

# Simple Drawings

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**Reporting Category** Geometry

**Topic** Points, lines, line segments, rays

**Primary SOL** 4.10 The student will

- a) identify and describe representations of points, lines, line segments, rays, and angles, including endpoints and vertices; and
- b) identify representations of lines that illustrate intersection, parallelism, and perpendicularity.

## Materials

- Simple House Drawing (attached)
- Additional similar drawing
- Simple House Drawing with Points Labeled (attached)
- Craft sticks
- Glue

## Vocabulary

*point, line, line segment, ray, angle, right angle, intersecting lines, parallel lines, perpendicular lines*

## Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Display the Simple House Drawing, and ask students to identify as many plane geometric elements they can. Encourage use of geometric terms by asking questions such as, “Do you see a rectangle in the drawing? Where is a line segment?” Help students identify points (doorknob), lines (road in front of house), line segments (sides of the house, roof), rays (sun’s rays), and angles (corners of house and roof), including endpoints and vertices. Use any confusion about exactly which element students are talking about to prompt discussion of the importance of labeling each point and to describe the way to identify plane geometric elements. Help students label the main points, modeling how to write the points correctly. (Use the Simple House Drawing with Points Labeled as a guide.)
2. Display another similar drawing, and ask students to help you label the points and identify the plane geometric elements.
3. Have students create their own drawing based on your instructions: (1) Draw two line segments; (2) add one angle to your drawing; (3) add four lines; (4) add three rays; (5) label six points. Have pairs of students compare drawings for similarities and differences.
4. To reinforce learning the name and definition of each of these plane geometric elements, have students use their arms to model a point (closed fist), line (both arms out, fingers pointing), line segment (both arms out, closed fists), ray (both arms out, one hand pointing, one closed fist), and angle (both arms out, not necessarily in a straight line).
5. Have students again look at the Simple House Drawing, focusing on finding the angles where line segments intersect each other, as follows:

- Search for angles that are *not* right angles. Lines forming such angles (e.g., roof line and chimney line) are called *intersecting lines* (show arms crossed).
  - Search for right angles. Lines forming such angles are called *perpendicular lines* (show hands forming a plus sign). Are perpendicular lines also intersecting lines? (Yes, they are a special kind of intersecting lines.)
  - Search for pairs of lines that lie in the same plane and never touch. Such lines are called *parallel lines* (show two horizontal lines with forearms, one above the other). Demonstrate how to write and label parallel lines.
6. Have pairs of students use craft sticks to model all three types of lines. Have students glue the craft sticks on paper, label the points, and identify the different plane geometric elements.

### Assessment

- **Questions**
  - How many right angles can you find in the Simple House Drawing?
  - What could you add to this drawing that would use points, lines, line segments, rays, or angles?
- **Journal/Writing Prompts**
  - Write about and illustrate places we can find intersecting, perpendicular, and parallel lines in our school building or in our community.
  - Write directions for a partner to follow to draw a similar picture consisting of points, lines, line segments, rays, and angles. Trade with a partner, label the points, and identify the different plane geometric elements.

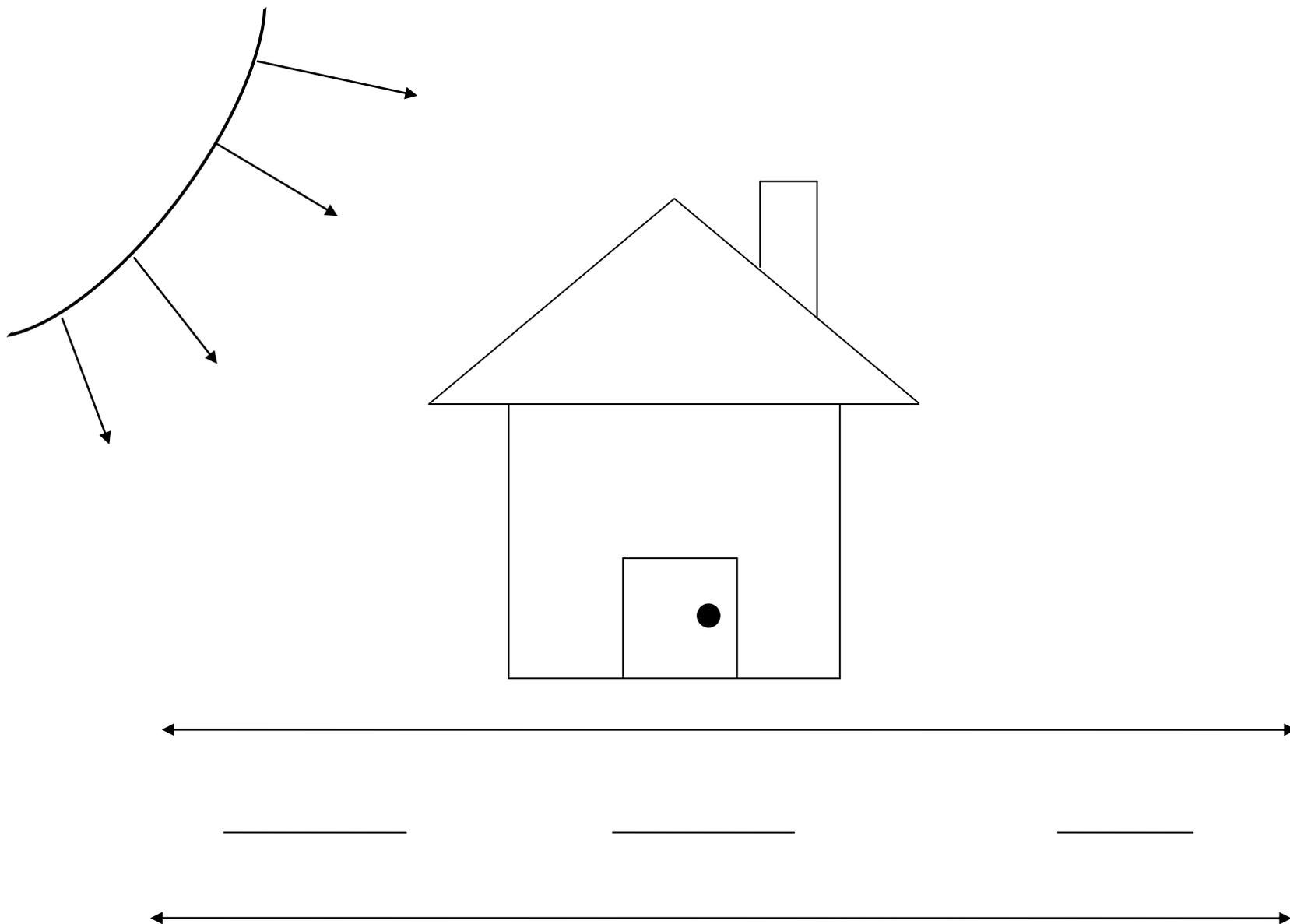
### Extensions and Connections (for all students)

- Have students create their own simple drawing, including as many of the following plane geometric elements as possible: points, lines and line segments (intersecting, perpendicular, and parallel), rays, and angles. Have them label all points and identify all the different geometric elements.
- Look around your classroom and identify points, lines and line segments (intersecting, perpendicular, and parallel), rays, and angles. List these.

### Strategies for Differentiation

- Provide students with individual copies of the Simple House Drawing.
- Provide students with a vocabulary sheet with definitions and illustrations.

# Simple House Drawing



# Simple House Drawing with Points Labeled

