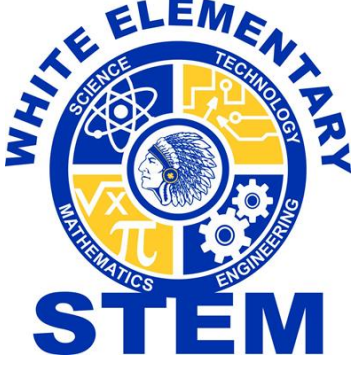


<p><b><u>Lesson Title:</u></b></p> <p><b>Overnight Hike Engineering Challenge</b></p>	<p><b><u>Grade Level:</u></b></p> <p><b><u>2nd</u></b></p>	
<p><b><u>Essential Question:</u></b></p> <p>How can I use a set of pieces from one object to create a new object?</p>		

**Standards:**

**Science Standards:**

**S2P1. Obtain, evaluate, and communicate information about the properties of matter and changes that occur in objects.**

a. Ask questions to describe and classify different objects according to their physical properties. (Clarification statement: Examples of physical properties could include color, mass, length, texture, hardness, strength, absorbency, and flexibility.)

b. Construct an explanation for how structures made from small pieces (linking cubes, building blocks) can be disassembled and then rearranged to make new and different structures.

**Math Standards:**

**MGSE2.MD.7** Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.

**MGSE2.MD.9** Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.

**Other Content Standards:**

**ELAGSE2RL7:** Use information gained from the illustrations and words in a print or digital text to demonstrate understanding of its characters, setting, or plot.

**ELAGSE2SL1:** Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups.

**ELAGSE2L1:** Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

<p><b><u>Technology Integration:</u></b></p> <p>1.) Have students take a picture of one of their items and then upload the picture onto a word document. Below the photo have them type out their description of how they built it.</p> <p>2.) Have students take a picture of all three items and upload those photos onto a word document. Below the photos have students describe “how-to” engineer the different items.</p>	<p><b><u>Career Connection:</u></b></p> <p>Park Ranger Structural Engineer Cartographer Landscape Architect</p>
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**Engineering Challenge:**

Design a shade structure, tent, and cot to use during the hiking trip that can be built with the materials given to your team. Constraints: -You can ONLY use the materials given to you. -You only need to build one item at a time. -You must reuse the materials for each item built and be able to take them apart for the next item.

**Materials:**

4 Small binder clips  
Cloth (6 in. X 6 in.)  
Foam Sheets (3 in. x 5 in.)  
Clay  
4 Straws or wooden dowels  
Yarn (12 in.)  
Overnight Hike Packet

**Lesson Procedures**

Day 1-2 Review Matter – Lesson 1 – Focus Question – What do all things on earth have in common? Students will compare/contrast a solid, liquid, and a gas. A KWL chart will be completed.

Day 3-4 Matter Scavenger Hunt – Lesson 2 – Focus Question – What examples of matter are in my environment? Students will complete a scavenger hunt and create a graph on their findings.

Day 5-7 Design a Pattern – Lesson 3 – Focus Question – Can you make multiple designs using the same number and type of blocks? Students will explore shapes and patterns and sketch designs that they have created with the pattern blocks. A gallery walk will be to use to present the designs.

Day 8-14 Overnight Hike Engineering Challenge – Lesson 4 – Focus Question – How can I use a set of pieces from one object to create a new object? After reading the passage, About the Pleasant Lake Hike, students will create a map where specific items will be; shelter, tent, and cot. They will then go through the design engineering process to create each item out of the same materials. Create a schedule for 3-day hike based on time scaled on map given.