

# Geometry Math Curriculum



## Egg Harbor Township School District

State Board Adoption Date of Standards: 5/2016

## Unit Overview (Standards Coverage)

Unit	Standards	Unit Focus	Standards for Mathematical Practice	Open Educational Resources
<b>Unit 1</b> <i>Transformations</i> 7 days	<ul style="list-style-type: none"> <li>G-CO.A.2</li> <li>G-CO.A.3</li> <li>G-CO.A.4</li> <li>G-CO.A.5</li> <li>G-CO.B.6</li> <li>G-MG.A.3</li> <li>G-SRT.A.1a</li> <li>G-SRT.A.1b</li> </ul>	<ul style="list-style-type: none"> <li>Experiment with transformations in the plane.</li> <li>Understand congruence in terms of rigid motions.</li> <li>Apply geometric concepts in modeling situations.</li> <li>Understand similarity in terms of similarity transformations.</li> </ul>	MP.1 Make sense of problems and persevere in solving them.  MP.2 Reason abstractly and quantitatively.  MP.3 Construct viable arguments & critique the reasoning of others.  MP.4 Model with mathematics.	<ul style="list-style-type: none"> <li>Khan Academy</li> <li>Kahoot</li> <li>Desmos</li> <li>Geometer's Sketchpad</li> <li>On-line Textbook</li> <li><a href="#">Performance Task- Revolving Doors</a></li> <li><a href="#">Flashcards for Transformations</a></li> <li><a href="#">G.CO.A.4 Defining Rotations</a></li> </ul>
<b>Unit 2</b> <i>Coordinate Geometry &amp; Logic</i> 20 days	<ul style="list-style-type: none"> <li>G-GPE.A.1</li> <li>G-GPE.B.4</li> <li>G-GPE.B.5</li> <li>G-GPE.B.6</li> <li>G-GPE.B.7</li> <li>G-CO.D.12</li> <li>G-CO.A.1</li> <li>G-CO.C.9</li> <li>G-CO.C.10</li> <li>G-CO.C.11</li> <li>G-SRT.B.4</li> </ul>	<ul style="list-style-type: none"> <li>Translate between the geometric description and the equation for a conic section.</li> <li>Use coordinates to prove simple geometric theorems algebraically.</li> <li>Experiment with transformations in the plane.</li> <li>Prove geometric theorems.</li> <li>Make geometric constructions.</li> <li>Prove theorems involving similarity.</li> </ul>	MP.5 Use appropriate tools strategically.  MP.6 Attend to precision.  MP.7 Look for and make use of structure.  MP.8 Look for and express regularity in repeated reasoning	<ul style="list-style-type: none"> <li>Khan Academy</li> <li>Kahoot</li> <li>Desmos</li> <li>Geometer's Sketchpad</li> <li>On-line Textbook</li> <li><a href="#">G.CO.A.1 Defining Parallel Lines</a></li> <li><a href="#">G.CO.A.1 Defining Perpendicular Lines</a></li> <li><a href="#">Exploring Parallel and Perpendicular Lines</a></li> <li><a href="#">Conditional Statement Task Cards</a></li> <li><a href="#">If you give a mouse a cookie video</a></li> </ul>
<b>Unit 3</b> <i>Angles &amp; Special Angle Pairs</i> 16 days	<ul style="list-style-type: none"> <li>G-CO.C.9</li> <li>G-CO.A.1</li> <li>G-CO.D.12</li> </ul>	<ul style="list-style-type: none"> <li>Prove geometric theorems.</li> <li>Experiment with transformations in the plane.</li> <li>Make geometric constructions.</li> </ul>		<ul style="list-style-type: none"> <li>Khan Academy</li> <li>Kahoot</li> <li>Desmos</li> <li>Geometer's Sketchpad</li> <li>On-line Textbook</li> <li><a href="#">Road Block Brigade Activity</a></li> <li><a href="#">Flashcards for Angle Pairs.</a></li> <li><a href="#">Squaring a Treehouse Activity</a></li> </ul>

