

Dabble Lab Lesson Plan

Series: Paper Airplanes With a Side of Science 4D

Titles: *Air Shark! Novice-Level Paper Airplanes: 4D An Augmented Reading Paper-Folding Experience*, by Marie Buckingham

Needle Nose! Advanced-Level Paper Airplanes: 4D An Augmented Reading Paper-Folding Experience, by Marie Buckingham

Space Bomber! Expert-Level Paper Airplanes: 4D An Augmented Reading Paper-Folding Experience, by Marie Buckingham

Spinning Blimp! Beginning-Level Paper Airplanes: 4D An Augmented Reading Paper-Folding Experience, by Marie Buckingham

GENERAL INFORMATION: Grade Level(s): 2-4 Lesson Plan Title: The Paper Airplane Contest
Series: Paper Airplanes With a Side of Science 4D Curriculum: Science and Writing and Math

Overview of Lesson: In this lesson, students will test out the strengths of various materials. Students will understand the process of an experiment, collaboratively determining their hypothesis and reflecting on the results. Students will then be challenged in collaborative groups to create the tallest freestanding structure in the class.

BENCHMARKS OR LEARNING OBJECTIVES:

AASL Skills Indicator 1.1.1: Follow an inquiry-based process in seeking knowledge in curricular subjects, and make the real-world connection for using this process in own life.

Grade 2 Benchmark: Form simple questions and begin to explore ways to answer them.

AASL Skills Indicator 1.1.2: Use prior background knowledge as context for new learning.

Grade 2 Benchmark: Share what is known about a topic, problem, or question.

AASL Skills Indicator 1.1.3: Develop and refine a range of questions to frame the search for new understanding.

Grade 2 Benchmark: Ask “I Wonder” questions about the topic, question, or problem.

AASL Skills Indicator 3.1.1: Conclude an inquiry-based research process by sharing new understandings and reflecting on the learning.

Grade 2 Benchmark: Present facts and simple answers to questions; Reflect at the end of an inquiry experience about new ideas to wonder about and investigate.

ASSESSMENTS METHODS:

Students will decide what characteristics of flight make one paper airplane superior to another. They will develop a hypothesis and use the scientific method to test this theory. Students will present findings orally.

RESOURCES AND OTHER LEARNING SUPPORT MATERIALS:

- Paper Airplanes with a Side of Science, by Marie Buckingham
 - Air Shark
 - Spinning Blimp
 - Space Bomber
 - Needle Nose
- Paper
 - Computer paper
 - Notebook paper
 - Cardstock
 - Newspaper

INSTRUCTION AND ACTIVITIES:

1. Teacher should read *The Airplane* by Richard Spilsbury and Louise Spilsbury, to provide background knowledge about the invention of the airplane.
2. Teacher should complete brief display of launching a simple paper airplane and also a ball of paper.
3. Ask students to discuss with a neighbor which went a farther distance and which stayed in the air for a longer amount of time.
4. Using a whiteboard or large piece of butcher paper, have students brainstorm the different characteristics of an airplane that may help with keeping it in the air longer, or helping it travel a farther distance. Guide them if needed to discussion about the size of the wings, location of the wings, shape of the plane, length and width of the plane, etc.
5. Tell students they are going to choose if they want to test distance or airtime in their own paper airplane challenge. They should complete the "Purpose" section of the experiment guide below.
6. Instruct students to choose two plane options from the books provided.
7. They will then construct both airplanes.
8. Students will then develop a hypothesis and complete that section of the experiment guide.
9. Guide students through the test and observation part, showing them how to record results.
10. Upon completion of the experiment, students should fill out the "Conclusion" section of the experiment guide in which they identify if their results showed what they expected.
11. Students can then give an oral conclusion of their findings.

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Science Experiment Guide

Purpose: I wonder which airplane will _____

Hypothesis: I think _____
 because _____

Procedure:

1. Create paper airplane #1 and paper airplane #2
2. Launch #1 three times
3. Record observations including distance traveled, time in air, etc.
4. Launch #2 times
5. Record observations including distance traveled, time in air, etc.

Materials:

1. Paper
2. Stop Watch
3. Measuring tool

Plane	#1	#2
Time in air		
Distance Traveled		
Additional Observations		

Conclusion: I learned that _____
 because my findings show _____

