


Grade 4 Mathematics

Geometry: Lesson 8

Read aloud to the students the material that is printed in **boldface type** inside the boxes. Information in regular type inside the boxes and all information outside the boxes should **not** be read to students. Possible student responses are included in parentheses after the questions.

NOTE: The directions read to students may depend on the available materials. Read only those parts of the lesson that apply to the materials you are using.

Any directions that ask you to do something, such as to turn to a page or to hand out materials to students, will have an arrow symbol () by them.

Purpose of Lesson 8:

- In this lesson, the tutor and the students will
 - ✓ draw two-dimensional figures on dot paper, and
 - ✓ identify two-dimensional figures drawn on dot paper.

Equipment/Materials Needed:

- Copies of Student Sheets 109, 110, and 111
- Paper and pencils
- Chalkboard
- Rulers or some other type of straight edge (an index card will work)

Preparations before beginning Lesson 8:

- Run one copy of Student Sheets 109 (from Lesson 7), 110, and 111 for each student.
- Have paper and pencils available.
- Have rulers or some type of straight edge available.
- You should cover Lesson 2 of Geometry before beginning this lesson.

Lesson 8: Geometry

In this lesson, students will use dot paper to draw two-dimensional figures.

Say:

In this lesson, you will use dot paper to draw and identify two-dimensional figures. What is another name for a two-dimensional figure? (plane figure) What are some plane figures that we have talked about in other lessons? (circles, triangles, squares, rectangles, etc.)

➤ Give students a copy of Student Sheet 109 from Lesson 7.

Say:

If you connect two dots that are side by side in any row, you are going to say that the line segment that you drew is one unit long. If you connect two dots in any column, you are going to say that the line segment that you drew is one unit long. However, if you connect two dots that are side by side on a diagonal, the line segment is not one unit long, it is longer than one unit. On the first square, draw a vertical line that is three units long. On the second square, draw a horizontal line that is four units long. (Students may count dots. Remind them that they must count the spaces between the dots.)

➤ Give students Student Sheet 110. Tell them to draw the figures on the dot paper from Student Sheet 109. You may need to refer back to Lesson 2 in Geometry for the different types of figures.

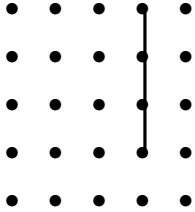
Answers for Student Sheet 110:

- | | |
|-------------------------------------|--|
| 3. a triangle with no sides equal | 4. a triangle with a right angle |
| 5. a triangle with 2 equal sides | 6. a square |
| 7. a parallelogram or quadrilateral | 8. a square, rectangle, or parallelogram |
| 9. a 4×2 rectangle | 10. a 2×2 square |
| 11. a quadrilateral | 12. any five-sided figure or a pentagon |

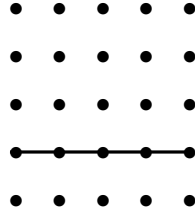
Examples of possible drawings are shown on the next page. Drawings will vary.

Here are some examples of Student Sheet 110 responses . Drawings will vary.

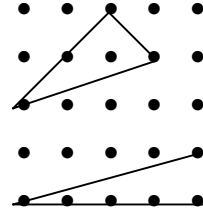
1.



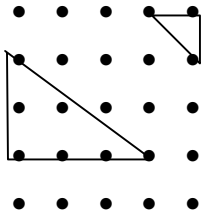
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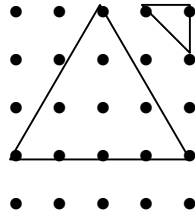
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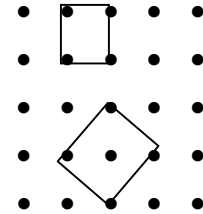
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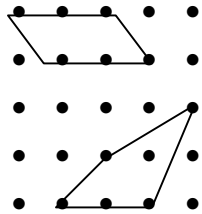
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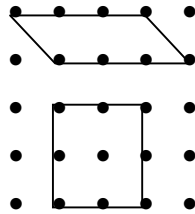
6.



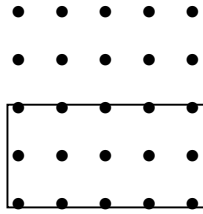
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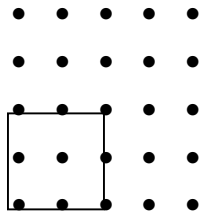
8.



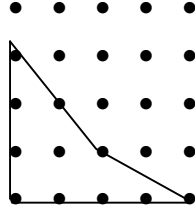
9.



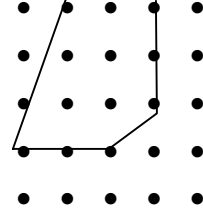
10.



11.



12.



➤ Give students Student Sheet 111. On this sheet, figures are drawn. The students need give all of the names for each figure.

Answers for Student Sheet 111:

1. triangle or some may say right triangle
2. rectangle, parallelogram, quadrilateral
3. hexagon
4. parallelogram, quadrilateral
5. octagon
6. square, rhombus, rectangle, parallelogram, quadrilateral
7. triangle (Some may know it is also an isosceles triangle.)
8. quadrilateral
9. quadrilateral (Some may know that both eight and nine are trapezoids.)
10. pentagon
11. hexagon
12. hexagon

➤Have one student summarize today's lesson. Using dot paper can help students understand the properties of two-dimensional figures.

Student Sheet 110 (Geometry: Lesson 8)

Draw the figures listed below on your dot paper and then write the name of your figure underneath. You have already drawn figures in Squares 1 and 2, so start with Square 3.

Draw a figure with...

3. 3 sides: no equal sides
4. 3 sides: 1 right angle
5. 3 sides: only 2 equal sides
6. 4 sides: all sides equal
7. 4 sides: no right angles
8. 4 sides: opposite sides parallel
9. 4 sides: two sides measuring 4 units, 2 sides measuring 2 units, opposite sides parallel, 4 right angles
10. 4 sides: all sides measuring 2 units
11. 4 sides: no equal sides
12. 5 sides

Student Sheet 111 (Geometry: Lesson 8)

Write all the names for each figure below.

