

# UPDATED 2022 6th Grade Math

## Link Community Charter School

UNITS (6/6 SELECTED)

	SUGGESTED DURATION
<input type="checkbox"/> Unit 1: Ratios, Rates and Percents	<i>26 lessons</i>
<input type="checkbox"/> Unit 2: Operations with Fractions and Multi-digit Numbers	<i>24 lessons</i>
<input type="checkbox"/> Unit 3: Rational Numbers	<i>17 lessons</i>
<input type="checkbox"/> Unit 4: Expressions and One-Step Equations	<i>25 lessons</i>
<input type="checkbox"/> Unit 5: Area, Surface Area, and Volume	<i>19 lessons</i>
<input type="checkbox"/> Unit 6: Statistics	<i>22 lessons</i>

# Unit 1: Ratios, Rates and Percents

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

## STANDARDS ADDRESSED

### New Jersey (NJSLS) - Grade 6 - Mathematics (2020)

#### 6.RP.A.1

Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak." "For every vote candidate A received, candidate C received nearly three votes."

#### 6.RP.A.2

Understand the concept of a unit rate  $a/b$  associated with a ratio  $a:b$  with  $b \neq 0$ , and use rate language in the context of a ratio relationship. For example, "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is  $3/4$  cup of flour for each cup of sugar." "We paid \$75 for 15 hamburgers, which is a rate of \$5 per hamburger."1

#### 6.RP.A.3

Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.

#### 6.RP.A.3.c

Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.

### National Common Core - Mathematical Practice

#### 1.

Make sense of problems and persevere in solving them.

#### 2.

Reason abstractly and quantitatively.

#### 5.

Use appropriate tools strategically.

#### 6.

Attend to precision.

#### 7.

Look for and make use of structure.

# Unit 1: Ratios, Rates and Percents

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

## DESIRED RESULTS

### Established Goals

In this module, students are introduced to the concepts of ratio and rate. Their previous experience solving problems involving multiplicative comparisons serves as the conceptual foundation for understanding ratios as a multiplicative comparison of two or more numbers used in quantities or measurements. Students develop fluidity in using multiple forms of ratio language and ratio notation. They construct viable arguments and communicate reasoning about ratio equivalence as they solve ratio problems in real-world contexts.

### Transfer

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

- Justify equivalent ratios as ratios having the same value.
- Construct and interpret ratio tables with additive and multiplicative structures.
- Represent collections of equivalent ratios with a double number line model.
- Solve unit rate problems involving unit pricing, constant speed, and constant rates of work.
- Find percent of a quantity as a rate *per* 100.
- Express a fraction as a percent and find a percent of a quantity in real-world contexts.

### Meaning

#### Big Ideas & Understandings

Students will understand that...

- A ratio is a comparison of two non-zero, non-negative units.
- Two ratios can be equivalent if they both have values that are equal.
- Ratios can be transformed to rates and unit rates.
- Ratios can be used to find rates of speed, work, and measurement.
- Ratios can be used to find percents.

#### Essential Questions

Students will keep considering...

- How can we compare two units?
- How can we prove that two ratios are equivalent?
  - How do we find the value of a ratio?
  - How do we know that two values are equal?
- How can we transform ratios into rates and unit rates?
- How can we use ratios to find a rate?
  - Rates of speed, work, and measurement
- How can we use ratios to find percents?
- How and where are ratios and rates used in the real world?

# Unit 1: Ratios, Rates and Percents

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

Meaning	
	<ul style="list-style-type: none"><li>• How can I model and represent rates and ratios?</li><li>• What are similarities and differences between fractions and ratios?</li></ul>

Acquisition	
Knowledge	Skills
<p>Students will know...</p> <ul style="list-style-type: none"><li>• A ratio is an ordered pair of numbers which are not both zero.</li><li>• How to use multiples to find equivalent ratios.</li><li>• What a unit rate is and how it describes a relationship.</li><li>• That a measurement of a quantity is a representation of that quantity.</li><li>• That a percent can be used as a rate.</li><li>• A strategy to solve real-world problems using ratios and rates.</li><li>• A percent of a quantity is a fraction out of 100.</li><li>• Ratio reasoning can be used to convert measurement units.</li></ul>	<p>Students will be skilled at...</p> <ul style="list-style-type: none"><li>• Writing a ratio in three different formats as a fraction, with a colon and in word form with the word "to"</li><li>• Solving unit rate problems including using unit pricing constant speed.</li><li>• Making tables of equivalent ratios<ul style="list-style-type: none"><li>◦ Relate quantities with whole-number measurements</li><li>◦ Find the missing values in the tables</li><li>◦ Plot the pairs of values on the coordinate plane</li></ul></li><li>• Solving real-world problems using ratios and rates.<ul style="list-style-type: none"><li>◦ Solve problems involving finding the whole, given a part and the percent.</li></ul></li><li>• Using a tape diagram, double number line diagram, or equation to solve and ratio and rate problems.<ul style="list-style-type: none"><li>◦ Justify real-world problems using models.</li></ul></li></ul>

# Unit 1: Ratios, Rates and Percents

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

## ASSESSMENT EVIDENCE (DIAGNOSTIC / FORMATIVE / SUMMATIVE)

### Assessments

Evaluation Criteria	Assessment Evidence
<p>Rubrics/Checklists:</p> <ul style="list-style-type: none"><li>• Performance task rubric</li></ul>	<p>Performance Task(s):</p> <ul style="list-style-type: none"><li>• Pre-Assessment broken into chunks as start of the week opening do-now</li><li>• Weekly Robust Exit Tickets (quick quiz)</li><li>• Performance Task - Timing TBD</li><li>• Mid-Module Assessment</li><li>• End-of-Module Assessment</li></ul>
	<p>Other Evidence:</p> <ul style="list-style-type: none"><li>• Tracking sheets with anecdotes</li><li>• Stations observational data and work products</li><li>• Exit Tickets</li></ul>

