

GYSTC Kindergarten STEM Activity
Unit: Materials



Title: What material will make the best kite?

Estimated Time: three 30-minute class periods

Standards:

Science:

SKP1. Students will describe objects in terms of the materials they are made of and their physical properties.

- a. Compare and sort materials of different composition (common materials include clay, cloth, paper, plastic, etc.).
- b. Use senses to classify common materials, such as buttons or swatches of cloth, according to their physical attributes (color, size, shape, weight, texture, buoyancy, flexibility).

Math:

MCC.K.MD.1. Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.

MCC.K.G2. Correctly name shapes regardless of their orientation or overall size.

Science and Engineering Practices:

Crosscutting Concepts:

Ask Questions and Define Problems:

Define a simple problem that can be solved through the development of a new or improved object or tool (make a kite for a 5-year-old).

Construct and Explanation and Design Solutions:

Use tools and/or materials to design and build a device (kite) that solves a specific problem (flying well).

Plan and Carry Out Investigations:

Make observations and/or measurements of a proposed object (the kite) determine if it meets a goal (flies well).

Engaging in Argument from Evidence:

Structure and Function:

The shape and stability of structures of natural and designed objects are related to their function(s).

<p>Make a claim about the effectiveness of an object (the kite) that is supported by relevant evidence.</p>	
<p>Big Ideas/Enduring Understandings:</p> <ul style="list-style-type: none"> • Objects are made of different materials • The materials that make up an object serve a specific purpose <p>Essential Questions: What material will make the best kite?</p>	<p>Vocabulary:</p> <p>same different longer shorter heavier lighter</p>
<p>Materials:</p> <ul style="list-style-type: none"> • <u>Materials</u> by Angela Royston • <u>The Penguin Book of Kites</u> by David Pelham • Internet connection • Crayons, chalk, markers, pencil, masking tape. • Plastic trash bags, holiday wrapping paper, metal hangers, aluminum foil, wax paper, sand paper, card stock and cardboard, plain white copy paper, construction paper, tissue paper, yarn • Student journal and STEM worksheet 	<p>Assessment:</p> <p>-student journal -teacher observation and questioning</p> <ul style="list-style-type: none"> • Why certain materials were used • How well materials worked • What materials might be better and why
<p>Safety Considerations: Students will need reminders regarding putting small objects in their mouths. Students will also receive instruction of the caution needed when using glass and wood (splinters) materials.</p>	
<p>Project Overview: In small groups, students will design and build a kite using knowledge about the attributes, characteristics, and/or properties of materials they learned during the materials unit.</p>	
<p>Instruction: Day 1: Ask/Engage</p> <ul style="list-style-type: none"> • The teacher will have an assortment of materials on the table. • The teacher will discuss the first day of spring. Then the students will brainstorm things they might do in spring – this will lead to a discussion about kite flying. 	

- The teacher will read The Penguin Book of Kites by David Pelham.
- The teacher will show photographs of kites from the internet. The teacher will ask students what they think the kites are made of and why that material would be important.

Imagine/Brainstorm

- Discuss the challenge and assign groups-2 students per group (design partners)
- **Challenge:** You are a kite designer. You and your partner will need to think about the properties of different materials that we have learned about in our science unit. Design and build a kite that will fly above a 5-year-old child's head using running power and wind.

Plan/Design

- Using the STEM challenge worksheet, students will draw the shape of their kite and select what materials they will use.

Day 2:

Create/Test

- Each student will build their kite with help from their team partner.
- Each group will test their kite. They will discuss what worked and what needs to be changed, especially in response to the materials used and their properties.

Day 3:

Evaluate/Improve – and repeat Steps 1-5

- Students will redesign and build their kites.
- Student will test their kites and describe if the changes helped the kite.
- Students will explain what they learned from this STEM challenge.

Closing/Culminating Activity:

The First Day of Spring Celebration – the students will fly their STEM produced kites on the first windy day of spring.