

# UPDATED 2022 5th Grade Math

## Link Community Charter School

UNITS (6/6 SELECTED)

SUGGESTED DURATION

<input type="checkbox"/> Unit 1: Place Value Concepts for Multiplication and Division with Whole Numbers	<i>20 lessons</i>
<input type="checkbox"/> Unit 2: Addition and Subtraction with Fractions	<i>17 lessons</i>
<input type="checkbox"/> Unit 3: Multiplication and Division with Fractions	<i>22 lessons</i>
<input type="checkbox"/> Unit 4: Place Value Concepts for Decimal Operations	<i>30 lessons</i>
<input type="checkbox"/> Unit 5: Addition and Multiplication with Area and Volume	<i>28 lessons</i>
<input type="checkbox"/> Unit 6: Foundations to Geometry in the Coordinate Plane	<i>20 lessons</i>

# Unit 1: Place Value Concepts for Multiplication and Division with Whole Numbers

UPDATED 2022 5th Grade Math - Last Updated on July 13, 2022

## STANDARDS ADDRESSED

<b>New Jersey (NJSLS) - Grade 5 - Mathematics (2020)</b>
5.MD.A.1
Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.
5.NBT.A.1
Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.
5.NBT.A.2
Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.
5.NBT.A.3
Read, write, and compare decimals to thousandths.
5.NBT.A.4
Use place value understanding to round decimals to any place.
5.NBT.A.3.a
Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)$ .
5.NBT.A.3.b
Compare two decimals to thousandths based on meanings of the digits in each place, using $>$ , $=$ , and $<$ symbols to record the results of comparisons.
5.OA
Operations and Algebraic Thinking
5.OA.A
A. Write and interpret numerical expressions.
5.OA.A.1

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1. Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.

5.OA.A.2

2. Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. For example, express the calculation “add 8 and 7, then multiply by 2” as  $2 \times (8 + 7)$ . Recognize that  $3 \times (18932 + 921)$  is three times as large as  $18932 + 921$ , without having to calculate the indicated sum or product.

5.NBT

Number and Operations in Base Ten

5.NBT.A

Understand the place value system.

5.NBT.B

Perform operations with multi-digit whole numbers and with decimals to hundredths.

5.NBT.B.5

Fluently multiply multi-digit whole numbers using the standard algorithm.

5.NBT.B.6

Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

5.MD

Measurement and Data

5.MD.A

Convert like measurement units within a given measurement system.

## National Common Core - Mathematical Practice

6.

Attend to precision.

7.

Look for and make use of structure.

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8.

Look for and express regularity in repeated reasoning.

1.

Make sense of problems and persevere in solving them.

# Unit 1: Place Value Concepts for Multiplication and Division with Whole Numbers

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## DESIRED RESULTS

### Established Goals

In Module 1, students describe place value relationships, express powers of ten with exponents, convert metric measurements, and multiply and divide by multi-digit numbers. They develop fluency with the standard algorithm for multiplication.

### Transfer

Students will be able to independently use their learning to

- use the place value system to perform operations with multi-digit whole numbers
- convert like measurement units within a given measurement system

### Meaning

#### Big Ideas & Understandings

Students will understand...

- Each place in a number has a value.
- We use patterns and representation to understand numbers with powers of ten.
- Whole numbers are related and compared to one another in regard to place value.

#### Essential Questions

Students will keep considering...

- How are numbers in the base 10 system related to each other?
- How can using patterns in math help you solve problems with multiplying & dividing by powers of 10?
- How do we compare numbers with the place value system?
- How do we read and write numbers in different forms (standard, word form, expanded & unit form)?
- How do we use place value to read and round whole numbers?
- How do we multiply whole numbers?
- How do we divide whole numbers?
- How do we select a strategy or method to solve problems?
- How do we check if an answer is reasonable?

# Unit 1: Place Value Concepts for Multiplication and Division with Whole Numbers

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Meaning	

Acquisition	
Knowledge	Skills
<p>Students will know...</p> <ul style="list-style-type: none"><li>• the value of each place in the base ten system</li><li>• the patterns for multiplying and dividing by powers of ten</li><li>• the symbols used to compare numbers</li><li>• a strategy for multiplying whole numbers</li><li>• how to check if a product or quotient is reasonable</li><li>• a strategy for dividing whole numbers</li><li>• a few strategies or methods for solving multi-step problems</li></ul>	<p>Students will be skilled at...</p> <ul style="list-style-type: none"><li>• Reading, writing and verbalizing the value of each place in the base ten system.</li><li>• Explaining that multiplying or dividing by a power of ten increases or decreases the value of a number</li><li>• Write and convert measurements from a smaller unit to a larger unit</li><li>• Multiplying whole numbers and explaining the reasonableness using place value</li><li>• Dividing whole numbers and explaining the reasonableness using place value</li><li>• Selecting an appropriate strategy and use it to solve a multi-step problem</li><li>• Explaining the strategy they chose and how they used it to solve the problem</li></ul>

# Unit 1: Place Value Concepts for Multiplication and Division with Whole Numbers

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ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

## Assessments

Performance Task

Evaluation Criteria	Assessment Evidence
<p>Rubrics/Checklists:</p> <p><b>Performance Task Rubric</b></p>	<p>Pre-Assessment (broken into chunks as start of the week opening do-nows) Weekly robust exit tickets (quick quiz) Topic A Quiz Topic B Quiz Topic C Quiz Topic D Quiz End of Module Assessment Stations and small group work products</p>
	<p>Other Evidence:</p> <ul style="list-style-type: none"><li>• Teacher observations</li><li>• Tracking sheets with anecdotes</li><li>• Stations observational data and work products</li><li>• Exit Tickets</li></ul>

### ATTACHMENTS

 Unit 1 Performance Task, Rubric & Option1

# Unit 1: Place Value Concepts for Multiplication and Division with Whole Numbers

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## LEARNING PLAN

### Summary of Key Learning Events and Instruction:

Topic A (Place Value Understanding for Whole Numbers)

- Lessons 1-6
- Daily Do Nows
- Equip Pre-Module Assessment for readiness
- Stations
- Topic A Quiz

Topic B (Multiplication of Whole Numbers)

- Lessons 7-11
- Daily Do Nows
- Equip Pre-Module Assessment for readiness
- Stations
- Topic B Quiz

Topic C (Division of Whole Numbers)

Mid-Module Assessment

- Lessons 12-16
- Daily Do Nows
- Stations
- Topic C Quiz

Topic D (Multi-Step Problems with Whole Numbers)

- Lessons 17-20
- Daily Do Nows
- Stations
- Topic D Quiz

End of Module Assessment



**Unit 1: Place Value Concepts for Multiplication and Division with Whole Numbers**

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# Unit 1: Place Value Concepts for Multiplication and Division with Whole Numbers

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## SUPPORTING MATERIALS/RESOURCES/STRATEGIES FOR DIFFERENTIATION

### Modifications

Special Education	ELLs
<ul style="list-style-type: none"><li>• Adhere to all modifications and health concerns stated in each IEP</li><li>• Provide students a choice board, allowing students to pick assignments from different levels based on difficulty.</li></ul> <p>Provide supportive strategies:</p> <ul style="list-style-type: none"><li>◦ Educator or para reading aloud text or tech read-aloud</li><li>◦ Develop or provide graphic organizers</li><li>◦ Small group and one-on-one instruction</li><li>◦ Easy to find information on Google Classroom</li><li>◦ Personal copies of anchor charts and notes</li><li>◦ Vocabulary list with visuals</li><li>◦ Extended time on assignments and assessments</li></ul> <ul style="list-style-type: none"><li>• Allow students to demonstrate understanding of a problem using models, captions and, when possible, explaining the reasoning orally and/or in writing.</li><li>• Provide tech support for recording oral or video answers</li><li>• Provide breaks between tasks, use positive reinforcement, use proximity</li><li>• Assure students have experiences that are on the Concrete- Pictorial- Abstract spectrum by using manipulatives</li><li>• Use any suggestions provided by the specific text for a curriculum</li></ul>	<ul style="list-style-type: none"><li>• Use manipulatives to promote conceptual understanding and enhance vocabulary usage</li><li>• Provide graphic representations, gestures, drawings, equations, realia, and pictures during all segments of instruction</li><li>• During i-Ready lessons, click on “Español” to hear specific words in Spanish</li><li>• Utilize graphic organizers which are concrete, pictorial ways of constructing knowledge and organizing information</li><li>• Use sentence frames and questioning strategies so that students will explain their thinking/ process of how to solve word problems</li><li>• Utilize program translations (if available) for L1/ L2 students</li><li>• Reword questions in simpler language</li><li>• Make use of the ELL Mathematical Language Routines (click <a href="#">here</a> for additional information)</li><li>• Scaffolding instruction for ELL Learners</li><li>• Use any suggestions provided by the specific text for a curriculum</li></ul>

