



Marietta City Schools

District Unit Planner

Everything on the unit planner must be included on the unit curriculum approval statement.

Grade 6 Advanced Studies Mathematics

Unit title	Number System Fluency	MYP year	1	Unit duration (hrs)	27 Hours
-------------------	-----------------------	-----------------	---	----------------------------	----------

Mastering Content and Skills through INQUIRY (Establishing the purpose of the Unit): *What will students learn?*

GSE Standards

Standards
MGSE6.NS.1 Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, including reasoning strategies such as using visual fraction models and equations to represent the problem.

For example:

- How much chocolate will each person get if 3 people share $\frac{1}{2}$ lb of chocolate equally?
- How many $\frac{3}{4}$ -cup servings are in $\frac{2}{3}$ of a cup of yogurt?
- How wide is a rectangular strip of land with length $\frac{3}{4}$ mi and area $\frac{1}{2}$ square mi?
- Create a story context for $(\frac{2}{3}) \div (\frac{3}{4})$ and use a visual fraction model to show the quotient;
- Three pizzas are cut so each person at the table receives $\frac{1}{4}$ pizza. How many people are at the table? Use the relationship between multiplication and division to explain that $(\frac{2}{3}) \div (\frac{3}{4}) = \frac{8}{9}$ because 3 $\frac{3}{4}$ of $\frac{8}{9}$ is $\frac{2}{3}$. (In general, $(\frac{a}{b}) \div (\frac{c}{d}) = \frac{ad}{bc}$.)

MGSE6.NS.2 Fluently divide multi-digit numbers using the standard algorithm.

MGSE6.NS.3 Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.

Concepts/Skills to be Mastered by Students

- Interpret and compute quotients of fractions.
- Solve word problems involving division of fractions by fractions using visual fraction models and equations to represent the problem.
- Fluently divide multi-digit numbers using the standard algorithm.
- Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.
-

Vocabulary

- Algorithm: a step-by-step solution to a problem.

- Difference: The amount left after one number is subtracted from another number.
- Dividend: A number that is divided by another number.
- Divisor: A number by which another number is to be divided.
- Factor: When two or more integers are multiplied, each number is a factor of the product. "To factor" means to write the number or term as a product of its factors.
- Measurement Model of Division: When we know the original amount and the size or measure of ONE part, we use measurement division to find the number of parts. Ex: 20 is how many groups of 4?
- Multiple: The product of a given whole number and an integer.
- Quotient: A number that is the result of division.
- Partitive Model of Division: When we know the original amount and the number of parts, we use partitive division to find the size of each part. Ex: 20 is 4 groups of what unit?
- Reciprocal: Two numbers whose product is 1. The reciprocal of a fraction can be found by inverting that fraction (switching the denominator and numerator).
- Sum: The number you get by adding two or more numbers together.
- Product: A number that is the result of multiplication.

Key concept	Related concept(s)	Global context
<p data-bbox="398 659 459 683">Logic</p> <p data-bbox="118 707 741 762">A method of reasoning and a system of principles used to build arguments and reach conclusions.</p>	<p data-bbox="981 659 1227 683">Model, Representation</p>	<p data-bbox="1619 659 1955 683">Globalization and Sustainability</p>
Statement of inquiry		
<p data-bbox="96 839 947 863">Making decisions can be improved by using a model to represent relationships.</p>		
Inquiry questions		
<p data-bbox="96 946 1626 970">Factual— How do you add or subtract decimals? How do you divide whole numbers and decimals? How do you divide a fraction by a fraction?</p> <p data-bbox="96 1015 2089 1070">Conceptual— How do you use decimal operations to solve real-world problems? How are decimal/fraction operations similar to whole number operations? In what situations do we use division in our lives? When is it useful to decompose a number? Why does the process of invert and multiply work when dividing fractions?</p> <p data-bbox="96 1121 2112 1177">Debatable— Does being fluent in operations with decimal operations make our everyday lives easier? Which strategies are helpful when dividing multi-digit numbers? Which strategies are helpful when performing operations on multi-digit decimals?</p>		
MYP Objectives	Assessment Tasks	

What specific MYP objectives will be addressed during this unit?	Relationship between summative assessment task(s) and statement of inquiry:	List of common formative and summative assessments.
<p>Criterion A: Knowing and Understanding</p> <p>Criterion D: Applying Mathematics in Real-life Contexts</p>	<p>Students will use models to represent the relationship between whole numbers, fractions and decimals after performing the four basic operations.</p>	<p>Formative Assessment(s):</p> <p>Unit 1 CFA- NS. 3</p> <p>Unit 1 CFA- NS.2 and NS.1</p> <p>Summative Assessment(s):</p> <p>Unit 1 Summative Assessment- All Standards</p> <p>MYP Assessment Task: Mercedes Benz Task</p>

Approaches to learning (ATL)

Category: Social
Cluster: Collaboration Skills
Skill Indicator: Give and receive meaningful feedback.

Learning Experiences

Learning Experiences are pinnacle instructional activities that all PLC members have vetted as rigorous, aligned, student centered, equitable skill based learning experiences for all students taking this course. Click [here](#) for definition and further guidance on learning experiences.

Objective or Content	Learning Experiences	Personalized Learning and Differentiation
<p>MGSE6.NS.2 Fluently divide multi-digit numbers using the standard algorithm.</p>	<p><u>How Many Staples?</u> <i>Illustrative Mathematics</i> This task provides an opportunity for students to use division to solve a real-world problem. There are several ways students can approach this task which will provide the teacher and students an opportunity for rich mathematical discussion. This task would fall on the Adaption quadrant of the Rigor and Relevance framework because students must analyze and evaluate the correctness of a real-life staple package and then design a more accurate package.</p>	<p>This task has two versions. Version 1 does not have scaffolds and should be used with students who have shown mastery of the standard. Version 2 has explicit scaffolds for students need support to accomplish the task. Teachers should assign versions based on student data from previous work with the standard.</p>
<p>MGSE6.NS.1 Interpret and compute quotients of fractions, and solve word problems involving division of fractions by</p>	<p><u>Modeling Division</u> <i>Illustrative Mathematics</i> The four tasks selected serve several purposes that, taken together, strengthen and develop</p>	<p>Teachers should group students strategically and provide scaffolds through intentional questioning. An extension of this task would</p>

<p>fractions, including reasoning strategies such as using visual fraction models and equations to represent the problem.</p>	<p>the students' ability to perform a variety of increasingly complex arithmetic operations involving fractions. The modeling problems allow students to use securely held knowledge about dividing fractions to solve problems, not just complete the mechanics. This activity would fall in the Application quadrant of the Rigor and Relevance framework. Students must apply their understanding of quotients of fractions to real-world situations.</p>	<p>be to have students create their own <i>fifth</i> task.</p>
---	--	--

Content Resources

Savvas- Topic 1
 Illustrative Mathematics
 NCTM Illuminations
 GaDOE Frameworks
 Number Lines, Fraction Models, Visual Models, and Various Physical Manipulatives.
