Pyle Middle School
Study Strategies for Success

Mastering Mathematics
How to Prepare for a Math Class

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Objectives

Daily Approach to Success
- Growth Mind Set
- In the Classroom
- At your Home

Studying for an Assessment
- In the Classroom
- Practice Problems
- Online Resources

Additional Resources
- Getting Organized
- Math Test Taking Tips
- Problem Solving Strategies
- Additional Online Math Resources
Many strategies will be discussed this evening.

You don’t need to use every strategy for each assessment. Try each strategy and decide what works best for YOU.
LET'S WALK THE LINE...

Listen to each statement. Go stand on line that represents how often that thought crosses your mind in math class.
In Math, how often do you hear yourself thinking

I can’t do this…
Instead try telling yourself

I can’t do this yet…
I'm no good at this…
Instead try telling yourself

I can become better at this...
In Math, how often do you hear yourself thinking

What level/score did I get?
Instead try telling yourself

What can I do to improve?
## Developing a Growth Mindset

<table>
<thead>
<tr>
<th>Instead of.....</th>
<th>Try Thinking....</th>
</tr>
</thead>
<tbody>
<tr>
<td>I’m not good at this</td>
<td>What am I missing?</td>
</tr>
<tr>
<td>I give up</td>
<td>I’ll use a different strategy</td>
</tr>
<tr>
<td>It’s good enough</td>
<td>Is this really my best work?</td>
</tr>
<tr>
<td>I can’t make this any better</td>
<td>I can always improve</td>
</tr>
<tr>
<td>This is too hard</td>
<td>This may take some time</td>
</tr>
<tr>
<td>I made a mistake</td>
<td>Mistakes help me to learn</td>
</tr>
<tr>
<td>I just can’t do this</td>
<td>I am going to train my brain</td>
</tr>
<tr>
<td>I’ll never be that smart</td>
<td>I will learn how to do this</td>
</tr>
<tr>
<td>Plan A didn’t work</td>
<td>There’s always Plan B</td>
</tr>
<tr>
<td>My friend can do it</td>
<td>I will learn from them</td>
</tr>
</tbody>
</table>
Snow Ball Time

1. Take a piece of paper, write down a negative thought you have about yourself as a math student.

2. Now take that paper and crumble it up.

3. As you throw your snow ball, make a promise to stop thinking negative thoughts in math class.
Daily study habits in the math classroom
Taking Good Notes
How To Take Good Math Notes

- Be attentive and engaged.

- Keep it simple.

- Be organized. Number all items presented in a list or a time order. Mark items that you do not understand in a teacher color grading pen or in the margins so that you can look them up or ask questions about them later.

- Use discussions, questions, and answers. Ask questions!!!

- Annotate your (home) work and correct all errors in a teacher color grading pen. This will help you know what to go back to study later on.

- Look for another way to model your thinking.

Work out $18 \times 5$ and show a visual solution.
Notable Notes – After Class

Review your notes after **each** class

Read through your notes and clean up anything you need to clarify. Highlight any vocabulary words you feel you need to review.

Go over any examples that were given to make sure you can follow each step. Rework the Problems! Use Post its!
Reading Mathematics Materials
Mathematics materials require a different kind of reading than you're used to in other subjects. Just because you are doing math, doesn’t mean you can skip over any words. Rereading is almost always necessary.
Activate your mind

How many triangles are there?

How many triangles are there?
(97.67% get this wrong)
Participating in Effective Discourse

https://vimeo.com/224719272
The National Council of Teachers of Mathematics (NCTM) in their 1991 professional standards describes discourse as ways of representing, thinking, talking, agreeing, and disagreeing; the way ideas are exchanged and what the ideas entail; and as being shaped by the tasks in which students engage as well as by the nature of the learning environment.
Students will become more independent thinkers and talkers, shaping their conversations on their own.

Students need to understand the recursive nature of conversations: Ideas often keep emerging, needing fresh elaboration, support and application.

**5 Skills of Academic Discourse**

- **Support Ideas with Examples** – be specific connect your ideas to “real world” scenarios.
- **Build On Ideas/Challenge** – Be a coach and an engaged don’t just sit on the side line.
- **Elaborate and Clarify** – seek clarification on from your peers not just answers.
- **Synthesize Conversation** – notice how the sources/activities/discourse connect to another and to your own ideas.
- **Paraphrase** – Putting your peers information (discourse) into your own words.