**Curricular Framework MATH-Geometry**

				<ul style="list-style-type: none"> <li>• <a href="#">G.CO.D.12 Angle bisection and midpoints of line segments</a></li> <li>• <a href="#">G.CO.D.12 Bisecting an angle</a></li> <li>• <a href="#">G.CO.C.9 Congruent Angles made by parallel lines and a transverse</a></li> </ul>
<b>Unit 4</b> <i>Triangles</i> <i>30 days</i>	<ul style="list-style-type: none"> <li>• G-MG.A.1</li> <li>• G-MG.A.3</li> <li>• G-CO.B.7</li> <li>• G-CO.B.8</li> <li>• G-CO.C.10</li> <li>• G-CO.D.13</li> <li>• G-SRT.A.2</li> <li>• G-SRT.B.4</li> <li>• G-SRT.B.5</li> <li>• G-SRT.C.6</li> <li>• G-SRT.C.7</li> <li>• G-SRT.C.8</li> <li>• G-GPE.B.5</li> <li>• G-GPE.B.6</li> </ul>	<ul style="list-style-type: none"> <li>• Apply geometric concepts in modeling situations.</li> <li>• Understand congruence in terms of rigid motions.</li> <li>• Prove geometric theorems.</li> <li>• Make geometric constructions.</li> <li>• Understand similarity in terms of similarity transformations.</li> <li>• Prove theorems involving similarity.</li> <li>• Define trigonometric ratios and solve problems involving right triangles.</li> <li>• Use coordinates to prove simple geometric theorems algebraically.</li> </ul>		<ul style="list-style-type: none"> <li>• Khan Academy</li> <li>• Kahoot</li> <li>• Desmos</li> <li>• Geometer's Sketchpad</li> <li>• On-line Textbook</li> <li>• <a href="#">G.CO.B.7 Properties of Congruent Triangles</a></li> <li>• <a href="#">G.CO.A.5 Showing a triangle congruence</a></li> <li>• <a href="#">G.CO.B.8 Why does SAS work?</a></li> <li>• <a href="#">G.CO.B.8 Why does SSS work?</a></li> <li>• <a href="#">G.CO.C.10 Sum of angles in a triangle</a></li> <li>• <a href="#">G.SRT.C.6 Defining Trigonometric Ratio</a></li> </ul>
<b>Unit 5</b> <i>Circles, Polygons &amp; 3-d Figures</i> <i>18 days</i>	<ul style="list-style-type: none"> <li>• G-CO.A.1</li> <li>• G-CO.D.13</li> <li>• G-C.A.1</li> <li>• G-C.A.2</li> <li>• G-C.A.3</li> <li>• G-C.A.4</li> <li>• G-C.B.5</li> <li>• G-MG.A.1</li> <li>• G-MG.A.2</li> <li>• G-MG.A.3</li> <li>• G-GMD.A.1</li> <li>• G-GMD.A.3</li> </ul>	<ul style="list-style-type: none"> <li>• Experiment with transformations in the plane.</li> <li>• Make geometric constructions.</li> <li>• Understand and apply theorems about circles.</li> <li>• Find arc lengths and areas of sectors of circles.</li> <li>• Apply geometric concepts in modeling situations.</li> </ul>		<ul style="list-style-type: none"> <li>• Khan Academy</li> <li>• Kahoot</li> <li>• Desmos</li> <li>• Geometer's Sketchpad</li> <li>• On-line Textbook</li> <li>• <a href="#">Circle Flashcards and Task Cards</a></li> <li>• <a href="#">STEM video</a></li> <li>• <a href="#">G.MG.A.1 Toilet Roll</a></li> <li>• <a href="#">G.MG.A.3 Ice Cream Cone</a></li> </ul>

# Curricular Framework MATH-Geometry

	<ul style="list-style-type: none"> <li>• N-Q.A.2</li> <li>• G-GPE.4</li> <li>• G-GPE.7</li> </ul>	<ul style="list-style-type: none"> <li>• Explain volume formulas and use them to solve problems.</li> <li>• Reason quantitatively and use units to solve problems.</li> <li>• Use coordinates to prove simple geometric theorems algebraically.</li> </ul>		
<b>Unit 6</b> <i>Quadrilaterals</i> <i>9 days</i>	<ul style="list-style-type: none"> <li>• G-CO.C.11</li> <li>• G-SRT.B.5</li> <li>• G-MG.A.1</li> <li>• G-MG.A.2</li> </ul>	<ul style="list-style-type: none"> <li>• Prove geometric theorems.</li> <li>• Prove theorems involving similarity.</li> <li>• Apply geometric concepts in modeling situations.</li> </ul>		<ul style="list-style-type: none"> <li>• <b>Khan Academy</b></li> <li>• <b>Kahoot</b></li> <li>• <b>Desmos</b></li> <li>• <b>Geometer's Sketchpad</b></li> <li>• <b>On-line Textbook</b></li> <li>• <a href="#"><u>G.CO.C.11 Is this a parallelogram?</u></a></li> <li>• <a href="#"><u>STEM video</u></a></li> <li>• <a href="#"><u>Vocabulary Flash Cards</u></a></li> <li>• <a href="#"><u>Special Parallelograms Chart</u></a></li> </ul>

**This document outlines in detail the answers to the following four questions:**

- 1. What do we want our students to know?**
- 2. How do we know if they learned it?**
- 3. What do we do if they did not learn it?**
- 4. What do we do when they did learn it?**

Unit 1 GEOMETRY		
Content & Practice Standards	Interdisciplinary Standards	Critical Knowledge & Skills
<ul style="list-style-type: none"> <li>• G-CO.A.2: Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).</li> <li>• G-CO.A.3: Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.</li> <li>• G-CO.A.4: Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.</li> <li>• G-CO.A.5: Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.</li> <li>• G-CO.B.6: Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.</li> <li>• G-MG.A.3: Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).</li> <li>• G-SRT.A.1a: Verify experimentally the properties of dilations given by a center and a scale factor:               <ol style="list-style-type: none"> <li>a. A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged.</li> </ol> </li> <li>• G-SRT.A.1b: The dilation of a line segment is longer or shorter in the ratio given by the scale factor.</li> </ul>	<ul style="list-style-type: none"> <li>• - RI.11-12.7. Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.</li> <li>• - SL.11-12.4 Present information, findings and support evidence clearly, concisely, and logically. The content, organization, development, and style are appropriate to purpose, and audience.</li> </ul>	<ul style="list-style-type: none"> <li>• 4.1- perform translations.</li> <li>• 4.2- perform reflections.</li> <li>• 4.3- perform rotations.</li> <li>• 4.5- identify and perform dilations.</li> </ul>
Unit 1 GEOMETRY		

