GRADES K-5

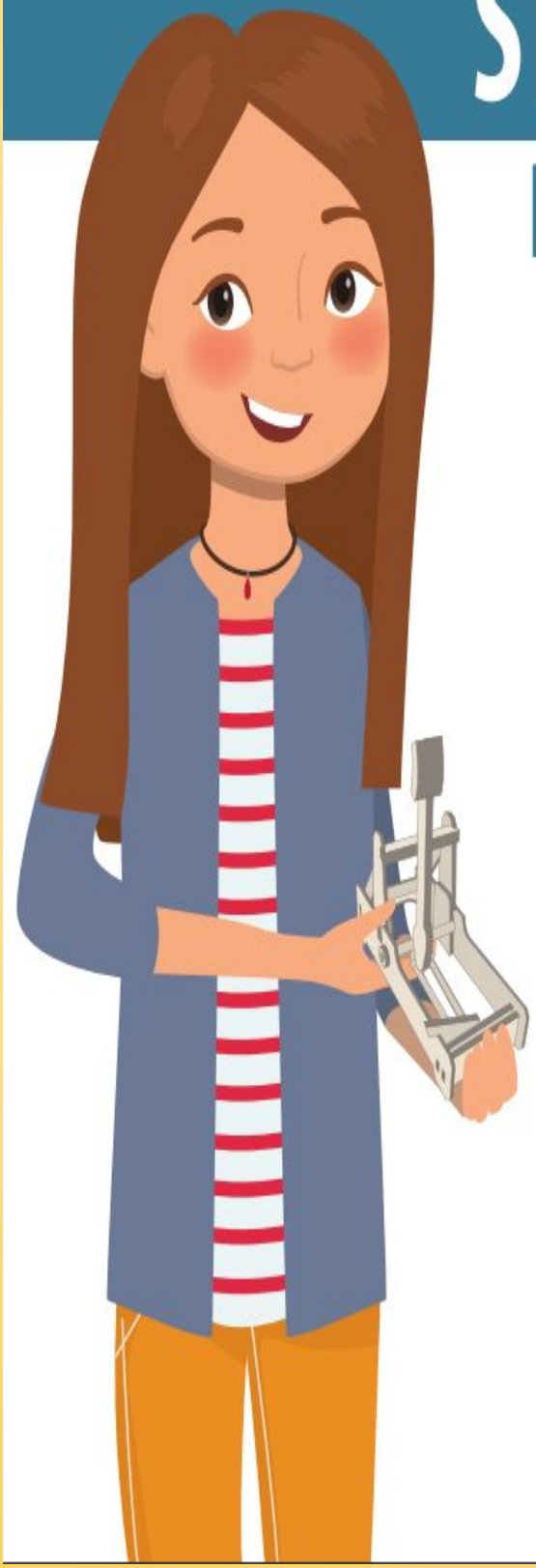
Let's make something! Structures, connections, memories . . . make them all! PITSCO Education is sharing some great STEM activity ideas, many of which can be slightly modified to use readily available household items. On the next pages, you will see some directions where you can make different STEM projects come to life in your own home.

Have some fun and if you create any of these projects, snap a pic and email it to me at agarza@scspk12.org. I'll post them on my class weebly page under the tab STEM @ HOME.

PITSCO EDUCATION

Catapult

STEM @ HOME ACTIVITY



Design Your Own Catapult

Challenge: Build a catapult using materials from around the house.

Suggested Materials:

- Popsicle sticks
- Pencils
- Rubber bands
- Spoons
- Payload (cotton balls, foil balls, marbles, and so on)

Get Inspired: Visit YouTube, search "How to make a catapult for kids," and get inspired by the awesome examples and crazy catapults that are out there.

Plan it Out: When you've gathered your materials and gotten some inspiration, it's time to make your design plans. Take out a sheet of paper and a pencil and sketch out your catapult.

