PhET Tips for Teachers

# Graphing Lines

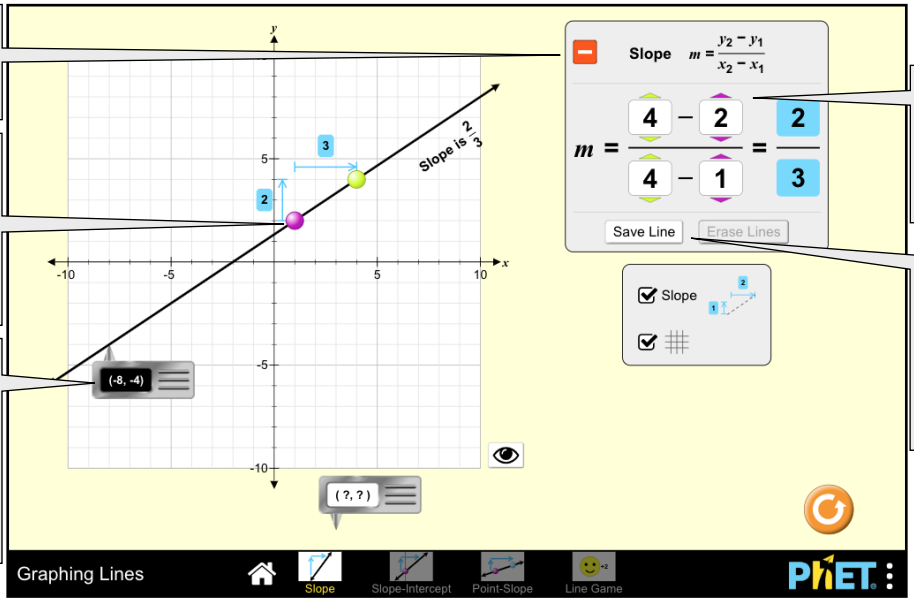
## Slope Screen

Explore the parameters of the slope formula and how modifying the graph affects the equation or modifying the equation affects the graph.

**HIDE** the slope formula

**DRAG** either point to change the slope of the line

**USE** the point tool to get the integer coordinates of any point




**MODIFY** the coordinates from within the formula

**SAVE** a line to compare multiple lines simultaneously

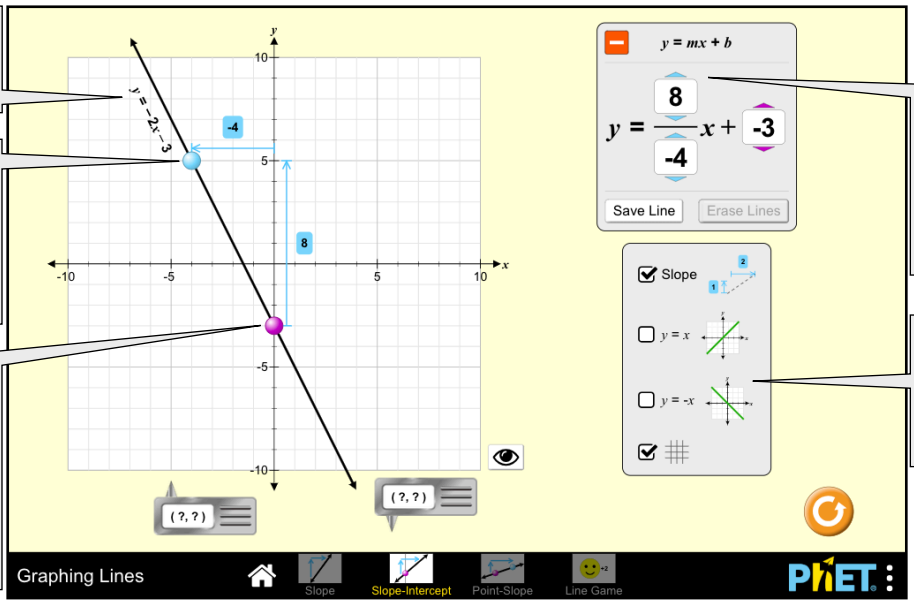
## Slope-Intercept Screen

Explore the parameters of the slope-intercept form of a line.

Simplified equation of line

**DRAG** the blue point to change the slope of the line

**DRAG** the pink point along the y-axis to change the y-intercept of the line




**MANIPULATE** the slope and/or y-intercept from the equation

**SHOW** reference lines of y=x or y=-x

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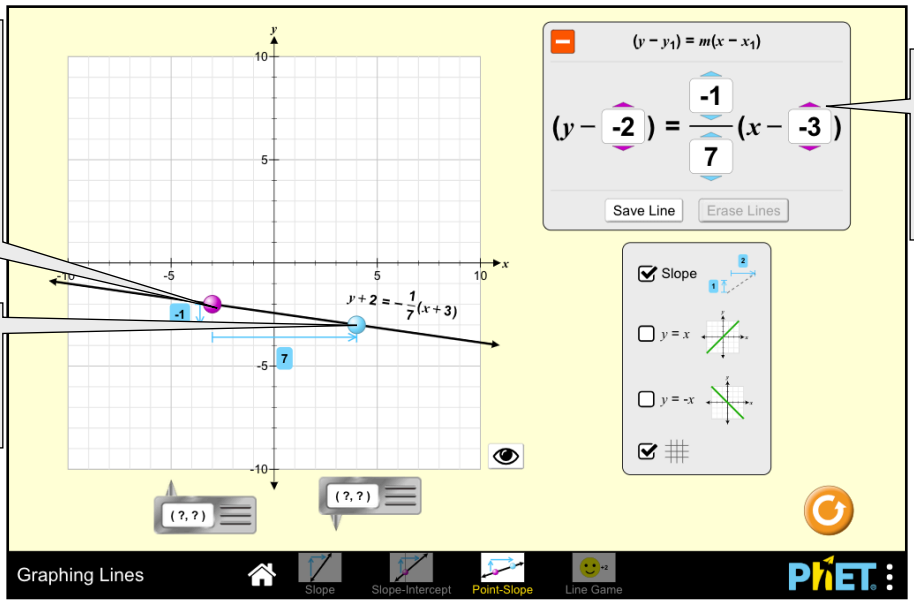
## Point-Slope Screen

