Alphabet Slope Creative Project



Included

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Student Samples

Students use creativity to demonstrate mastery of positive, negative, zero, and undefined slopes.

CCSS 8.EE.B.5, MP1, MP2, MP4, MP8

ABC Slope


Non-Linear
Undefined
Negative
Zero
Non-Linear
Undefined
Zero
Positive
Zero
Negative
Undefined
Zero
Undefined
Zero
Negative
Positive
Undefined
Zero
Zero

Alphabet Slope Creative Project

Instructions for Teachers

Purpose

The *Alphabet Slope Creative Project* gives students an opportunity to practice using positive, negative, zero and defined slopes in a creative context that is fun and personal. This project has two parts. First students practice labeling the lines that make up the letters of the alphabet, according to slope definitions. Once that is completed and checked by the teacher to ensure understanding, students will move on to the creative portion of the project. To complete the second portion of the project, students each choose a word that describes them. They write this word on a poster, decorate it, and label the slopes of the letters. Please see the student samples that follow.

Students will:

1. Label each letter of the alphabet according to the slope of its lines.
2. Choose a word that describes their personality.
3. Create a poster based on their chosen word.
4. Label the slopes contained in the letters of their word.
5. Decorate their poster in a way that emphasizes their personality.

Organization

This is a great activity for the beginning of a unit on slope. I use the *Alphabet Slope Creative Project* (ABC Slope) on the first day of the unit and the *i-Logo Mastery Task* ends the unit. I show the video called 'Slope Dude' which is super corny, but students see it once and never get confused about positive, negative, zero and undefined slope again. There is more than one video with this name. I show the video by gDawg Enterprises copyright @2009: https://www.youtube.com/watch?v=ZzU8x5cMR-w. I choose the 10 most creative ABC slope posters from each class to display on the classroom wall during the Linear Equations unit. The *i-Logo Mastery Task* is available at my store: https://www.teacherspayteachers.com/Store/Absolute-Value. These bookend projects, ABC Slope at the beginning and i-Logo at the end, are very effective in helping students to master Linear Equations.



Directions

The *Alphabet Slope Creative Project* is a great activity at the beginning of a unit on Linear Equations. It is also a wonderful way for students to get to know each other. The activity is so simple that it builds confidence in mathematically fragile students and yet so rich as students use creativity to really own the material.

- **Part 1** Using the *Alphabet Slope* student worksheet*, s*tudents label the slope of the letters of the alphabet as one of the following: Positive, Negative, Zero, or Undefined. If the letter contains a curve, that portion is labeled "Non-linear." Quickly scan student work to check for understanding or allow students access to the answer key for self-assessment, before allowing each student to move on to part 2.
- **Part 2** Students use a blank piece of copy or construction paper to create an 8 ½ by 11-inch poster using one word to describe themselves. The word must be constructive and describe the student's personality or abilities, <u>not</u> what they look like. Their word must be written in all CAPITAL letters. Appropriate words are comical, inventive, kind, or athletic. Inappropriate words are sexy, ugly, Mexican, or white. Next, students identify and label the slopes of each letter. Lastly, have students decorate the poster to bring out their true originality.

We complete the ABC Slope Project in about 20 -25 minutes, after our Bell Work (5 min), introductory explanation of slope and its connection to the real world (15-20 min), and the Slope Dude video(3 min). This introduction to slope, and the *Alphabet Slope Creative Project,* take about an hour to complete.

Emergency Sub Plans

The *Alphabet Slope Creative Project* is an excellent choice for emergency sub plans. This project can be easily understood by most substitute teachers. Let's face it, it is hard to find a sub who knows middle school or high school math. It's practically impossible to find a math proficient sub at the last minute. You need a lesson that is easily understood by both the sub and the students yet is engaging enough to keep students productive and out of trouble. Most adults can relate to the idea of slope when explained by Slope Dude. Students stay engaged in the creative task.



Answer Keys 

This project includes an answer key for the *Alphabet Slope* student worksheet. Each creative poster is unique and therefore does not have an answer key. Once students have labeled the slopes of the letters on their poster, have them swap posters with a peer to review each other's work. Students will then edit based on feedback from their peers and decorate their poster. I usually decorate the classroom with these posters to give students a sense of accomplishment, ownership, and to provide review as we proceed through the unit.