Good questions help to accelerate learning!
Levels of Convincing

1. Convince yourself
2. Convince a friend
3. Convince a skeptic
Activate your mind

How many triangles are there?

How many triangles are there?

https://www.youcubed.org/
Home Study Habits
When you are about to sit down and do your homework instead of wishing for your genie to get you through the next hour consider the following:

Draw a picture or Talk it out.

Jump on it.

Totally stuck? Take a break

You are not alone. Ask for help
Try (at least some of) your homework the night it is assigned. That way, if you run into any trouble you can see your teacher to get help with it BEFORE it is due.
See your teacher during TAG if you run into questions while studying or if you’d like some extra practice problems. Make sure your teacher is aware that you’ll be coming by getting a pass during interact or before first period.

Email your teacher through MyMCPS Classroom if you have a question about what you’re studying while you’re at home.
Preparing for a math quiz, test exam or another assessment
Know the Rules!

Even before you begin studying for a test, you should find out the “rules” of the test and what the test will cover.

• When is the test? How long is the test?
• What material will be on the test?
• Will you be able to reassess this test if necessary?
• What will the test questions be like? Do all the questions count equally? Is there partial credit for short-answer items. Are you penalized for guessing a wrong answer?
• Is your flexbook, handbook, notes, or a formula sheet allowed? Is a calculator allowed?
Math is Like a Sport

Looking over your notes is important but because you’ll have to do math on a math test, the best way to study is to also do the math!

Remember, the best way to get better at a sport is to not only read through and study the plays but to also practice the plays!
Where to find practice problems

1. Retake old quizzes
2. Create a quiz
3. Make a study sheet
4. Use online and/or flexbook resources
5. Teach someone else
6. Use your teacher as a resource
Retake Old Quizzes

If you have any quizzes, exit cards, warm-ups that cover the material you’ll be tested on, cover the answers with post-it notes and retry the problems.

Rework the problems you missed the first time. This will allow you to see what problems you are still struggling with.
What about the problems you’re *still* struggling with

If you retake one of your quizzes and find that you’re making the same mistakes, …

- Go to see your teacher during **tag** for some extra practice problems.
- Look back at your notes or in your textbook for more **examples** like the problems you’re struggling with.
- Look on line for **references** on that topic
- Ask a **study buddy** to work through the problem with you
Study Early (and Often)

Keep in mind that for any math test, you should start preparing as soon a test is announced!

• Studying a little each night allows you to try different learning strategies and keeps reviewing from becoming overwhelming or tedious.

• Starting to prepare in advance also allows you to see your teacher as soon as you realize you need help (and gives you time to check back in with them if necessary).
Getting Organized to Study

Organize your

- Time
- Space
- Materials

**Math Assessment Specific Materials**
- Did you receive a **study guide** in class?
- Do you have your **packet or classwork** with you?
- Do you have class or book **notes**?
- Do you have all of your **quizzes and retakes**?
- Do you have your **corrected homework assignments**?
- Do you have access to a **computer**?

For more tips check out

The Fundamentals of Studying!
Getting Organized to Study

Know your Indicators

- Which are easy?
- Which are more challenging?
- Which do you need more practice?

C2.0 Algebra 1 Unit 1 – Relationships Between Quantities and Reasoning with Equations

<table>
<thead>
<tr>
<th>Topic 1: Linear Equations in One Variable</th>
<th>Overview</th>
</tr>
</thead>
<tbody>
<tr>
<td>By the end of 8th grade, students have mastered the process of solving linear equations in one variable. Unit 1 of Algebra I builds on that experience by asking students to analyze and explain this process and to reason quantitatively and use units to solve problems. Students will develop fluency in writing expressions and linear equations in one variable, and will use them to solve problems.</td>
<td></td>
</tr>
</tbody>
</table>

**Concepts:**
- Create expressions to model a given situation.
- Interpret parts (e.g. factors, monomials) of expressions.
- Compare various expressions generated to represent a situation to determine validity of an expression and equivalent expressions.
- Apply rules for arithmetic operations with units to guide the problem solving process.
- Create and solve linear equations in one variable.
- Describe the structure of a linear equation and use this structure to devise a plan for solving the equation.
- Carry out, describe and justify each step of the plan for solving equations in one variable.
- Explain the meaning of solutions to equations in one variable using the context of the problem.
- Convert literal equations to highlight a specific variable.
- Interpret the meaning of expressions by attending to the units associated with each of the variables of a literal equation.

