

PAPER HELICOPTER

This experiment introduces you to Newton's Third Law of Motion: for every action, there is an equal and opposite reaction.

INSTRUCTIONS:

STEP 1: Print template on card stock or regular paper.

STEP 2: Cut the rotor blades at the top of the strip:

cut straight down the middle about 2 inches

This makes: 2 top flaps. These will become the spinning blades.

STEP 3: Cut the bottom tabs: Near the bottom: cut small slits on each side about 1 inch up. Fold the side tabs inward. These help balance the helicopter.

STEP 4: Fold the top blades: one forward, one backward. Do NOT fold them the same direction.

STEP 5: Attach a paper clip to the bottom. This helps stabilize the helicopter and improve spinning.

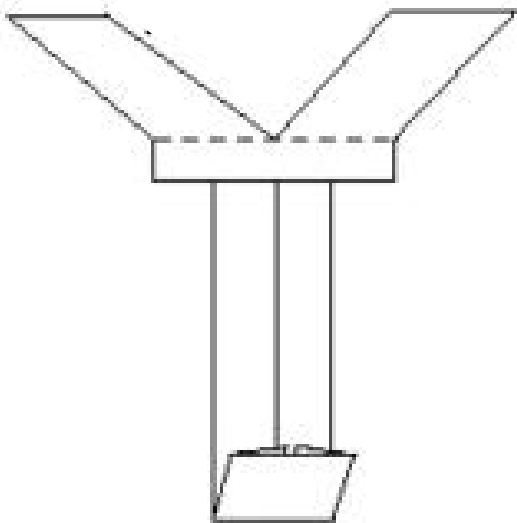
STEP 6: Hold the helicopter high in the air and let go.

Materials

Paper or cardstock

Scissors

Paper clip

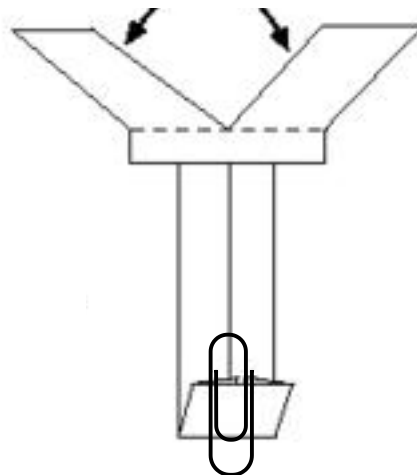
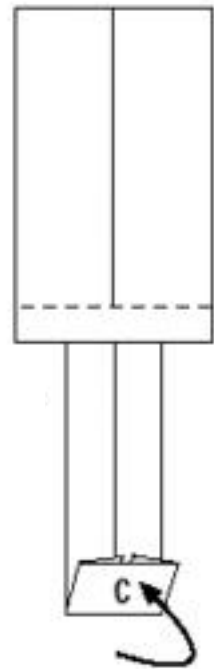
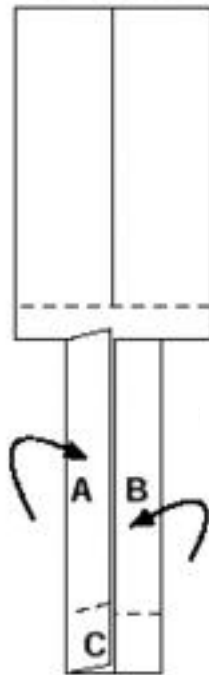
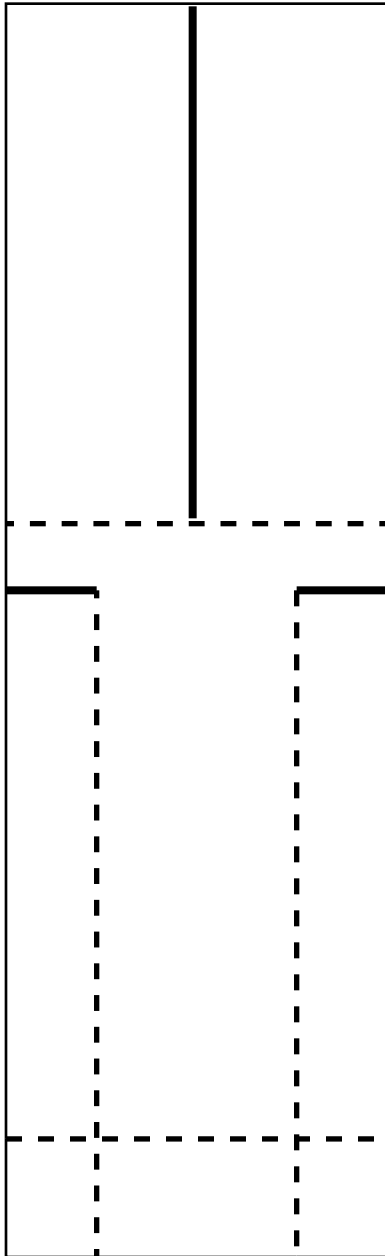


