

LessonTitle: Walking Algebra Lines		Pre 6.8b
Utah State Core Standard and Indicators Pre-algebra Standard 2 Process Standards 1-5		
Summary		
In this lesson, students move to create lines on a human size graph, record the coordinates and lines and write the equations for the lines. Then they move to create different lines and adjust the equations accordingly.		
Enduring Understanding	Essential Questions	
The slope intercept form of a linear equation, $y = mx + b$, tells a story about numeric relationships. The slope (m) shows the rate of change. The y intercept (b) gives us information about the beginning point of the story.	How do you translate among word stories, graphs and equations?	
Skill Focus	Vocabulary Focus	
<ul style="list-style-type: none"> The slope intercept form of a linear equation 		
Assessment		
Materials: Human-sized graph, Numbered cards (see below), worksheet, poster sized graph (if desired).		
Launch		
Explore		
<ul style="list-style-type: none"> What does the slope of a line tell us? What does the y intercept tell us? Why does the $y = mx + b$ equation mean to you? 		
Summarize		
Apply		

Directions:

- Create 4 different colored sets of cards, nine in each set. Write the numbers -4, -3, -2, -1, 0, 1, 2, 3, 4 on the nine cards for each color. Pass out 1 card per student.
- Create a Human-sized graph grid—the students will be standing on coordinate pair locations on the grid—one unit on the grid should be one student step. You might use masking tape, rope, ribbon etc. This can be outside, in the hall, or in the room—the desks will have to be pushed back.
- Hand out the worksheet below. Explain that the number on the card is their x value.
- Select a color. Students find their x value. To find their y value, do the following. Then all students record the positions and the line.
 - Red: Multiply your number by 2. Walk forward or backward accordingly. The class sketches the position of the students on the graph.
 - Blue: Multiply by 2 and add 1. Walk. Sketch the line.
 - Green: Add 3. Walk. Sketch the line.
 - Yellow: Take the opposite and add 3. Walk. Sketch the line.
 - Repeat one color: Multiply the number by itself. Walk. Sketch the line.
- Repeat. But this time each color receives 4 directives and then students sketch 4 lines for each color. Have students make tables in the margins to record the coordinate points—instead of labeling—the graph will be too crowded.

(Note: The teacher may give directions in a whisper to the students who are walking the graph. Then the sketchers can figure out the directions of the teacher.)

Continued below:

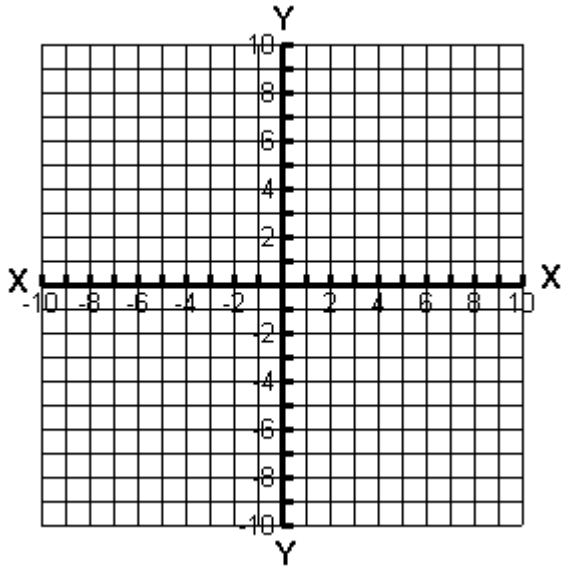
- Red: **“Multiply your number by 1”**, sketch, write the equation. **“Add 2”**, sketch, write the equation. **Return to $y = x$** . **“Subtract 4”**, sketch, write the equation.
- Blue: **“Multiply by -1”**, sketch, write the equation. **“Add 3”**, sketch, write the equation. **Return to $y = x$** . **“Subtract 4”**, sketch, write the equation.
- Green: **“Write the equation $y = 2x$ ”**. What should the movers do? Students move and then sketch. **“Subtract 5,”** sketch, write the equation. **Don’t return to $y = 2x$** . **“Add 3,”** sketch, write the equation.
- Yellow: **“Multiply the number by $\frac{1}{2}$,”** sketch, write the equation. **“Subtract 4,”** sketch, write the equation. **Don’t return to $y = \frac{1}{2}x$** . **“Subtract 2,”** sketch, write the equation.