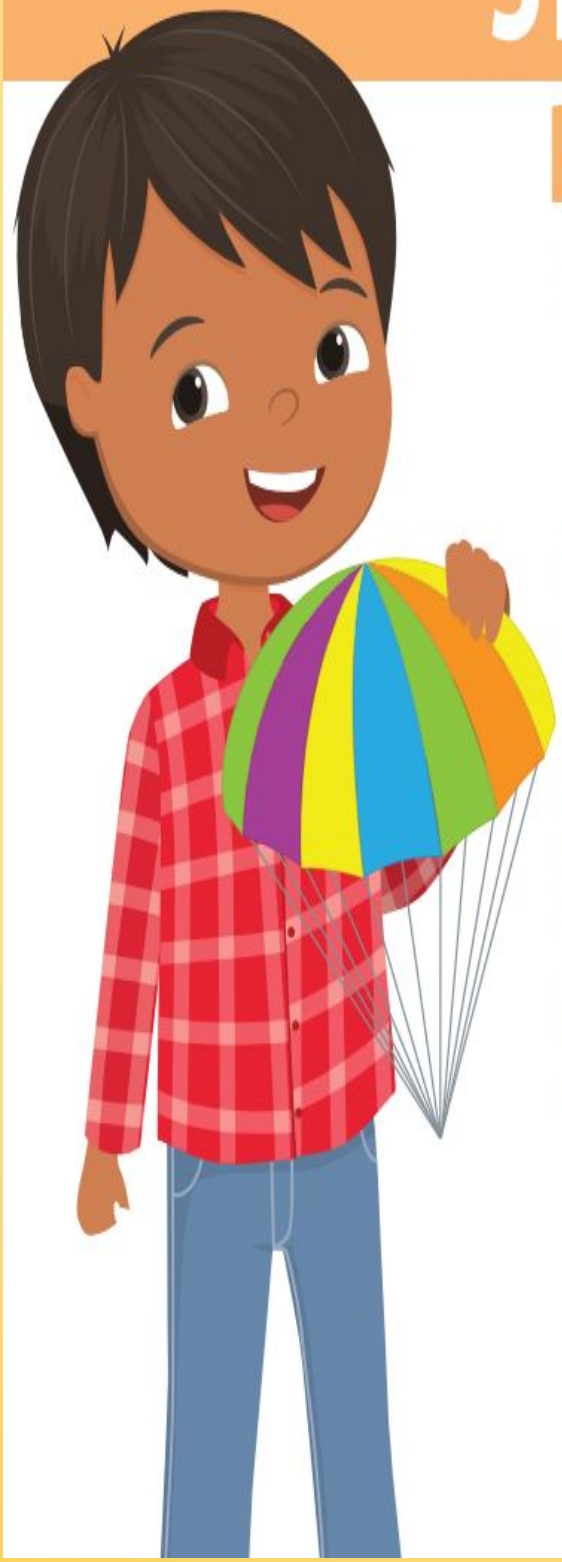
Procedure: Build your catapult and put your design to work. Test how different angles affect how well the catapult projects objects. Explore what happens if you make modifications to your design. Compare the results and take notes about the features that worked well in your various designs.

Discussion: What changes did you make to improve your catapult design? What would you do differently next time?

PITSCO EDUCATION

Parachutes

STEM @ HOME ACTIVITY



Parachutes

Challenge: Build a parachute using materials from around the house.

Suggested Materials:

- Tissue paper, paper napkin, plastic sack, or other lightweight materials
- String or yarn
- Paper clips
- Clear tape

Get Inspired: Visit YouTube, search "How to make a parachute for kids," and get inspired by the awesome examples that are out there.

Plan it Out: When you've gathered your materials and gotten some inspiration, it's time to make your design plans. Take out a sheet of paper and a pencil and sketch out your parachute design.