THE SCIENCE

When you drop a paper helicopter, gravity pulls it toward the ground. As it falls, air pushes against the helicopter's blades. Because the blades are folded in opposite directions, the air causes the helicopter to spin. This spinning creates air resistance, also called drag, which slows the helicopter's fall.

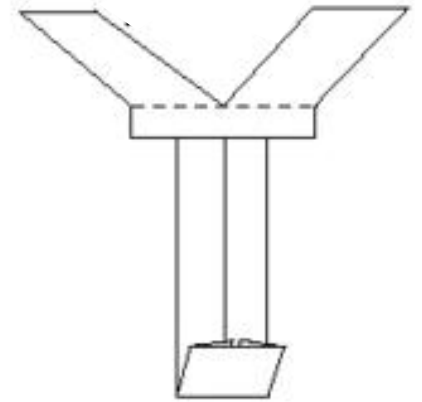
Engineers and scientists study how air moves around objects to design things like helicopters, airplanes, and wind turbines. Changing the size of the blades or adding more weight with a paper clip can affect how the helicopter spins and falls. By testing different designs, you can observe how forces such as gravity, air resistance, and motion work together.

Cut out the rectangle below.
Next, cut along the bold, solid lines.
Now fold along the dotted lines as shown.



Paper Helicopter Observations

Use this worksheet to process and evaluate your work.