# Unit 1: Ratios, Rates and Percents

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

## LEARNING PLAN

### Summary of Key Learning Events and Instruction:

Week 1: Topic A (Representing and Reading About Ratios)

- Lessons 1-7
- Daily Do Nows (Equip Pre-Assessment)
- Friday Flex: Show What You Know! (Quiz)

Week 2: Topic B (Collections of Equivalent Ratios)

- Lessons 9-13
- Daily Do Nows (Equip Pre-Assessment)
- Friday Flex: Show What You Know! (Quiz)

Week 3: Topic B & Mid-Mod

- Lessons 14-17
- Daily Do Nows (Equip Pre-Assessment)
- Mid-Module Assessment

Week 4: Topic C (Unit Rates)

- Lessons 18-24
- Daily Do Nows (Equip Pre-Assessment)
- Friday Flex: Show What You Know! (Quiz)

Week 5: Topic D (Percents) & End-of-Mod

- Lessons 25-29
- Daily Do Nows (Equip Pre-Assessment)
- End-of-Mod Assessment

# Unit 1: Ratios, Rates and Percents

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

## 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 1: Ratios, Rates and Percents

UPDATED 2022 6th Grade Math - Last Updated on July 13, 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 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 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



## Unit 1: Ratios, Rates and Percents

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

- 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 of 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 1: Ratios, Rates and Percents

UPDATED 2022 6th Grade Math - Last Updated on July 13, 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 2: Operations with Fractions and Multi-digit Numbers

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

### STANDARDS ADDRESSED

#### New Jersey (NJSL) - Grade 6 - Mathematics (2020)

##### 6.NS.A.1

Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. For example, create a story context for  $(2/3) \div (3/4)$  and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that  $(2/3) \div (3/4) = 8/9$  because  $3/4$  of  $8/9$  is  $2/3$ . (In general,  $(a/b) \div (c/d) = ad/bc$ ). How much chocolate will each person get if 3 people share  $1/2$  lb of chocolate equally? How many  $3/4$ -cup servings are in  $2/3$  of a cup of yogurt? How wide is a rectangular strip of land with length  $3/4$  mi and area  $1/2$  square mi?

##### 6.NS.B.3

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

##### 6.NS.B.2

Fluently divide multi-digit numbers using the standard algorithm.

##### 6.NS.B.4

Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor. For example, express  $36 + 8$  as  $4(9 + 2)$ .

#### National Common Core - Mathematical Practice

##### 1.

Make sense of problems and persevere in solving them.

##### 2.

Reason abstractly and quantitatively.

##### 6.

Attend to precision.

##### 7.

Look for and make use of structure.

##### 8.

## Unit 2: Operations with Fractions and Multi-digit Numbers

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

Look for and express regularity in repeated reasoning.

## Unit 2: Operations with Fractions and Multi-digit Numbers

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

### DESIRED RESULTS

#### Established Goals

In Module 2, students complete their understanding of the four operations as they study division of whole numbers, division by a fraction, and operations on multi-digit decimals. This expanded understanding serves to complete their study of the four operations with positive rational numbers, thereby preparing students for understanding, locating, and ordering negative rational numbers and algebraic expressions.

#### Transfer

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

- Construct division stories and solve word problems involving division of fractions.
- Use measurement to determine quotients of fractions.
- Apply the direct correlation of division of fractions to division of decimals.
- Make connections between fraction multiplication and decimal multiplication.
- Connect estimation to place value and determine that the standard algorithm is simply a tally system arranged in place value columns.
- Find the greatest common factor and least common multiple of a set of numbers.

#### Meaning

##### Big Ideas & Understandings

Students will understand that...

- Division breaks quantities into groups of equal size.
- Division is related to repeated subtraction as multiplication is related to repeated addition.
- Fractions allow us to make sense of situations that involve numbers that are not whole.
- Dividing by a unit fraction is the same as multiplying by its reciprocal.
- The size of the divisor determines the size of the quotient.
- We can use models to represent the relationship

##### Essential Questions

Students will keep considering...

- How does division of fractions relate to multiplication of fractions?
- What is the result when you multiply or divide a number by a fraction?
- How is multiplying two fractions similar to and different from adding two fractions?
- How can models help us understand division of fractions?
  - How is multiplying or dividing whole numbers similar to multiplying or dividing fractions?
- When we divide fractions, what can the quotient

## Unit 2: Operations with Fractions and Multi-digit Numbers

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

Meaning	
<p>of fractions.</p> <ul style="list-style-type: none"> <li>• Multiplication does not always result in a larger product, and division does not always result in a smaller quotient.</li> </ul>	<p>represent?</p> <ul style="list-style-type: none"> <li>◦ How do we know when it represents the number of units, or when it represents the size of the units?</li> </ul>

Acquisition	
Knowledge	Skills
<p>Students will know...</p> <ul style="list-style-type: none"> <li>• When dividing fractions, we can multiply by the reciprocal of the second fraction to find the quotient.</li> <li>• A multiplicative inverse of a number is a number such that the product of both numbers is 1.               <ul style="list-style-type: none"> <li>◦ Multiplicative inverses do not always have to be the reciprocal.</li> </ul> </li> <li>• The greatest common factor of two whole numbers (not both zero) is the greatest whole number that is a factor of each number.</li> <li>• The least common multiple of two whole numbers is the smallest whole number greater than zero that is a multiple of each number.</li> <li>• Dividing by a whole number and multiplying by the reciprocal are equivalent.</li> <li>• Division can be viewed as the divisor representing either the size of the units, or the number of units.</li> </ul>	<p>Students will be skilled at...</p> <ul style="list-style-type: none"> <li>• Interpreting and computing quotients of fractions, and solving word problems involving division of fractions by fractions.               <ul style="list-style-type: none"> <li>◦ Using visual fraction models and equations to represent the problem.</li> </ul> </li> <li>• Fluently dividing multi-digit numbers using the standard algorithm.</li> <li>• Using the standard algorithms to fluently add, subtract, multiply, and divide multi-digit decimals.</li> <li>• Finding the greatest common factor of two whole numbers less than or equal to 100, and the least common multiple of two whole numbers less than or equal to 12.               <ul style="list-style-type: none"> <li>◦ Using the familiar structure of long division to find the greatest common factor using Euclid's Algorithm.</li> </ul> </li> <li>• Using pictorial representations such as area models, array models, number lines, and drawing to conceptualize and solve problems.</li> <li>• Applying the distributive property to make connections between divisibility and the greatest common factor.</li> <li>• Use estimation to justify/defend their answers</li> </ul>