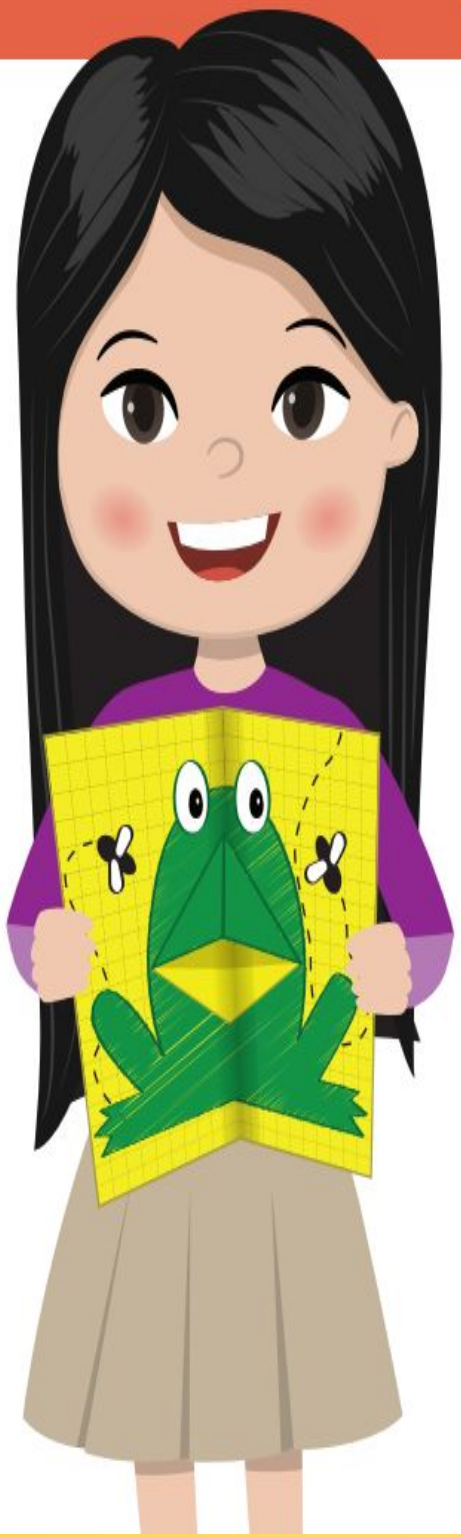
Procedure: Build your parachute and put your design to work. Start with a single paper clip as the payload. Test how your parachute performs when it's dropped from a specified height. Record the time it takes before the parachute hits the ground. Also, record any observations of parachute performance. Test this out with various loads, adding one paper clip at a time, and record the performance of your chute each time. For an additional math challenge, you can calculate average velocity by dividing the height of the drop by the time it took for your chute to hit the ground.

Discussion: How would you construct another parachute to withstand more mass?

PITSCO EDUCATION

Pop-Up Books

STEM @ HOME ACTIVITY



Pop-Up Books

Challenge: Design an animal or imaginary creature that has a pop-out mouth.

Suggested Materials:

- Construction paper (2 pieces that are 20 cm x 20 cm)
- Colored pencils, markers, or crayons
- Scissors
- Ruler
- Glue stick
- Clear tape

Get Inspired: Visit YouTube, search "How to make a pop-up book for kids," and get inspired by the awesome pop-up book examples that are out there.

Plan it Out: When you've gathered your materials and gotten some inspiration, it's time to make your design plans. Take a moment to think about and plan out your pop-up book design.