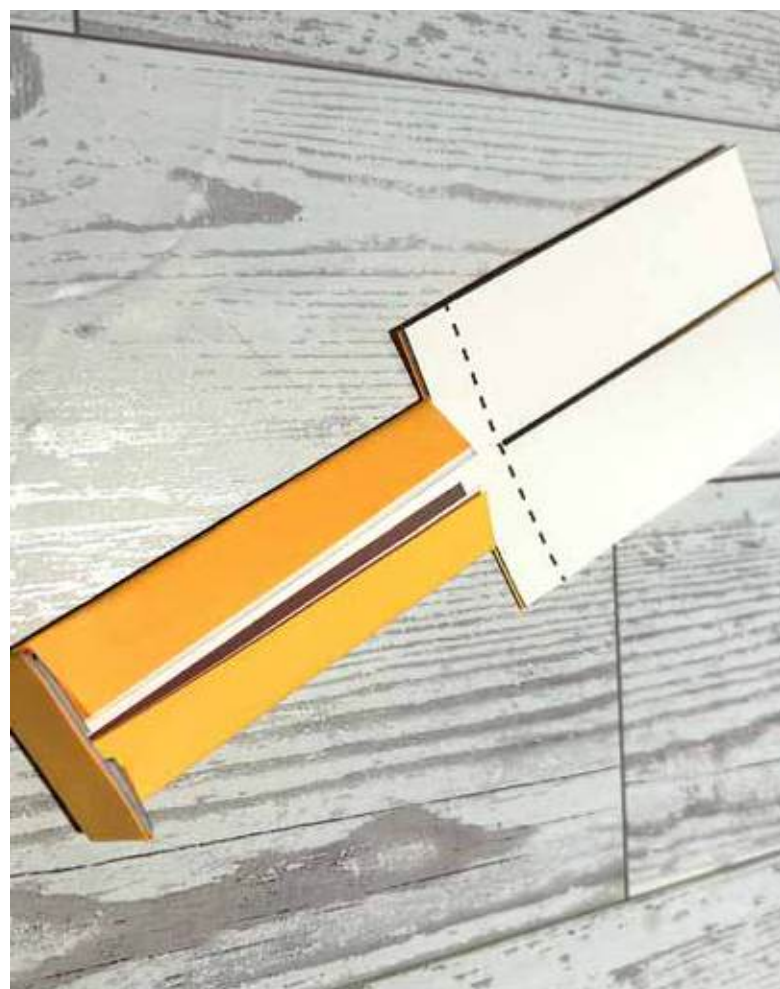
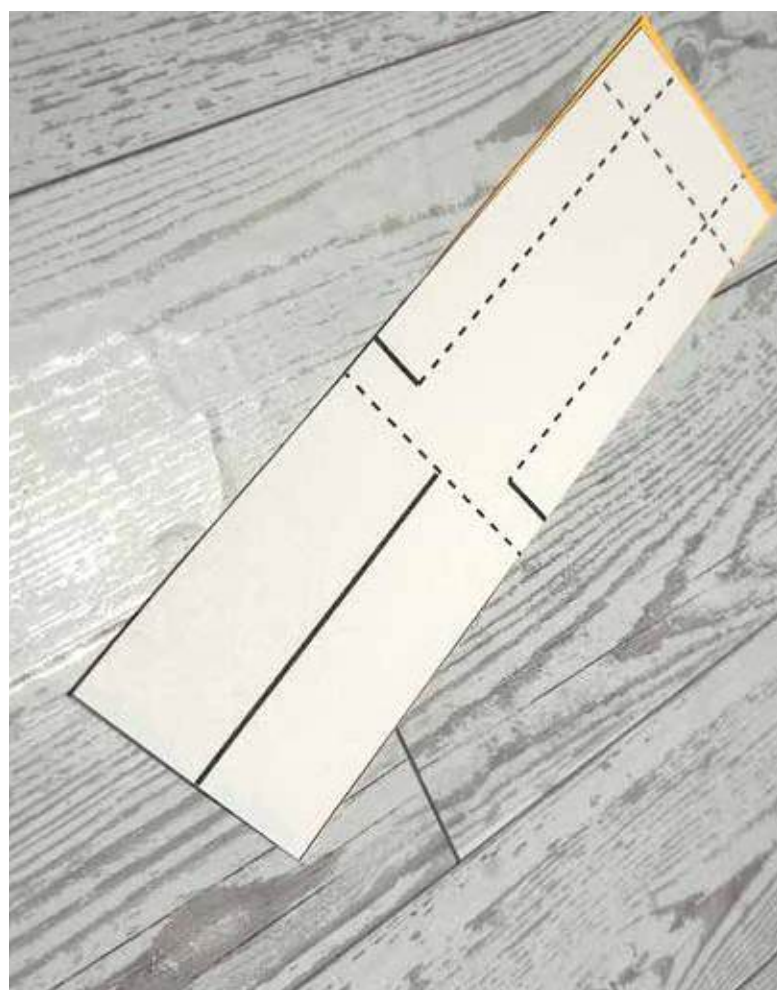