<table>
<thead>
<tr>
<th>Topic 2: Linear Inequalities in One Variable</th>
<th>Overview</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students apply their knowledge of linear equations to inequalities. Students develop fluency and master writing, interpreting, and translating inequalities in one variable. They will then use these inequalities to solve problems.</td>
<td></td>
</tr>
</tbody>
</table>

**Concepts:**
- Create inequalities in one variable to represent a given context.
- Solve inequalities for one variable.
- Construct arguments to justify their reasoning in solving inequalities.
- Articulate the differences and similarities in solving equations and solving inequalities.

**SLTs 19-29: Dividing Fractions**

<table>
<thead>
<tr>
<th>Lesson Plan</th>
</tr>
</thead>
</table>
| SLT19: Divide Fractions by Whole Numbers Using a Model  
  - Notes/Examples/Practice |
| SLT20: Use Models to Divide Whole Numbers by Fractions  
  - Notes/Examples/Practice |
| SLT21: Use Models to Divide Fractions by Unit Fractions  
  - Notes/Examples/Practice |
| SLTs 22 & 23: Use Models to Divide Fractions  
  - Notes/Examples/Practice |
| SLT24: Interpret Division of a Fraction by Fraction  
  - Notes/Examples/Practice |
| SLT25: Reason About the Inverse Relationship Between Division and Multiplication of Fractions  
  - Notes/Examples/Practice |
| SLT26: Apply the Inverse Relationship Between Division and Multiplication of Fractions  
  - Notes/Examples/Practice |
| SLTs 27 & 28: Divide Fractions by Using the Standard Algorithm  
  - Notes/Examples/Practice |
| SLT29: Create and Solve Word Problems Involving Division of a Fraction by a Fraction  
  - Notes/Examples/Practice |
| Topic 3 County Formative (no reassessment)  
  - 

**Math 6, 2.0**
Marking Period 1, Topic 3

**Name:**
**Date:**
**Pd:**

**All homework assignments are due the following class period. HW will be reviewed during class and checked for completion. Late HW may be accepted for half credit.**
LearnZillion.com is a website that provides teachers and parents with video lessons showing what your student needs to learn each year. The lessons include a 3-5 minute long lesson video, downloadable slides, and other resources for practice and assessment.

https://learnzillion.com/lessons/3592-divide-a-fraction-by-a-whole-number
You can watch the videos alone or with a parent. Take notes while watching. Consider the following questions:

What is this lesson about?
Review....
Mistakes to avoid...
The main thing to learn is ....
Using the Online Resources at [www.khanacademy.org/commoncore](http://www.khanacademy.org/commoncore)

Prepare your students with our new Common Core math skills. 

**Grade 7: The Number System**

7.NS.A.1

Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.

- Adding and subtracting negative fractions
- Adding negative numbers intro
You can watch the videos alone or with a parent. Take notes while watching. Consider the following questions:

What is this lesson about?

Review...

Mistakes to avoid...

The main thing to learn is...
<table>
<thead>
<tr>
<th>Writing Equations from Ratios</th>
<th>Name:</th>
</tr>
</thead>
</table>

**Ex.** Every yard is 3 feet. Write an equation to express the total number of feet (Z) in (y) yards.

1. Every liter is 1,000 milliliters. Write an equation to express the total number of milliliters (Z) in (y) liters.
2. Every dollar is 4 quarters. Write an equation to express the total number of quarters (Z) in (y) dollars.
3. Every quarter is 5 nickels. Write an equation to express the total number of nickels (Z) in (y) quarters.
4. For each kilogram there are 1,000 grams. Write an equation to express the total number of grams (Z) in (y) kilograms.
5. Every cup is 8 ounces. Write an equation to express the total number of ounces (Z) in (y) cups.
6. Every centimeter is 10 millimeters. Write an equation to express the total number of millimeters (Z) in (y) centimeters.
7. Every kilometer is 1,000 meters. Write an equation to express the total number of meters (Z) in (y) kilometers.