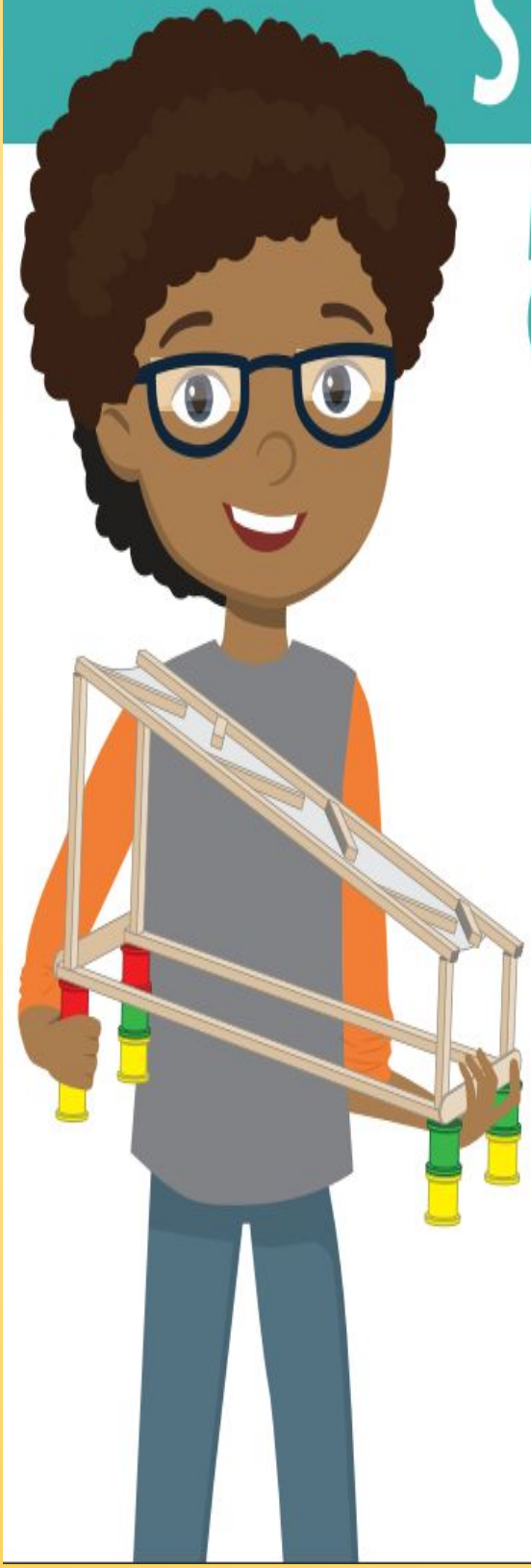
Procedure: Take the 20 cm x 20 cm pieces of paper and fold both in half neatly and accurately. On one of the sheets, mark two points: 5 cm up and 5 cm down from the center of the fold. On the same sheet, mark two more points: 5 cm right and 5 cm left of the center of the fold. Draw diagonal lines connecting all four points. Fold the paper together and use scissors to cut along the center of the diamond. Cut from the center point out toward the point where the diagonal lines connect. Use the back of the scissors to score the marked lines, and fold along the scored lines. When the finished card is opened, the mouth will open. Glue this sheet with the mouth to the other sheet of paper. Avoid gluing the mouth to be sure it will pop open.

Discussion: What modifications can be made to make the mouth different? What happens if your folds are not neat and accurate? What are more pop-up features you can add?

PITSCO EDUCATION

Rube Goldberg Machine

STEM @ HOME ACTIVITY



Make Your Own Rube Goldberg Machine

Challenge: Build a Rube Goldberg machine using materials from around the house.

Suggested Materials:

- Marbles
- Toys
- Dominoes
- Books
- Wooden blocks

Get Inspired: Visit YouTube, search "How to make a Rube Goldberg machine for kids," and get inspired by the awesome examples out there.

Plan it Out: When you've gathered your materials and gotten some inspiration, it's time to make your design plans. Take out a sheet of paper and a pencil and sketch out your Rube Goldberg machine.

