

Calculating Area and Perimeter of Civil War Encampments with KEVA Planks

Developed by: Shannon Green, Susan Gerstenberger, Christi McWaters

Grade Level: 4th Grade

Subject Area(s): Social Studies, Mathematics, Science (Engineering and Design)

Standards Correlation: 4-6.4 Summarize significant battles, strategies, and turning points of the Civil War, including the battles of Fort Sumter and Gettysburg, the Emancipation Proclamation, the role of African Americans in the war, the surrender at Appomattox, and the assassination of President Lincoln.

4.MDA.3 Apply the area and perimeter formulas for rectangles.

4.S.1B.1 Construct devices or design solutions to solve specific problems or needs: (1) ask questions to identify problems or needs, (2) ask questions about the criteria and constraints of the devices or solutions, (3) generate and communicate ideas for possible devices or solutions, (4) build and test devices or solutions, (5) determine if the devices or solutions solved the problem and refine the design if needed, and (6) communicate the results.

Duration: 1 class period, 45-50 minutes

Grouping: Whole group, Small groups, Pairs

Lesson Objective(s):

Students will create a Civil War Encampment with KEVA planks to include a cannon, a tent, and a portion of a split rail fence.

Students will calculate the area and perimeter of their Civil War Encampment.

Materials:

- KEVA Structures 400 Building Plank Set (3 sets)
- You Tube Video with KEVA Plank demonstration
- <https://www.youtube.com/watch?v=sOhsJbyeN10>
- Yard Sticks/meter sticks/rulers
- Masking tape
- Pencil and paper
- Primary source photograph of a Civil War cannon

Procedures:

Elicit	<p>Purpose: Access prior knowledge Students will utilize the <i>Two Minute Talk Strategy</i> to access prior knowledge of area and perimeter.</p> <p>Procedure:</p> <ol style="list-style-type: none">1. Group students into pairs.2. Inform students that they will each be talking about area and perimeter for two minutes.3. Using a stop watch or other timing device, tell students to begin talking.4. At two minutes, instruct students to switch. At this point, the other partner begins talking. It is okay for the second person to repeat some of the things the first person said; however, they are encouraged to try and think of new information to share.5. Have a few groups share some of their responses with the entire class when the activity is done to demonstrate their understanding of area and perimeter.
Engage	<p>Purpose: Get students' attention and provide a "hook" for the lesson. Students will be shown a primary source photograph of a Civil War cannon within an encampment. The teacher will provide students with a fictional, but realistic, perimeter of a Civil War encampment. As a class, students will determine the possible dimensions of the encampment. As a class, students will determine the areas of the various dimensions of the encampment to further their discussion of area and perimeter.</p>
Explore	<p>Purpose: Students plan and carry out an investigation. Students will be divided into groups of 4-5, and will be given a set of KEVA planks, tape, yard sticks/rulers, pencils, and paper. The students will be asked to tape off a given perimeter to build their Civil War encampment on the floor or on their tables. Each group will also design a Civil War cannon, without any direction, utilizing the KEVA planks.</p>
Explain	<p>Purpose: Introduce new content related to the students' exploration. Students will be shown the You Tube video revealing how a Civil War cannon, tent, and split rail fence can be created using KEVA planks. After the demonstration, each group will finish creating their Civil War encampment with a revised cannon design, a tent, and a portion of a split rail fence.</p>
Elaborate	<p>Purpose: Apply knowledge to new situations. After completing their design, students will be asked to determine the area and the perimeter of their Civil War encampment, utilizing the yard sticks or rulers in inches or centimeters (teacher choice).</p>

Evaluate	<p>Purpose: Check for student understanding (formative assessment) and assess student mastery of content (summative).</p> <p>Exit tickets can be used to assess understanding of area and perimeter. Students can create written directions on how to create one of the designs utilizing KEVA planks to assess their knowledge of the design standards. Students can communicate the results of the group encampments within a class chart/table to include the areas and perimeters of each team, and they can discuss patterns found within the data.</p>
Extend	<p>Purpose: Transfer knowledge and generate additional questions.</p> <p>After conducting research on the battles that are specific to the standard, teachers can extend the lesson by allowing students to create other designs of Civil War encampments, the Battle of Gettysburg, or the Battle of Fort Sumter. Students can calculate the area and the perimeter of the battles/encampments they have designed. Students can create other types of technology relevant to the Civil War utilizing KEVA planks.</p>

Civil War Cannon Primary Source

