Elementary STEM Activity 4

Subject: Engineering

Topic: Build a Paper Rocket

Grade Level: 3-5

Objective:
Students will design, test, and improve a paper rocket to explore force and motion.

Learning Outcome:
• Describe how air pressure can create motion (a push).
• Follow the engineering design process: plan, build, test, improve.
• Collect and compare launch-distance data.

Materials Needed:
• Paper (A4/letter)
• Tape
• Straw launcher
• Scissors (optional)
• Measuring tape
• Marker

Activity Steps:
1. Show a simple rocket template: roll paper around a straw to make a tube; tape it.
2. Seal one end of the tube (nose cone) with tape to trap air.
3. Add fins (optional) and label the rocket name.
4. Place rocket on the straw, take a deep breath, and blow to launch.
5. Measure the distance traveled and record it.
6. Redesign one feature (nose, fins, length) and test again; compare results.

Recording Table:

Test #	Design Change	Distance
1	Original	
2	Change #1	
3	Change #2	

Discussion Questions:
• Which design traveled farthest?
• What change improved the rocket?
• How does blowing harder change the results?
• How do engineers use testing to improve designs?

Extension Activity:
Hold a class rocket challenge: students must redesign to hit a target distance (e.g., 3 meters).

Illustration:

Paper Rocket