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Gifted and Talented	Students At Risk For Failure
<ul style="list-style-type: none"><li>• Elevated contextual complexity (use leveled books via tech resources such as NEWSELA)</li><li>• Inquiry based or open ended assignments and projects</li><li>• Add in inquiry-based questions and research opportunities to existing projects</li><li>• More time to study concepts with greater depth through independent study or genius hour projects</li><li>• Promote the synthesis of concepts and making real world connections</li><li>• Provide students with enrichment opportunities and experiences suggested by the curriculum</li><li>• Provide opportunities for competitions (math, science, writing, art, etc)</li><li>• Alternative instruction pathways available</li></ul>	<ul style="list-style-type: none"><li>• Assure students have experiences that are on the Concrete- Pictorial- Abstract spectrum</li><li>• Modify Instructional Strategies, reading aloud text, graphic organizers, one-on-one instruction, class website (Google Classroom), inclusion of more visuals and manipulatives, Field Trips, Google Expeditions, Peer Support, one on one instruction</li><li>• Assure constant parental/ guardian contact throughout the year with successes and challenges</li><li>• Design and provide academic contracts to students and guardians with clear goals and deadlines</li><li>• Create an interactive notebook with samples, key vocabulary words, student goals/ objectives.</li><li>• Always plan to address students at risk in your learning tasks, instructions, and directions. Try to anticipate where the needs will be and then address them prior to lessons.</li><li>• Use the programs intended for remediation ancillary to the curriculum (i.e. IXL or iReady for math)</li></ul>

## \*Strategies for Students with [504 Plans](#)

The goal of 504 plans is for students to be educated in regular classrooms along with the services, accommodations, or educational aids they might need. Students can qualify for 504 plans if

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they have physical or mental impairments that affect or limit any of their abilities to:

- walk, breathe, eat, or sleep
- communicate, see, hear, or speak
- read, concentrate, think, or learn
- stand, bend, lift, or work

General program accommodations/adjustments or services are always made on a case-by-case basis and individualized. Accommodations are to be reasonable and are intended to provide persons with disabilities compensation for their functional limitation(s) due to a mental or physical impairment. Where Section 504 is concerned, accommodations are made to bring a student with a disability to the same starting point as a non-disabled student. Consequently, the accommodations defined in a Section 504 plan are those interventions that are not typically available to all students.

## **Environmental Strategies**

- Provide a structured learning environment
- Make separate "space" for different types of tasks
- Possible adapting of non-academic times such as lunch, recess, and physical education
- Change student seating
- Utilize a study carrel
- Alter location or personal or classroom supplies for easier access or to minimize distraction
- Provide sensory breaks
- Provide a written or picture schedule

## **Organizational Strategies**

- Model and reinforce organizational systems (i.e. color-coding)
- Write out homework assignments, check student's recording of assignments
- Tailor homework assignments toward student strengths
- Set time expectations for assignments
- Provide clues such as clock faces indicating beginning and ending times
- Teach study/organizational skills
- Schedule before or after school tutoring/homework assistance

## **Behavioral Strategies**

- Use behavioral management techniques consistently within a classroom and across classes
- Implement behavioral/academic contracts
- Utilize positive verbal and/or nonverbal reinforcements
- Utilize logical consequences
- Confer with the student's parents (and student as appropriate)
- Establish a home/school communication system for behavior monitoring
- Post rules and consequences for classroom behavior
- Put student on daily/weekly progress report/contract
- Reinforce self-monitoring and self-recording of behaviors

## **Presentation Strategies**

- Record lessons so the student can listen to them again; allow students to record lessons

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- Use computer-aided instruction and other audiovisual equipment
- Select alternative digital/audio textbooks, workbooks, or provide books
- Highlight main ideas and supporting details in the book
- Provide copied material for extra practice (i.e. outlines, study guides)
- Prioritize drill and practice activities for relevance
  
- Vary the method of lesson presentation using multi-sensory techniques:
  - a) lecture plus overhead/board demonstration support
  - b) small groups required to produce a written product
  - c) large groups required to demonstrate a process
  - d) computer-assisted instruction
  - e) peer tutors or cross-age tutors
  - f) demonstrations, simulations
  - g) experiments
  - h) games
  
- Ask student to repeat/paraphrase context to check understanding
- Arrange for a mentor to work with student in his or her interest area or area of greatest strength
- Provide peer tutoring
- Simplify and repeat instructions about in-class and homework assignments
- Vary instructional pace
- Reinforce the use of compensatory strategies, i.e. pencil grip, mnemonic devices, “spell check”
- Vary kind of instructional materials used
- Assess whether the student has the necessary prerequisite skills.
- Reinforce study skill strategies (survey, read, recite, review)
- Introduce definition of new terms/vocabulary and review to check for understanding
- Be aware of student's preferred learning style and provide matching instruction materials
- Pre-teach and/or re-teach important concepts
- Prepare advanced organizers/study guides for new material

## Assignments

- Modify the amount of homework
- Use written directions to supplement oral directions
- Reduce paper and pencil tasks
- Allow for assignments to be word processed
- Lower reading level of assignments
- Break assignments into a series of smaller assignments
- Use highlighted texts

## Evaluation Methods

- Limit amount of material presented on a single page
- Provide a sample or practice test
- Provide for oral testing

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- Provide tests in segments so that student hands in one segment before receiving the
- next part
- Provide personal copy of test tools and allow for color-coding/highlighting
- Adjust time for completion
- Modify weights of tests when grading

[\\*Adapted from Orange Public Schools Curriculum Guide](#)

## Unit 2: Addition and Subtraction with Fractions

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### STANDARDS ADDRESSED

<b>New Jersey (NJSL) - Grade 4 - Mathematics (2020)</b>
4.NF.A.1
Explain why a fraction $a/b$ is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.
4.NF.B.3.b
Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. Examples: $3/8 = 1/8 + 1/8 + 1/8$ ; $3/8 = 1/8 + 2/8$ ; $2 \frac{1}{8} = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8$ .
4.NF.B.4.a
Understand a fraction $a/b$ as a multiple of $1/b$ . For example, use a visual fraction model to represent $5/4$ as the product $5 \times (1/4)$ , recording the conclusion by the equation $5/4 = 5 \times (1/4)$ .
4.NF.B.4.b
Understand a multiple of $a/b$ as a multiple of $1/b$ , and use this understanding to multiply a fraction by a whole number. For example, use a visual fraction model to express $3 \times (2/5)$ as $6 \times (1/5)$ , recognizing this product as $6/5$ . (In general, $n \times (a/b) = (n \times a)/b$ .)
<b>New Jersey (NJSL) - Grade 5 - Mathematics (2020)</b>
5.NF.A.1
Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. For example, $2/3 + 5/4 = 8/12 + 15/12 = 23/12$ . (In general, $a/b + c/d = (ad + bc)/bd$ .)
5.NF.A.2
Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. For example, recognize an incorrect result $2/5 + 1/2 = 3/7$ , by observing that $3/7 < 1/2$ .
5.NF
Number and Operations—Fractions
5.NF.A

## Unit 2: Addition and Subtraction with Fractions

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Use equivalent fractions as a strategy to add and subtract fractions.

### 5.NF.B.3

Interpret a fraction as division of the numerator by the denominator ( $a/b = a \div b$ ). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. For example, interpret  $3/4$  as the result of dividing 3 by 4, noting that  $3/4$  multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size  $3/4$ . If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?

### 5.MD.B

Represent and interpret data.

### 5.MD.B.2

Make a line plot to display a data set of measurements in fractions of a unit ( $1/2, 1/4, 1/8$ ). Use operations on fractions for this grade to solve problems involving information presented in line plots. For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.

### National Common Core - Mathematical Practice

4.

Model with mathematics.

6.

Attend to precision.

2.

Reason abstractly and quantitatively.

1.

Make sense of problems and persevere in solving them.



## Unit 2: Addition and Subtraction with Fractions

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### DESIRED RESULTS

Module 2 enhances students' prior work with fractions to add and subtract fractions and mixed numbers with unlike denominators. Students also interpret a fraction as the result of dividing the numerator by the denominator and interpret data in line plots.

### Transfer

Students will:  
-use the set of fractional units in their understanding of addition and subtraction of fractions.