**Answers**

<table>
<thead>
<tr>
<th>Ex.</th>
</tr>
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<tbody>
<tr>
<td>y × 3 = Z</td>
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<table>
<thead>
<tr>
<th>1.</th>
</tr>
</thead>
<tbody>
<tr>
<td>y × 1,000 = Z</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2.</th>
</tr>
</thead>
<tbody>
<tr>
<td>y × 4 = Z</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>3.</th>
</tr>
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<tbody>
<tr>
<td>y × 5 = Z</td>
</tr>
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</table>

<table>
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<tr>
<th>4.</th>
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</thead>
<tbody>
<tr>
<td>y × 1,000 = Z</td>
</tr>
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<table>
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<tr>
<th>5.</th>
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</thead>
<tbody>
<tr>
<td>y × 8 = Z</td>
</tr>
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</table>

<table>
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<tr>
<th>6.</th>
</tr>
</thead>
<tbody>
<tr>
<td>y × 1,000 = Z</td>
</tr>
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</table>

<table>
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<tr>
<th>7.</th>
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<tbody>
<tr>
<td>y × 10 = Z</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8.</th>
</tr>
</thead>
<tbody>
<tr>
<td>y × 4 = Z</td>
</tr>
</tbody>
</table>

http://commoncoresheets.com
Extra Resources
MCPS Website

Is your support Mom and Dad?

http://www.montgomeryschoolsmd.org/curriculum/math/
Marking Period 1: Topic 3 Division of Fractions

C2.0 Mathematics 6 Parent Resource

Marking Period 1: Fractions, Ratios, and Decimals

Marking Period 1 includes 6 topics of study, listed below. This resource is for Topic 3.

<table>
<thead>
<tr>
<th>Topic 1</th>
<th>Topic 2</th>
<th>Topic 3</th>
<th>Topic 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understanding Fractions and Ratios</td>
<td>Applications of Fractions and Ratios</td>
<td>Division of Fractions and Multi-Digit Computation</td>
<td>Teacher Notes</td>
</tr>
</tbody>
</table>

Learning Goals by Common Core State Standard

Students will be able to:

- Use models to divide fractions (fraction by whole number, whole number by fraction, fraction by fraction).
- Develop an understanding of fraction division that leads to use of the standard algorithm.
- Reason about the inverse relationship between division and multiplication of fractions.
- Create and solve word problems involving division of fractions by fractions using visual fraction models and equations to represent the problem.

The Common Core State Standards require a balance of three fundamental components that result in rigorous mathematics achievement: deep conceptual understanding, procedural skill, and mathematical applications and modeling.
# C2.0 Mathematics 6 Parent Resource Page

**Marking Period 1: Fractions, Ratios, and Decimals**  
**Topic 3: Division of Fractions**

## Learning Experiences by Common Core State Standard

<table>
<thead>
<tr>
<th>Topic: Division of Fractions</th>
</tr>
</thead>
<tbody>
<tr>
<td>In school, your child will...</td>
</tr>
<tr>
<td><strong>Context</strong></td>
</tr>
<tr>
<td>Mustapha needs ( \frac{2}{3} ) cup of formula to make his baby brother a bottle. He only has ( \frac{1}{2} ) cup of formula left. How much of the bottle will he be able to fill?</td>
</tr>
<tr>
<td><strong>Reasoning</strong></td>
</tr>
<tr>
<td>I want to figure out how many ( \frac{1}{2} ) there are in ( \frac{3}{4} )</td>
</tr>
<tr>
<td>Drawing</td>
</tr>
<tr>
<td><strong>Tape Diagram</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Area Model</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Double Number Line</strong></td>
</tr>
</tbody>
</table>
| | - Division of Fractions FlexBook  
| | - Connect a visual model to develop the standard algorithm  
| | - Build fluency dividing fractions using the standard algorithm (game)  
| **Equation** | Additional Practice links support C2.0 content, but may use vocabulary or strategies not emphasized by MCPS. |

\[
\frac{1}{6} \div \frac{2}{3} = \frac{3}{12} = \frac{1}{4}
\]
MCPS Flexbook Parent Resource
Take the stress out of studying…

make a plan and make it fun!

Please contact us with any questions

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