

Name: \_\_\_\_\_

***Mathematics: The Language of STEM***

Lesson Title: 3D Shape Tents

**CONTENT AND TASK DECISIONS**

**Grade Level(s):** *Kindergarten*

**Description of the Task:**

Students will create a 3D tent that 2 “people” will fit inside.

**Indiana Mathematics Content Standards:**

**K.NS.4:** Say the number names in standard order when counting objects, pairing each object with one and only one number name and each number name with one and only one object. Understand that the last number name said describes the number of objects counted and that the number of objects is the same regardless of their arrangement or the order in which they were counted.

**K.G.2:** Compare two- and three-dimensional shapes in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/"corners") and other attributes (e.g., having sides of equal length).

**K.G.3:** Model shapes in the world by composing shapes from objects (e.g., sticks and clay balls) and drawing shapes.

**Indiana Mathematics Process Standards:**

**PS.7: Look for and make use of structure.** Mathematically proficient students look closely to discern a pattern or structure. They step back for an overview and shift perspective. They recognize and use properties of operations and equality. They organize and classify geometric shapes based on their attributes. They see expressions, equations, and geometric figures as single objects or as being composed of several objects.

**Mathematics Content Goals:**

Students will engineer a tent using their knowledge of 2D shapes.

Students will count the sides and vertices (corners) of a 3D shape to identify it.

**Language Objectives:**

Speaking: Students will verbally present their tent structure and describe the 3D shapes used.

**Materials:**

*Fred and Ted Go Camping* by Peter Eastman

3D Assorted Transparent Shapes

2 “people” or figurines (Fred & Ted)

Print 3D Tent Design Sheet (included)

Learning Resources Geometric Shapes Building Set (may use toothpicks and clay)

## THE LESSON

Student Actions	Teacher Actions
<p style="text-align: center;">Day 1</p> <p>Before (Launch) Students will verbally make connections to camping.</p> <p>Students will actively listen to read aloud.</p> <p>Students answer questions after listening to <i>Fred and Ted Go Camping</i>. Turn and Talk.</p> <p>Students verbally brainstorm a list with the class of all things you need to remember when building a tent.</p> <p>Students help make project expectations with teacher.</p>	<p style="text-align: center;">Day 1</p> <p>Before (Launch) “How many of you have ever gone camping?” “What is camping?”</p> <p>Teacher reads <i>Fred and Ted Go Camping</i>.</p> <p>Teacher asks, “How can we help Fred and Ted?” Refer to pg.7-8 (build a tent)</p> <p>“What things should we keep in mind when building our tent?”(Record a brainstorm list) “What are the parts of a tent?”(walls, floor, ceiling etc.) “What do we know about 2D shapes that could help us build a better tent?” (sides, corners, curves)</p> <p>Teacher leads students to the idea that Fred and Ted need to fit inside the tent (2 figurines)</p>
<p style="text-align: center;">Day 2</p> <p>During (Explore)</p> <p>Students draw their tent design individually. Students go up as groups and explore 3D transparent shapes to give them tent ideas.</p> <p>In pairs students discuss and decide what design to build together. Students draw their new design that they will create.</p> <p>Students gather materials needed and get started making their 3D tent. * Students can use 3D shape models as guidelines to count sides and vertices (corners).</p> <p>Students keep models for presenting the next day.</p>	<p style="text-align: center;">Day 2</p> <p>During (Explore) Teacher models drawing of a tent in Design 1 section (Ted’s tent in the book) Triangular Prism. Teacher uses 3D transparent shapes as a guide.</p> <p>Teacher discusses with students about their design and asks what 2D shapes were used to build their tent.</p> <p>“Can Fred and Ted fit inside your tent?” (Making sure 3D shape is built through questioning)</p> <p>Teacher comments on things she notices and ask questions: “How many vertices (corners) does this shape have?” “How many sides does your shape have?” “What 2D shapes are used in your tent?”</p> <p>Facilitate learning and remind students that 2 “people” need to fit in the tent (Fred and Ted).</p>
<p style="text-align: center;">Day 3</p> <p>After (Summarize) Students present as pairs their 3D shape tent. Students describe what 2D shapes are used in</p>	<p style="text-align: center;">Day 3</p> <p>After (Summarize) Teacher promotes a community of learners. Teacher helps students to make connections</p>

<p>their tent (triangle, square, circle, etc.)</p> <p>Students listen actively and ask questions about the student tents.</p>	<p>and summarize the main idea.</p> <p>Teacher assists students in finding the 3D shapes used in tent designs.</p> <p>Teacher introduces the names of 3D shapes with student tents (cubes, cones, rectangular prism, sphere, pyramid etc.)</p>
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## ASSESSMENT

### Observe:

Student success with the given task depends on their understanding of 2D shapes, their sides, and corners.

Students who fully understand 2D shapes choose 3D shapes with similar sides/corners that match up.

This helps students to build tents that are stable and contain Fred and Ted.

Students present the tent by using descriptive words, ex. 3 sides make a triangle etc.

**Ask:** Asses language objective during presentations by asking the questions below:

“How many vertices (corners) does this shape have?”

“How many sides does your shape have?”

“What 2D shapes are used in your tent?”

“What 3D shapes are used in your tent?”

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# 3D Tent Designs

**Design 1**

**Design 2**