### Meaning

Big Ideas & Understandings	Essential Questions
<ul style="list-style-type: none"> <li>Procedures used for whole numbers can be applied to adding and subtracting fractions and mixed numbers</li> <li>Models/representations can be used to improve the understanding of the addition and subtraction of fractions and mixed numbers.</li> <li>Addition and subtraction of fractions and mixed numbers used to solve real-world and mathematical problems including those involving measurement, geometry and data.</li> <li>Benchmark fractions can be used to estimate sums and differences of fractions and mixed numbers and to assess the reasonableness of results.</li> </ul>	<p>Students will keep considering...</p> <ul style="list-style-type: none"> <li>Why is it important to estimate before solving problems?</li> <li>How can you mentally estimate the sum or difference of fractions with unlike denominators?</li> <li>Compare and contrast how fraction models, benchmark fractions and equivalent fractions can be used to solve addition and subtraction of fractions with unlike denominators</li> </ul>

### Acquisition

Knowledge	Skills
Students will know...	Students will be skilled at...

## Unit 2: Addition and Subtraction with Fractions

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### Acquisition

- |   |   |
|---|---|
| <ul style="list-style-type: none"><li>• a strategy of estimating before solving for the sum of fractions with unlike denominators</li><li>• a strategy of estimating before solving for the difference of fractions with unlike denominators</li><li>• benchmark fractions and equivalent fractions can be used to solve addition and subtraction of fractions with unlike denominators</li><li>• addition and subtraction of fractions and mixed numbers is used to solve real-world and mathematical problems including those involving measurement, geometry and data</li><li>• how to check that a solution is reasonable</li></ul> | <ul style="list-style-type: none"><li>• Estimating the sum or difference of fractions with unlike denominators</li><li>• Explaining why multiplying a fraction by does not change the value of the original fraction.</li><li>• Comparing and contrasting how fraction models, benchmark fractions and equivalent fractions can be used to solve addition and subtraction of fractions with unlike denominators</li><li>• Selecting an appropriate strategy and use it to solve the problem</li><li>• Explaining the strategy they chose and how they used it to solve the problem</li><li>• Explaining the reasonableness of a solution by using benchmark numbers to estimate the sum of fractions &amp; mixed numbers</li><li>• Explaining the reasonableness of a solution by using benchmark numbers to estimate the difference of fractions &amp; mixed numbers</li></ul> |
|---|---|

## Unit 2: Addition and Subtraction with Fractions

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ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

### Assessments

Rubrics/Checklists:  Observation tracking sheets	Pre-Assessment Weekly robust exit tickets (quick quiz) Topic A Quiz Topic B Quiz Topic C Quiz Topic D Quiz End of Module Assessment
	Other Evidence: Stations Observations One-on-one conferencing

## Unit 2: Addition and Subtraction with Fractions

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### LEARNING PLAN

#### Summary of Key Learning Events and Instruction:

Topic A (Fractions and Division)

- Lessons 1-4
- Daily Do Nows
- Equip Pre-Module Assessment for readiness
- Stations
- Topic A Quiz

Topic B (Addition and Subtraction of Fractions by Making Like Units)

- Lessons 5-9
- Daily Do Nows
- Stations
- Topic B Quiz

Topic C (Addition and Subtraction of Fractions, Whole Numbers and Mixed Numbers)

- Lessons 10-14
- Daily Do Nows
- Stations
- Topic C Quiz

Topic D (Problem solving and line plots with fractional measurements)

- Lessons 15-17
- Daily Do Nows
- Stations
- Topic D Quiz

End of Module Assessment

## Unit 2: Addition and Subtraction with Fractions

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### SUPPORTING MATERIALS/RESOURCES/STRATEGIES FOR DIFFERENTIATION

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## Unit 2: Addition and Subtraction with Fractions

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Gifted and Talented	Students At Risk For Failure
<ul style="list-style-type: none"> <li>• Elevated contextual complexity (use leveled books via tech resources such as NEWSELA)</li> <li>• Inquiry based or open ended assignments and projects</li> <li>• Add in inquiry-based questions and research opportunities to existing projects</li> <li>• More time to study concepts with greater depth through independent study or genius hour projects</li> <li>• Promote the synthesis of concepts and making real world connections</li> <li>• Provide students with enrichment opportunities and experiences suggested by the curriculum</li> <li>• Provide opportunities for competitions (math, science, writing, art, etc)</li> <li>• Alternative instruction pathways available</li> </ul>	<ul style="list-style-type: none"> <li>• Assure students have experiences that are on the Concrete- Pictorial- Abstract spectrum</li> <li>• Modify Instructional Strategies, reading aloud text, graphic organizers, one-on-one instruction, class website (Google Classroom), inclusion of more visuals and manipulatives, Field Trips, Google Expeditions, Peer Support, one on one instruction</li> <li>• Assure constant parental/ guardian contact throughout the year with successes and challenges</li> <li>• Design and provide academic contracts to students and guardians with clear goals and deadlines</li> <li>• Create an interactive notebook with samples, key vocabulary words, student goals/ objectives.</li> <li>• Always plan to address students at risk in your learning tasks, instructions, and directions. Try to anticipate where the needs will be and then address them prior to lessons.</li> <li>• Use the programs intended for remediation ancillary to the curriculum (i.e. IXL for math)</li> </ul>

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## Unit 2: Addition and Subtraction with Fractions

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General program accommodations/adjustments or services are always made on a case-by-case basis and individualized. Accommodations are to be reasonable and are intended to provide persons with disabilities compensation for their functional limitation(s) due to a mental or physical impairment. Where Section 504 is concerned, accommodations are made to bring a student with a disability to the same starting point as a non-disabled student. Consequently, the accommodations defined in a Section 504 plan are those interventions that are not typically available to all students.

### **Environmental Strategies**

- Provide a structured learning environment
- Make separate "space" for different types of tasks
- Possible adapting of non-academic times such as lunch, recess, and physical education
- Change student seating
- Utilize a study carrel
- Alter location or personal or classroom supplies for easier access or to minimize distraction
- Provide sensory breaks
- Provide a written or picture schedule

### **Organizational Strategies**

- Model and reinforce organizational systems (i.e. color-coding)
- Write out homework assignments, check student's recording of assignments
- Tailor homework assignments toward student strengths
- Set time expectations for assignments
- Provide clues such as clock faces indicating beginning and ending times
- Teach study/organizational skills
- Schedule before or after school tutoring/homework assistance

### **Behavioral Strategies**

- Use behavioral management techniques consistently within a classroom and across classes
- Implement behavioral/academic contracts
- Utilize positive verbal and/or nonverbal reinforcements
- Utilize logical consequences
- Confer with the student's parents (and student as appropriate)
- Establish a home/school communication system for behavior monitoring
- Post rules and consequences for classroom behavior
- Put student on daily/weekly progress report/contract
- Reinforce self-monitoring and self-recording of behaviors

### **Presentation Strategies**

- Record lessons so the student can listen to them again; allow students to record lessons
- Use computer-aided instruction and other audiovisual equipment
- Select alternative digital/audio textbooks, workbooks, or provide books
- Highlight main ideas and supporting details in the book
- Provide copied material for extra practice (i.e. outlines, study guides)
- Prioritize drill and practice activities for relevance

## Unit 2: Addition and Subtraction with Fractions

UPDATED 2022 5th Grade Math - Last Updated on July 14, 2022

- Vary the method of lesson presentation using multi-sensory techniques:
  - a) lecture plus overhead/board demonstration support
  - b) small groups required to produce a written product
  - c) large groups required to demonstrate a process
  - d) computer-assisted instruction
  - e) peer tutors or cross-age tutors
  - f) demonstrations, simulations
  - g) experiments
  - h) games
- Ask student to repeat/paraphrase context to check understanding
- Arrange for a mentor to work with student in his or her interest area or area of greatest strength
- Provide peer tutoring
- Simplify and repeat instructions about in-class and homework assignments
- Vary instructional pace
- Reinforce the use of compensatory strategies, i.e. pencil grip, mnemonic devices, “spell check”
- Vary kind of instructional materials used
- Assess whether the student has the necessary prerequisite skills.
- Reinforce study skill strategies (survey, read, recite, review)
- Introduce definition of new terms/vocabulary and review to check for understanding
- Be aware of student's preferred learning style and provide matching instruction materials
- Pre-teach and/or re-teach important concepts
- Prepare advanced organizers/study guides for new material

### **Assignments**

- Modify the amount of homework
- Use written directions to supplement oral directions
- Reduce paper and pencil tasks
- Allow for assignments to be word processed
- Lower reading level of assignments
- Break assignments into a series of smaller assignments
- Use highlighted texts

### **Evaluation Methods**

- Limit amount of material presented on a single page
- Provide a sample or practice test
- Provide for oral testing
- Provide tests in segments so that student hands in one segment before receiving the next part
- Provide personal copy of test tools and allow for color-coding/highlighting
- Adjust time for completion
- Modify weights of tests when grading

[\\*Adapted from Orange Public Schools Curriculum Guide](#)



## Unit 3: Multiplication and Division with Fractions

UPDATED 2022 5th Grade Math - Last Updated on July 14, 2022

### STANDARDS ADDRESSED

#### New Jersey (NJSL) - Grade 5 - Mathematics (2020)

##### 5.NF.B.3

Interpret a fraction as division of the numerator by the denominator ( $a/b = a \div b$ ). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. For example, interpret  $3/4$  as the result of dividing 3 by 4, noting that  $3/4$  multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size  $3/4$ . If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?