# Curricular Framework MATH-Geometry

Stage 1 – Desired Results	
UNIT SUMMARY	CORE AND SUPPLEMENTAL MATERIALS/RESOURCES
<i>In this unit, we will investigate and use transformations in the coordinate plane. Specifically, students will be able to translate, rotate, reflect and dilate figures.</i>	<ul style="list-style-type: none"> <li>● <b>Khan Academy</b></li> <li>● <b>Kahoot</b></li> <li>● <b>Desmos</b></li> <li>● <b>Geometer's Sketchpad</b></li> <li>● <b>On-line Textbook</b></li> </ul>
UNDERSTANDINGS	
Students will understand how to complete transformations in the coordinate plane.	
Students will know...	Students will be able to...
<i>What content will be covered that students must master?</i> <ul style="list-style-type: none"> <li>● <i>How to perform translations</i></li> <li>● <i>How to reflect images on the coordinate plane</i></li> <li>● <i>The coordinate rules for transformations</i></li> <li>● <i>How to rotate a figure around a fixed point</i></li> <li>● <i>How to identify congruent transformations</i></li> <li>● <i>How to reflect over multiple parallel lines</i></li> <li>● <i>The rules to identify congruent figures</i></li> <li>● <i>How to perform dilations</i></li> </ul>	<i>What should students be able to accomplish to demonstrate understanding?</i> <ul style="list-style-type: none"> <li>● perform translations, reflections, rotations &amp; dilations</li> <li>● perform compositions</li> <li>● identify lines of symmetry</li> <li>● identify rotational symmetry</li> <li>● identify dilations</li> <li>● solve real life problems involving dilations, rotations, reflections, and translations</li> </ul>
Stage 2 – Assessment Evidence	
<p>Performance Tasks:  <i>What projects, hands-on lessons, use of manipulatives, active participation in new situations, etc. will reveal evidence of meaning-making and transfer (true understanding)?</i></p> <p><b><u>Performance Tasks/Use of Technology</u></b></p> <ul style="list-style-type: none"> <li>● 4.6 Use dynamic geometry software to create a triangle, then rotate, reflect and translate it. Take measurements of angles and side lengths before and after to show rigid motion is achieved.</li> </ul>	<p>Other Evidence:  <i>What other means of assessment will be used throughout this unit?</i></p> <p><b><u>Formative</u></b></p> <ul style="list-style-type: none"> <li>● Do Now Activities</li> <li>● Homework</li> <li>● Class Participation</li> <li>● Exit Tickets</li> <li>● Class Games</li> <li>● Notebook Checks</li> <li>● Teacher Observation</li> <li>● White Board Communicators</li> <li>● In Class Activities</li> </ul> <p><b><u>Summative</u></b></p>

- Paper Quizzes
- Online Quizzes
- Link-It Benchmarks
- Tests
- Unit Projects

### Stage 3 – Learning Plan

- **4.1 Translations**  
*Include using/writing translation rule and composition translations*  
*Do not include vectors or postulate 4.1, theorem 4.1*
- **4.2 Reflections**  
*Include reflections over  $x$ - and  $y$ -axes, horizontal and vertical lines,  $y = x$ , and  $y = -x$*   
*Include concept of distance from point to line*  
*Include lines of symmetry*  
*Include glide reflections*  
*Do not include postulate 4.2*
- **4.3 Rotations**  
*Include 90, 180, 270 clockwise and counterclockwise about origin*  
*Include rotation around point that isn't origin (not necessarily as students performing rotation, but they should be able to identify the image as a rotation of the pre-image)*  
*Do not include postulate 4.3*  
*Include composition transformations*
- **4.5 Dilations**  
*Only include dilations centered at origin*  
*Include enlargements, reductions*  
*Do not include negative scale factors*  
*Do not include finding scale factors or finding lengths (will be covered in similar polygons unit)*

### Planned Differentiation & Interventions for Tiers I, II, III, ELL, SPED, and Gift & Talented Students

- *Rethink and revise. Dig deeper into ideas at issue (through the faces of understanding). Revise, rehearse, and refine, as needed. Guide students in self-assessment and self-adjustment, based on feedback from inquiry, results, and discussion.*
- *Evaluate understandings. Reveal what has been understood through final performances and products. Involve students in a final self-assessment to identify remaining questions, set future goals, and point toward new units and lessons.*

•*Tailor (personalize) the work to ensure maximum interest and achievement. Differentiate the approaches used and provide sufficient options and variety (without compromising goals) to make it most likely that all students will be engaged and effective.*

### **Gifted & Talented:**

- “Differentiating the Lesson” in Big Ideas online resources for all sections
- “Additional Topics” in Big Ideas online resources to extend and enhance instruction
- Big Ideas Game Closet
- Big Ideas Differentiated Instruction options
- Big Ideas Mini-Assessments
- Design Challenges
- Student Choice/Driven Activities
- Group Projects
- MobyMax
- LinkIt!
- Rocket Math
- [Intervention Central](#)
- [Do to Learn](#)
- [Differentiation Strategies for Math](#)
- [Discovery Education Math](#)
- [Everyday Mathematics](#)
- [Homework Spot](#)
- [Math Fact Fluency](#)

