



Sunken Ship

► Materials:

- 6-sided die
- Coin
- Pencil
- Game board
- Inequality cards
- Paper
- Ruler
- Score chart

► Directions:

Students play in pairs and alternate roles each turn. Player 1 rolls the die and flips the coin to determine the x -coordinate of his ship. (Let heads represent a positive and tails represent a negative.) Player 1 rolls the die and flips the coin again to determine the y -coordinate of his ship, and then plots the ship on one of the coordinate grids of the game board. Player 2 then chooses an inequality card and graphs the solution on the same coordinate grid.

If the solution of the inequality contains the point, the ship is sunk, and Player 2 earns the point. If the solution of the inequality does not contain the point, the ship remains afloat, and Player 1 earns the point. Both players use the score chart to keep a running total of points.

► Who Wins?

The player with the highest score wins.

► Tip:

Colored pencils may be useful for the plotting and/or the shading.

► **Variations:**

- Use number cubes that are different colors. Designate one as a positive number and the other as a negative number. The coordinates of the ship are determined by the sums of the numbers.
- Students can play in groups of three. The ship is sunk when it lies in the solution of the system of inequalities.

Inequality cards for Sunken Ship

$$x \leq 6$$



$$x > -3$$



$$3x > 12$$



$$y < -1$$



$$y \geq 3$$



$$-7y \leq 35$$



$$y \leq \frac{2}{3}x - 6$$



$$y < -\frac{1}{4}x + 5$$



$$y \leq \frac{2}{3}x - 2$$



$$y - 5 > -2x$$



$$y - 4 \geq x$$



$$y - 2x \geq -3$$



$$-12x + 24y < -48$$



$$5y + 10x > 20$$



$$-x + 3y > -9$$



$$-9x + 3y > -12$$



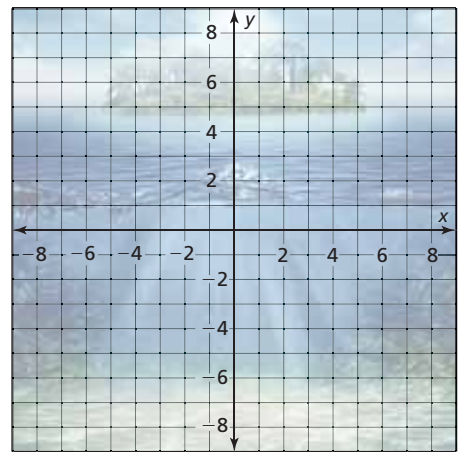
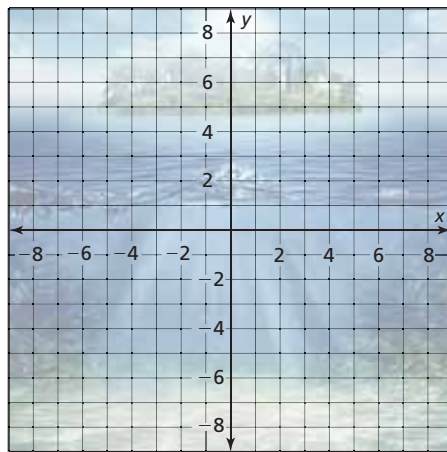
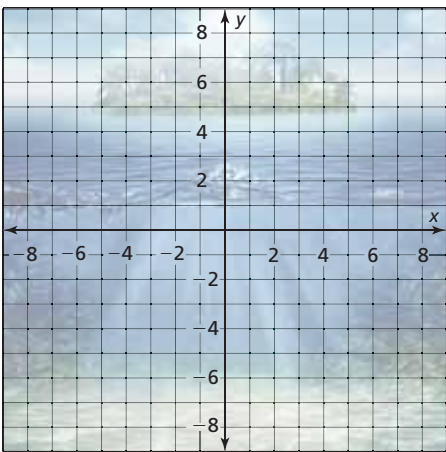
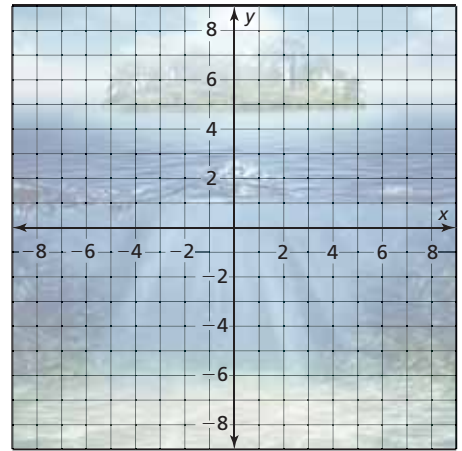
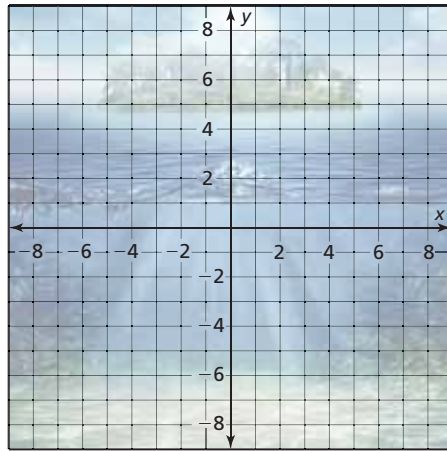
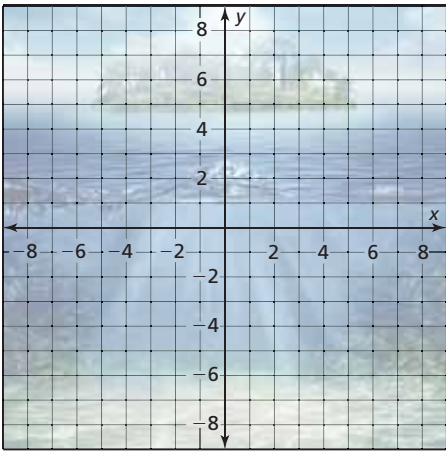
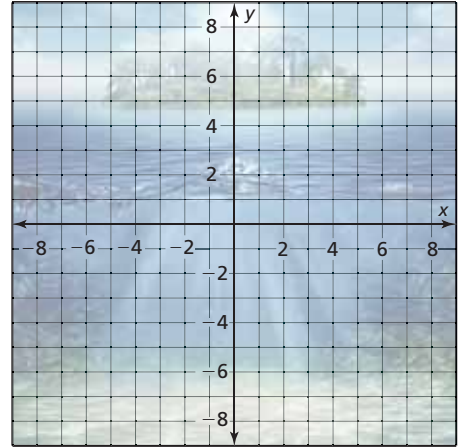
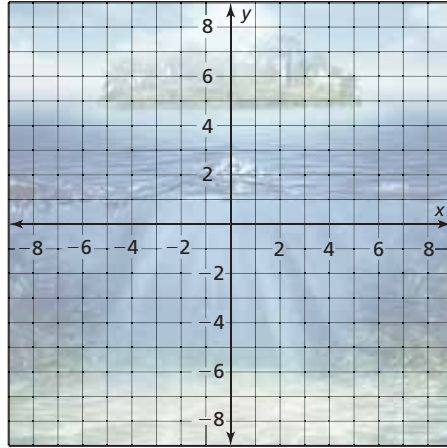
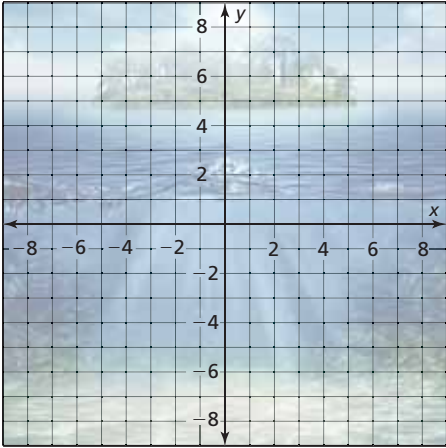
$$-2y > -4x - 8$$