##### 5.NF.B.4.a

Interpret the product  $(a/b) \times q$  as a parts of a partition of  $q$  into  $b$  equal parts; equivalently, as the result of a sequence of operations  $a \times q \div b$ . For example, use a visual fraction model to show  $(2/3) \times 4 = 8/3$ , and create a story context for this equation. Do the same with  $(2/3) \times (4/5) = 8/15$ . (In general,  $(a/b) \times (c/d) = ac/bd$ .)

##### 5.NF.B.6

Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.

##### 5.OA.A.1

1. Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.

##### 5.OA.A.2

2. Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. For example, express the calculation “add 8 and 7, then multiply by 2” as  $2 \times (8 + 7)$ . Recognize that  $3 \times (18932 + 921)$  is three times as large as  $18932 + 921$ , without having to calculate the indicated sum or product.

##### 5.NF.B.5

Interpret multiplication as scaling (resizing), by:

##### 5.NF.B.7.c

Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. For example, how much chocolate will each person get if 3 people share  $1/2$  lb of chocolate equally? How many  $1/3$ -cup servings are in 2 cups of raisins?

##### 5.NF

## Unit 3: Multiplication and Division with Fractions

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Number and Operations—Fractions
5.NF.B
Apply and extend previous understandings of multiplication and division to multiply and divide fractions.
5.NF.B.4
Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.
5.NF.B.5.a
Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.
5.NF.B.5.b
Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $a/b = (n \times a)/(n \times b)$ to the effect of multiplying $a/b$ by 1.
5.NF.B.7
Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.1
5.NF.B.7.a
Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. For example, create a story context for $(1/3) \div 4$ , and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $(1/3) \div 4 = 1/12$ because $(1/12) \times 4 = 1/3$ .
5.NF.B.7.b
Interpret division of a whole number by a unit fraction, and compute such quotients. For example, create a story context for $4 \div (1/5)$ , and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $4 \div (1/5) = 20$ because $20 \times (1/5) = 4$ .
5.OA
Operations and Algebraic Thinking
5.OA.A
A. Write and interpret numerical expressions.

# Unit 3: Multiplication and Division with Fractions

UPDATED 2022 5th Grade Math - Last Updated on July 14, 2022

## DESIRED RESULTS

### Established Goals

In module 3, students use various strategies to multiply and divide with fractions. They multiply fractions by whole numbers and by fractions, divide whole numbers by unit fractions and unit fractions by whole numbers, and convert customary measurements.

### Transfer

Students will:  
-use fraction equivalence to multiply and divide fractions

### Meaning

Big Ideas & Understandings	Essential Questions
<p>Students will understand that...</p> <ul style="list-style-type: none"> <li>• Fractions are both parts of a whole and parts of a set or a number</li> <li>• Finding the fraction of a whole number means they are finding the product of a fraction and a whole number.</li> <li>• A whole number divided by a proper fraction results in a quotient that is larger than itself.</li> <li>• Multiplying a whole number by a fraction involves division, as the product is a fraction of the whole number.</li> <li>• Strategies and models used in whole number multiplication and division can be applied to fractions.</li> </ul>	<p>Students will keep considering...</p> <ul style="list-style-type: none"> <li>• How are fractions and division related?</li> <li>• How do we multiply by a fraction?</li> <li>• How do we solve word problems using fractional equations?</li> <li>• How do we divide fractions and decimal fraction?</li> <li>• How do we interpret numerical expressions?</li> <li>• How do we convert customary units?</li> </ul>

### Acquisition

Knowledge	Skills

## Unit 3: Multiplication and Division with Fractions

UPDATED 2022 5th Grade Math - Last Updated on July 14, 2022

### Acquisition

<p>Students will know...</p> <ul style="list-style-type: none"> <li>• Whole numbers multiplied by a proper fractions will result in a product smaller than itself.</li> <li>• Whole number divided by a proper fraction results in a quotient larger than itself.</li> <li>• A strategy for multiplying fractions by unit fractions and fractions (area model, number lines, algorithm)</li> <li>• A strategy for dividing a whole number by a unit fraction or divide a unit fraction by a whole number.</li> <li>• how to check if a solution is reasonable</li> <li>• How to create and solve word problems involving fractions and write equations with parentheses for word problems that require multiple steps to solve.</li> <li>• How to convert customary units to larger or smaller measurement units</li> </ul>	<p>Students will be skilled at...</p> <ul style="list-style-type: none"> <li>• Selecting an appropriate strategy to multiply or divide and use it to solve the problem</li> <li>• Explaining the strategy they chose and how they used it to solve the problem</li> <li>• Explaining the relationship between multiplication and division</li> <li>• Explaining the reasonableness of a solution by using benchmark numbers to estimate the product and quotient of fractions &amp; mixed numbers</li> </ul>
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### ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

## Assessments

Evaluation Criteria	Assessment Evidence
Rubrics/Checklists: Observational tracking sheets	Pre-Assessment Weekly robust exit tickets (quick quiz) Topic A Quiz Topic B Quiz Topic C Quiz Topic D Quiz End of Module Assessment
	Other Evidence: Stations

# Unit 3: Multiplication and Division with Fractions

UPDATED 2022 5th Grade Math - Last Updated on July 14, 2022

## LEARNING PLAN

### Summary of Key Learning Events and Instruction:

Topic A (Multiplication of a whole number by a fraction)

- Lessons 1-6
- Daily Do Nows
- Equip Pre-Module Assessment for readiness
- Stations
- Topic A Quiz

Topic B (Multiplication of Fractions)

- Lessons 7-11
- Daily Do Nows
- Stations
- Topic B Quiz

Topic C (Division with a Unit fraction and a Whole Number)

- Lessons 12-17
- Daily Do Nows
- Stations
- Topic C Quiz

Topic D (Multi-step Problems with Fractions)

- Lessons 18-22
- Daily Do Nows
- Stations
- Topic D Quiz

End of Module Assessment

## Unit 3: Multiplication and Division with Fractions

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### SUPPORTING MATERIALS/RESOURCES/STRATEGIES FOR DIFFERENTIATION

Special Education	ELLs
<ul style="list-style-type: none"><li>• Adhere to all modifications and health concerns stated in each IEP</li><li>• Provide students a choice board, allowing students to pick assignments from different levels based on difficulty.</li></ul> <p>Provide supportive strategies:</p> <ul style="list-style-type: none"><li>◦ Educator or para reading aloud text or tech read-aloud</li><li>◦ Develop or provide graphic organizers</li><li>◦ Small group and one-on-one instruction</li><li>◦ Easy to find information on Google Classroom</li><li>◦ Personal copies of anchor charts and notes</li><li>◦ Vocabulary list with visuals</li><li>◦ Extended time on assignments and assessments</li></ul> <ul style="list-style-type: none"><li>• Allow students to demonstrate understanding of a problem using models, captions and, when possible, explaining the reasoning orally and/or in writing.</li><li>• Provide tech support for recording oral or video answers</li><li>• Provide breaks between tasks, use positive reinforcement, use proximity</li><li>• Assure students have experiences that are on the Concrete- Pictorial- Abstract spectrum by using manipulatives</li><li>• Use any suggestions provided by the specific text for a curriculum</li></ul>	<ul style="list-style-type: none"><li>• Use manipulatives to promote conceptual understanding and enhance vocabulary usage</li><li>• Provide graphic representations, gestures, drawings, equations, realia, and pictures during all segments of instruction</li><li>• During i-Ready lessons, click on “Español” to hear specific words in Spanish</li><li>• Utilize graphic organizers which are concrete, pictorial ways of constructing knowledge and organizing information</li><li>• Use sentence frames and questioning strategies so that students will explain their thinking/ process of how to solve word problems</li><li>• Utilize program translations (if available) for L1/ L2 students</li><li>• Reword questions in simpler language</li><li>• Make use of the ELL Mathematical Language Routines (click <a href="#">here</a> for additional information)</li><li>• Scaffolding instruction for ELL Learners</li><li>• Use any suggestions provided by the specific text for a curriculum</li></ul>