## Unit 2: Operations with Fractions and Multi-digit Numbers

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

### Acquisition

	when manipulating decimal numbers and their operations.
--	---

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

## Assessments

Evaluation Criteria	Assessment Evidence
Rubrics/Checklists: <ul style="list-style-type: none"><li>• Performance task rubric</li></ul>	Performance Task(s): <ul style="list-style-type: none"><li>• Pre-Assessment broken into chunks as start of the week opening do-now</li><li>• Weekly Robust Exit Tickets (quick quiz)</li><li>• Performance Task - Timing TBD</li><li>• Mid-Module Assessment</li><li>• End-of-Module Assessment</li></ul>
	Other Evidence: <ul style="list-style-type: none"><li>• Tracking sheets with anecdotes</li><li>• Stations observational data and work products</li><li>• Exit Tickets</li></ul>

## Unit 2: Operations with Fractions and Multi-digit Numbers

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

### LEARNING PLAN

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

Week 1: Topic A (Dividing Fractions by Fractions)

- Lessons 1-8
- Daily Do Nows (Equip Pre-Assessment)
- Friday Flex: Show What You Know! (Quiz)

Week 2: Topic B (Multi-Digit Decimal Operations - Adding, Subtracting, and Multiplying) & Mid-Mod

- Lessons 9-11
- Daily Do Nows (Equip Pre-Assessment)
- Mid-Module Assessment

Week 3: Topic C (Dividing Whole Numbers and Decimals) & Topic D

- Lessons 12-17
- Daily Do Nows (Equip Pre-Assessment)
- Friday Flex: Show What You Know! (Quiz)

Week 4: Finish Topic D (Number Theory - Thinking Logically About Multiplicative Arithmetic) & End-of-Mod

- Lessons 17-19
- Daily Do Nows (Equip Pre-Assessment)
- End-of-Module Assessment



## Unit 2: Operations with Fractions and Multi-digit Numbers

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

### 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 2: Operations with Fractions and Multi-digit Numbers

UPDATED 2022 6th Grade Math - Last Updated on July 13, 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 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 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

## Unit 2: Operations with Fractions and Multi-digit Numbers

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

- 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 of 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: Operations with Fractions and Multi-digit Numbers

UPDATED 2022 6th Grade Math - Last Updated on July 13, 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: Rational Numbers

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

### STANDARDS ADDRESSED

<b>New Jersey (NJSL) - Grade 6 - Mathematics (2020)</b>	
6.NS.C.5	
	Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.
6.NS.C.6	
	Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.
6.NS.C.6.c	
	Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.
6.NS.C.7	
	Understand ordering and absolute value of rational numbers.
6.NS.C.7.c	
	Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. For example, for an account balance of $-30$ dollars, write $ -30  = 30$ to describe the size of the debt in dollars.
6.NS.C.8	
	Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.
<b>National Common Core - Mathematical Practice</b>	
2.	
	Reason abstractly and quantitatively.
4.	
	Model with mathematics.
6.	

## Unit 3: Rational Numbers

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

Attend to precision.

7.

Look for and make use of structure.

## Unit 3: Rational Numbers

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

### DESIRED RESULTS

#### Established Goals

Students extend the number line (both horizontally and vertically) to include the opposites of whole numbers. The number line model is then extended to two-dimensions, as students use the coordinate plane to model and solve real-world problems involving rational numbers. Students use positive integers to locate negative integers, understanding that a number and its opposite will be on opposite sides of zero and that both lie the same distance from zero (absolute value). Students apply their understanding of a rational number's position on the number line to order rational numbers. Students compare rational numbers using inequality symbols and words to state the relationship between rational numbers in real-world situations and with respect to numbers' positions on the number line. Students extend their understanding of the ordering of rational numbers in one dimension (on a number line) to the two-dimensional space of the coordinate plane. They construct the plane's vertical and horizontal axes, discovering the relationship between the four quadrants, and the signs of the coordinates of points that lie in each quadrant. Students apply the concept of absolute value to find the distance between points located on vertical or horizontal lines and solve real-world problems related to distance, segments, and shapes.

#### Transfer

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

- Define a rational number as a point on the number line.
- Understand that positive and negative numbers are used together to describe quantities having opposite directions or values.
  - Describe temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge.
- Extend number line diagrams and coordinate axes to represent points on the line and in the plane with negative number coordinates.
  - Recognize opposite signs of numbers as indicating locations on opposite sides of zero on the number line; recognize that the opposite of the opposite of a number is the original number itself; and that zero is its own opposite.
  - Understand signs of numbers in ordered pairs as indicating locations in quadrants on coordinate planes.
  - Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.
- Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram.
- Write, interpret, and explain statements of order for rational numbers in real-world contexts.
- Explain the absolute value of a rational number as its distance from zero on the number line; interpret

## Unit 3: Rational Numbers

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

### Transfer

absolute value as magnitude for a positive or negative quantity in a real-world situation.

- Graph points in all four quadrants of the coordinate plane.
  - Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.

### Meaning

#### Big Ideas & Understandings

Students will understand that...

- More than integers are necessary to solve real-world applications, i.e. negative, opposite, and rational numbers.
- The coordinate plane and ordered pairs can be utilized to represent real world application problems.
- The opposite of the opposite of a number is the original number.
- Rational numbers are positive or negative whole numbers, fractions, or decimals.
- Absolute value is the magnitude of quantity, either positive or negative.

#### Essential Questions

Students will keep considering...