### **Tier I:**

Students thought to be achieving mastery will be given alternative and more in depth assignments in the classroom by the teacher and support staff. Data on these interventions will be tracked and if sufficient progress is not demonstrated, the student may need Tier II interventions. These interventions may include some of the following:

- “Differentiating the Lesson” in Big Ideas online resources for all sections
- Big Ideas MATH Pyramid of Tiered Interventions for additional resources
- Record and Practice Journal
- Differentiated Instruction options
- Fair Game Review
- Vocabulary Support Glossary resources
- Mini-Assessments
- Game Closet
- Lesson Tutorials



- Flash Cards
- Extended Time
- Flexible Grouping
- Small Group Instruction
- Peer Buddies
- Math Tutoring Center (HS only)
- Math Lab/Tutorial
- MobyMax
- LinkIt!
- Rocket Math
- [Intervention Central](#)
- [Do to Learn](#)
- [Learning Ally](#)
- [Differentiation Strategies for Math](#)
- [Discovery Education Math](#)
- [Everyday Mathematics](#)
- [Homework Spot](#)
- [Flash Card Math](#)
- [Math Fact Fluency](#)
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### **Tier II:**

Students thought to be in need of more support to achieve mastery will be given interventions in the classroom by the teacher and support staff. Data on these interventions will be tracked and if sufficient progress is not demonstrated, the student may need Tier III interventions. These interventions may include some of the following:

- Lesson Tutorials
- Basic Skills Handbook
- Skills Review Handbook
- Differentiated Instruction Big Ideas resources
- Game Closet
- Centers/Small Group Instruction
- Math Tutoring Center (HS only)
- Math Lab/Tutorial
- MobyMax
- LinkIt!
- Math Fact Fluency/Rocket Math

**Tier III:**

Students thought to be at risk for failing or not achieving mastery will be given interventions in the classroom by the teacher and support staff. Data on these interventions will be tracked and if sufficient progress is not demonstrated, that student may be referred to the I&RS team. These interventions may include some of the following:

- Provide visual and verbal directions
- Simplify directions into one-step
- Check back after two steps have been completed
- Model self-talk to complete tasks
- Discuss organizational plans for work and work completion
- Allow for multiple methods of demonstrating learning and competence
- Enforce opportunities to correct work
- Provide 1:1 instructional time
- Provide physical manipulatives whenever possible
- Assess and provide optimal seating arrangement
- Customized Learning Intervention Activities resources
- Intensive Intervention resource
- Systematic Assessments to focus on specific deficits

**ELL:**

- At beginning to intermediate levels of proficiency, English Language Learners should be shown examples of a completed assignment to model the correct format.
- Assignments and directions should be printed on the board and given to the student.
- A bilingual assistant/interpreter, when available, could be used to explain math concepts in the student's primary language.
- Students should have access to counters, number lines and other types of manipulatives, which enable them to complete assignments at their level of instruction.
- Rewrite story problems in simpler English. Use short sentences, pictures, and illustrations to encourage understanding.
- Show students how to prepare a card file of number words. Write the word on one side and the symbol on the opposite side.
- Big Ideas Math Student Editions are available online in Spanish
- Letters to Parents are available in the Resources by Chapter book to assist in guiding parents through each chapter and offer helpful suggestions they can use to demonstrate mathematical concepts for their child in daily activities. These letters are editable so teachers can customize them.
- Student Dynamic eBook Audio has the option to be read in English or Spanish
- Multi-Language Glossary for new Math vocabulary is available in 14 different languages.
- Audio version is available in English or Spanish.
- Game Closet can be accessed in English or Spanish, while also allowing for all students to play and understand these educational games.
- ELL Notes included in Teacher Edition to help teachers overcome obstacles.
- Record & Practice Journal available in Spanish.
- Student Journal available in Spanish.

- Chapter Reviews available in English and Spanish.
- Vocabulary Flash Cards
- Chunking Information
- Math Word Wall/Word Bank
- Multi-Sensory Instruction
- Use of Translation software
- Gradual Release Model
- [TODOS: Mathematics for ALL](#) - Excellence and Equity in Mathematics
- [FABRIC - A Learning Paradigm for ELLs](#) (NJDOE resource)

**SPED:**

This course of instruction shall be modified through varying techniques, strategies, materials, etc. to meet the needs of all students, including, but not limited to, special education, E.S.L. and basic skills.

## Setting Accommodations

1. Administering the assessment:
  - a. individually in a separate room
  - b. in a small group in a separate room
  - c. in the resource room
  - d. in a special education classroom
  - e. at home or in a hospital (this will depend on the nature of the assessment task)
2. Seating the student in the front of the room near the examiner or proctor
3. Seating the student facing the examiner or proctor
4. Providing special lighting
5. Providing special furniture e.g., desks, trays, carrels

## Scheduling Accommodations

1. Adding time as needed
2. Providing frequent breaks
3. Terminating a section of the test when a student has indicated that he/she has completed all the items he/she can. The examiner must ensure that the student has attempted all items in a section since items are not ordered by difficulty. When this accommodation is used, the test must be administered in a small group or individually to avoid distraction.