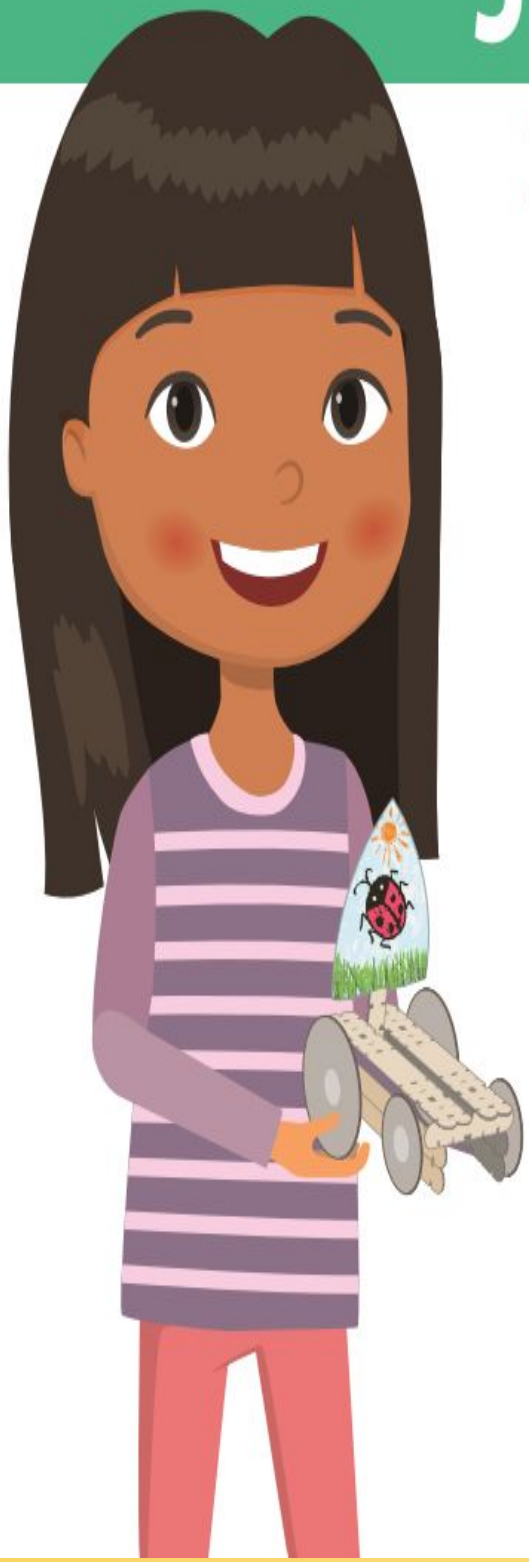
Procedure: Build your Rube Goldberg and put your design to work. Give your machine a test run. Did it work from start to finish? If not, can you make modifications to your design so that it does?

Discussion: What changes did you make to improve your Rube Goldberg design? Can you think of ways to make your machine even more complex?

PITSCO EDUCATION

Sail Cars

STEM @ HOME ACTIVITY



Sail Cars

Challenge: Construct and test sail cars in a few different ways to discover how size, shape, and design affect the speed and performance of vehicles.

Suggested Materials:

- Cardboard
- Construction paper
- Straws
- Scissors
- Bottle caps
- Glue

Get Inspired: Visit YouTube, search "How to make a sail car for kids," and get inspired by the awesome various sail car examples that are out there.

Plan it Out: When you've gathered your materials and gotten some inspiration, it's time to make your design plans. Take out a sheet of paper and a pencil and sketch out your sail car.

Procedure: Build your sail car and put your design to work. Test out your initial design and see how it works. Think about the variables that might affect your vehicle's performance. Some examples include wheel size, width of driving train, size of sail, placement of sail, and surface on which the car is traveling. Now try to improve your vehicles so they travel farther in a shorter period. For an additional math challenge you can calculate the circumference of the wheel and determine how many times the wheel rolled based on how far the sail car traveled.

Discussion: How does a vehicle's design affect its speed and performance? What changes did you make to improve your sail car design? What would you do differently next time?

PITSCO EDUCATION

Coloring Pages

Click on the Robot below to get some fun coloring pages.