- How are opposite and negative numbers used in real-world contexts?
- What is the difference between an integer and a rational number?
- What is the coordinate plane and what does an ordered pair represent?
- How can I represent a rational number in real-world contexts?
- How can I use models to represent rational numbers?

### Acquisition

#### Knowledge

Students will know...

- A rational number is a number that can be represented as a fraction or the opposite of a fraction.
  - Can be written as a whole number, fraction, or decimal.

#### Skills

Students will be skilled at...

- Ordering whole numbers, positive fractions, and decimals to extend the number line in the opposite direction.
- Using positive integers to locate negative integers on the number line, moving in the opposite



## Unit 3: Rational Numbers

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

### Acquisition

- |   |   |
|---|---|
| <ul style="list-style-type: none"><li>• An integer is a number that can either be represented by a white number or as the opposite of a whole number.<ul style="list-style-type: none"><li>◦ Can be written as a positive or negative whole number.</li></ul></li><li>• A positive number is a number greater than zero,</li><li>• A negative number is a number less than zero.</li><li>• Given a nonzero number on the number line, the opposite of that number has an equal distance from zero on the number line.</li><li>• The absolute value of a number is the distance between the number and zero on the number line.<ul style="list-style-type: none"><li>◦ The magnitude of a measurement is the absolute value.</li></ul></li><li>• In the coordinate plane, the two axes separate the plane into four regions called <i>quadrants</i>.<ul style="list-style-type: none"><li>◦ The first quadrant consists of all the points whose x- and y-coordinates are both positive.</li><li>◦ The first, second, third, and fourth quadrants are identified counterclockwise around the origin starting with the first quadrant.</li></ul></li></ul> | <p>direction from zero, realizing that zero is its own opposite.</p> <ul style="list-style-type: none"><li>• Using precise vocabulary and language.<ul style="list-style-type: none"><li>◦ Deposit/Withdraw, elevation above/below sea level, debit/credit</li></ul></li><li>• Locating the opposite of a number and the opposite of an opposite, using zero as the symmetry of the number line.</li><li>• Finding and positioning rational numbers on horizontal and vertical number lines.</li><li>• Comparing and ordering integers and other rational numbers.</li><li>• Writing, interpreting, and explaining statements of order for rational numbers in real-world contexts.</li><li>• Interpreting inequality statements about the positioning of rational numbers with respect to one another.</li><li>• Interpreting absolute value as magnitude and expressing answers to real-world situations based on the context.</li><li>• Examining real-world scenarios and describing the relationship that exists among rational numbers involved.</li><li>• Comparing rational numbers and writing statements of inequality based on the number line model, specifically using absolute value to determine magnitude.</li><li>• Extending the coordinate plane to all four quadrants.</li><li>• Using ordered pairs of rational numbers to name points on a grid, and given a point's location, identifying the first number in the ordered pair as the x-coordinate and the second number as the y-coordinate.</li><li>• Constructing the coordinate plane.</li></ul> |
|---|---|

## Unit 3: Rational Numbers

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

Acquisition	
	<ul style="list-style-type: none"> <li>◦ Identifying axes, quadrants, origin.</li> <li>◦ Graphing points in the plane using an appropriate scale on the axes.</li> <li>• Recognizing the relationship that exists between points whose coordinates differ only by signs (as reflections across one or both axes) and locating such points using the symmetry in the plane.</li> <li>• Graphing points in the coordinate plane and using absolute value to find the lengths of vertical and horizontal segments to solve real-world problems.</li> </ul>

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

## Assessments

Evaluation Criteria	Assessment Evidence
Rubrics/Checklists: <ul style="list-style-type: none"> <li>• Performance task rubric</li> </ul>	Performance Task(s): <ul style="list-style-type: none"> <li>• Pre-Assessment broken into chunks as start of the week opening do-now</li> <li>• Weekly Robust Exit Tickets (quick quiz)</li> <li>• Performance Task - Timing TBD</li> <li>• Mid-Module Assessment</li> <li>• End-of-Module Assessment</li> </ul>
	Other Evidence: <ul style="list-style-type: none"> <li>• Tracking sheets with anecdotes</li> <li>• Stations observational data and work products</li> <li>• Exit Tickets</li> </ul>

## Unit 3: Rational Numbers

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

### LEARNING PLAN

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

Week 1: Topic A (Understanding Positive and Negative Numbers on the Number Line)

- Lessons 1-7
- Daily Do Nows (Equip Pre-Assessment)
- Friday Flex: Show What You Know! (Quiz)

Week 2: Topic B (Order and Absolute Value)

- Lessons 7-12
- Daily Do Nows (Equip Pre-Assessment)

Week 3: Finish Topic B & Mid-Mod

- Lesson 13 & Mid-Mod Review
- Daily Do Nows (Equip Pre-Assessment)
- Mid-Module Assessment

WINTER BREAK

Week 4: Topic C (Rational Numbers and the Coordinate Plane)

- Lessons 14-17
- Daily Do Nows (Equip Pre-Assessment)

Week 5: Topic C & End-of-Mod

- Lessons 18-19
- Daily Do Nows (Equip Pre-Assessment)
- End-of-Module Assessment

## Unit 3: Rational Numbers

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

### 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: Rational Numbers

UPDATED 2022 6th Grade Math - Last Updated on July 13, 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 NEWSLA)</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 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

## Unit 3: Rational Numbers

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

- 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 of 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 3: Rational Numbers

UPDATED 2022 6th Grade Math - Last Updated on July 13, 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 4: Expressions and One-Step Equations

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

### STANDARDS ADDRESSED

#### New Jersey (NJSLS) - Grade 6 - Mathematics (2020)

6.EE.A.3

Apply the properties of operations to generate equivalent expressions. For example, apply the distributive property to the expression  $3(2 + x)$  to produce the equivalent expression  $6 + 3x$ ; apply the distributive property to the expression  $24x + 18y$  to produce the equivalent expression  $6(4x + 3y)$ ; apply properties of operations to  $y + y + y$  to produce the equivalent expression  $3y$ .

