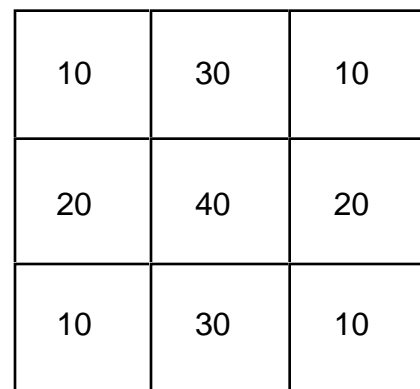
Free form target

To create the target, obtain a large sheet of felt or carpet (or several smaller ones sewn or glued together). Use permanent marker or attach colored pieces of felt or carpet to create point areas ranging from 10 - 40 points. Feel free to modify the design to fit your resources.
NOTE: You may also attach felt pieces to a science display board or posterboard.



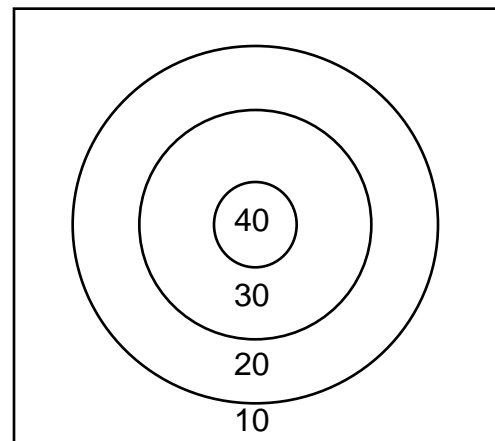
Quilt block target

Sew or glue square pieces of colored felt or carpet together to create a target with each color representing a different point value.



Bullseye Target

Obtain a large square of felt or carpet and use a permanent marker to create a bullseye design. Different colors may also be used to create the point areas.



Other ideas for targets:

- Build a castle out of a large cardboard box and attach felt pieces to various locations on the castle.
- Line the bottom of boxes or buckets with felt or carpet pieces and place throughout the launch area.