

AERODYNAMIC PAPER PLANE CHALLENGE



MATERIALS (PER TEAM)

- 5 sheets of A4 paper
- Tape or glue sticks
- 5 paperclips
- Scissors (optional, for supervised use)
- Measuring tape or meter stick
- Stopwatch



DURATION

60 minutes Age Group: 8-11 years old Theme: Aerodynamics and Teamwork

OBJECTIVE

Students will work in teams to design, build, and test paper airplanes, focusing on aerodynamic principles and collaborative problem-solving.

ACTIVITY BREAKDOWN

INTRODUCTION (5 MINUTES)

- Explain the challenge: Teams will create the most aerodynamic paper airplane possible.
- Briefly discuss what makes planes aerodynamic (streamlined shape, weight distribution, wing shape).

TEAM FORMATION AND PLANNING (10 MINUTES)

- Divide the class into teams of 3-4 students.
- Teams brainstorm airplane designs and assign roles:
 - Designer: Sketches the plan
 - Builder: Constructs the plane
 - Tester: Responsible for test flights
 - Data Recorder: Notes flight distances and times

DESIGN AND CONSTRUCTION PHASE (20 MINUTES)

Teams create their paper airplanes using the provided materials.

- Encourage application of aerodynamic principles:
- Pointed nose for reduced air resistance
- Balanced weight distribution
- Smooth, angled wings for lift
- Teams can use paperclips to adjust weight balance.

TESTING PHASE (15 MINUTES)

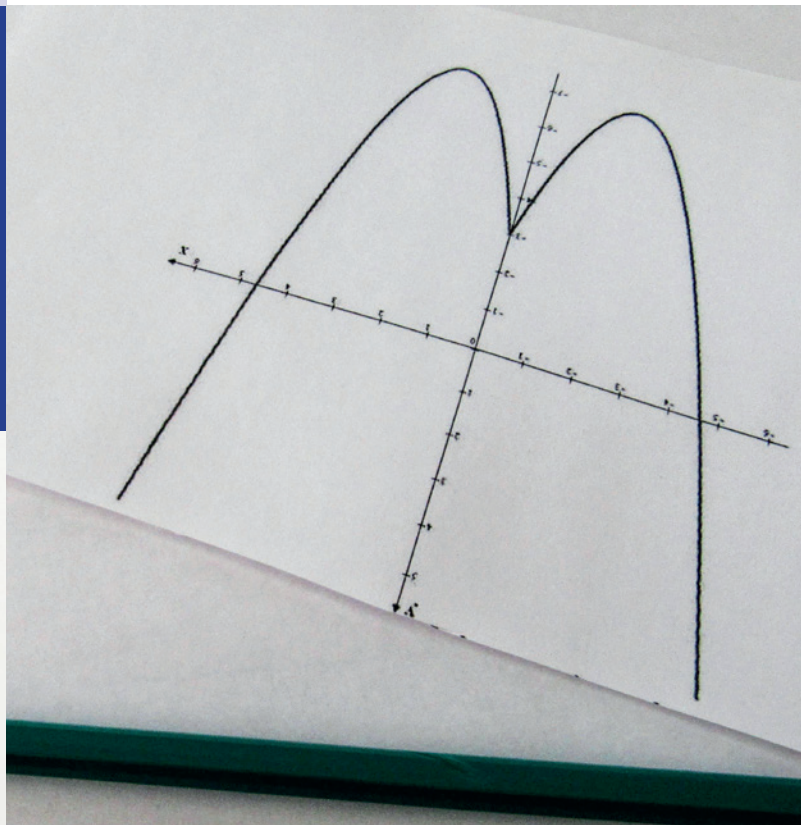
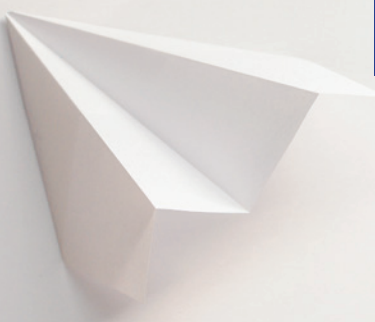
- Each team gets three test flights.
- Measure and record distance and flight time for each attempt.
- Teams can make adjustments between flights.

FINAL COMPETITION (5 MINUTES)

- Each team's best flight is entered into the class competition.
- Recognize achievements in categories like Longest Flight, Longest Air Time, Most Creative Design.

REFLECTION AND DISCUSSION (5 MINUTES)

- Teams share their design process and what they learned.
- Discuss how teamwork contributed to their success.
- Reflect on how aerodynamic principles affected flight performance.





TEAMWORK TIPS

- Encourage active listening to all team members' ideas.
- Promote turn-taking in decision-making.
- Emphasise the importance of each role in the team's success.

AERODYNAMIC TIPS FOR STUDENTS

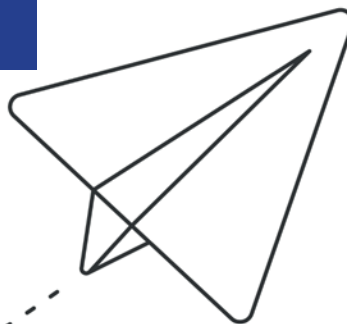
- Make the nose pointed to cut through the air easily.
- Keep the wings smooth and angled slightly upward for better lift.
- Fold the back edges of the wings up slightly to increase stability.
- Use paperclips to adjust the centre of gravity - try different positions!
- Make sure both sides of the plane are symmetrical for balanced flight.

EXTENSION IDEAS

- Introduce different "challenges" like loops, distance, or precision landing.
- Have teams create an "instruction manual" for building their best design.
- Experiment with different paper types or sizes to compare performance.

LEARNING OUTCOMES

- Enhanced understanding of basic aerodynamic principles
- Improved teamwork and communication skills
- Practice in the engineering design process
- Development of problem-solving and critical thinking abilities



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