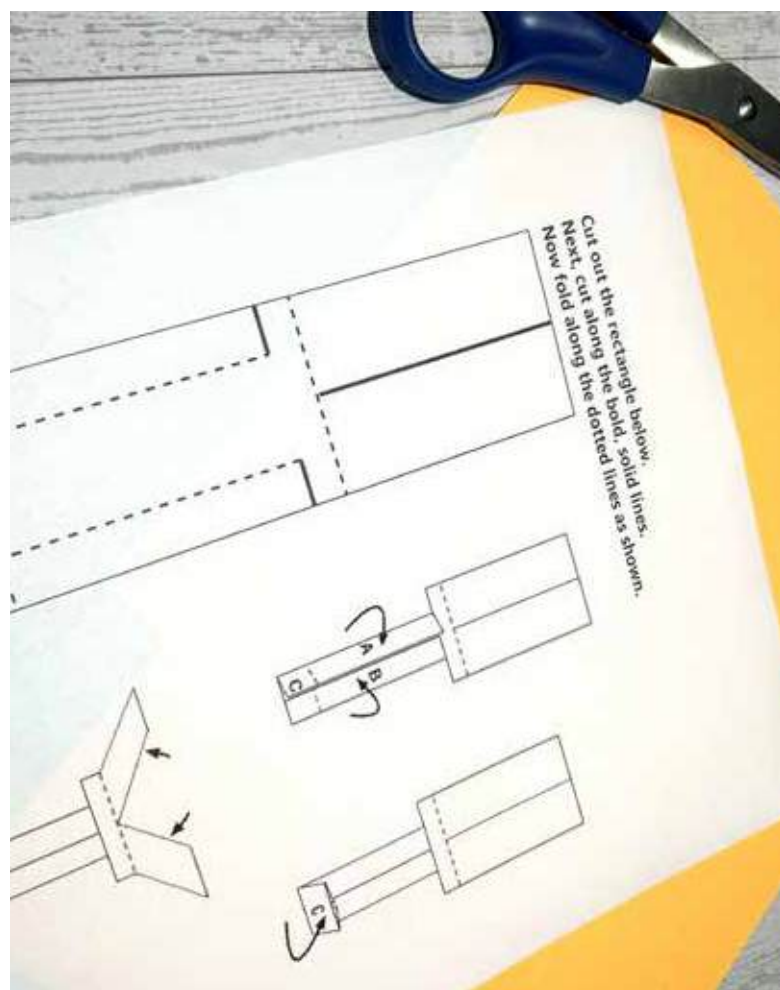
What do you think will happen when the paper helicopter is dropped?