## Test Materials Modifications

1. Administering the large-print version of the test
2. Administering the Braille version of the test

## Test Procedure Modifications

## 1. Administration modifications

- a. reading directions aloud
- b. reading test items aloud (do not read aloud or sign the reading passages in Language Arts Literacy –the reading items may be read or signed); ONLY the teacher who must read the test items aloud or sign is permitted to have a test booklet assigned to him/her for this task
- c. providing and ensuring that amplification (hearing aid and/or FM system) is in working order
- d. using a sign language or cued speech interpreter to sign or cue the directions or test items but NOT the reading passages
- e. masking a portion of the test booklet and/or answer folder to eliminate visual distractors or providing reading windows
- f. repeating, clarifying, or rewording directions ONLY
- g. providing written directions on a separate sheet or transparency
- h. using an examiner who is familiar with the student
- i. using an examiner who can communicate fluently in sign language (American Sign Language or a form of Manually Coded English)
- j. providing manipulatives for math items e.g., number line, counting chips, abacus

## Response modifications

- a. having an examiner record the student's identification information on the test booklet and/or answer folder
- b. dictating oral responses to a scribe (examiner or proctor who writes from dictation)
- c. using a Braille writer to record responses
- d. signing responses to a sign language interpreter (student must indicate all punctuation and must spell all keywords)
- e. recording responses on a word processor (all editorial functions MUST be disabled)
- f. providing an augmentative communication device
- g. using a larger diameter or modified special grip # 2 pencil
- h. circling answers in the test booklet (the examiner subsequently transfer the answers to the answer folder)
- i. allowing separate additional continuation pages for writing tasks

**504:**

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

## Environmental Strategies

- Provide a structured learning environment
- Make separate "space" for different types of tasks
- Possible adapting of non-academic times such as lunch, recess, and physical education
- Change student seating

- Utilize a study carrel
- Alter location or personal or classroom supplies for easier access or to minimize distraction
- Provide sensory breaks
- Provide a written or picture schedule

#### Organizational Strategies

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

#### Behavioral Strategies

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

#### Presentation Strategies

- Tape lessons so the student can listen to them again; allow students to tape lessons
- Use computer-aided instruction and other audiovisual equipment
- Select alternative textbooks, workbooks, or provide books on tape
- Highlight main ideas and supporting details in the book
- Provide copied material for extra practice (i.e. outlines, study guides)
- Prioritize drill and practice activities for relevance
- Vary the method of lesson presentation using multi-sensory techniques:
  - a) lecture plus overhead/board demonstration support
  - b) small groups required to produce a written product
  - c) large groups required to demonstrate a process
  - d) computer-assisted instruction
  - e) peer tutors or cross-age tutors

f) demonstrations, simulations

g) experiments

h) games

- Ask student to repeat/paraphrase context to check understanding
- Arrange for a mentor to work with student in his or her interest area or area of greatest strength
- Provide peer tutoring
- Simplify and repeat instructions about in-class and homework assignments
- Vary instructional pace
- Reinforce the use of compensatory strategies, i.e. pencil grip, mnemonic devices, “spell check”
- Vary kind of instructional materials used
- Assess whether student has the necessary prerequisite skills. Determine whether materials are appropriate to the student's current functioning levels
- 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
- 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.

Unit 2 GEOMETRY		
Content & Practice Standards	Interdisciplinary Standards	Critical Knowledge & Skills
<ul style="list-style-type: none"> <li>• G-GPE.A.1: Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation.</li> <li>• G-GPE.B.4: Use coordinates to prove simple geometric theorems algebraically. For example, prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle; prove or disprove that the point <math>(1, \sqrt{3})</math> lies on the circle centered at the origin and containing the point <math>(0, 2)</math>.</li> <li>• G-GPE.B.5: Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).</li> <li>• G-GPE.B.6: Find the point on a directed line segment between two given points that partitions the segment in a given ratio.</li> <li>• G-GPE.B.7: Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.</li> <li>• G-CO.D.12: Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.</li> <li>• G-CO.A.1: Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc</li> <li>• G-CO.C.9: Prove theorems about lines and angles. Theorems include: vertical angles are congruent;</li> </ul>	<ul style="list-style-type: none"> <li>• - RI.11-12.7. Integrate and evaluate multiple sources of information presented in different media or formats (e.g. visually, quantitatively) as well as in words in order to address a question or solve a problem.</li> <li>• - SL.11-12.4 Present information, findings and supporting evidence clearly, concisely, and logically. The content, organization, development, and style are appropriate to purpose, and audience.</li> </ul>	<ul style="list-style-type: none"> <li>• 1.1- Identify, sketch and name points, lines, planes, segments, and rays</li> <li>• 1.2- Use length and midpoint of segments. Construct midpoints and congruent segments</li> <li>• 1.3- Develop and apply the formula for midpoint. Use Distance Formula and Pythagorean Theorem to find the distance between two points.</li> <li>• 2.1 Identify, write, and analyze the truth value of conditional statements. Write the inverse, converse, and contrapositive and biconditional of a conditional statement</li> <li>• 2.2 Use inductive reasoning to identify patterns and make conjectures. Find counterexamples to disprove conjectures.</li> <li>• 2.3 Identify postulates using diagrams. Sketch and interpret diagrams</li> <li>• 2.4 Review properties of equality and use them to write algebraic proofs. Identify properties of equality and congruence</li> <li>• 2.5 Write basic two-column proofs (This includes algebraic proofs and fill in the blank proofs.)</li> <li>• 2.6 Use common segments theorem and in fill-in proofs. (Do not write flowchart or paragraph proofs).</li> <li>• 3.5- Find the slope of a line. Use slopes identify parallel and perpendicular lines. Graph lines and write their equations in slope-intercept and point-slope form. Classify lines as parallel, intersecting, or coinciding.</li> <li>• 10.7- circles in the coordinate plane.</li> </ul>