6.EE.A.1

Write and evaluate numerical expressions involving whole-number exponents.

6.EE.A.2.c

Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). For example, use the formulas  $V = s^3$  and  $A = 6s^2$  to find the volume and surface area of a cube with sides of length  $s = \frac{1}{2}$ .

6.EE.A.4

Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). For example, the expressions  $y + y + y$  and  $3y$  are equivalent because they name the same number regardless of which number  $y$  stands for.

6.EE.A.2

Write, read, and evaluate expressions in which letters stand for numbers.

6.EE.B.6

Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.

6.EE.B.5

Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.

6.EE.B.7

Solve real-world and mathematical problems by writing and solving equations of the form  $x + p = q$  and  $px = q$  for



## Unit 4: Expressions and One-Step Equations

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

cases in which  $p$ ,  $q$  and  $x$  are all nonnegative rational numbers.

6.EE.B.8

Write an inequality of the form  $x > c$  or  $x < c$  to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form  $x > c$  or  $x < c$  have infinitely many solutions; represent solutions of such inequalities on number line diagrams.

6.EE.C.9

Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation  $d = 65t$  to represent the relationship between distance and time.

### National Common Core - Mathematical Practice

2.

Reason abstractly and quantitatively.

6.

Attend to precision.

7.

Look for and make use of structure.

8.

Look for and express regularity in repeated reasoning.

# Unit 4: Expressions and One-Step Equations

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

## DESIRED RESULTS

### Established Goals

Students extend their arithmetic work to include using letters to represent numbers. Students understand that letters are simply "stand-ins" for numbers and that arithmetic is carried out exactly as it is with numbers. Students determine that letters are used to represent specific but unknown numbers and are used to make statements or identities that are true for all numbers or a range of numbers. Students understand the importance of specifying units when defining letters. Students understand the relationships of operations and use them to generate equivalent expressions. Students discover various identity properties with addition and multiplication, and apply variables to these relationships. Students examine exponents and carry out the Order of Operations. Students extend their knowledge of GCF and the distributive property to expand, factor, and distribute expressions using new notation. Finally, students construct tables of independent and dependent variables in order to analyze equations with two variables from real-life contexts. Students refer to true and false number sentences in order to move from solving equations to writing inequalities that represent a constraint or condition in real-life or mathematical problems.

### Transfer

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

- Write and evaluate numerical expressions involving whole-number exponents.
- Write, read, and evaluate expressions in which letters stand for numbers (variables).
  - Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient).
  - Evaluate expressions at specific values of their variables.
- Apply the properties of operations to generate equivalent expressions.
  - For example, apply the distributive property to the expression  $3(2+x)$  to produce the equivalent expression  $6+3x$ .
- Use substitution to determine whether a given number in a specified set makes an equation or inequality true.
- Represent an unknown number, or any number in a specified set, using a variable.
- Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.

### Meaning

Big Ideas & Understandings	Essential Questions
Students will understand that...	Students will keep considering...

## Unit 4: Expressions and One-Step Equations

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

Meaning	
<ul style="list-style-type: none"> <li>Algebraic expressions and equations can help solve real-world application problems.</li> <li>When the value of one variable depends on the value of another, it is called a dependent variable; when the value of one variable does not depend on the value of the other, it is called the independent variable.</li> <li>A table can show the relationship between a dependent and independent variable.               <ul style="list-style-type: none"> <li>Use tables to recognize a pattern and write an expression using the pattern.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>When are exponents used and why are they important?</li> <li>How do powers affect numbers?</li> <li>How can order of operations, the distributive property, and combining like terms help solve an algebraic equation?</li> <li>How can algebraic expressions help me solve real-world application problems?</li> <li>How can equations, tables, and graphs be used to represent real-life scenarios?</li> </ul>

Acquisition	
Knowledge	Skills
<p>Students will know...</p> <ul style="list-style-type: none"> <li>An equation is a statement of equality between two expressions.</li> <li>An expression is a numerical expression, or it is the result of replacing some (or all) of the numbers in a numerical expression with variables.</li> <li>A variable is a symbol (such as a letter) that is a placeholder for a number.</li> <li>Two expressions are equivalent if both expressions evaluate to the same number for every substitution of numbers into all the variables in both expressions.</li> </ul>	<p>Students will be skilled at...</p> <ul style="list-style-type: none"> <li>Evaluating identities that are useful in solving equations and solving problems algebraically.</li> <li>Using models to determine the relationships between...               <ul style="list-style-type: none"> <li>addition and subtraction</li> <li>multiplication and division</li> <li>multiplication and addition</li> <li>division and subtraction</li> </ul> </li> <li>Differentiating between the product of two numbers and whole numbers with exponents.               <ul style="list-style-type: none"> <li>Defining an exponential expression, knowing that the base is multiplied by itself the number of times as stated by the exponent.</li> </ul> </li> <li>Following the order of operations to evaluate numerical expressions.</li> <li>Replacing letters with a given number in order to</li> </ul>

## Unit 4: Expressions and One-Step Equations

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

### Acquisition

evaluate the expression to one number.

- Differentiating between mathematical terms/ language.
  - For example, *subtract* versus *subtract from*
- Writing expressions using the distributive property in both expanded and factored form.
- Evaluating expressions when they are given the value of a variable.
- Using tables to organize information provided and evaluate expressions for given values.
- Creating formulas by setting expressions equal to another variable.
  - Evaluating formulas involving exponents for given values in real-world problems.
- Identifying true and false number sentences based on the the equality or inequality symbol.
- Writing and solving one-step equations in order to determine a missing angle.