How long do you think it will stay in the air?

Did the helicopter spin as it fell? Did it fall straight down or drift to one side?

How many spins did you observe before it landed?

Which part of the helicopter seemed most important for helping it spin?



JR-ENGINEERS

DIY HELICOPTER

This simple paper STEM project brings the fun outdoors!

INSTRUCTIONS

STEP 1: Print template and cut your card stock.

STEP 2: Fold your paper into a pinwheel shape.

STEP 3: Use the push pin to secure the pinwheel and attach to the wine cork. This will provide weight to your design.

STEP 4: Take your helicopter outside and toss into the air!

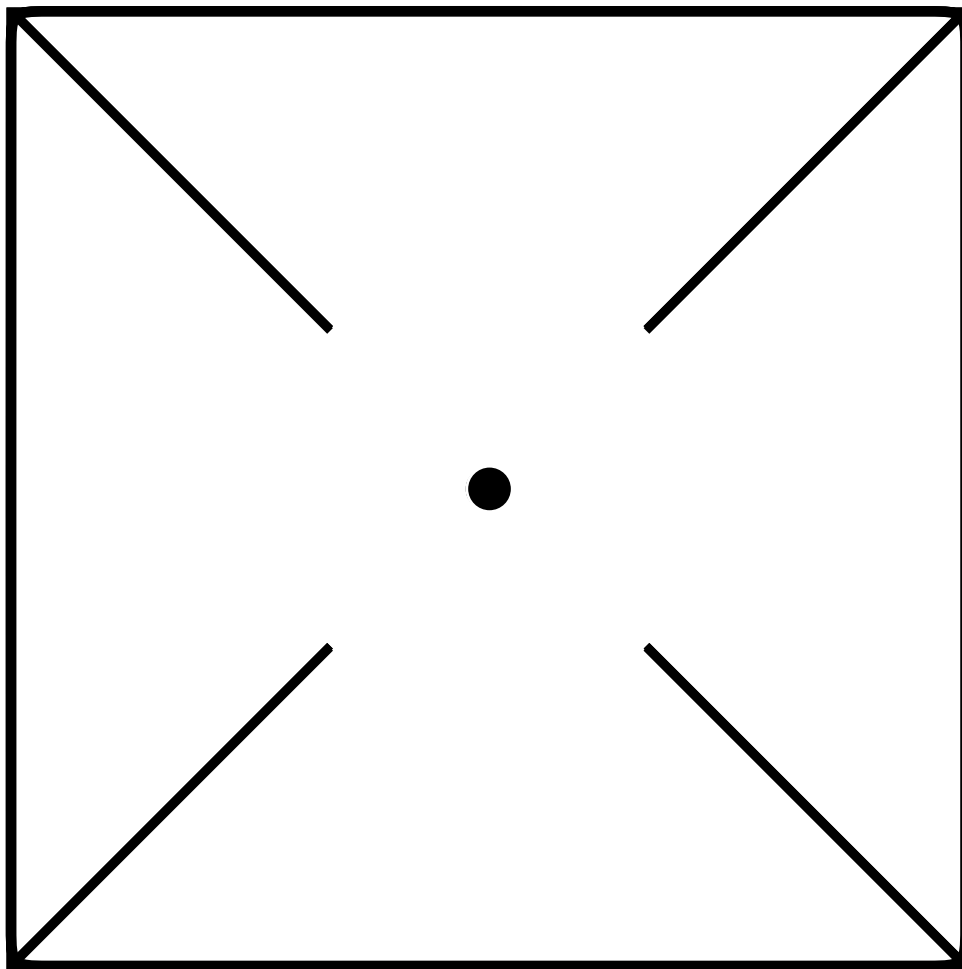
SUPPLIES

Template
Card stock
Push pin
Scissors
Wine cork

THE SCIENCE

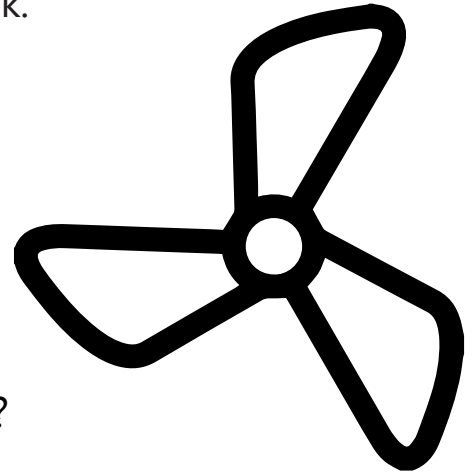
A true helicopter is a kind of aircraft that creates lift, which is an upward force of air. They also have rotor blades which spin horizontally. When your pinwheel helicopter falls it is due to the earth's gravity, lift, and design of the rotors. It naturally falls to the ground which causes the paper to bend slightly upward due to lift.

When your pinwheel helicopter falls, air pushes up against the blades, with equal force, and the shape causes the copter to spin. This is because the blades are designed so that the upcoming air is captured and pushes the blades in one direction.



Helicopter Model Observations

Use this worksheet to process and evaluate your work.