Project Extensions 

Below I have included some **ideas for extensions** of the *Alphabet Slope Creative Project*.

A. Real World: Write five ways slope is measured in the real world. Include why this is important and what types of tools are used to accomplish each task.

B. Tech: How does a computer show slope or diagonal lines? What methods might the computer programs use to accomplish this? You may want to use your device to research this online.

C. Collage: Create a collage of pictures containing slope. Divide your paper into fourths. In quadrant 1 place pictures with positive slope. In quadrant 2, place pictures with negative slope. In quadrant 3, place pictures with zero slope. In quadrant 4, place pictures with undefined slope. Include at least 16 pictures. You may do this electronically or by hand.

D. Video: Make your own video explaining the four types of slope: positive, negative, zero and undefined. Be catchy, corny, unique and unforgettable. Think of those videos that you can't get out of your mind, even though you may want to.

E. Game: Create a board game, for two to four players, based on the qualities of slope or the use of slope. Your game must include rules, game pieces and a clearly communicated way to win. The game board should be colorful, neat and interesting.



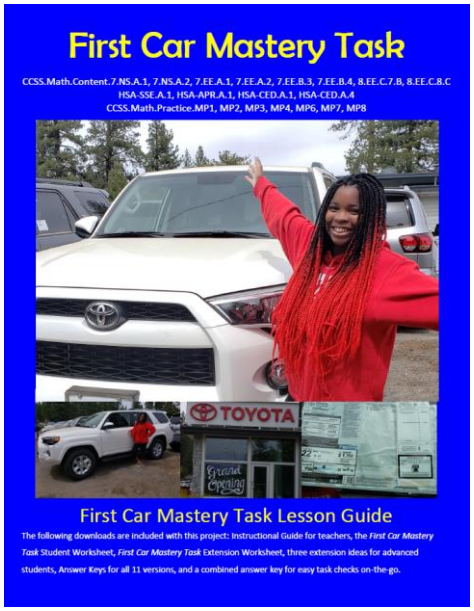
You can find more Project Based Learning with Mathematics available at my store: https://www.teacherspayteachers.com/Store/Absolute-Value.

The ***iLogo Slope Mastery Project*** is a creative way for student to show mastery of slope skills at the end of the unit.



*The purpose of the **iLogo Slope Mastery Task** is to give students an opportunity to use slope in an artistic endeavor that has real-world applications. Every company around the globe has a logo that symbolizes their brand. Logos need not be elaborate, but they must be recognizable, and unique to the brand they represent. Students will use linear equations to create a logo that is wholly original, containing at least eight straight lines of different slopes. Students will construct a graph of their logo marking coordinates, calculate the slope of the required eight lines writing the equations in slope-intercept form, produce a full color drawing of the logo that is ready for publishing, write a short paragraph explaining the story of their logo, and compile their project for presentation.*

The ***First Car Mastery Task*** allows students to use linear equation skills to practice purchasing and selling a car while calculating depreciation and gaining a greater understanding of negative values in a real-world setting.



*Students will imagine purchasing their first car. They will research new cars available at this time and their prices Each student must choose a car that is being sold for between 30 and 40 thousand dollars. The student will then use the task worksheet to guide them through the purchase, depreciation and eventual sale of the vehicle. Teachers need to provide the worksheet which is included in the purchase of this task and an avenue to research and choose a car. My students do the research for the **First Car Mastery Task** online.*

|Value|


EXEMPLARY
UNDEFINED
ZERO
UNDEFINED
ZERO
UNDEFINED
ZERO
UNDEFINED
ZERO
UNDEFINED
ZERO
NON-LINEAR
NEGATIVE
POSITIVE


NON LINEAR
Undefined
Zero
undefined
POSITIVE
NEGATIVE
Negative
Positive
UNDEFINED


OBSERVANT

Positive
Negative
Zero
Undefined
Non linear
Negative
Zero
Undefined
Undefined
Non
Linear
Zero
Undefined


Jp.6
-Zero-
-Zero-
-Zero-
-Zero-
-Zero-
-Zero-
-Zero-
-Zero-
-Zero-
-Zero-
-Zero-
-Zero-
-Zero-


A
Positive
Negative
R
Positive
Negative
T
zero
undefined
T
zero
undefined
zero
S
Non
linear
T
zero
undefined
T
zero
undefined
zero
Non