## Unit 3: Multiplication and Division with Fractions

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Gifted and Talented	Students At Risk For Failure
<ul style="list-style-type: none"> <li>• Elevated contextual complexity (use leveled books via tech resources such as NEWSELA)</li> <li>• Inquiry based or open ended assignments and projects</li> <li>• Add in inquiry-based questions and research opportunities to existing projects</li> <li>• More time to study concepts with greater depth through independent study or genius hour projects</li> <li>• Promote the synthesis of concepts and making real world connections</li> <li>• Provide students with enrichment opportunities and experiences suggested by the curriculum</li> <li>• Provide opportunities for competitions (math, science, writing, art, etc)</li> <li>• Alternative instruction pathways available</li> </ul>	<ul style="list-style-type: none"> <li>• Assure students have experiences that are on the Concrete- Pictorial- Abstract spectrum</li> <li>• Modify Instructional Strategies, reading aloud text, graphic organizers, one-on-one instruction, class website (Google Classroom), inclusion of more visuals and manipulatives, Field Trips, Google Expeditions, Peer Support, one on one instruction</li> <li>• Assure constant parental/ guardian contact throughout the year with successes and challenges</li> <li>• Design and provide academic contracts to students and guardians with clear goals and deadlines</li> <li>• Create an interactive notebook with samples, key vocabulary words, student goals/ objectives.</li> <li>• Always plan to address students at risk in your learning tasks, instructions, and directions. Try to anticipate where the needs will be and then address them prior to lessons.</li> <li>• Use the programs intended for remediation ancillary to the curriculum (i.e. IXL for math)</li> </ul>

### \*Strategies for Students with [504 Plans](#)

The goal of 504 plans is for students to be educated in regular classrooms along with the services, accommodations, or educational aids they might need. Students can qualify for 504 plans if they have physical or mental impairments that affect or limit any of their abilities to:

- walk, breathe, eat, or sleep
- communicate, see, hear, or speak
- read, concentrate, think, or learn
- stand, bend, lift, or work

## Unit 3: Multiplication and Division with Fractions

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### **Environmental Strategies**

- Provide a structured learning environment
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- Change student seating
- Utilize a study carrel
- Alter location or personal or classroom supplies for easier access or to minimize distraction
- Provide sensory breaks
- Provide a written or picture schedule

### **Organizational Strategies**

- Model and reinforce organizational systems (i.e. color-coding)
- Write out homework assignments, check student's recording of assignments
- Tailor homework assignments toward student strengths
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### **Behavioral Strategies**

- Use behavioral management techniques consistently within a classroom and across classes
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- Record lessons so the student can listen to them again; allow students to record lessons
- Use computer-aided instruction and other audiovisual equipment
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- Highlight main ideas and supporting details in the book
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## Unit 3: Multiplication and Division with Fractions

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- Vary the method of lesson presentation using multi-sensory techniques:
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  - g) experiments
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- Arrange for a mentor to work with student in his or her interest area or area of greatest strength
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- Simplify and repeat instructions about in-class and homework assignments
- Vary instructional pace
- Reinforce the use of compensatory strategies, i.e. pencil grip, mnemonic devices, “spell check”
- Vary kind of instructional materials used
- Assess whether the student has the necessary prerequisite skills.
- Reinforce study skill strategies (survey, read, recite, review)
- Introduce definition of new terms/vocabulary and review to check for understanding
- Be aware of student's preferred learning style and provide matching instruction materials
- Pre-teach and/or re-teach important concepts
- Prepare advanced organizers/study guides for new material

### **Assignments**

- Modify the amount of homework
- Use written directions to supplement oral directions
- Reduce paper and pencil tasks
- Allow for assignments to be word processed
- Lower reading level of assignments
- Break assignments into a series of smaller assignments
- Use highlighted texts

### **Evaluation Methods**

- Limit amount of material presented on a single page
- Provide a sample or practice test
- Provide for oral testing
- Provide tests in segments so that student hands in one segment before receiving the next part
- Provide personal copy of test tools and allow for color-coding/highlighting
- Adjust time for completion
- Modify weights of tests when grading

[\\*Adapted from Orange Public Schools Curriculum Guide](#)

## Unit 4: Place Value Concepts for Decimal Operations

UPDATED 2022 5th Grade Math - Last Updated on July 14, 2022

### STANDARDS ADDRESSED

New Jersey (NJSL) - Grade 5 - Mathematics (2020)
5.NBT.A.1
Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and $\frac{1}{10}$ of what it represents in the place to its left.
5.NBT.A.2
Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.
5.OA.A.1
1. Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.
5.OA.A.2
2. Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. For example, express the calculation “add 8 and 7, then multiply by 2” as $2 \times (8 + 7)$ . Recognize that $3 \times (18932 + 921)$ is three times as large as $18932 + 921$ , without having to calculate the indicated sum or product.
5.NBT.B.7
Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.
5.MD.A.1
Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.
5.OA
Operations and Algebraic Thinking
5.OA.A
A. Write and interpret numerical expressions.
5.NBT
Number and Operations in Base Ten

## Unit 4: Place Value Concepts for Decimal Operations

UPDATED 2022 5th Grade Math - Last Updated on July 14, 2022

5.NBT.A
Understand the place value system.
5.NBT.A.3
Read, write, and compare decimals to thousandths.
5.NBT.A.3.a
Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)$ .
5.NBT.A.3.b
Compare two decimals to thousandths based on meanings of the digits in each place, using $>$ , $=$ , and $<$ symbols to record the results of comparisons.
5.NBT.A.4
Use place value understanding to round decimals to any place.
5.NBT.B
Perform operations with multi-digit whole numbers and with decimals to hundredths.
5.MD
Measurement and Data
5.MD.A
Convert like measurement units within a given measurement system.

# Unit 4: Place Value Concepts for Decimal Operations

UPDATED 2022 5th Grade Math - Last Updated on July 14, 2022

## DESIRED RESULTS

### Established Goals

In module 4, students relate their understanding of whole numbers and fractions to decimals. Decimal concepts include: describing place value relationships, rounding, comparing, adding, subtracting, multiplying, dividing, and converting measurements.

### Transfer

Students will:

- Represent decimal numbers to thousandths by using a variety of concrete and pictorial models and name the numbers in different forms.
- Apply methods used to add and subtract whole numbers to add and subtract decimal numbers.
- Apply methods used to multiply whole numbers to multiply decimal numbers to hundredths.
- Apply the methods they use to divide whole numbers to divide decimal numbers to hundredths.
- Independently use patterns of the base ten system to solve addition, subtraction, multiplication and division real world problems with decimals.
- Apply their understanding of decimal place value, relationships between decimals and fractions, and computation with decimals, fractions, and whole numbers to convert measurements in both the metric and customary measurement systems.

### Meaning

#### Big Ideas & Understandings

- Students will understand that...
- Computation involves taking apart and combining numbers using a variety of approaches.
  - Flexible methods of computation involve grouping numbers in strategic ways.
  - Proficiency with basic facts aids in estimation and computation of larger and smaller numbers.
  - Area models, tape diagrams and/or equations are effective methods for illustrating and developing conceptual understanding of arithmetic calculations.

#### Essential Questions

- Students will keep considering...
- How can we write and interpret numerical expressions using words, numerals, and parentheses?
  - How do we use the place value system to perform operations with decimals to the hundredths?
  - How can we perform operations with multi-digit whole numbers and with decimals to hundredths?
  - How do we select a strategy or method to solve problems? (place value chart, area model, etc.)
  - How can we check our work for reasonableness?

## Unit 4: Place Value Concepts for Decimal Operations

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Meaning	
<ul style="list-style-type: none"> <li>• The relationship between multiplication and division can be used to find decimal quotients of multi-digit dividends and divisors.</li> <li>• Standard algorithms are efficient methods for performing calculations.</li> <li>• There are patterns in the number of zeros of the product and quotient when multiplying and dividing by powers of 10.</li> </ul>	

Acquisition	
Knowledge	Skills
<p>Students will know</p> <ul style="list-style-type: none"> <li>• the patterns for multiplying and dividing by powers of ten</li> <li>• a strategy for adding decimals</li> <li>• a strategy for subtracting decimals</li> <li>• how to apply place value understanding and use concrete and pictorial models to add and subtract decimals and fractions</li> <li>• a strategy for multiplying decimals to the hundredths</li> <li>• a strategy for dividing decimals to the hundredths</li> <li>• a few strategies or methods for solving problems</li> <li>• how to check if a solution is reasonable</li> </ul>	<p>Students will be skilled at</p> <ul style="list-style-type: none"> <li>• Multiplying &amp; estimating multi-digit whole numbers and multiples of 10 using place value pattern and the distributive and associative properties.</li> <li>• Connecting visual models and the distributive property to partial products of the standard algorithm.</li> <li>• Solving multiplication and division problems with whole numbers</li> <li>• Solving multiplication &amp; division problems with decimals to the hundredths</li> <li>• Selecting an appropriate strategy and use it to solve the problem</li> <li>• Explaining the strategy they chose and how they used it to solve the problem</li> <li>• Explaining the reasonableness of solutions using place value reasoning</li> </ul>

