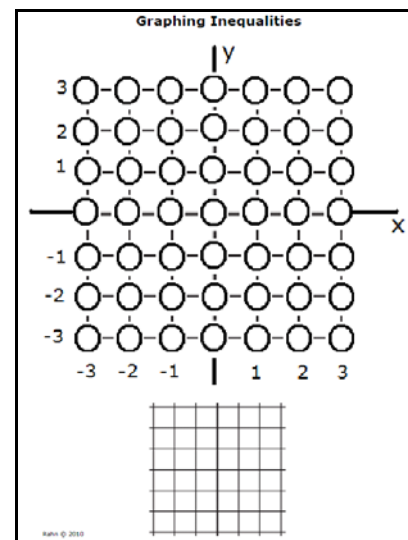


## Building Understanding for Graphing Inequalities

Place the Graphing Inequalities Template in your communicator.

Each group member should choose a different statement from the list below.

- A.  $y \square 1 + \frac{1}{3}x$
- B.  $y \square -1 - \frac{1}{3}x$
- C.  $y \square 2 + \frac{1}{2}x$
- D.  $y \square -2 - \frac{1}{2}x$



- Evaluate the right side of the statement for  $x = -3$ . This corresponds to each circle in the first column on the graph. Fill in  $>$  if the  $y$ -value is greater than your value,  $=$  if the values are equal, and  $<$  if the  $y$ -value is less than your value.
- Evaluate the right side of the statement for  $x = -2$ . This corresponds to each circle in the second column on the graph. For each circle in the second column on the graph, fill in  $>$  if the  $y$ -value is greater than your value,  $=$  if the values are equal, and  $<$  if the  $y$ -value is less than your value.
- Repeat the last step for  $x = -1, 0, 1, 2,$  and  $3$ .
- What do you notice about the circles filled with the equal sign? Describe any other patterns you see.
- Test a point with fractional or decimal coordinates that is not represented by a circle on the grid. Compare your results with the symbols on the same side of the line of equal signs as your point.
- Next to the  $xy$  axis, at the bottom of the template, write your statement with the "less than" symbol,  $<$ . Shade the region of points that makes your statement true. If the points on the line make an inequality true, draw a solid line through them.
- Repeat the last step with  $>, \leq, \geq,$  and  $=$ .
- Compare your graphs with those of others in your group. What graphs require a solid line? A dashed line?
- What graphs require shading? Shading above the line? Below the line?
- Discuss how to use one point to check the graph of an inequality.