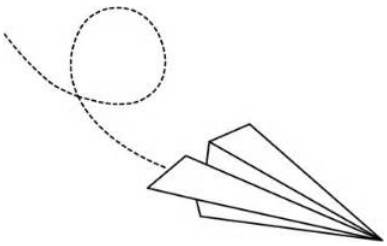
Paper Airplanes



Lesson Skill/Math Concept: fractions

Academic Vocabulary

- **Fraction:** A number that is not a whole number, 1/2 simple fraction or 0.5 decimal fraction, formed by dividing one quantity into another. A small part of something larger.
- **Angle:** A figure formed by two lines (or planes) diverging from a common point.
- **Trajectory:** The path that a projectile makes through space.
- **Projectile:** An object that can be fired or launched
- **Landing zone:** A place where something comes to the ground
- **Tally:** To keep a record of a score or account

Estimated Time: *40 minutes (60 minutes with extension)*

Materials List

Class materials:

- 4 pieces of twine (15 feet each)
- 1 measuring tape
- paper plane book,
- 1 ream of copy paper

Each student:

- copy paper as needed

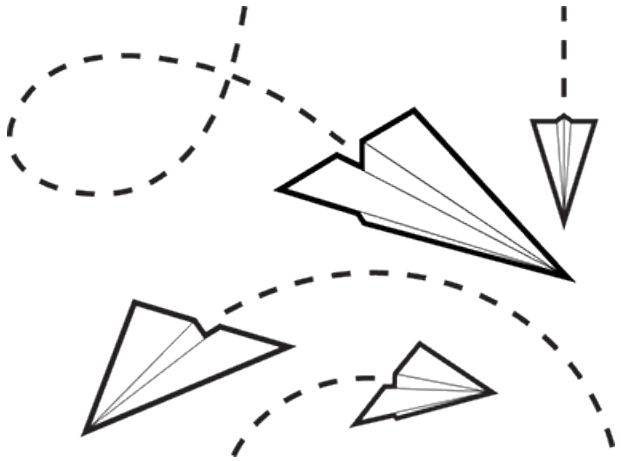
Goal: To design, create, and test a paper plane that will land in the farthest zone.

Directions:

1. Using a sheet of bond paper, each student will make a paper plane of their own design. Teacher will create a plane if there is an odd number of students.
2. In an open, outside area of the campus, stretch out and place a piece of twine on the ground. This will be used as the launching point for the paper planes.
3. Four "landing zones" will be created by placing the other three pieces of twine parallel to the first, each separated by 10 feet. The fourth "landing zone" will be the area beyond the last piece of twine.
4. One at a time, students will launch their paper planes. The class keeps a tally of the number of planes that land in each zone.
5. After each student has had the opportunity to launch his/her plane, return to the classroom to discuss and calculate the fraction of paper planes which landed in each of the landing zones.

Extension

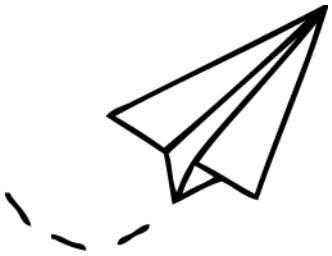
Allow students to change or modify their plane designs. They may change the size of the landing zones by changing the distance between the twine boundaries. Repeat steps 4 and 5 above. The class will determine the fraction of students who improved, did worse, or remained the same. Finally, students will convert the fractions to decimals.



Name: _____

Paper Airplanes

Data Chart



Student: In which zone did your paper plane land? _____

Total number of planes thrown: _____

Class Data

Landing Zone	Tally	Total	All Possible Fractions
1			
2			
3			
4			

Extension Exercise Data

Student: In which zone did your paper plane land? _____

Total number of planes thrown: _____

Class Data

Landing Zone	Tally	Total	All Possible Fractions
1			
2			
3			
4			

Reflection

After completing this activity, how has your understanding of fractions and the way they are calculated has changed? Explain.

Paper Airplane Post-Activity Questions

1. Which of your designs performed better? Provide an explanation why you believe it was better.

2. How does weather influence how far a paper plane will fly? Explain using an example.

3. What type of redesign of a paper plane increases the distance it travels? Explain.

4. In a class of 32 students, 24 of them landed planes in zone 3.

    a. Write all possible fractions that would represent the number of paper planes landing in zone 3.

    b. Write all possible fractions that would represent the number of paper planes landing **outside** of zone 3.