

Math 6

Winter Enrichment Packet

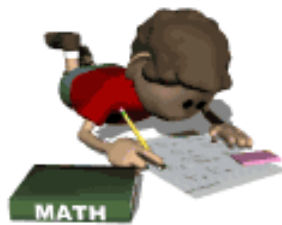


PRINCE GEORGE'S COUNTY PUBLIC SCHOOLS
Office of Academic Programs
Department of Curriculum and Instruction

NOTE TO THE STUDENT

*This Winter Break Packet has been compiled to complement middle school mathematics classroom instruction aligned to the Maryland College and Career Ready Standards (MCCRS). The packet is intended to be used for **review and practice** of previously taught and new concepts.*

We strongly encourage you to work diligently to complete the activities for the choice board. You may experience some difficulty with some activities in this packet, but we encourage you to think critically and creatively and complete them to the best of your ability. Upon returning to school, your teacher will discuss the activities with you.

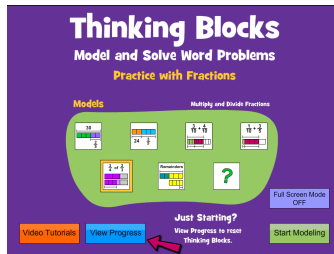


Math 6 Winter Break Choice Board

Directions: Complete three activities in a tic-tac-toe (three in a row across, down, or diagonal) pattern. Follow all directions closely and complete each activity in its entirety. *Activity titles on this page are hyperlinked.*

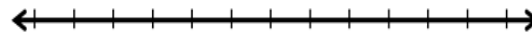
Activity 1

[Divide Fractions with Thinking Blocks](#)



Activity 2

[Create a Number Line](#)



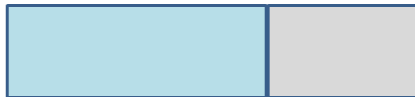
Activity 3

[Real-World Examples of Positive and Negative Numbers](#)

| Negative | Zero | Positive |
|----------|------|----------|
| | | |

Activity 4

[Represent the Distributive Property](#)



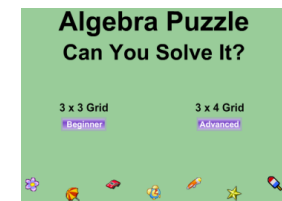
Activity 5

[Place Parentheses to Create Expressions](#)



Activity 6

[Solve Algebra Puzzles](#)



Activity 7

[Create Story Problems:
Dividing a Fraction by a Fraction](#)



Activity 8

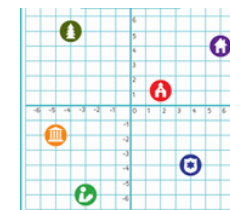
[Translate Verbal Expressions to Algebraic Expressions](#)

Half a number decreased by twelve

$$\frac{x}{2} - 12$$

Activity 9

[Create a Map](#)

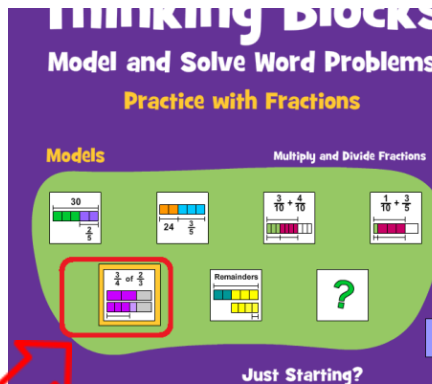


Math 6 Winter Enrichment Choice Board: Activity Directions

Activity 1 Standard 6.NS.1

Access [the Thinking Blocks web site](http://www.mathplayground.com/tb_fractions/thinking_blocks_fractions.html)
(http://www.mathplayground.com/tb_fractions/thinking_blocks_fractions.html)

- Select the **Multiply and Divide Fractions** (Set 5) tile from the menu. (Shown below, circled in red)
- Begin to solve the problems. Solve 5 problems successfully so that you earn 5 stars.
- After you solve 5 problems, take a picture of your computer screen with your face or name on an index card included in the frame.



Activity 2 Standard 6.NS.6

On a sheet of blank or lined paper and with the use of a ruler, create a number line on which you plot the following values:

| | |
|-----------------|----------------|
| -2.5 | $\frac{7}{8}$ |
| $\frac{1}{8}$ | $2\frac{3}{4}$ |
| $-1\frac{1}{4}$ | -0.25 |

Think carefully about how many tick marks you create on your number line and how far apart the tick marks are (the intervals).

Your number line must be precise! Do not make careless mistakes.

Activity 3 Standard 6.NS.5

Write four real-world situations that include positive and negative rational numbers that are used to describe quantities that are opposites. Examples can include elevations, temperatures, speeds, directions, money, and others. Explain the meaning of zero in your situation. There is an example given below.

Example:

- **Positive:** I received \$50 as a gift. (50)
- **Negative:** I wrote a check for \$35.50. (−35.50)
- **Meaning of zero:** No money in an account. Or there is no change in the balance.

Math 6 Winter Enrichment Choice Board: Activity Directions

Activity 4

Standard 6.EE.3-4

Create a diagram that demonstrates an application of the Distributive Property to create an equivalent expression to an algebraic (variable) expression.