# Unit 4: Place Value Concepts for Decimal Operations

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# Unit 4: Place Value Concepts for Decimal Operations

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## ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

### Assessments

Rubrics/Checklists:  Observation tracking sheets	Pre-Assessment Weekly robust exit tickets (quick quiz) Topic A Quiz Topic B Quiz Topic C Quiz Topic D Quiz Topic E Quiz End of Module Assessment
	Other Evidence: Stations Observations One-on-one conferencing

# Unit 4: Place Value Concepts for Decimal Operations

UPDATED 2022 5th Grade Math - Last Updated on July 14, 2022

## LEARNING PLAN

### Summary of Key Learning Events and Instruction:

Topic A (Understanding Decimal Numbers with Place Value and Fraction Thinking)

- Lessons 1-8
- Daily Do Nows
- Equip Pre-Module Assessment for readiness
- Stations
- Topic A Quiz

Topic B (Addition and Subtraction of Decimal Numbers)

- Lessons 9-13
- Daily Do Nows
- Stations
- Topic B Quiz

Topic C (Multiplication of Decimal Numbers)

- Lessons 14-19
- Daily Do Nows
- Stations
- Topic C Quiz

Topic D (Division of Decimal Numbers)

- Lessons 20-25
- Daily Do Nows
- Stations
- Topic D Quiz

Topic E (Applications of Decimals)

- Lessons 26-30
- Daily Do Nows
- Stations
- Topic E Quiz

End of Module Assessment



# Unit 4: Place Value Concepts for Decimal Operations

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## Unit 4: Place Value Concepts for Decimal Operations

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### SUPPORTING MATERIALS/RESOURCES/STRATEGIES FOR DIFFERENTIATION

Special Education	ELLs
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## Unit 4: Place Value Concepts for Decimal Operations

UPDATED 2022 5th Grade Math - Last Updated on July 14, 2022

Gifted and Talented	Students At Risk For Failure
<ul style="list-style-type: none"><li>• Elevated contextual complexity (use leveled books via tech resources such as NEWSOLA)</li><li>• Inquiry based or open ended assignments and projects</li><li>• Add in inquiry-based questions and research opportunities to existing projects</li><li>• More time to study concepts with greater depth through independent study or genius hour projects</li><li>• Promote the synthesis of concepts and making real world connections</li><li>• Provide students with enrichment opportunities and experiences suggested by the curriculum</li><li>• Provide opportunities for competitions (math, science, writing, art, etc)</li><li>• Alternative instruction pathways available</li></ul>	<ul style="list-style-type: none"><li>• Assure students have experiences that are on the Concrete- Pictorial- Abstract spectrum</li><li>• Modify Instructional Strategies, reading aloud text, graphic organizers, one-on-one instruction, class website (Google Classroom), inclusion of more visuals and manipulatives, Field Trips, Google Expeditions, Peer Support, one on one instruction</li><li>• Assure constant parental/ guardian contact throughout the year with successes and challenges</li><li>• Design and provide academic contracts to students and guardians with clear goals and deadlines</li><li>• Create an interactive notebook with samples, key vocabulary words, student goals/ objectives.</li><li>• Always plan to address students at risk in your learning tasks, instructions, and directions. Try to anticipate where the needs will be and then address them prior to lessons.</li><li>• Use the programs intended for remediation ancillary to the curriculum (i.e. IXL for math)</li></ul>

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## Unit 4: Place Value Concepts for Decimal Operations

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### **Environmental Strategies**

- Provide a structured learning environment
- Make separate "space" for different types of tasks
- Possible adapting of non-academic times such as lunch, recess, and physical education
- Change student seating
- Utilize a study carrel
- Alter location or personal or classroom supplies for easier access or to minimize distraction
- Provide sensory breaks
- Provide a written or picture schedule

### **Organizational Strategies**

- Model and reinforce organizational systems (i.e. color-coding)
- Write out homework assignments, check student's recording of assignments
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- Use behavioral management techniques consistently within a classroom and across classes
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### **Presentation Strategies**

- Record lessons so the student can listen to them again; allow students to record lessons
- Use computer-aided instruction and other audiovisual equipment
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## Unit 4: Place Value Concepts for Decimal Operations

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- Vary the method of lesson presentation using multi-sensory techniques:
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  - b) small groups required to produce a written product
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  - e) peer tutors or cross-age tutors
  - f) demonstrations, simulations
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- Ask student to repeat/paraphrase context to check understanding
- Arrange for a mentor to work with student in his or her interest area or area of greatest strength
- Provide peer tutoring
- Simplify and repeat instructions about in-class and homework assignments
- Vary instructional pace
- Reinforce the use of compensatory strategies, i.e. pencil grip, mnemonic devices, “spell check”
- Vary kind of instructional materials used
- Assess whether the student has the necessary prerequisite skills.
- Reinforce study skill strategies (survey, read, recite, review)
- Introduce definition of new terms/vocabulary and review to check for understanding
- Be aware of student's preferred learning style and provide matching instruction materials
- Pre-teach and/or re-teach important concepts
- Prepare advanced organizers/study guides for new material

### **Assignments**

- Modify the amount of homework
- Use written directions to supplement oral directions
- Reduce paper and pencil tasks
- Allow for assignments to be word processed
- Lower reading level of assignments
- Break assignments into a series of smaller assignments
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### **Evaluation Methods**

- Limit amount of material presented on a single page
- Provide a sample or practice test
- Provide for oral testing
- Provide tests in segments so that student hands in one segment before receiving the next part
- Provide personal copy of test tools and allow for color-coding/highlighting
- Adjust time for completion
- Modify weights of tests when grading

[\\*Adapted from Orange Public Schools Curriculum Guide](#)

## Unit 5: Addition and Multiplication with Area and Volume

UPDATED 2022 5th Grade Math - Last Updated on July 14, 2022

### STANDARDS ADDRESSED

<b>New Jersey (NJSLS) - Grade 5 - Mathematics (2020)</b>
5.MD.C.3
Recognize volume as an attribute of solid figures and understand concepts of volume measurement.
5.MD.C.3.a
A cube with side length 1 unit, called a “unit cube,” is said to have “one cubic unit” of volume, and can be used to measure volume.
5.MD.C.3.b
A solid figure which can be packed without gaps or overlaps using $n$ unit cubes is said to have a volume of $n$ cubic units.
5.MD.C.4
Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and non-standard units.
5.MD.C.5
Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.
5.MD.C.5.a
Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication.
5.MD.C.5.b
Apply the formulas $V = l \times w \times h$ and $V = B \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole number edge lengths in the context of solving real world and mathematical problems.
5.MD.C.5.c
Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.
5.NF.B.4
Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.

## Unit 5: Addition and Multiplication with Area and Volume

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5.NF.B.4.b
Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.
5.NF.B.6
Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.
5.G.B.3
Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.
5.G.B.4
Classify two-dimensional figures in a hierarchy based on properties.
5.NF.B
Apply and extend previous understandings of multiplication and division to multiply and divide fractions.
5.NF.B.4.a
Interpret the product $(a/b) \times q$ as a parts of a partition of $q$ into $b$ equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$ . For example, use a visual fraction model to show $(2/3) \times 4 = 8/3$ , and create a story context for this equation. Do the same with $(2/3) \times (4/5) = 8/15$ . (In general, $(a/b) \times (c/d) = ac/bd$ .)
5.MD
Measurement and Data
5.MD.C
Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.
5.G
Geometry
5.G.B
Classify two-dimensional figures into categories based on their properties.

# Unit 5: Addition and Multiplication with Area and Volume

UPDATED 2022 5th Grade Math - Last Updated on July 14, 2022

## DESIRED RESULTS

### Established Goals

In module 5, students connect operations to geometric concepts. They find area of rectangles with fraction side lengths, multiply mixed numbers, and find the volume of right rectangular prisms. Students also categorize two-dimensional figures in a hierarchy.

### Transfer

Students will be able to independently use their learning to...

- use their understanding of area with their newly acquired knowledge of fraction multiplication to determine the area of rectangular figures with fractional side lengths.
- classify two dimensional shapes by reasoning about their attributes
- applying the formulas of  $V = L \times W \times H$  and  $V = B \times h$
- finding the volume of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts

### Meaning

#### Big Ideas & Understandings

Students will understand that...