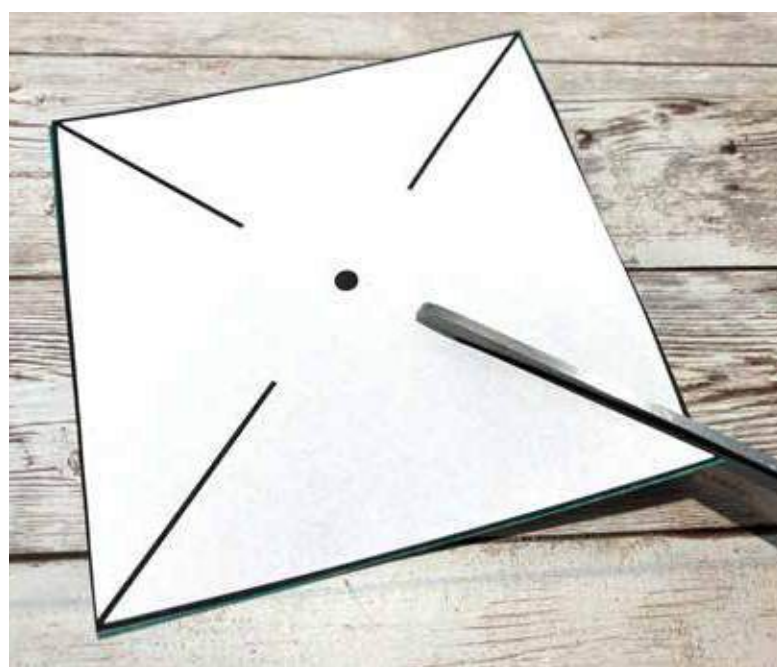
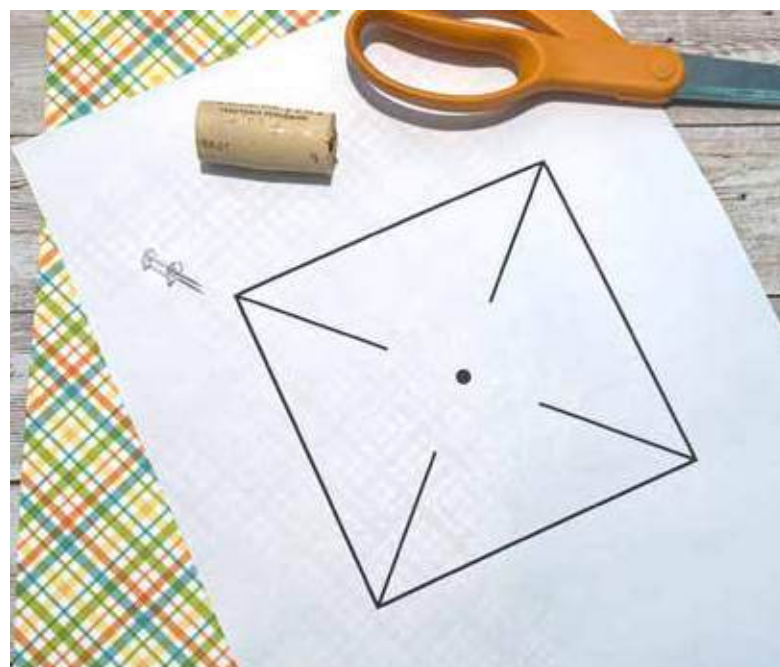
How long did it take you to build the apparatus?

Did your helicopter fly?

Did you have any trouble with your design? Explain.

What would you do differently?

What did you learn?