when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment’s endpoints.		
<ul style="list-style-type: none"><li>● G-CO.C.10:Prove theorems about triangles. Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point</li><li>● G-CO.C.11: Prove theorems about parallelograms. Theorems include: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals.</li><li>● G-SRT.B.4: Prove theorems about triangles. Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity.</li></ul>		
Unit 2 GEOMETRY		
Stage 1 – Desired Results		
UNIT SUMMARY	CORE AND SUPPLEMENTAL MATERIALS/RESOURCES	
In the unit, algebraic and geometric representations of points, lines and planes will be investigated. They will cover in detail slope, equations of lines, distance formula, midpoint formula and algebraic proofs.	<ul style="list-style-type: none"><li>● Khan Academy</li><li>● Kahoot</li><li>● Desmos</li><li>● Geometer’s Sketchpad</li><li>● On-line Textbook</li></ul>	
UNDERSTANDINGS		
Students will understand how points, lines and planes are used in concepts such as the midpoint, the distance formula, bisectors and basic proofs.		
Students will know...	Students will be able to...	
What content will be covered that students must master? <ul style="list-style-type: none"><li>● How to calculate slope</li></ul>	What should students be able to accomplish to demonstrate understanding? <ul style="list-style-type: none"><li>● identify parallel and perpendicular lines</li></ul>	



## Curricular Framework MATH-Geometry

<ul style="list-style-type: none"> <li>• <i>How to write equations of lines</i></li> <li>• <i>How to use the midpoint formula</i></li> <li>• <i>How to use the distance formula</i></li> <li>• <i>How to partition a line segment</i></li> <li>• <i>How to write conditional statements and determine their truth value</i></li> <li>• <i>How to calculate distance on the number line</i></li> <li>• <i>How to calculate midpoint on the number line</i></li> <li>• <i>How to solve problems using segment bisectors</i></li> <li>• <i>How to complete algebraic proofs</i></li> <li>• <i>How to complete basic segment proofs</i></li> </ul>	<ul style="list-style-type: none"> <li>• write equations of parallel and perpendicular lines</li> <li>• use slope to partition directed line segments</li> <li>• find segment lengths using midpoints and segment bisectors</li> <li>• use the midpoint formula</li> <li>• use the distance formula</li> <li>• write and graph equations of circles</li> <li>• solve real life problems using graphs of circles</li> <li>• name points, lines, planes, segments &amp; rays</li> <li>• sketch intersections of lines &amp; planes</li> <li>• solve real life problems involving lines &amp; planes</li> <li>• use the ruler postulate</li> <li>• compare segments for congruence</li> <li>• use the segment addition postulate</li> <li>• write &amp; use conditional &amp; biconditional statements</li> <li>• use inductive and deductive reasoning</li> <li>• identify postulates using diagrams</li> <li>• sketch &amp; interpret diagrams</li> <li>• use algebraic reasoning &amp; distributive property to justify steps in solving an equation</li> <li>• use properties of equality involving segment lengths</li> <li>• write two column proofs for segments</li> <li>• name and prove properties of congruence</li> </ul>
<b>Stage 2 – Assessment Evidence</b>	
<p>Performance Tasks:</p> <p><i>What projects, hands-on lessons, use of manipulatives, active participation in new situations, etc. will reveal evidence of meaning-making and transfer (true understanding)?</i></p> <p><b><u>Performance Tasks/Use of Technology</u></b></p> <ul style="list-style-type: none"> <li>• 1.2- Use a compass to construct congruent segments. Paper folding to construct a segment bisector</li> <li>• 1.3- Students use both Distance Formula and Pythagorean Theorem to find the distance between two points to show either one will yield the same result.</li> <li>• 2.1 –Draw Venn Diagrams based on conditional statements</li> <li>• 2.2- Solve Logic puzzles</li> </ul>	<p>Other Evidence:</p> <p><i>What other means of assessment will be used throughout this unit?</i></p> <p><b><u>Formative</u></b></p> <ul style="list-style-type: none"> <li>• Do Now Activities</li> <li>• Homework</li> <li>• Class Participation</li> <li>• Exit Tickets</li> <li>• Class Games</li> <li>• Notebook Checks</li> <li>• Teacher Observation</li> <li>• White Board Communicators</li> <li>• In Class Activities</li> </ul> <p><b><u>Summative</u></b></p> <ul style="list-style-type: none"> <li>• Paper Quizzes</li> <li>• Online Quizzes</li> </ul>

- 2.5-Introduction to proof as giving directions-this develops understanding of necessity of detailed thinking
- 2.6- Cooperative learning project-Students receive a proof that has been cut up- they must reconstruct it with proper order.
- 10.7- Construct circles on graph paper, using a straightedge and compass, from equation of a circle.

