# Graphing Linear Equations

## Linear Representations

### Student/Class Goal

Students will graph linear equations.

### Outcome (lesson objective)

Given a linear equation, students will create a table of values and plot the corresponding points to graph the line. Given a linear equation in slope-intercept form, students will use the slope and y-intercept to graph the line.

### Time Frame

4 hours

### Standard

Use Math to Solve Problems and Communicate

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### Components of Performance (COPs)

- Understand, interpret, and work with pictures, numbers, and symbolic information.

### Activity Addresses COPs (process)

- Students will understand that a linear equation results in a straight line.

### Learner Prior Knowledge

- Substitution
- Evaluate an expression
- Graphing ordered pairs
- Vocabulary: x-axis, y-axis, coordinate plane, slope, y-intercept, ordered pairs, linear equation

### Instructional Activities

#### Step 1

Create a table (T-chart) creating a minimum of 3 ordered pairs.

- Substitute the x-values into the linear equation to solve for the corresponding y-values.
- Plot the ordered pairs on the coordinate plane.
- Connect the points using a straight edge.
- Label the line and put arrows on each side to show continuation.
- Provide students with guided practice.

#### Step 2

In a group, or with a partner, students will practice making tables to graph linear equations.

#### Step 3

Using $y=mx+b$ (slope-intercept) form, students will graph the corresponding line.

### Activity Addresses Benchmarks (content)


### Materials

- Graph paper
- Straight edge
- Graphing calculator
- Provided practice material

### Activity Addresses Benchmarks (content)


### Materials

- Graph paper
- Straight edge
- Graphing calculator
- Provided practice material
- Plot the y-intercept (0, b).
- Determine the slope.
- Using rise/run, plot at least 3 additional points.
- Connect points using a straight edge.
- Label the line and put arrows on each side to show continuation.
- Provide students with guided practice.

**Step 4**
In a group, or with a partner, students will practice graphing linear equations by using the y-intercept and slope technique.

**Step 5**
Students will independently practice graphing linear equations using both methods.

**Assessment/Evidence (based on outcome)**
Informal assessment by monitoring group/partner discussion and work. Formally check students’ individual work for process and accuracy. Assign additional practice if necessary.

**Teacher Reflection/Lesson Evaluation**
Not yet completed.

**Next Steps**