



# PAPER AIRPLANE DESIGN COMPETITION

Grades K-3/Grades 4-8

## DESIGN A PAPER AIRPLANE

Grades K-8 Your students will get to design and test a paper glider! They will get to learn about the Wright brothers and try their hand at the engineering design method.

### YA'AT'EEH

5 min

#### Ya'at'eeh is Navajo for hello! (Pronounced yah-aht-eeh)

Greet your students. Be friendly. Use their name, ask a question, give a high five, or thumbs-up! Take roll. Mark down which students took a snack and tally how many snacks were given out.

### SNACK / FREEPLAY

30 min

#### Enjoy Free Play:

Students will have their snack and enjoy time to free play.

### STORY TIME

15 min

#### Read the story:

Read the story of the day. Older students may choose to read their own books.

### STEM TIME

50 min

#### Paper airplane design competition

**Say-** There is a saying that reads, "If at first you don't succeed, try, try again." This saying captures the essence of the engineering design process. Scientists and engineers constantly try again. Every time you try something, you can learn something, and with watchful observation and careful thought, you can make it better. Today you get to be an airplane engineer and design your own paper airplane. Since you are the engineer, you can decide how you want to make your airplane. Try designing the best paper airplane that you can!

#### Materials:

- Lots of Paper (Printer paper, cardstock, large butcher paper etc.)
- Scissors
- Tape
- Markers, crayons to decorate their invention
- Mezzie Measuring Tapes
- Worksheets

#### Instructions:

1. Students will design and fold a paper airplane.
2. Take students outside to an open area to throw their plane a few times.
3. Students will measure their farthest throw by counting their steps (or use a measuring tape).
4. Ask the students the following questions then have them use their observations to fill out their worksheets and design a new and improved airplane.

**Ask-** What about your design worked well to help the airplane fly far? Why do you think so?

**Example:** I think making my plane long and light helped it fly far because my longer, lighter plane flew farther than the first one I made.

**What do you notice about the airplanes flying the farthest? If your airplane didn't fly as far as your classmates', what do you think you might try differently if you built it again?**

**Example:** The airplanes that go farthest have pointy noses and wide wings.



## SPORTS / GAMES

25 min

\*Older students may practice their sport if they don't want to play the game.

### Materials:

- Cones or chalk
  - Blindfolds
  - Objects to use as the "other planes" on the runway such as balls, toys, bean bags, waste baskets, bottles, etc.
- Feel free to be creative!

## HOMework / FREEPLAY

20 min

## CLEAN UP / DISMISSAL

5 min

### Pilot Obstacle Course

Objective- Pilots and air traffic controllers will work together to make it from one end of the runway to the other without running into any other airplanes.

Instructions- In a wide open area, set up a runway using either cones or chalk. The runway will need to be about 50 ft long and 10 ft wide. Depending on group size two runways may be set up and two games can be going at once. Place the objects that will be used as the other planes throughout the runway. Organize the students into teams of two. One student will be the pilot and the other student will be the air traffic controller. The pilot will be blindfolded and the air traffic controller will have the job of guiding the pilot through the runway without running into any of the other planes by using only their voice. With the air traffic controller walking behind the pilot, they will give commands like, "take two steps forward then one step to the left," or "Take one step to the right and go forward one step," etc. If the pilot runs into any of the other planes their turn ends and the next team will go. The game will continue in this order. Take notice of which teams make it the farthest. Once all of the teams have had a turn, the team who made it the farthest will be the winners.

### Instructions:

Allow your students some homework time. If they need help let them know you can help them. If they do not have any homework they can have some reading time, or they can have free time to go outside and play.

### Clean up/pack up/dismissal

Clean up, pack up and practice lining up.