- Link-It Benchmarks
- Tests
- Unit Projects

### Stage 3 – Learning Plan

#### 3.5 Slope

Include theorems 3.13 and 3.14 (slopes of parallel and perpendicular lines)

#### 3.5 Writing equations of lines

Include writing equations of parallel and perpendicular lines

Include naming lines and planes with proper notation

#### 1.3 Distance Formula

Include naming segment and distance with proper notation

Include perimeter problems (but *not* area)

#### 1.3 Midpoint Formula

#### 3.5 Partitioning a directed line segment

#### 10.7 Writing equations of circles

Include naming center and length of radius given equation in standard form

Include writing equation given center and radius length

Advanced only: writing equation given center and point on circle

#### 3.5 Slope

Include theorems 3.13 and 3.14 (slopes of parallel and perpendicular lines)

#### 3.5 Writing equations of lines

Include writing equations of parallel and perpendicular lines

Include naming lines and planes with proper notation

#### 1.3 Distance Formula

Include naming segment and distance with proper notation

Include perimeter problems (but *not* area)

#### 1.3 Midpoint Formula

#### 3.5 Partitioning a directed line segment

#### 10.7 Writing equations of circles

Include naming center and length of radius given equation in standard form

Include writing equation given center and radius length

Advanced only: writing equation given center and point on circle

## Planned Differentiation &amp; Interventions for Tiers I, II, III, ELL, SPED, and Gift &amp; Talented Students

- *Rethink and revise. Dig deeper into ideas at issue (through the faces of understanding). Revise, rehearse, and refine, as needed. Guide students in self-assessment and self-adjustment, based on feedback from inquiry, results, and discussion.*
- *Evaluate understandings. Reveal what has been understood through final performances and products. Involve students in a final self-assessment to identify remaining questions, set future goals, and point toward new units and lessons.*
- *Tailor (personalize) the work to ensure maximum interest and achievement. Differentiate the approaches used and provide sufficient options and variety (without compromising goals) to make it most likely that all students will be engaged and effective.*

**Gifted & Talented:**

- “Differentiating the Lesson” in Big Ideas online resources for all sections
- “Additional Topics” in Big Ideas online resources to extend and enhance instruction
- Big Ideas Game Closet
- Big Ideas Differentiated Instruction options
- Big Ideas Mini-Assessments
- Design Challenges
- Student Choice/Driven Activities
- Group Projects
- MobyMax
- LinkIt!
- Rocket Math
- [Intervention Central](#)
- [Do to Learn](#)
- [Differentiation Strategies for Math](#)
- [Discovery Education Math](#)
- [Everyday Mathematics](#)
- [Homework Spot](#)
- [Math Fact Fluency](#)

**Tier I:**

Students thought to be achieving mastery will be given alternative and more in depth assignments in the classroom by the teacher and support staff. Data on these interventions will be tracked and if sufficient progress is not demonstrated, the student may need Tier II interventions. These interventions may include some of the following:

- “Differentiating the Lesson” in Big Ideas online resources for all sections
- Big Ideas MATH Pyramid of Tiered Interventions for additional resources

- Record and Practice Journal
- Differentiated Instruction options
- Fair Game Review
- Vocabulary Support Glossary resources
- Mini-Assessments
- Game Closet
- Lesson Tutorials
- Flash Cards
- Extended Time
- Flexible Grouping
- Small Group Instruction
- Peer Buddies
- Math Tutoring Center (HS only)
- Math Lab/Tutorial
- MobyMax
- LinkIt!
- Rocket Math
- [Intervention Central](#)
- [Do to Learn](#)
- [Learning Ally](#)
- [Differentiation Strategies for Math](#)
- [Discovery Education Math](#)
- [Everyday Mathematics](#)
- [Homework Spot](#)
- [Flash Card Math](#)
- [Math Fact Fluency](#)
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**Tier II:**

Students thought to be in need of more support to achieve mastery will be given interventions in the classroom by the teacher and support staff. Data on these interventions will be tracked and if sufficient progress is not demonstrated, the student may need Tier III interventions. These interventions may include some of the following:

- Lesson Tutorials
- Basic Skills Handbook
- Skills Review Handbook
- Differentiated Instruction Big Ideas resources
- Game Closet
- Centers/Small Group Instruction

- Math Tutoring Center (HS only)
- Math Lab/Tutorial
- MobyMax
- LinkIt!
- Math Fact Fluency/Rocket Math

**Tier III:**

Students thought to be at risk for failing or not achieving mastery will be given interventions in the classroom by the teacher and support staff. Data on these interventions will be tracked and if sufficient progress is not demonstrated, that student may be referred to the I&RS team. These interventions may include some of the following:

- Provide visual and verbal directions
- Simplify directions into one-step
- Check back after two steps have been completed
- Model self-talk to complete tasks
- Discuss organizational plans for work and work completion
- Allow for multiple methods of demonstrating learning and competence
- Enforce opportunities to correct work
- Provide 1:1 instructional time
- Provide physical manipulatives whenever possible
- Assess and provide optimal seating arrangement
- Customized Learning Intervention Activities resources
- Intensive Intervention resource
- Systematic Assessments to focus on specific deficits