## Unit 4: Expressions and One-Step Equations

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

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

## Assessments

Evaluation Criteria	Assessment Evidence
Rubrics/Checklists: <ul style="list-style-type: none"><li>• Performance task rubric</li></ul>	Performance Task(s): <ul style="list-style-type: none"><li>• Pre-Assessment broken into chunks as start of the week opening do-now</li><li>• Weekly Robust Exit Tickets (quick quiz)</li><li>• Performance Task - Timing TBD</li><li>• Mid-Module Assessment</li><li>• End-of-Module Assessment</li></ul>
	Other Evidence: <ul style="list-style-type: none"><li>• Tracking sheets with anecdotes</li><li>• Stations observational data and work products</li><li>• Exit Tickets</li></ul>

## Unit 4: Expressions and One-Step Equations

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

### LEARNING PLAN

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

Week 1: Topic A (Relationships of the Operations) & Topic B (Special Notations of Operations)

- Lessons 1-6
- Daily Do Nows (Equip Pre-Assessment)

Week 2: Topic C (Replacing Letters and Numbers) & Topic D (Expanding, Factoring, and Distributing Expressions)

- Lessons 7-11
- Daily Do Nows (Equip Pre-Assessment)
- Friday Flex: Show What You Know! (Quiz)

Week 3: Topic D & Topic E (Expressing Operations in Algebraic Form)

- Lessons 12-17
- Daily Do Nows (Equip Pre-Assessment)

Week 4: Mid-Mod & Topic F (Writing and Evaluating Expressions and Formulas)

- Lessons 18-20
- Daily Do Nows (Equip Pre-Assessment)
- Mid-Module Assessment

Week 5: Topic F & Topic G (Solving Equations)

- Lessons 21-24
- Daily Do Nows (Equip Pre-Assessment)

Week 6: Finish Topic G

- Lessons 25-29
- Daily Do Now (Equip Pre-Assessment)
- Friday Flex: Show What You Know! (Quiz)

Week 7: Topic H (Applications of Equations)

- Lessons 30-34
- Daily Do Now (Equip Pre-Assessment)

Week 8: End-of-Mod Assessment

- End-of-Mod Review
- End-of-Module Assessment

## Unit 4: Expressions and One-Step Equations

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

### 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 4: Expressions and One-Step Equations

UPDATED 2022 6th Grade Math - Last Updated on July 13, 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 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 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



## Unit 4: Expressions and One-Step Equations

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

- 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 of 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 4: Expressions and One-Step Equations

UPDATED 2022 6th Grade Math - Last Updated on July 13, 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 5: Area, Surface Area, and Volume

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

### STANDARDS ADDRESSED

#### New Jersey (NJSLS) - Grade 6 - Mathematics (2020)

6.G.A.1

Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.

6.G.A.3

Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.

6.G.A.2

Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas  $V = l w h$  and  $V = B h$  to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.

6.G.A.4

Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.

#### National Common Core - Mathematical Practice

1.

Make sense of problems and persevere in solving them.

3.

Construct viable arguments and critique the reasoning of others.

4.

Model with mathematics.

6.

Attend to precision.

# Unit 5: Area, Surface Area, and Volume

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

## DESIRED RESULTS

### Established Goals

In this module, students utilize their previous experiences in shape composition and decomposition in order to understand and develop formulas for area, volume, and surface area. Students explore composition and decomposition of various shapes, including triangles, quadrilaterals, and other polygons. Students discover the area formula for a triangle,  $A = 1/2 bh$ . Students decompose rectangles to determine the area of polygons. Student find areas of composite figures in real-life contexts, as well as to determine the area of missing regions. Students extend their understanding of points on a coordinate plane to find edge lengths of polygons (the distance between two vertices using absolute value) and draw polygons given coordinates. From this, students determine the area of polygons on the coordinate plane by composing and decomposing into polygons with known area formulas. Students also use this strategy to find perimeter. Students apply the formula,  $V = lwh$ , to find volume, including fractional edge lengths. Students apply volume formulas and use their previous experience with solving equations to find missing volumes and missing dimensions. Students deconstruct the faces of solid figures to determine surface area. Students build solid figures using nets, and use such nets to determine the surface area of solid figures.

### Transfer

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

- Find the area of right triangles, other triangles, special quadrilaterals, and polygons, and apply these techniques in the context of solving real-world and mathematical problems.
- Find the volume of a right rectangular prism with fractional edge lengths.
- Apply the formulas  $V = lwh$  and  $V = bh$  to find volumes of right rectangular prisms with fractional edge lengths.
- Draw polygons in the coordinate plane given coordinates for the vertices.
  - Use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate.
- Represent three-dimensional figures using nets, and use the nets to find the surface area of these figures.

### Meaning

Big Ideas & Understandings	Essential Questions
<p>Students will understand that...</p> <ul style="list-style-type: none"> <li>• Reason about area to include shapes that are not composed of rectangles.</li> <li>• The area of a rectangle is composed of two</li> </ul>	<p>Students will keep considering...</p> <ul style="list-style-type: none"> <li>• How can you derive a formula for the area of a parallelogram?</li> <li>• How can you derive a formula for the area of a</li> </ul>

## Unit 5: Area, Surface Area, and Volume

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

Meaning	
<p>congruent right triangles.</p> <ul style="list-style-type: none"> <li>The area of a triangle is half of the product of one of its side-lengths and its corresponding height.</li> <li>The areas of polygons can be found by decomposing and rearranging them to make figures whose areas can be determined.</li> <li>Volume is determined by incorporating height into the area formula.</li> <li>Nets can be used to determine the surface area.</li> </ul>	<p>triangle?</p> <ul style="list-style-type: none"> <li>How can you derive a formula for volume using the formula for area?</li> <li>How can you find the area of the entire surface of a prism?</li> <li>How can you use a net to find the surface area of a pyramid?</li> <li>How can you find the volume of a rectangular prism with fractional edge lengths?</li> </ul>