Pre 6.8b

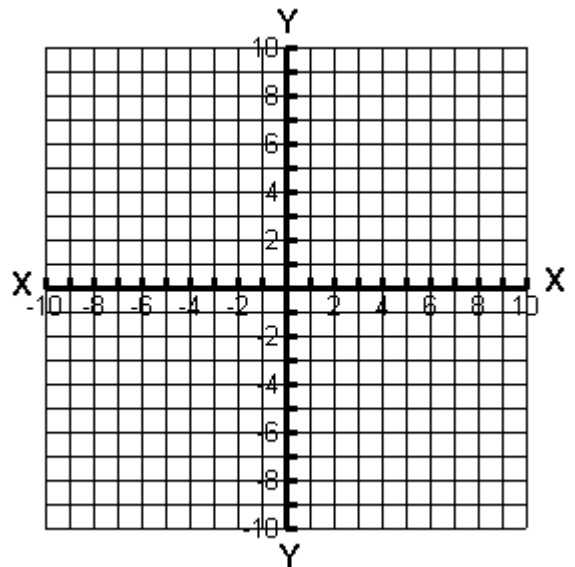
Algebra Walk Worksheet I

- 1) Mark and then label the coordinates for the positions of the students.
- 2) Draw the line.
- 3) Write the equation of the line (what you did to x to get y).