- Everyday objects have a variety of attributes, each of which can be measured in many ways.
- 2-dimensional shapes have attributes that are used to identify and specifically classify a shape
- Area is an attribute of 2 dimensions; length and width
- Volume is an attribute of 3 dimensions; length, width, height.
- Volume of a rectangular prism is determined by multiplying its three dimensions; length times width times height OR the base x the height.
- Volume is measured by the quantity of same units times of volume that completely fill the space.
- 1 x 1 x 1 unit cube is standard unit of measurement for volume; either metric

#### Essential Questions

Students will keep considering...

- Why does "what" we measure influence "how we measure?"
- What unit would be most appropriate for solving a given problem?
- How is volume related to multiplication
- When finding the volume of two non-overlapping right rectangular prisms what measurements do you need?
- How can we recognize volume as an attribute of solid figures and understand concepts of volume and measurement?
- How can we measure volume by counting unit cubes?
- How can we relate volume to the operations of



## Unit 5: Addition and Multiplication with Area and Volume

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Meaning	
<p>measurement can be use.</p> <ul style="list-style-type: none"> <li>• Shapes can be described in terms of their location in a plane or in a space.</li> <li>•</li> <li>• What we measure affects how we measure it.</li> <li>• Measurements can be used to describe, compare, and make sense of phenomena.</li> <li>• A measurement can be converted to a different unit with the two measurements representing the same amount.</li> <li>• Volume is measured in cubic units.</li> <li>• Volume is determined by the amount of cubic units that fit into a three dimensional object.</li> <li>• The formula for calculating the volume of a rectangular prism is directly connected to its physical shape</li> </ul>	<p>multiplication and addition and solve real world problems involving volume?</p> <ul style="list-style-type: none"> <li>• How can we understand the attributes of two dimensional figures relating to categories and subcategories</li> </ul>

Acquisition	
Knowledge	Skills
<p>Students will know...</p> <ul style="list-style-type: none"> <li>• the attributes and properties of two-dimensional quadrilaterals</li> <li>• Area = length * width</li> <li>• a cube with side length 1 unit, called a "unit cube," is said to have "one cubic unit" of volume, and can be used to measure volume.</li> <li>• A solid which can be packed without gaps or overlaps using</li> <li>• the formula to calculate volume of rectangular</li> </ul>	<p>Students will be skilled at...</p> <ul style="list-style-type: none"> <li>• classifying two-dimensional figures based on their properties (quadrilaterals, trapezoids, parallelograms, rectangles, rhombuses, kites, squares)</li> <li>• finding the area of a rectangle with fraction side lengths</li> <li>• solve problems involving the area of composite figures with mixed number side lengths</li> <li>• selecting an appropriate strategy to measure and</li> </ul>

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### Acquisition

<p>prism involves the dimensions of length, width, and height.</p> <ul style="list-style-type: none"> <li>Volume = <math>L \times W \times H</math> or <math>V = B \times h</math></li> <li>recognize volume as additive.</li> <li>attributes of two-dimensional figures</li> </ul>	<p>determine the dimensions of a rectangular prism.</p> <ul style="list-style-type: none"> <li>applying the formulas of <math>V = L \times W \times H</math> and <math>V = B \times h</math></li> <li>finding the volume of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts</li> </ul>
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### ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

## Assessments

<p>Rubrics/Checklists:</p> <p>Observation tracking sheets</p>	<p>Pre-Assessment</p> <p>Weekly robust exit tickets (quick quiz)</p> <p>Topic A Quiz</p> <p>Topic B Quiz</p> <p>Topic C Quiz</p> <p>Topic D Quiz</p> <p>End of Module Assessment</p>
	<p>Other Evidence:</p> <p>Stations</p> <p>Observations</p> <p>One-on-one conferencing</p>

# Unit 5: Addition and Multiplication with Area and Volume

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## LEARNING PLAN

### Summary of Key Learning Events and Instruction:

Topic A (Drawing, Analysis and Classification of Two-Dimensional Figures)

- Lessons 1-7
- Daily Do Nows
- Equip Pre-Module Assessment for readiness
- Stations
- Topic A Quiz

Topic B (Areas of Rectangular Figures with Fraction Side Lengths)

- Lessons 8-15
- Daily Do Nows
- Stations
- Topic B Quiz

Topic C (Volume Concepts)

- Lessons 16-21
- Daily Do Nows
- Stations
- Topic C Quiz

Topic D (Volume and the Operations of Multiplication and Addition)

- Lessons 22-28
- Daily Do Nows
- Stations
- Topic D Quiz

End of Module Assessment

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- Vary the method of lesson presentation using multi-sensory techniques:
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- Adjust time for completion
- Modify weights of tests when grading

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## Unit 6: Foundations to Geometry in the Coordinate Plane

UPDATED 2022 5th Grade Math - Last Updated on July 14, 2022

### STANDARDS ADDRESSED

#### New Jersey (NJSLS) - Grade 5 - Mathematics (2020)

##### 5.G.A.1

Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate).

##### 5.OA.B.3

3. Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. For example, given the rule “Add 3” and the starting number 0, and given the rule “Add 6” and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.

##### 5.G.A.2

Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.

##### 5.OA

Operations and Algebraic Thinking

##### 5.OA.B

B. Analyze patterns and relationships.

##### 5.NF

Number and Operations—Fractions

##### 5.NF.B

Apply and extend previous understandings of multiplication and division to multiply and divide fractions.

##### 5.NF.B.4

Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.

##### 5.NF.B.4.a



## Unit 6: Foundations to Geometry in the Coordinate Plane

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Interpret the product  $(a/b) \times q$  as a parts of a partition of  $q$  into  $b$  equal parts; equivalently, as the result of a sequence of operations  $a \times q \div b$ . For example, use a visual fraction model to show  $(2/3) \times 4 = 8/3$ , and create a story context for this equation. Do the same with  $(2/3) \times (4/5) = 8/15$ . (In general,  $(a/b) \times (c/d) = ac/bd$ .)

5.NF.B.4.b

Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.

5.G

Geometry

5.G.A

Graph points on the coordinate plane to solve real-world and mathematical problems.

5.G.B

Classify two-dimensional figures into categories based on their properties.

5.G.B.3

Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.

5.G.B.4

Classify two-dimensional figures in a hierarchy based on properties.

### **New Jersey (NJSL) - Grade 4 - Mathematics (2020)**

4.G.A.1

Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.

4.G.A.3

Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.

# Unit 6: Foundations to Geometry in the Coordinate Plane

UPDATED 2022 5th Grade Math - Last Updated on July 14, 2022

## DESIRED RESULTS

Module 6 introduces the coordinate plane. Students construct a coordinate plane, identify the location of points in the plane, and identify patterns in ordered pairs that create lines. They draw quadrilaterals in the plane and use the plane to represent data.

### Transfer

Students will be able to independently

- use the number line as a intro to the coordinate system.
- see that just as points on the line can be located by their distance from 0, the plane's coordinate system can be used to locate and plot points using two coordinates.
- recognize patterns in the coordinate plane
- solve mathematical problems in the coordinate plane
- solve real-world problems with the coordinate plane.

### Meaning

#### Big Ideas & Understandings

Students will understand that...

- Given a pattern you can generate a rule; given a rule you can generate a pattern.
- Ordered pairs that represent corresponding terms from two patterns can be represented on a graph, and apparent relationships between them can be described
- This point corresponds to a location on both a horizontal x-axis and a vertical y-axis on the coordinate plane.
- The point (0,0) is an ordered pair that marks the origin on a coordinate plane
- Points on a coordinate plane can be used to graph real world problems to find solutions.

#### Essential Questions

Students will keep considering...

- How can a rule help you define a pattern?
- What can you learn about the relationship between two sequences of numbers by creating a visual representation?
- Why is it important to match corresponding terms to create a coordinate pair?

