Unit 4

Perimeter, Angles, and Area

Common Core

Mathematical Practices (MP)

Domains
- Number and Operations in Base Ten (NBT)
- Measurement and Data (MD)
- Geometry (G)

INVESTIGATION 1

Linear Measurement

Day	Session	Common Core Adaptation	Common Core Standards
1	**1.1** Using U.S. and Metric Units to Measure Length TEN-MINUTE MATH Practicing Place Value	In addition, have students write the number in expanded form and round the number to the nearest ten and hundred after they have practiced writing and saying the number.	MP1, MP5, MP7 3.NBT.1, 3.NBT.2
2	**1.2** Introducing Perimeter TEN-MINUTE MATH Practicing Place Value	In addition, have students write the number in expanded form and round the number to the nearest ten and hundred after they have practiced writing and saying the number.	MP1, MP5, MP7 3.NBT.1, 3.NBT.2, 3.MD.8
3	**1.3** Assessment: Measuring Perimeter TEN-MINUTE MATH Practicing Place Value	In addition, have students write the number in expanded form and round the number to the nearest ten and hundred after they have practiced writing and saying the number.	MP1, MP5, MP7 3.NBT.1, 3.NBT.2, 3.MD.8
4	**1.4** Perimeter Problems TEN-MINUTE MATH Practicing Place Value 1 DISCUSSION Pilar's Yard	In addition, have students write the number in expanded form and round the number to the nearest ten and hundred after they have practiced writing and saying the number. **Math Note** **Same Perimeter, Different Area** Students have not yet studied area as a measure of two-dimensional space. (They will in Investigation 2.) When students comment on how different the various 100-foot perimeter shapes look, they are noticing that shapes with the same perimeter can have different areas.	MP1, MP4, MP5, MP7, MP8 3.NBT.1, 3.NBT.2, 3.MD.8
5	**1.5** Ordering Shapes by Perimeter TEN-MINUTE MATH Practicing Place Value	In addition, have students write the number in expanded form and round the number to the nearest ten and hundred after they have practiced writing and saying the number.	MP1, MP4, MP5, MP7 3.NBT.1, 3.NBT.2, 3.MD.8

INVESTIGATION 2

Understanding and Finding Area

Day	Session	Common Core Adaptation	Common Core Standards
6	**2.1** Tetrominoes		MP1, MP4, MP6, MP7 3.MD.5.b, 3.MD.6
7	**2.2** Which Tetrominoes Fit?		MP2, MP4, MP5, MP7 3.MD.5.a, 3.MD.5.b, 3.MD.6
8	**2.3** Squares and Triangles 1 ACTIVITY Introducing Tetromino Puzzle	**Math Note** **Adding to Find the Area** The fact that area is additive is implicit in the work students are doing. For example, to find the area of what students often call the "Z shape," they find the area of the top row and combine it with the area of the bottom row. Or, for the "L shape," they think, "There are 3 in the tall part, and 1 that sticks out. 3 + 1 is 4. The area is 4 square units."	MP2, MP3, MP4, MP7 3.MD.5.a, 3.MD.5.b, 3.MD.6, 3.MD.7.d
9	**2.4** Area Activities TEN-MINUTE MATH Practicing Place Value	In addition, have students write the number in expanded form and round the number to the nearest ten and hundred after they have practiced writing and saying the number.	MP2, MP3, MP4, MP7 3.NBT.1, 3.NBT.2, 3.MD.5.a, 3.MD.5.b, 3.MD.6, 3.MD.7.a, 3.MD.7.b, 3.MD.7.d
	2B MATH WORKSHOP What's the Area?	**Math Note** **Using Addition or Multiplication to Find the Area** Most students will count in some way (by 1s, by rows, by columns) to find the area of the partially-hidden rugs. Implicit in such a strategy is the fact that area is additive, that is, the sum of the area of the decomposed parts produces the area of the whole. To find the area of the whole rectangle, you can find the area of each row (e.g., 5) and add (e.g., 5 + 5 + 5 + 5). While most students think additively, these problems also show that area is multiplicative (e.g., if you multiply the dimensions, the product is the area). Students will study the connections between area and multiplication in Unit 5. *(continued on next page)*	

INVESTIGATION 2

Understanding and Finding Area, *continued*

Day	Session	Common Core Adaptation	Common Core Standards
	(continued from previous page) **2.4** Area Activities 3 DISCUSSION The Area's the Same	**Teaching Note** **Same Area, Different Perimeter** Because of the triangles used in the Shape Poster activity, students generate shapes for which they cannot accurately find the perimeter. Regardless, they should recognize that shapes that have the same area (e.g., 4 square units) can have different perimeters. You can explore this further/more explicitly by asking students to find the perimeter of two different rectangles (1 by 4 and 2 by 2) made from the shapes.	
10	**2.5A** Same Area, Different Perimeter; Same Perimeter, Different Area	See p. CC23.	MP2, MP3, MP5, MP7 3.NBT.1, 3.NBT.2, 3.MD.5.a, 3.MD.5.b, 3.MD.6, 3.MD.7.d, 3.MD.8
11	**2.5** Area Activities, *continued* TEN-MINUTE MATH Practicing Place Value	In addition, have students write the number in expanded form and round the number to the nearest ten and hundred after they have practiced writing and saying the number.	MP2, MP3, MP6, MP7 3.NBT.1, 3.NBT.2, 3.MD.5.a, 3.MD.5.b, 3.MD.6, 3.MD.7.d
	2D MATH WORKSHOP How Big Is Your Foot?	**Teaching Note** **Adding to Find the Area** To find the area of their foot, many students break their outline into sections. They find the area of each section and then combine the results. This is another opportunity to raise the following question: I noticed that [Keith] found the area of this section of his foot. Then he found the area of these 3 other sections, and then he added all of the numbers. Can he do that? Why does it work?	
12	**2.6** Assessment: Make a Shape		MP1, MP2, MP5, MP7 3.MD.5.a, 3.MD.5.b, 3.MD.6

INVESTIGATION 3

Triangles, Quadrilaterals, and Angles

Day	Session		Common Core Adaptation	Common Core Standards
13	**3.1**	Triangles		MP3, MP4, MP7, MP8 3.G.1
14	**3.2**	Is It a Triangle? TEN-MINUTE MATH Practicing Place Value	In addition, have students write the number in expanded form and round the number to the nearest ten and hundred after they have practiced writing and saying the number.	MP2, MP3, MP7, MP8 3.NBT.1, 3.NBT.2, 3.G.1
15	**3.3**	Squares, Rectangles, and Other Quadrilaterals		MP2, MP3, MP7, MP8 3.G.1
16	**3.4**	Angles of Different Sizes		MP2, MP3, MP7, MP8 3.G.1
17	**3.5**	Working with Shapes and Angles TEN-MINUTE MATH Practicing Place Value	In addition, have students write the number in expanded form and round the number to the nearest ten and hundred after they have practiced writing and saying the number.	MP2, MP3, MP7, MP8 3.NBT.1, 3.NBT.2, 3.G.1
18	**3.6**	End-of-Unit Assessment TEN-MINUTE MATH Practicing Place Value	In addition, have students write the number in expanded form and round the number to the nearest ten and hundred after they have practiced writing and saying the number.	MP1, MP2, MP6, MP7 3.NBT.1, 3.NBT.2, 3.MD.5.a, 3.MD.5.b, 3.MD.6, 3.G.1