

# Worthington Science Day

## Engineering Design Challenge 2015

### Grade K-3

#### **The Challenge:**

We want you to design a machine to move 10 marbles along the top of a table and into the special bucket on the floor. The judges will show you the table and the bucket.

#### **The Details:**

These things need to be true about your machine:

- 1) You can only use the materials we give you.
- 2) You can't use any more materials than what we give you.
- 3) You can't change the table.
- 4) You can only start your machine by giving it one push or pull behind the tape line on the table.
- 5) After the machine passes the tape line, you can't touch it.
- 6) You can't do any tests with the table or bucket that will be used in the final test.

How the Process will work:

- 7) You will have 40 minutes to design and build your machine.
- 8) All the teams will place their finished machines on a special table while you wait for your turn to test it.
- 9) Each team will get to run their machine 2 times.
- 10) You will have 1 minute from when we say it's your turn until you start your machine moving.
- 11) Before you start your machine, you can move the target bucket to another place on the floor, as long as it is past the end of the table.
- 12) If you want someone to hold the bucket in place, you can ask a judge to do that.

#### **How to Win:**

You will receive one point for each marble that lands in the bucket. That means that a perfect score will be 10 points. You get two tries to put marbles in the bucket, and the better of those two tries will be your score.

If there is a tie, these are the tie-breakers:

- Total points of the two tries
- Lightest machine

#### **Other Rules:**

You can't talk or communicate with anyone who is not on your team, except for the judges, during this design challenge. This means that your parents are not allowed to help you. You also are not allowed to use any electronic devices during this challenge.