Acquisition	
Knowledge	Skills
<p>Students will know...</p> <ul style="list-style-type: none"> <li>A pentagon is a 5-sided figure with 5 vertices.</li> <li>A hexagon is a 6-sided figure with 6 vertices.               <ul style="list-style-type: none"> <li>For both pentagons and hexagons, the segments are called <i>sides</i> and their endpoints are called <i>vertices</i>.</li> </ul> </li> <li>If the surface of a 3-dimensional solid can be cut along sufficiently many edges so that the faces can be placed in one plane to form a connected figure, then the resulting system of faces is called a <i>net</i>.</li> <li>Surface area is the sum of all faces' areas in a 3-dimensional figure.</li> </ul>	<p>Students will be skilled at...</p> <ul style="list-style-type: none"> <li>Finding the area of triangles, quadrilaterals, and other polygons through composition and decomposition.</li> <li>Justifying the area formula for a triangle as <math>A = 1/2 bh</math>.</li> <li>Decomposing polygons into triangles, rectangles, and parallelograms.</li> <li>Using absolute value to determine the distance between integers on the coordinate plane in order to find the side lengths of polygons.</li> <li>Applying their knowledge of distance, perimeter, and area to real-life contextual situations.</li> <li>Using the volume formula, <math>V = lwh</math>, to find the volume of prisms, and using the correct volume units when writing the answer.</li> <li>Determining a second formula for volume, <math>V = \text{area of base} \times \text{height}</math>.</li> <li>Constructing 3-dimensional figures through the</li> </ul>

## Unit 5: Area, Surface Area, and Volume

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

### Acquisition

	<p>use of nets.</p> <ul style="list-style-type: none"><li>• Taking the nets, and determining the surface area of 3-dimensional figures in real-world contexts.</li></ul>
--	--

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

## Assessments

Evaluation Criteria	Assessment Evidence
<p>Rubrics/Checklists:</p> <ul style="list-style-type: none"><li>• Performance task rubric</li></ul>	<p>Performance Task(s):</p> <ul style="list-style-type: none"><li>• Pre-Assessment broken into chunks as start of the week opening do-now</li><li>• Weekly Robust Exit Tickets (quick quiz)</li><li>• Performance Task - Timing TBD</li><li>• Mid-Module Assessment</li><li>• End-of-Module Assessment</li></ul>
	<p>Other Evidence:</p> <ul style="list-style-type: none"><li>• Tracking sheets with anecdotes</li><li>• Stations observational data and work products</li><li>• Exit Tickets</li></ul>

# Unit 5: Area, Surface Area, and Volume

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

## LEARNING PLAN

### Summary of Key Learning Events and Instruction:

Week 1: Topic A (Area of Triangles, Quadrilaterals, and Polygons)

- Lessons 1-6
- Daily Do Nows (Equip Pre-Assessment)
- Friday Flex: Show What You Know! (Quiz)

Week 2: Topic B (Polygons on the Coordinate Plane)

- Lessons 7-10
- Daily Do Nows (Equip Pre-Assessment)

Week 3: Mid-Module Assessment & Topic C (Volume of Right Rectangular Prisms)

- Lessons 11-14
- Daily Do Nows (Equip Pre-Assessment)
- Mid-Module Assessment

Week 4: Topic D (Nets and Surface Area)

- Lessons 15-19
- Daily Do Nows (Equip Pre-Assessment)

Week 5: End-of-Module Assessment

- End-of-Mod Review
- End-of-Module Assessment

## Unit 5: Area, Surface Area, and Volume

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

### 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 5: Area, Surface Area, and Volume

UPDATED 2022 6th Grade Math - Last Updated on July 13, 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 NEWSLA)</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 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

## Unit 5: Area, Surface Area, and Volume

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

- 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 of 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 5: Area, Surface Area, and Volume

UPDATED 2022 6th Grade Math - Last Updated on July 13, 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 6: Statistics

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

### STANDARDS ADDRESSED

#### New Jersey (NJSL) - Grade 6 - Mathematics (2020)

6.SP.A.1

Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. For example, “How old am I?” is not a statistical question, but “How old are the students in my school?” is a statistical question because one anticipates variability in students’ ages.

6.SP.A.2

Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.

6.SP.B.4

Display numerical data in plots on a number line, including dot plots, histograms, and box plots.

6.SP.B.5

Summarize numerical data sets in relation to their context, such as by:

6.SP.A.3

Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.

6.SP.B.5.a

Reporting the number of observations.

6.SP.B.5.b

Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.

6.SP.B.5.c

Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.

6.SP.B.5.d

Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.

## Unit 6: Statistics

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

National Common Core - Mathematical Practice	
1.	
	Make sense of problems and persevere in solving them.
2.	
	Reason abstractly and quantitatively.
3.	
	Construct viable arguments and critique the reasoning of others.
4.	
	Model with mathematics.
6.	
	Attend to precision.

# Unit 6: Statistics

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

## DESIRED RESULTS

### Established Goals

In Module 6, students move from simply representing data into analyzing data. They begin to think and reason statistically by first recognizing a statistical question as one that can be answered by collecting data. Students see and represent data distributions using dot plots and histograms. Students study quantitative ways to summarize numerical data sets in relation to their context and to the shape of the distribution. Students learn to compute and interpret these statistical measures for center and spread. Students study *mean* as a measure of center and *mean absolute deviation* as a measure of variability. Students learn that these measures are preferred when the shape of the distribution is roughly symmetric. Students compare and distinguish the differences between dot plots, histograms, and box plots. Finally, students synthesize what they have learned as they connect the graphical, verbal, and numerical summaries to each other within situational contexts.

### Transfer

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

- Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.
- Differentiate between a measure of center for a numerical data set as a summary of all its values with a single number, and a measure of variation that describes how its values vary with a single number.
- Display numerical data in plots on a number line, including dot plots, histograms, and box plots.
- Report the number of observations in a data set.
- Describe the nature of the attribute under investigation, including how it was measured and its units of measurement.
- Describe any overall pattern and any striking deviations from the overall pattern.