Zero
non Linear
Undefined
Zero
zero
non Linear
Undefined
negative
Zero
Zero
non Linear
Undefined
non Linear
Undefined
negative
Positive
negative
negative
negative

Alphabet Slope

A B C D E F

G H I J K L

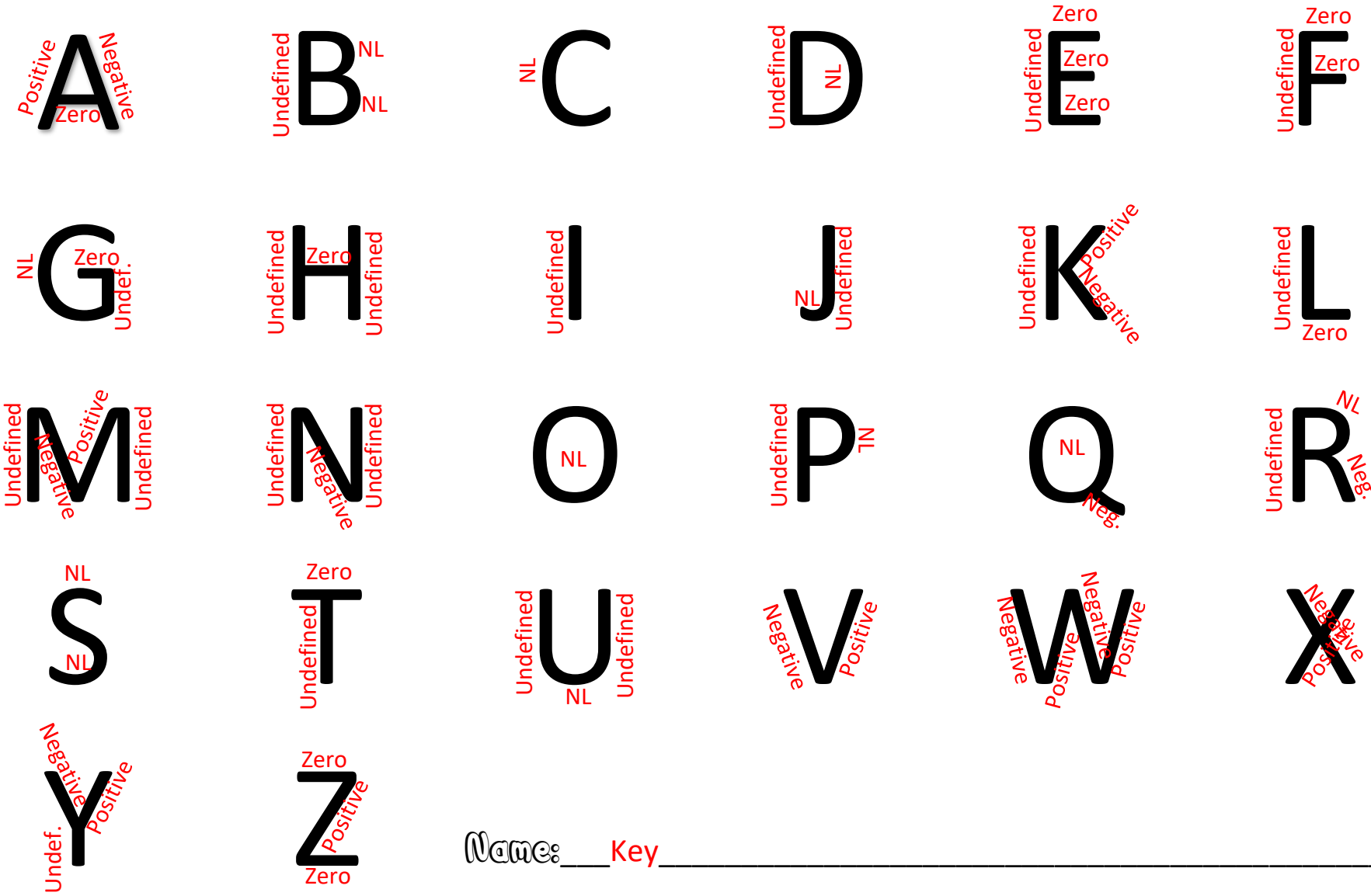
M N O P Q R

S T U V W X

Y Z

Name:_____

Alphabet Slope



Name:___Key_____

*NL = Non-Linear