

5E Lesson Plan (Perimeter)

Name: Rabecca Freeman **Lesson Length:** 60 minutes **Grade Level:** 3rd Grade

Subject: Mathematics **Topic:** Perimeter

I. Common Core State Standard(s): Measurement and Data

- 3.MD.D Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.
- 8.MD.D Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.

Standards for Mathematical Practice:

- MP.1 Make sense of problems and persevere in solving them
- MP.2 Reason abstractly and quantitatively
- MP.4 Model with mathematic
- MP.5 Use appropriate tools strategically
- MP.6 Attend to precision
- MP.7 Look for and make use of structure

NGSS:

- 3-5-ETS1-1 Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
- 3-5-ETS1-2 Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
- 3-5-ETS1-3 Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

ELA/Literacy:

- CCSS.ELA-LITERACY.SL.3.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 3 topics and texts, building on others' ideas and expressing their own clearly.
- CCSS.ELA-LITERACY.SL.3.6 Speak in complete sentences when appropriate to task and situation in order to provide requested detail or clarification.
- CCSS.ELA-LITERACY.L.3.1 Demonstrate command of the conventions of Standard English grammar and usage when writing or speaking.

II. Intended Learning Outcomes

A. Objective:

What do you want students to know?

Students will know how to find the perimeter of a polygon.

B. Indicator:

What will students do to show what they know?

Students will compute the perimeters of 3 various polygons they have measured in the classroom.

III. Assessment of Student Progress:

- a. **Pre-assessment:** Class discussion on perimeter.
- b. **Formative assessments:** Perimeter/measurement exit ticket
- c. **Summative assessment:** No summative assessment will be given for this lesson. Students will be given an end of unit post-test to determine unit conceptual understanding.

IV. Preparation (teacher materials, student materials, etc.)

- **Student Prior knowledge and skills:** Students need to have prior knowledge about what a polygon is and units of measurement (e.g., cm, inch, mm, unit, yard, feet, etc.).
- **Teacher preparation:** Teacher will create and print perimeter/measurement exit tickets prior to lesson.
 - **Materials:** perimeter/measurement exit ticket, square one-inch color tile manipulatives
 - **Target vocabulary:** Perimeter, unit, polygon, measurement
 - **Technology use:** Doc cam, whiteboard
- **Student preparation:** Students do not need to do any preparation prior to this lesson. Concepts will be covered in class.

V. Instructional Procedures:

ENGAGE:

Approximate Time: 10 minutes

- Lead the class in a discussion about perimeter
- Ask the students various questions about perimeter to pre-assess knowledge (e.g., do you think a book or a desk has a larger perimeter? Do you think a desk or this room has a larger perimeter?)
- Ask the students if they think there are different ways to represent perimeter (e.g., the perimeter of a hand, the perimeter of a human, the perimeter of a piece of paper, etc.)
- Listen to student answers and write what the students say and display onto the whiteboard with use of the doc cam.
- Read aloud the definition of perimeter
- Go over what a unit of length is using one-inch tile manipulates.
- Tell the students that you are going to divide them into small groups of three or four.
- Instruct the students that each group will be given ten square tiles and that they will be using the square tiles to explore different patterns and sizes of perimeters.
- Assign each group a scribe to record some of different perimeters the group comes up with.
- Instruct the students that each tile length will be one unit of perimeter.

-Instruct students to try and come up as many different size perimeters as possible while they explore.

-Have students turn to their neighbors and explain what they are going to be doing.

-Have a couple students in the classroom repeat/rephrase the instructions to check for understanding for the Explore.

EXPLORE:

Approximate Time: 20 minutes

-Have each of the groups work on coming up with as many different perimeters as possible with the 12 one-inch tiles they were given.

-Have the students all participate and take turns with the tiles and making different perimeters.

-Have the group scribes keep track of some of the different perimeters the group comes up with.

-Walk around to check for understanding and participation.

-While walking around, ask the students what they are finding out or discovering.

-Find a couple examples that you want the students to share with the class under the doc cam.

EXPLAIN:

Approximate Time: 10 minutes

-Each group of students will be able to explain the differences in the types of perimeters that they constructed and how different polygons have different perimeter lengths.

-Each group of students will be able to explain how different polygons can be constructed using different patterns.

-Ask the students several questions about the Explore.

- Ask students if they agree with the perimeters that the group came up with. Why or why not?
- Are there other ways that this object could have been measured? How?
- Are there other ways to represent the same perimeter, but with a different shape? How?
- What do you think about the way they created or measured this perimeter?
- Are there any patterns?
- What do you notice about different sides of squares and rectangles? (They are the same lengths)

ELABORATE:

Approximate Time: 15 minutes

-In groups, have students elaborate on how units of measurement might change from inches to feet on various polygons in the real world.

-Students will be given a choice of 5 different polygons to find the perimeter of. They must choose and measure 3 of the 5.

-Individually, have students measure 3 different polygons around the room using inches, feet, or yard measurements.

EVALUATE:

Approximate Time: 5 minutes

- Students will have 5 minutes to calculate their measurements from the 3 polygons that they chose to measure.
- Students will turn in their calculated measurements as an exit ticket for this lesson.

EXIT TICKET:

Name:

Paper

Book

Index card

Playing card

Desktop

Rubric

Evaluation Criteria For Assessing Students' Mathematics Learning

Category	Incomplete (0 pts.)	Beginning/Developing (1-2pts.)	Mastery (3 pts.)
Conceptual Understanding (Problems 1-3)	Student has no understanding of perimeter. Student did not get any of the three perimeter problems correct.	Student has some understanding of perimeter. Student was able to get one or two of the perimeter problems correct.	Student has a full understanding of perimeter. Student got all three of the perimeter problems correct.