- Your diagram should display an array or other arrangement of tiles or other items.
- **Explain** in at least one sentence how your diagram represents an application of the Distributive Property.

Activity 5

Standard 6.EE.1

Given the following expression:

$$7 + 7 \div 2 + 2^3 \cdot 3 - 1$$

- On a separate sheet of paper, evaluate the expression as it is written. Perform one operation per line and show your work.
- On the same paper, create three new values for the expression by placing **one set of parentheses** in the expression.
- Show a step-by-step evaluation for each of your three new expressions.

Activity 6

Standard 6.EE.7

Solve algebra puzzles! Access the puzzles at [this link](http://www.mathplayground.com/algebra_puzzle.html) (Full link: http://www.mathplayground.com/algebra_puzzle.html)

- On the landing page, click on the link for **3x3 Grid – Beginner**.
- Begin to solve the puzzles. Your goal is to solve **6 puzzles**.
- As you solve each one and see the message that says **Good job. You solved the puzzle**, take a picture of the screen with an index card (or other small piece of paper) that has your name on it in the frame of the picture.
- Then click **New Puzzle** and begin to solve a new puzzle.
- Cut and paste your 6 pictures on one document (can be a Word document, Google Doc, or on paper).

Math 6 Winter Enrichment Choice Board: Activity Directions

Activity 7 Standard 6.NS.1

Create two story problems that involve dividing a fraction by a fraction.

- Write the two problems so they have a theme of holiday cookies, candy or other sweets!
- Each story problem should include at least three sentences.
- Solve your story problem. Represent the solution to your problem in multiple ways.
- Represent the solution of the problem visually. You can use pictures of each step of your

problems (for example, for $1\frac{1}{2}$ cookies divided by $\frac{1}{3}$, show the one and one-half cookies cut into pieces of $\frac{1}{3}$ of a cookie.)

- Represent the solutions of both problems numerically (that is, by using an algorithm to work the problem out).

Activity 8 Standard 6.EE.2

Write 10 different verbal algebraic (variable) expressions using a different one of the words/phrases below in each expression. Then translate that verbal phrase into a variable expression and indicate clearly how the words/phrases below translate into the variable expression. See an example located below the list.

| | |
|------------|--------------|
| divided by | product |
| sum | less than |
| fewer than | times |
| quotient | squared |
| difference | Increased by |

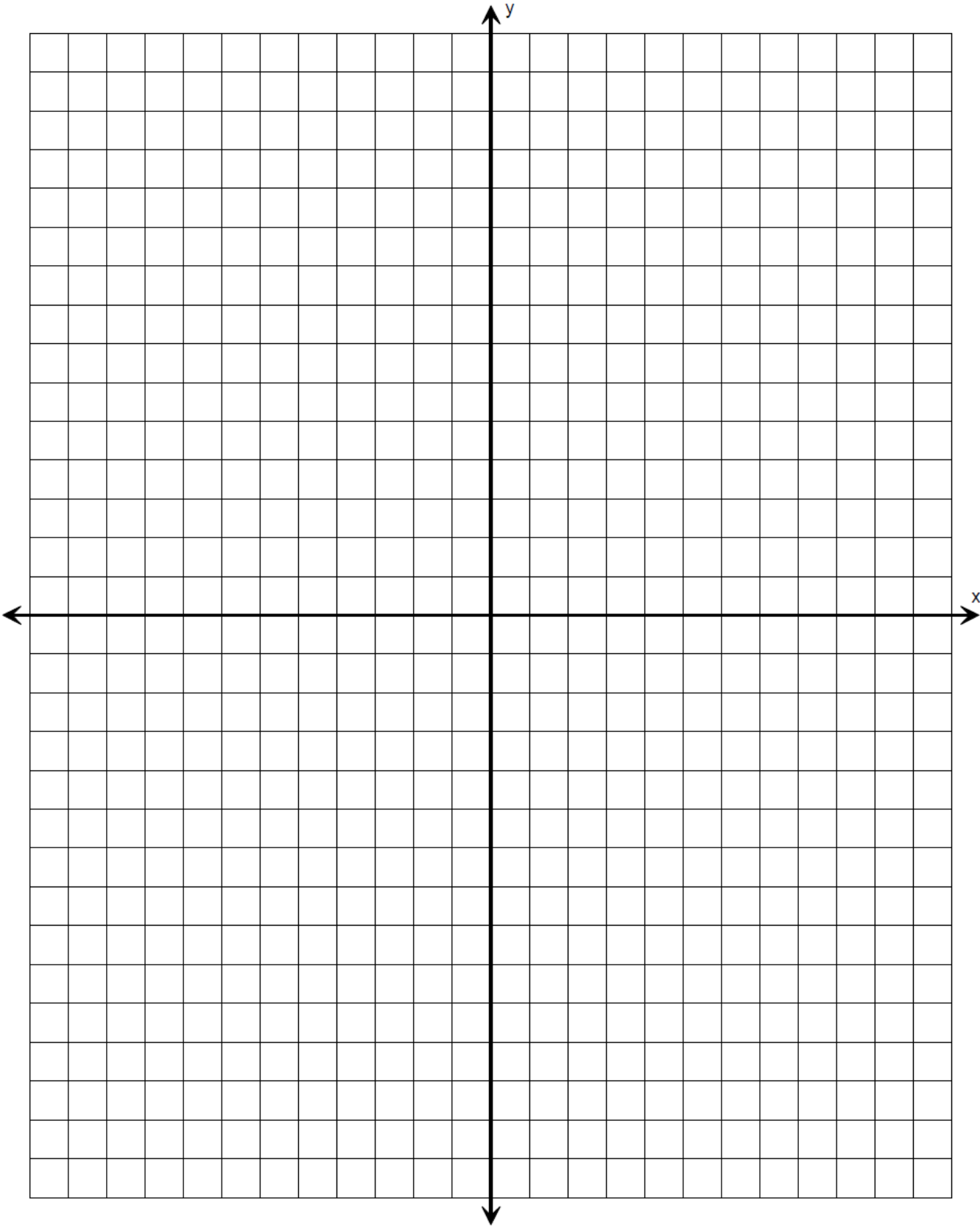
- o Verbal expression: t decreased by 3.
- o Variable expression: $t - 3$
- o 'decreased by' means to subtract