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Acquisition	
Knowledge	Skills
<p>Students will know...</p> <ul style="list-style-type: none"> <li>number lines are used to construct a coordinate system composed of intersecting horizontal and vertical number lines</li> <li>ordered pairs are used to describe the location of a point in a coordinate plane</li> <li>horizontal and vertical lines have different properties that can be used to solve problems</li> <li>lines have an infinite number of points</li> <li>coordinate planes are useful tools for representing data, modeling relationship and solving real-world problems</li> </ul>	<p>Students will be skilled at...</p> <ul style="list-style-type: none"> <li>constructing a coordinate system on a line and in a plane</li> <li>identifying and plotting points using ordered pairs</li> <li>identifying and using properties of horizontal and vertical lines to solve problems</li> <li>draw lines in the coordinate plane and identify points on the lines</li> <li>graph and classify quadrilaterals in the coordinate plane</li> <li>interpret graphs to represent real-world situations</li> <li>plot data in the coordinate plane and analyze relationships</li> </ul>

### ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

## Assessments

<p>Rubrics/Checklists:</p> <p>Observation tracking sheets</p>	<p>Pre-Assessment</p> <p>Weekly robust exit tickets (quick quiz)</p> <p>Topic A Quiz</p> <p>Topic B Quiz</p> <p>Topic C Quiz</p> <p>Topic D Quiz</p> <p>End of Module Assessment</p>
	<p>Other Evidence:</p> <p>Stations</p> <p>Observations</p> <p>One-on-one conferencing</p>

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## LEARNING PLAN

### Summary of Key Learning Events and Instruction:

#### Topic A (Coordinate Systems)

- Lessons 1-4
- Daily Do Nows
- Equip Pre-Module Assessment for readiness
- Stations
- Topic A Quiz

#### Topic B (Patterns in the Coordinate Plane)

- Lessons 5-10
- Daily Do Nows
- Stations
- Topic B Quiz

#### Topic C (Solve Mathematical Problems in the Coordinate Plane)

- Lessons 11-15
- Daily Do Nows
- Stations
- Topic C Quiz

#### Topic D (Solve Real-World Problems with the Coordinate Plane)

- Lessons 16-20
- Daily Do Nows
- Stations
- Topic D Quiz

End of Module Assessment

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## SUPPORTING MATERIALS/RESOURCES/STRATEGIES FOR DIFFERENTIATION

Special Education	ELLs
<ul style="list-style-type: none"><li>• Adhere to all modifications and health concerns stated in each IEP</li><li>• Provide students a choice board, allowing students to pick assignments from different levels based on difficulty.</li></ul> <p>Provide supportive strategies:</p> <ul style="list-style-type: none"><li>◦ Educator or para reading aloud text or tech read-aloud</li><li>◦ Develop or provide graphic organizers</li><li>◦ Small group and one-on-one instruction</li><li>◦ Easy to find information on Google Classroom</li><li>◦ Personal copies of anchor charts and notes</li><li>◦ Vocabulary list with visuals</li><li>◦ Extended time on assignments and assessments</li></ul> <ul style="list-style-type: none"><li>• Allow students to demonstrate understanding of a problem using models, captions and, when possible, explaining the reasoning orally and/or in writing.</li><li>• Provide tech support for recording oral or video answers</li><li>• Provide breaks between tasks, use positive reinforcement, use proximity</li><li>• Assure students have experiences that are on the Concrete- Pictorial- Abstract spectrum by using manipulatives</li><li>• Use any suggestions provided by the specific text for a curriculum</li></ul>	<ul style="list-style-type: none"><li>• Use manipulatives to promote conceptual understanding and enhance vocabulary usage</li><li>• Provide graphic representations, gestures, drawings, equations, realia, and pictures during all segments of instruction</li><li>• During i-Ready lessons, click on “Español” to hear specific words in Spanish</li><li>• Utilize graphic organizers which are concrete, pictorial ways of constructing knowledge and organizing information</li><li>• Use sentence frames and questioning strategies so that students will explain their thinking/ process of how to solve word problems</li><li>• Utilize program translations (if available) for L1/ L2 students</li><li>• Reword questions in simpler language</li><li>• Make use of the ELL Mathematical Language Routines (click <a href="#">here</a> for additional information)</li><li>• Scaffolding instruction for ELL Learners</li><li>• Use any suggestions provided by the specific text for a curriculum</li></ul>

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Gifted and Talented	Students At Risk For Failure
<ul style="list-style-type: none"> <li>• Elevated contextual complexity (use leveled books via tech resources such as NEWSELA)</li> <li>• Inquiry based or open ended assignments and projects</li> <li>• Add in inquiry-based questions and research opportunities to existing projects</li> <li>• More time to study concepts with greater depth through independent study or genius hour projects</li> <li>• Promote the synthesis of concepts and making real world connections</li> <li>• Provide students with enrichment opportunities and experiences suggested by the curriculum</li> <li>• Provide opportunities for competitions (math, science, writing, art, etc)</li> <li>• Alternative instruction pathways available</li> </ul>	<ul style="list-style-type: none"> <li>• Assure students have experiences that are on the Concrete- Pictorial- Abstract spectrum</li> <li>• Modify Instructional Strategies, reading aloud text, graphic organizers, one-on-one instruction, class website (Google Classroom), inclusion of more visuals and manipulatives, Field Trips, Google Expeditions, Peer Support, one on one instruction</li> <li>• Assure constant parental/ guardian contact throughout the year with successes and challenges</li> <li>• Design and provide academic contracts to students and guardians with clear goals and deadlines</li> <li>• Create an interactive notebook with samples, key vocabulary words, student goals/ objectives.</li> <li>• Always plan to address students at risk in your learning tasks, instructions, and directions. Try to anticipate where the needs will be and then address them prior to lessons.</li> <li>• Use the programs intended for remediation ancillary to the curriculum (i.e. IXL for math)</li> </ul>

### \*Strategies for Students with [504 Plans](#)

The goal of 504 plans is for students to be educated in regular classrooms along with the services, accommodations, or educational aids they might need. Students can qualify for 504 plans if they have physical or mental impairments that affect or limit any of their abilities to:

- walk, breathe, eat, or sleep
- communicate, see, hear, or speak
- read, concentrate, think, or learn
- stand, bend, lift, or work

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General program accommodations/adjustments or services are always made on a case-by-case basis and individualized. Accommodations are to be reasonable and are intended to provide persons with disabilities compensation for their functional limitation(s) due to a mental or physical impairment. Where Section 504 is concerned, accommodations are made to bring a student with a disability to the same starting point as a non-disabled student. Consequently, the accommodations defined in a Section 504 plan are those interventions that are not typically available to all students.

### **Environmental Strategies**

- Provide a structured learning environment
- Make separate "space" for different types of tasks
- Possible adapting of non-academic times such as lunch, recess, and physical education
- Change student seating
- Utilize a study carrel
- Alter location or personal or classroom supplies for easier access or to minimize distraction
- Provide sensory breaks
- Provide a written or picture schedule

### **Organizational Strategies**

- Model and reinforce organizational systems (i.e. color-coding)
- Write out homework assignments, check student's recording of assignments
- Tailor homework assignments toward student strengths
- Set time expectations for assignments
- Provide clues such as clock faces indicating beginning and ending times
- Teach study/organizational skills
- Schedule before or after school tutoring/homework assistance

### **Behavioral Strategies**

- Use behavioral management techniques consistently within a classroom and across classes
- Implement behavioral/academic contracts
- Utilize positive verbal and/or nonverbal reinforcements
- Utilize logical consequences
- Confer with the student's parents (and student as appropriate)
- Establish a home/school communication system for behavior monitoring
- Post rules and consequences for classroom behavior
- Put student on daily/weekly progress report/contract
- Reinforce self-monitoring and self-recording of behaviors

### **Presentation Strategies**

- Record lessons so the student can listen to them again; allow students to record lessons
- Use computer-aided instruction and other audiovisual equipment
- Select alternative digital/audio textbooks, workbooks, or provide books
- Highlight main ideas and supporting details in the book
- Provide copied material for extra practice (i.e. outlines, study guides)
- Prioritize drill and practice activities for relevance

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- Vary the method of lesson presentation using multi-sensory techniques:
  - a) lecture plus overhead/board demonstration support
  - b) small groups required to produce a written product
  - c) large groups required to demonstrate a process
  - d) computer-assisted instruction
  - e) peer tutors or cross-age tutors
  - f) demonstrations, simulations
  - g) experiments
  - h) games
- Ask student to repeat/paraphrase context to check understanding
- Arrange for a mentor to work with student in his or her interest area or area of greatest strength
- Provide peer tutoring
- Simplify and repeat instructions about in-class and homework assignments
- Vary instructional pace
- Reinforce the use of compensatory strategies, i.e. pencil grip, mnemonic devices, “spell check”
- Vary kind of instructional materials used
- Assess whether the student has the necessary prerequisite skills.
- Reinforce study skill strategies (survey, read, recite, review)
- Introduce definition of new terms/vocabulary and review to check for understanding
- Be aware of student's preferred learning style and provide matching instruction materials
- Pre-teach and/or re-teach important concepts
- Prepare advanced organizers/study guides for new material

### **Assignments**

- Modify the amount of homework
- Use written directions to supplement oral directions
- Reduce paper and pencil tasks
- Allow for assignments to be word processed
- Lower reading level of assignments
- Break assignments into a series of smaller assignments
- Use highlighted texts

### **Evaluation Methods**

- Limit amount of material presented on a single page
- Provide a sample or practice test
- Provide for oral testing
- Provide tests in segments so that student hands in one segment before receiving the next part
- Provide personal copy of test tools and allow for color-coding/highlighting
- Adjust time for completion
- Modify weights of tests when grading

[\\*Adapted from Orange Public Schools Curriculum Guide](#)