

# Introducing Perpendicular and Parallel Lines

NCTM Standards 3, 6, 7, 8, 9, 10  
Common Core State Standards 4.G.1

## Lesson Planner

STUDENT OBJECTIVE  
▪ To draw perpendicular and parallel lines

## 2 Teach and Practice

## MATERIALS

Extended Activity

- A Intersecting, Perpendicular, and Parallel Lines** (CCRG pp. CC 23)
- B Introducing Perpendicular and Parallel Lines** (TG p. 73)
- C Playing a Game: 2-D Figure Bingo** (TG p. 274)

## Lesson Notes

Replace the current Teach and Practice Activity A in **Lesson 4.5** with this extended activity.

### About the Activity

In Activity A, students identify intersecting, perpendicular, and parallel lines in the classroom. Students are also asked to draw examples of perpendicular and parallel lines.

## 2 Teach and Practice

### A Intersecting, Perpendicular, and Parallel Lines

whole class

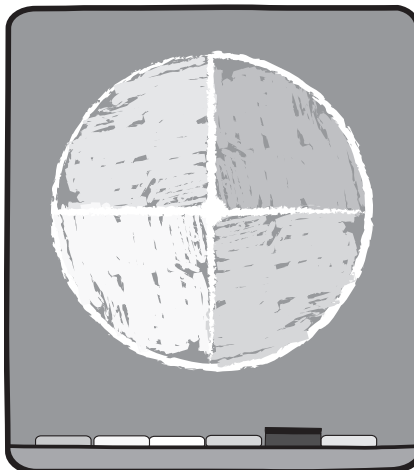


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**Purpose** To identify perpendicular and parallel lines

**Introduce** Ask students how you can make a spinner that is fair for four players. Students should remember that drawing two lines that form four right angles is one way to make such a spinner. Invite a student to draw this spinner on the board.

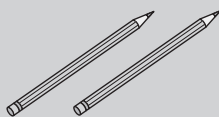
**Task** From previous years, students may remember that parallel lines never cross each other and always remain the same distance from each other, and that intersecting lines cross each other to form four angles. Ask students if the two lines used to make the fair spinner are parallel or intersecting lines. *intersecting* Tell students that when intersecting lines make four right angles, they are called *perpendicular*.



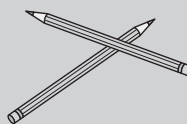
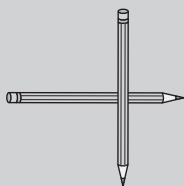
#### Differentiated Instruction

**On Level** Kinesthetic learners may find it easier to understand and recall vocabulary if they make examples of parallel and perpendicular lines with their own bodies. Raising their arms straight over their heads like a referee signaling a football field goal, or putting them straight out in front of their bodies at shoulder level, are good examples of parallel lines. Making a "T" with their fingers or arms can give students the feel of perpendicular lines. Encourage students to return to these physical cues as needed.

Parallel lines



Intersecting lines



Perpendicular lines

Ask students to use their arms, two Cuisenaire® Rods or two pencils to show perpendicular, parallel, and non-perpendicular intersecting lines. Invite volunteers to the board to draw examples of perpendicular and parallel lines. Then, ask students to find examples of parallel and perpendicular edges on sides of shapes or objects around the classroom. For example, opposite sides of a window are parallel, while the top and side of a door are perpendicular. This activity will prepare students to classify figures by their pairs of parallel sides in the next lesson.



#### Talk Math

- ❓ What are parallel lines? Possible definition: lines in the same plane that never intersect; two lines that always remain the same distance from each other
- ❓ What are intersecting lines? Possible definition: lines that cross each other to form four angles
- ❓ What are perpendicular lines? Possible definition: intersecting lines that form four right angles

#### Teacher Story

“In their journals, I had students record examples and definitions of perpendicular and parallel lines in their own words. In the next lesson, I will have them add examples of figures with perpendicular and parallel sides.”