

## ACTIVITY 2.3

### Developing Concepts

Group Activity for use with Lesson 2.3

## Logic Puzzle

► **QUESTION** How can deductive reasoning be used to solve a logic puzzle?

► **EXPLORING THE CONCEPT**

Using the clues below, determine the favorite hobbies and hometowns of five students: Maynard, Tamara, Dave, Marie, and Brad. They live in Hart's Location, Grand Rapids, Stockton, Ravenna, and Springdale. Their favorite hobbies are playing basketball, reading, playing computer games, playing the guitar, and in-line skating.

To keep track of the information given in the clues, record it in a grid like the one shown. For each clue, shade the appropriate boxes in the grid. The unshaded boxes show the solution of the puzzle.

### CLUES

- Brad lives in Grand Rapids.
- Marie does not live in Hart's Location.
- If Maynard lives in Ravenna, then his favorite hobby is playing the guitar.
- Tamara's favorite hobby is playing basketball.
- The favorite hobby of the person who lives in Grand Rapids is in-line skating.
- Tamara, Dave, and Marie do not live in Ravenna.
- The person whose favorite hobby is reading does not live in Stockton or Hart's Location.
- Neither Marie nor Dave lives in Stockton.

	basketball	reading	computers	guitar	in-line skating	Hart's Location	Grand Rapids	Stockton	Ravenna	Springdale
Maynard										
Tamara										
Dave										
Marie										
Brad										
Hart's Location										
Grand Rapids										
Stockton										
Ravenna										
Springdale										

Brad lives in Grand Rapids, so he doesn't live elsewhere, and none of the others live in Grand Rapids.

► **DRAWING CONCLUSIONS**

- Write Clue 2 as a conditional statement in if-then form. Then write the contrapositive of the statement. Explain why the contrapositive of this statement is a helpful clue.
- Using Clue 3, what additional information do you need to conclude that Maynard's favorite hobby is playing the guitar?
- Explain how you can use Clue 1 and Clue 5 to conclude that Brad's favorite hobby is in-line skating.
- CRITICAL THINKING** Make up a logic puzzle similar to the one shown above. Be sure that the clues you give make the puzzle solvable. Then trade puzzles with your partner and solve each other's puzzles.