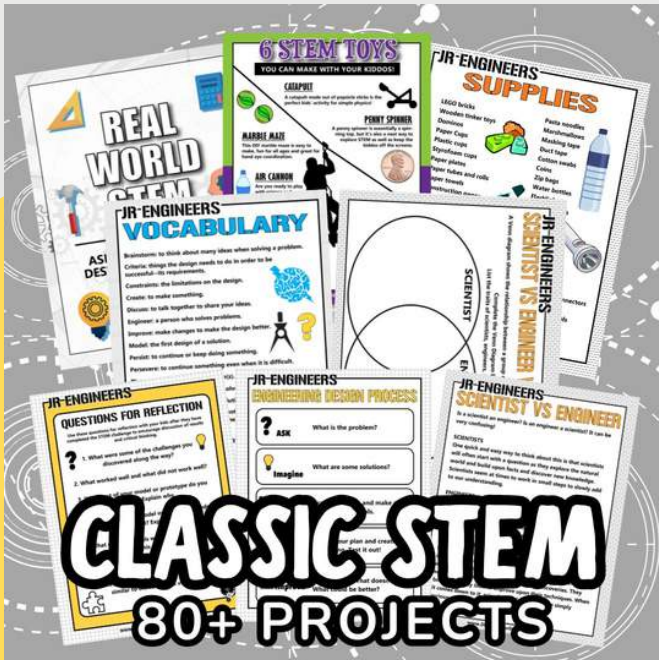


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**FOUNDATIONS OF SCIENCE:
MONTH 2**

Theme: Exploring Fall Science From Weather to Wildlife

Audience: Grades 4-6 Science Teachers or Classroom Teachers

Purpose: This month we explore how the changing seasons affect weather, plants, animals, and even the ground beneath our feet.

WEEK 1: Weather & Seasons

Theme: How does weather change, and why do we see seasons?

WEEK 2: Plants in Fall

Theme: What happens to plants as seasons change?

WEEK 3: Animals in Fall

Theme: How do animals prepare for winter?

WEEK 4: Earth & Rocks

Theme: What's under our feet? Exploring soil and rocks.

**FOUNDATIONS OF ART:
MONTH 2**

Theme: Imagines that 7 elements of art with various art styles and process-based projects.

Audience: Grades 4-6 Art Teachers or Classroom Teachers

Purpose: Explore color concepts, explore basic materials, build sketchbook habits.

WEEK 1: Color & Space - "Pointillism Fall Trees"

Artist: Georges Seurat

WEEK 2: Shape & Value - "Castle and Sun Collage"

Artist: Paul Klee

WEEK 3: Repetition & Form - "Polka Dot Pumpkins"

Artist: Yayoi Kusama

WEEK 4: Storytelling & Texture - "Story Quilts"

Artist: Faith Ringgold

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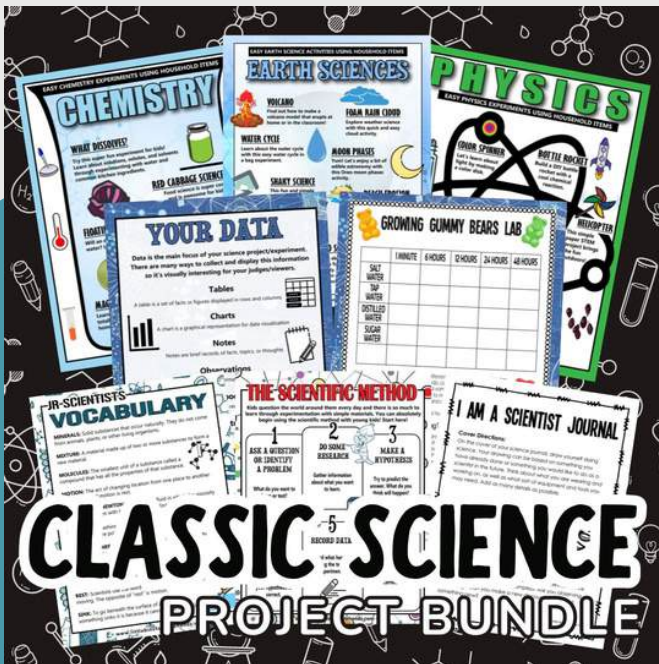
Little Bins for Little Hands helps make hands-on learning easy for families and educators by providing simple, engaging science experiments, STEM activities, art projects, and printable resources that encourage curiosity, creativity, and learning through play.

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