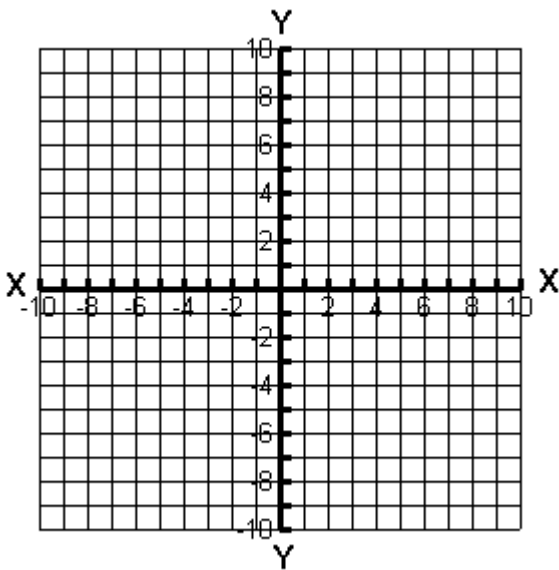
Color: _____ Equation _____



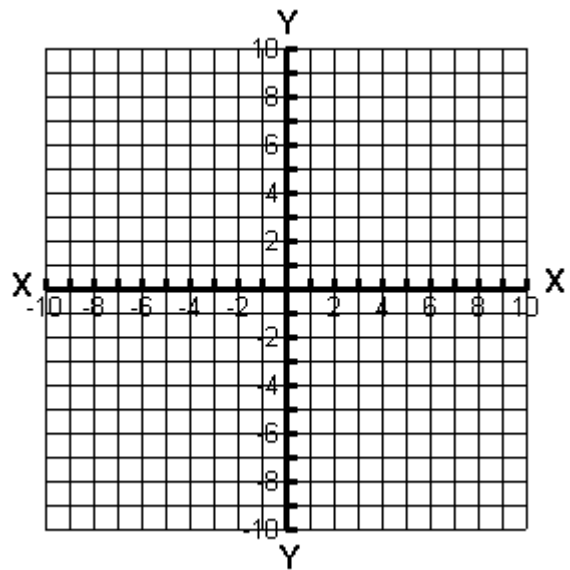
Color: _____ Equation: _____



Color: _____ Equation: _____



Color: _____ Equation: _____



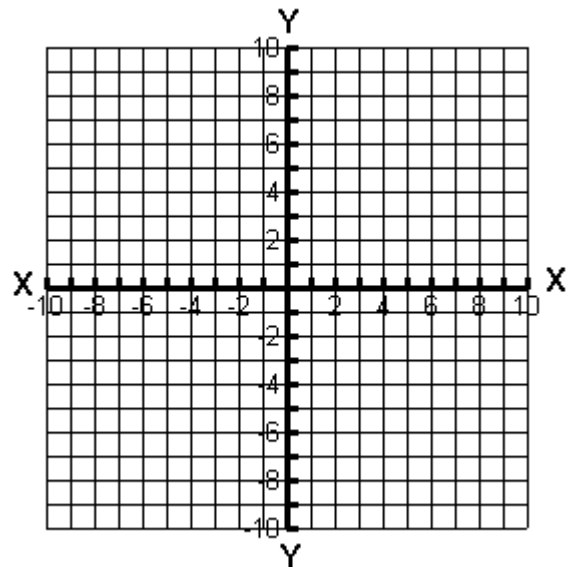
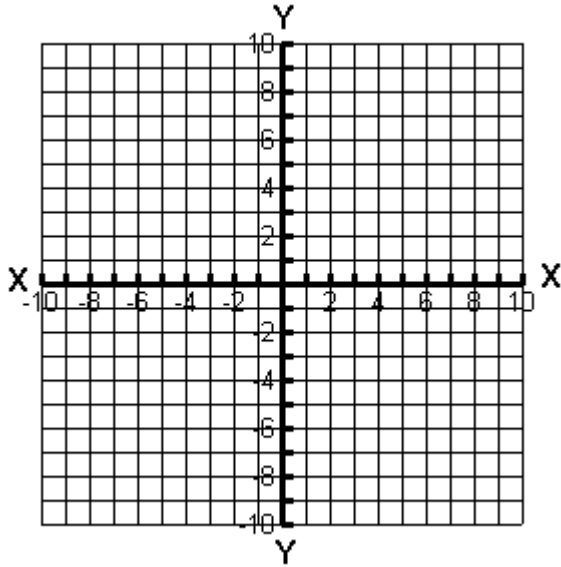
Write your observations of the graphs and equations above. What patterns do you see? Explain.

Algebra Walk Worksheet II

Make tables in the margins to record the coordinate points.

Color: _____ Equation1: _____
Eq2: _____ Eq3: _____

Color: _____ Equation1: _____
Eq2: _____ Eq3: _____

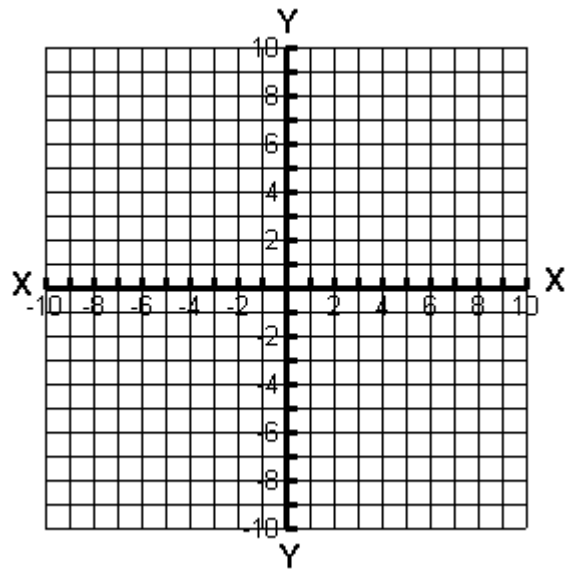
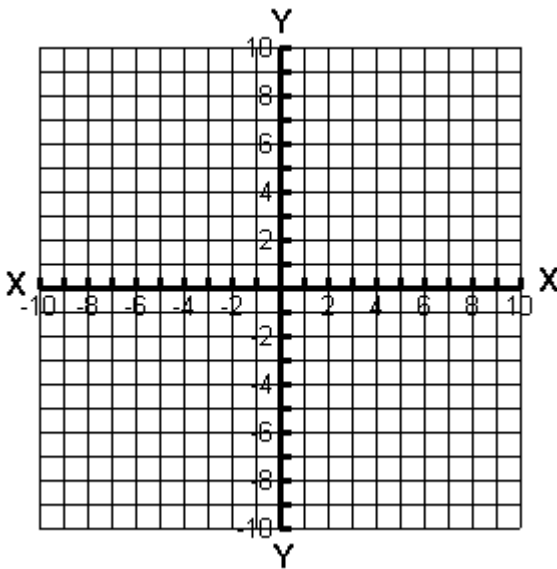


Observations:

Observations and Comparisons:

Color: _____ Equation1: _____
Eq2: _____ Eq3: _____

Color: _____ Equation1: _____
Eq2: _____ Eq3: _____



Observations and Comparisons:

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