Explore the parameters of the point-slope form of a line.

**DRAG** the purple point and see the point within the equation of the line change

**DRAG** the blue point to change the slope




**MANIPULATE** the purple point and/or the slope from the equation

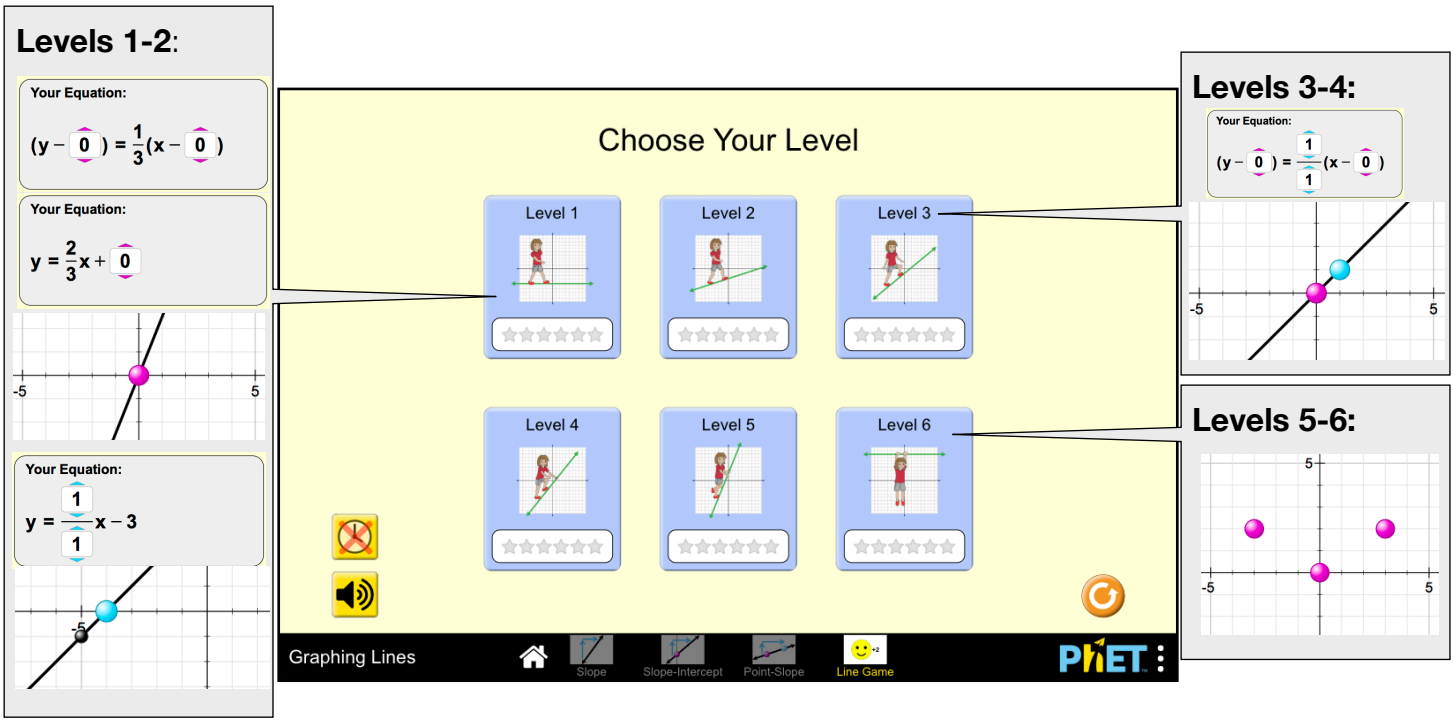
## Game Screen

Challenges are random within each level, but increase in difficulty.

**Levels 1-2:** Set the point, set the y-intercept, or set the slope, by manipulating either the equation or the graph.

**Levels 3-4:** Make the equation or graph the line.

**Levels 5-6:** Make the equation, graph the line, or put points on the line.

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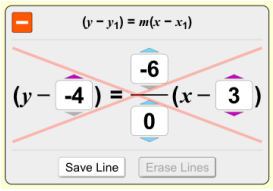
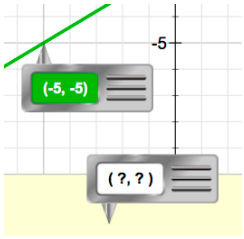
## Complex Controls


- If two points are stacked vertically on any screen, the slope will be displayed as undefined and a red x will appear over the equation.

## Insights into Student Use




- Students may have difficulty with the game, particularly Set the Equation challenges, if they do not use the point tools.

See all published activities for Graphing Lines here.
For more tips on using PhET sims with your students, see Tips for Using PhET.

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