## Spaghetti Tower

**The Challenge**: Your group has \$25 to spend on materials to build a spaghetti tower. Your job is to build a tower at least 6 inches tall using raw spaghetti that can hold 100 grams of weight for 30 seconds without breaking.

**Tip**: Think about how towers are structured to hold weight. How much of the materials will you need to build a strong tower?

#### Materials:

Spaghetti sticks	\$0.25 each
12" piece of tape	\$5.00 each
Marshmallows	\$0.25 each

# Be sure to record your materials and their costs on a separate piece of a paper.

## **Pom Pom Launcher**

**The Challenge:** With your group, invent a device that launches a pom pom into the air. The further it travels the better! You have \$15 to spend.

#### Tips:

- Think about devices that launch things into the air. How do they work?
- Will your launcher be hand held or sit on the floor or table?

#### Materials:

Marshmallow Pom Pon	ns\$3.00 for
	5 marshmallows
Index cards	\$2.00/ea
12" piece of tape	\$2.00/ea
Straws	\$0.50/ea
Popsicle sticks	\$2.00/4
Rubber bands	\$2.00/ea
Scissors	FREE
1 Paper Cup	FREE

\*You do not have to use all materials!

### Water Drop Racer

**The Challenge:** Can your group create a wax paper track that gets your water drop from one end to the other in the fastest time? You have \$10 to spend.

**Tip:** Think about roller coasters, how do they work?

#### Materials:

\$2.00/ea
\$1.00/ea
Free
Free

Be sure to draw your race track design on a separate piece of paper. Record your results.

### Marble Run

**The Challenge:** Your group has \$12 to spend on materials. Create a track that must stand by itself. The marble must travel at least 5 feet.

#### Tips:

- Experiment with height. How does the height impact the distance the marble travels.
- Try to use the least amount of money.

#### Materials:

You do not have to use them all.

Marble	FREE
12" tape	\$2.00/ea
Cardboard tubes	
Index cards	\$0.50/ea
Popsicle sticks	\$1.50/ea

You may also use any of the following:

- Scissors.....FREE
- Stapler and staple.....\$1.00/ea

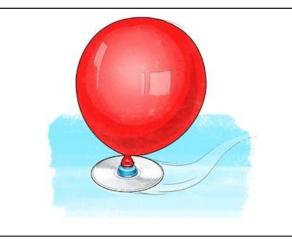
### **Balloon Hovercraft**

**The Challenge:** Can your group build a balloon hovercraft that travels the farthest distance?

Additional Challenge: Make your hovercraft hover the highest.

#### Materials: - Balloon

- Plastic Plate
- Pop bottle cap with a small hole
- Tape



# Egg Drop

The Challenge: Create a structure that will protect a raw egg from a drop at several feet. The egg cannot crack in order to be successful.

**Tip:** Think of parachutes. How do they protect people from breaking bones when they land? How fast or slow should your parachute be to keep the egg safe?

### Materials:

- 1 raw egg
- 5 coffee filters
- 4 pieces of string
- Tape
- Aluminum foil
- Cardboard

You may also use the following:

Scissors

\*Be sure to practice WITHOUT the egg!

## Water Bottle Racer

The Challenge: Create a race car using a water bottle and other recycled materials. The car must travel at least 3 feet.

You have \$15 to spend.

**Tip:** Think about how much air needs to go in the balloon to make it travel far.

### Materials:

1 empty water bottle	FREE
1 balloon	FREE
6" piece of tape	\$1.00/ea
Straws	\$3.00/ea
4 bottle caps	\$1.00/ea
Toothpicks	\$1.00/ea

You may also use the following:

- Scissors (FREE)
- Glue (FREE)
- \*Be sure to practice.

# Popsicle Stick Bridge

The Challenge: Your group has \$15 to spend on materials. Can your group build a 1 foot long bridge from popsicle sticks that can hold 1000 grams of weight? Additional Challenge: Use the least amount of money to complete the challenge.

**Tip:** Think of how bridges look. How are they able to hold weight?

Test your bridge along the way.

### Materials:

You do not have to use them all.

Popsicle sticks	\$0.25 each
Таре	\$3
Glue	\$7

Draw your design. Make sure it has labels.

Record the amount of materials and the cost of your project.