

LET'S TAKE FLIGHT

Design and create a paper airplane that can fly at least four feet



POSSIBLE BUILDING MATERIALS

- Any type of paper

TOOLS

- Tape/Glue (optional)
- Crayon/Markers (optional)

TESTING MATERIALS

- To measure how far the plane flies:
- Ruler/Tape measure/String

SET UP THE PROBLEM

1. Airplanes carry people or cargo from one place to another.
2. Create a paper airplane that can fly four or more feet.

ENGINEERING BACKGROUND

Aerospace engineers design and study all different types of aircraft such as airplanes, helicopters, satellites, and rockets.

LEARNING GOAL

Growth mindset is the belief that our intelligence and ability can improve with practice and work. Building a growth mindset is important not only during engineering design challenges but in all aspects of school and life. As children are designing and creating their airplane, it may not go as planned. The plane might not fly at all, or it might not fly as far as they want. With a growth mindset, they can redesign and try again and use this challenging task as a way to learn and grow. And, if the plane does fly as planned, they can use their growth mindset to make it even better!

✓ TIPS FOR ADULTS

Before building: Ask children what they already know about real and paper airplanes "What do you know about airplanes? Have you noticed different types or sizes of planes in the air? Have you ever seen or made a paper airplane?"

Ask them to brainstorm solutions to the "problem" of trying to get the paper airplane to fly a certain distance "What type of paper should we use? Do you think a thick or thin paper will work better?"

As they are test flying their plane ask them to notice how their design works "What is working well with your design? Are there parts that don't work like you thought? Are there things you might change to make the plane fly even further?" Ask them to reflect on times during the process that were challenging "How did you feel when the plane didn't fly as far as you wanted?"

Note that some children might not be successful at making a paper airplane that flies. Encourage growth mindset "Making paper airplanes is challenging. You worked really hard on yours and although it did not work as you hoped, we can keep trying another day."



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