

Writing Equations in Slope-Intercept Form

Concept Graph equations on a coordinate plane using the slope-intercept form, $y=mx+b$

Materials needed Each student/pair of students will need:

- One, *six-sided* die with both positive and negative numbers and zero (I create my own using blank dice that I write on myself)
- Slope Cards (stacked face-down in a deck)
- Slope-Intercept Recording Sheet
- pencil

Directions Students will independently or in pairs write an equation in slope-intercept form and plot possible solutions on the coordinate plane

1. Roll the die, record the value as the y-intercept (*this activity is taught after students understand that the y-intercept is the same value as the constant (b) in the equation, $y = mx + b$*)
For example, if I roll 2, I record 2 as my y-intercept
2. Now, select a slope card from the deck. Record the value as the slope
For example, if I select a card with a slope of $2/3$, I record $2/3$ on my recording sheet as the slope.
3. Using the information from above, students write an equation in slope-intercept form. **For example, using the information above, I would write, $y=2/3x + 2$**
4. Students will plot the y-intercept on the coordinate plane. **For Example, in this case I would plot a point on the y-axis at 2.**
5. Using this y-intercept point and the slope, students will find two other possible coordinate pairs that could be solutions to this equation. **In this example, two other possible solutions could be (3,4) (6,6)**
6. Students continue playing by repeating steps 1-5

Differentiate To differentiate for students who are struggling:

- Modify that activity so that students only write the equation in slope-intercept form, without the graphing portion
- Have students play this activity in pairs or in small groups so that they can learn from each other and

To differentiate for students who are more advanced:

- Have students translate the slope-intercept equation into the standard form ($ax + by = c$)

CCSS **8.F.A.3**
Interpret the equation $y=mx+b$ as defining a linear function whose graph is a straight line; give examples of functions that are not linear.

8.EE.B.5
Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways.