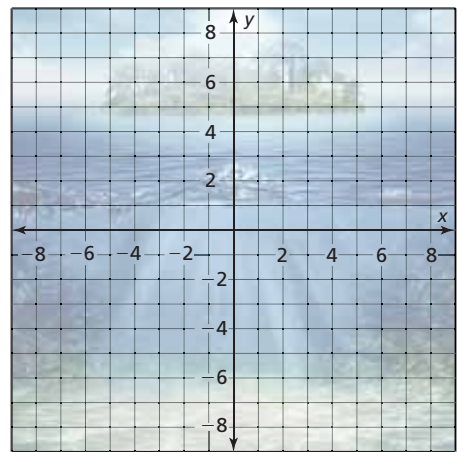
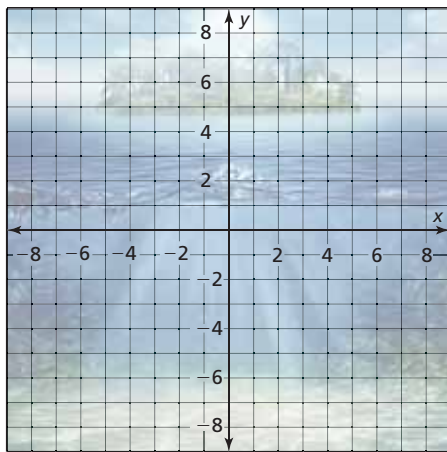
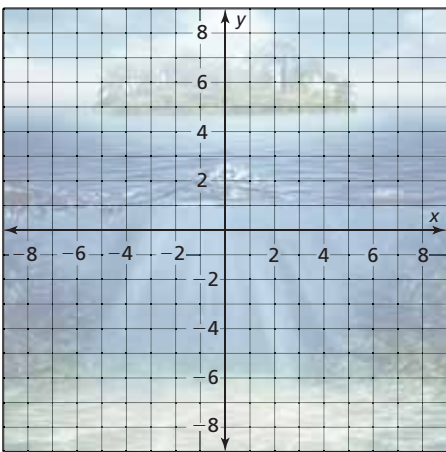
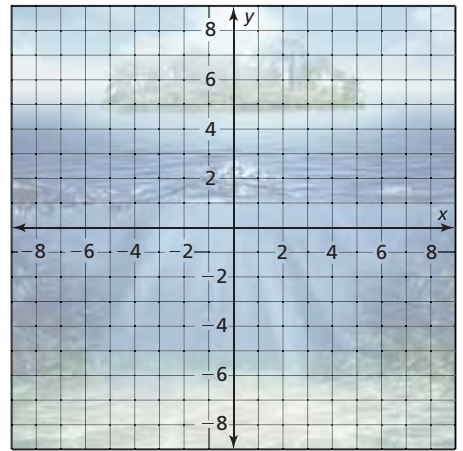
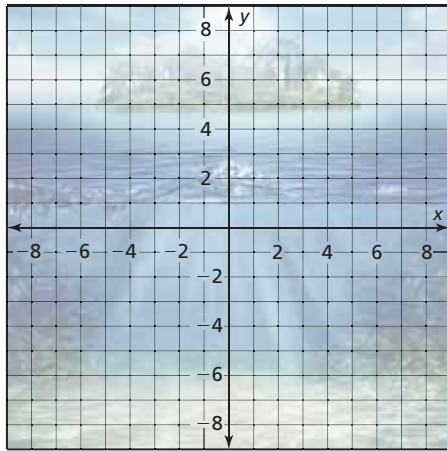
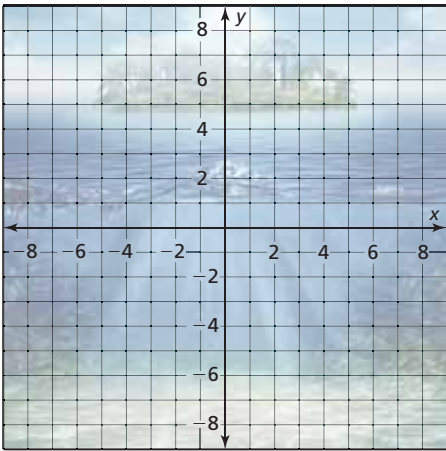
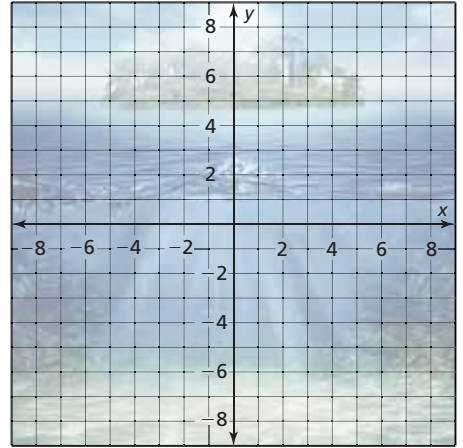
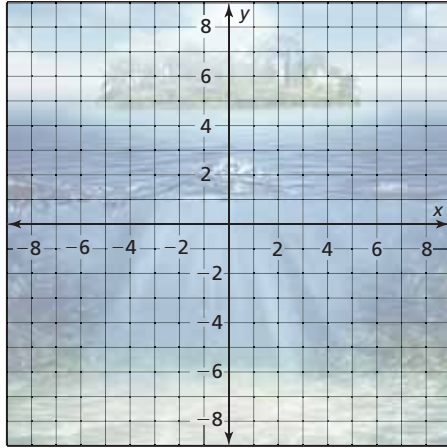
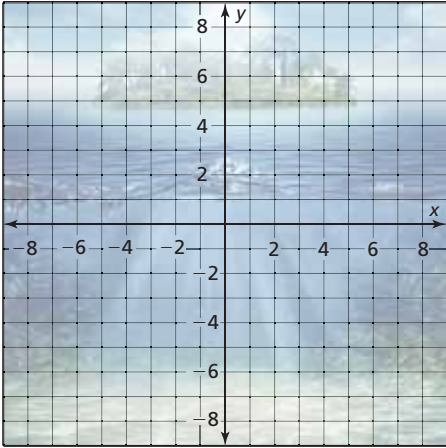
$$6x - 9y \leq 63$$



Game board for Sunken Ship



Game board for Sunken Ship



Score chart for Sunken Ship

Player 1	Player 2

Score chart for Sunken Ship

Player 1	Player 2

Answers for Sunken Ship

