Open or Closed? : Graphing Inequalities on a number line   **Math 6**

Today you are going to graph inequalities on a number line using cereal and candy.

Please DO NOT eat the cereal that you use on your number lines. You will be given snacks at the end of the activity.

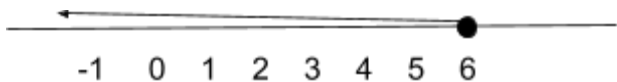*Use the dry erase markers and cereal/candy provided to show your number lines.*

Record the inequality and graph that you made each turn on this sheet as well.

Materials: Deck of Cards, dice, open and closed dot snack foods, dry erase markers and number line sheets
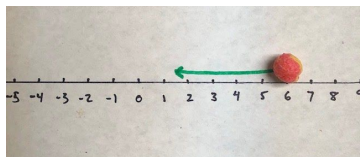
Rules of the game:

- Draw a card - black is positive face value, red is negative face value (J=11, Q=12,K=13)
- Roll the dice - find the inequality words that match your roll on the chart
- Say the inequality out loud
- Graph the inequality on the number line using a cheerio or m&m for the dot
- Then draw an arrow in the correct direction along the number line.
- Test a number included in your solution to see if it fits the inequality
- Write the inequality and the graph on the next page.

For example: Black 6 of clubs, roll a 3. Means "at most positive 6"

-1 0 1 2 3 4 5 6

*** Note to designer, show a line like the one to the left but with a colorful candy, cereal ball or m&m as the dot and the arrow drawn like it was drawn in marker. Provide tick marks to show intervals on the number line. Students can label the numbers or they can be labeled similar to this (see example photo below, taken by me). Show the following inequality written in handwriting: $x \leq 6$ above the number line*

Dice Chart *- Your dice roll will tell you which inequality to use*

1	2	3	4	5	6
Less than	At least	At most	Greater than or equal to	Is no more than	Is no less than

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Use the following numbers lines to show your work. Label the numbers you need for each turn and don't forget to label zero!

Write the inequality on the blank provided.

Note to designer - draw 5 blank number lines with tick marks to show intervals. Provide at least 27 tick marks labeled from -13 to 13. Be sure to label 0.

Above each line to the left, make a box for the inequality

Something like this:

1.)

Inequality expression

-13 -12 -11 -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 **0** 1 2 3 4 5 6 7 8 9 10 11 12 13

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Reflection questions and practice

1.) What was the easiest card/roll that you made?
        Why was it the easiest?

2.) How did you figure out which way to point the arrow?

3.) Which dice rolls told you to use a cheerio or open dot?

4.) Which dice rolls told you to use a closed dot m&m

5.) Come up with a real life example of an inequality. Write it in word form, expression form and graph it

6.) What is the inequality of this graph?   What is the word form and the number form? (Be sure to use your inequality
    symbol)See below for an example photograph (taken by me)