Activity 9 Standard 6.NS.8

Create a map of a town on a four-quadrant coordinate grid. (One is attached in this packet.)

- You must plot the following places on your map: post office, school, grocery store, restaurant, convenience store.
- You must have at least one building in each quadrant of the grid.
- Each building must be at least five units away from any other building.
- Pretend that all of the streets in your town run along the grid lines of your coordinate grid.
- Determine the distance between the following:
 - o Post office to school
 - o Grocery store to restaurant
 - o Post office to grocery store to convenience store
 - o Convenience store to restaurant to school
 - o Restaurant to post office

Coordinate Grid for Activity 9



Math 6 Choice Board Rubrics

Activity 1

| 4 | 3 | 2 | 1 |
|--|----------|----------|---|
| Student submits a picture taken that shows that he/she earned five stars and his/her face or name is in the picture of the screen. | | | Student does not submit a picture or picture does not show that five stars were earned. |

Activity 2

| 4 | 3 | 2 | 1 |
|--|---|---|--|
| Student's number line has appropriate intervals, labels, and every value plotted correctly | Student's number line has appropriate intervals or labels but one value is not plotted correctly. | Student's number line does not have appropriate intervals and/or labels and more than one value is not plotted correctly. | Student's work is mostly incomplete or inaccurate. |

Activity 3

| 4 | 3 | 2 | 1 |
|--|---|--|---|
| Student's four examples are appropriate and he/she attends to precision. | One of the four examples is not appropriate and/or student did not attend to precision. | Two of the four examples are not appropriate and/or student did not attend to precision. | At least three of the four examples are not appropriate and/or student did not attend to precision. |

Activity 4

| 4 | 3 | 2 | 1 |
|--|--|--|---|
| Student's diagram and explanation of it are clear, and accurate. | Student's diagram and explanation are clear but there is an error. | Two of the four examples are not appropriate and/or student did not attend to precision. | At least three of the four examples are not appropriate and/or student did not attend to precision. |

Activity 5

| 4 | 3 | 2 | 1 |
|---|---|---|--|
| Student's four expressions are accurate, one operation shown per line, and student attended to precision. | At least one expression is not accurate and/or student did not attend to precision. | At least two expressions are not accurate and/or student did not attend to precision and/or show one operation per line | At least three expressions are not accurate, much/all work is not shown. |

Activity 6

| 4 | 3 | 2 | 1 |
|--|--|--|--|
| Student submits photo evidence of six completed puzzles. | Student submits evidence of 4-5 completed puzzles. | Student submits evidence of 2-3 completed puzzles. | Student does not submit photo evidence of six completed puzzles. |

Activity 7

| 4 | 3 | 2 | 1 |
|--|--|--|--|
| Student submits two story problems of at least three sentences each. Accurate and clear visual (picture) solutions and numerical solutions are shown for each problem. | Student submits two story problems of at least two sentences each. There is at least one error with the visual (picture) solution or the numerical solution. | Student submits two story problems, but both are not at least three sentences and/or there are multiple errors in the visual | Student's work is mostly incomplete or inaccurate. |

Activity 8

| 4 | 3 | 2 | 1 |
|---|--|---|--|
| Student submits 10 clear phrases and the translated expressions are correct and accurate. | Student submits less than 10 phrases and/or 1-2 of the translated expressions are not correct or accurate. | Student submits 8 or less phrases and/or 3-4 of the 10 phrases are not correct or accurate. | Student's work is mostly incomplete or inaccurate. |

Activity 9

| 4 | 3 | 2 | 1 |
|--|---|--|---|
| Student adheres to all directions; the 5 buildings are plotted with at least one in each quadrant; buildings are at least 5 units away from each other; all distances determined between buildings are accurate. | One of the items in Box 4 is not shown. | Two of the items in Box 4 are not shown. | The activity is largely incomplete and/or many of the directions were not followed. |