### Meaning

#### Big Ideas & Understandings

- Students will understand that...
- Measurements of center and variation are essential to analyze data.
  - Understanding that a collection of data is required and must be interpreted in order to answer a statistical question.
  - Numerical data has a mean, median, mode, and

#### Essential Questions

- Students will keep considering...
- What are ways to organize, measure, and display data?
  - Why is data collected, analyzed, and implemented?
  - How does the shape of the data distribution compare to the context in which the data was

## Unit 6: Statistics

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

Meaning	
<p>range.</p> <ul style="list-style-type: none"> <li>• Draw conclusions from given data and apply in real life situations.</li> <li>• Graphical representations and statistical representations can be used to make interpretations and predictions about real world situations.</li> <li>• The type of data determines which display is most appropriate.</li> <li>• Data can be collected via surveys of sample groups.</li> <li>• Surveys of particular groups can create bias.</li> </ul>	<p>collected?</p> <ul style="list-style-type: none"> <li>• How can the collection, organization, interpretation, and display of data be used to answer questions?</li> <li>• What is the purpose of data displays and statistical measures?</li> <li>• How can data representation influence conclusions?</li> <li>• Why is data collected and analyzed?</li> <li>• How can I use data to make effective predictions?</li> </ul>

Acquisition	
Knowledge	Skills
<p>Students will know...</p> <ul style="list-style-type: none"> <li>• A statistical question is a question that can be answered by collecting data and that anticipates variability in the data collected.</li> <li>• Variability of a data set is the extent to which data values differ from each other.</li> <li>• A dot plot is a plot of numerical data along a number line.</li> <li>• A histogram is a graphical representation of a numerical data set that has been grouped into intervals.</li> <li>• A box plot is a graphical representation of five numerical summary measures: the minimum lower quartile, median, upper quartile, and the maximum.</li> <li>• A frequency associated with an interval used to</li> </ul>	<p>Students will be skilled at...</p> <ul style="list-style-type: none"> <li>• Recognizing a statistical question.</li> <li>• Organizing and summarizing data.</li> <li>• Representing data graphically through several types of graphs, including dot plots and histograms, to describe data distributions.</li> <li>• Discussing the advantages and disadvantages of histograms relative to dot plots.</li> <li>• Considering and justifying the distinction in the shape of a data distribution (symmetric versus skewed).</li> <li>• Finding the measure of center (the mean) and variability (the mean absolute deviation, MAD) appropriate for describing approximately symmetric data distributions.</li> <li>• Calculating the mean and understanding the "fair</li> </ul>

## Unit 6: Statistics

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

### Acquisition

<p>construct a summary table or a histogram is the number of data values that are included in the interval.</p> <ul style="list-style-type: none"><li>• A frequency table summarizes data distribution.</li><li>• The mean is a measure of center appropriate for data distributions that are approximately symmetric.</li><li>• The median is a measure of center appropriate for skewed data distributions.</li><li>• An absolute deviation is the distance of a data value from the mean of the data set.</li><li>• The mean absolute deviation (MAD) of a numerical data set is the mean of all the distances from the mean for that data set.</li><li>• Interquartile range (IQR) is a measure of variability appropriate for data distributions that are skewed.</li></ul>	<p>share" interpretation of the mean.</p> <ul style="list-style-type: none"><li>• Calculating and interpreting the value of the MAD.</li><li>• Using both graphical and numerical summaries to describe data distributions, to compare distributions, and to answer questions in context using information provided by a data distribution.</li><li>• Calculating and interpreting the median.</li><li>• Calculating the IQR using quartiles.<ul style="list-style-type: none"><li>◦ Interpreting the IQR as a measure of variability in a data distribution.</li></ul></li><li>• Interpreting a box plot as a graph of five key summary statistics of a data set.<ul style="list-style-type: none"><li>◦ Using box plots to compare groups.</li></ul></li><li>• Matching dot plots and histograms numerical measures of center and variability.</li><li>• Estimating means and medians from graphical representations of data distributions.<ul style="list-style-type: none"><li>◦ Estimating mean absolute deviation (MAD) and interquartile range (IQR) from graphical representations.</li></ul></li></ul>
--	---



## Unit 6: Statistics

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

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

## Assessments

Evaluation Criteria	Assessment Evidence
<p>Rubrics/Checklists:</p> <ul style="list-style-type: none"><li>• Performance task rubric</li></ul>	<p>Performance Task(s):</p> <ul style="list-style-type: none"><li>• Pre-Assessment broken into chunks as start of the week opening do-now</li><li>• Weekly Robust Exit Tickets (quick quiz)</li><li>• Performance Task - Timing TBD</li><li>• Mid-Module Assessment</li><li>• End-of-Module Assessment</li></ul>
	<p>Other Evidence:</p> <ul style="list-style-type: none"><li>• Tracking sheets with anecdotes</li><li>• Stations observational data and work products</li><li>• Exit Tickets</li></ul>

## Unit 6: Statistics

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

### LEARNING PLAN

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

##### Week 1: Topic A (Understanding Distributions)

- Lessons 1-4
- Daily Do Nows (Equip Pre-Assessment)
- Friday Flex: Show What You Know! (Quiz)

##### Week 2: Topic B (Summarizing a Distribution That is Approximately Symmetric Using the Mean and Mean Absolute Deviation)

- Lessons 5-9
- Daily Do Nows (Equip Pre-Assessment)
- Friday Flex: Show What You Know! (Quiz)

##### Week 3: Topic B & Mid-Module Assessment

- Lessons 10-11
- Daily Do Nows (Equip Pre-Assessment)
- Mid-Module Assessment

##### Week 4: Topic C (Summarizing a Distribution That is Skewed Using the Median and Interquartile Range)

- Lessons 12-17
- Daily Do Nows (Equip Pre-Assessment)

##### Week 5: Topic D (Summarizing and Describing Distributions)

- Lessons 18-22
- Daily Do Nows (Equip Pre-Assessment)
- Friday Flex: Show What You Know! (Quiz)

##### Week 6: End-of-Module Assessment

- End-of-Mod Review
- End-of-Module Assessment

## Unit 6: Statistics

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

### 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 6: Statistics

UPDATED 2022 6th Grade Math - Last Updated on July 13, 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 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 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

## Unit 6: Statistics

UPDATED 2022 6th Grade Math - Last Updated on July 13, 2022

- 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 of 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 6: Statistics

UPDATED 2022 6th Grade Math - Last Updated on July 13, 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](#)