**ELL:**

- At beginning to intermediate levels of proficiency, English Language Learners should be shown examples of a completed assignment to model the correct format.
- Assignments and directions should be printed on the board and given to the student.
- A bilingual assistant/interpreter, when available, could be used to explain math concepts in the student's primary language.
- Students should have access to counters, number lines and other types of manipulatives, which enable them to complete assignments at their level of instruction.
- Rewrite story problems in simpler English. Use short sentences, pictures, and illustrations to encourage understanding.
- Show students how to prepare a card file of number words. Write the word on one side and the symbol on the opposite side.
- Big Ideas Math Student Editions are available online in Spanish
- Letters to Parents are available in the Resources by Chapter book to assist in guiding parents through each chapter and offer helpful suggestions they can use to demonstrate mathematical concepts for their child in daily activities. These letters are editable so teachers can customize them.
- Student Dynamic eBook Audio has the option to be read in English or Spanish
- Multi-Language Glossary for new Math vocabulary is available in 14 different languages.
- Audio version is available in English or Spanish.

- Game Closet can be accessed in English or Spanish, while also allowing for all students to play and understand these educational games.
- ELL Notes included in Teacher Edition to help teachers overcome obstacles.
- Record & Practice Journal available in Spanish.
- Student Journal available in Spanish.
- Chapter Reviews available in English and Spanish.
- Vocabulary Flash Cards
- Chunking Information
- Math Word Wall/Word Bank
- Multi-Sensory Instruction
- Use of Translation software
- Gradual Release Model
- [TODOS: Mathematics for ALL](#) - Excellence and Equity in Mathematics
- [FABRIC - A Learning Paradigm for ELLs](#) (NJDOE resource)

**SPED:**

This course of instruction shall be modified through varying techniques, strategies, materials, etc. to meet the needs of all students, including, but not limited to, special education, E.S.L. and basic skills.

**Setting Accommodations**

1. Administering the assessment:
  - a. individually in a separate room
  - b. in a small group in a separate room
  - c. in the resource room
  - d. in a special education classroom
  - e. at home or in a hospital (this will depend on the nature of the assessment task)
2. Seating the student in the front of the room near the examiner or proctor
3. Seating the student facing the examiner or proctor
4. Providing special lighting
5. Providing special furniture e.g., desks, trays, carrels

**Scheduling Accommodations**

1. Adding time as needed
2. Providing frequent breaks
3. Terminating a section of the test when a student has indicated that he/she has completed all the items he/she can. The examiner must ensure that the student has attempted all items in a section since items are not ordered by difficulty. When this accommodation is used, the test must be administered in a small group or individually to avoid distraction.

**Test Materials Modifications**

1. Administering the large-print version of the test
2. Administering the Braille version of the test

#### Test Procedure Modifications

##### 1. Administration modifications

- a. reading directions aloud
- b. reading test items aloud (do not read aloud or sign the reading passages in Language Arts Literacy –the reading items may be read or signed); ONLY the teacher who must read the test items aloud or sign is permitted to have a test booklet assigned to him/her for this task
- c. providing and ensuring that amplification (hearing aid and/or FM system) is in working order
- d. using a sign language or cued speech interpreter to sign or cue the directions or test items but NOT the reading passages
- e. masking a portion of the test booklet and/or answer folder to eliminate visual distractors or providing reading windows
- f. repeating, clarifying, or rewording directions ONLY
- g. providing written directions on a separate sheet or transparency
- h. using an examiner who is familiar with the student
- i. using an examiner who can communicate fluently in sign language (American Sign Language or a form of Manually Coded English)
- j. providing manipulatives for math items e.g., number line, counting chips, abacus

#### Response modifications

- a. having an examiner record the student's identification information on the test booklet and/or answer folder
- b. dictating oral responses to a scribe (examiner or proctor who writes from dictation)
- c. using a Braille writer to record responses
- d. signing responses to a sign language interpreter (student must indicate all punctuation and must spell all keywords)
- e. recording responses on a word processor (all editorial functions MUST be disabled)
- f. providing an augmentative communication device
- g. using a larger diameter or modified special grip # 2 pencil
- h. circling answers in the test booklet (the examiner subsequently transfer the answers to the answer folder)
- i. allowing separate additional continuation pages for writing tasks

#### **504:**

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

#### Environmental Strategies

- Provide a structured learning environment
- Make separate "space" for different types of tasks
- Possible adapting of non-academic times such as lunch, recess, and physical education
- Change student seating

- Utilize a study carrel
- Alter location or personal or classroom supplies for easier access or to minimize distraction
- Provide sensory breaks
- Provide a written or picture schedule

#### Organizational Strategies

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

#### Behavioral Strategies

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

#### Presentation Strategies

- Tape lessons so the student can listen to them again; allow students to tape lessons
- Use computer-aided instruction and other audiovisual equipment
- Select alternative textbooks, workbooks, or provide books on tape
- Highlight main ideas and supporting details in the book
- Provide copied material for extra practice (i.e. outlines, study guides)
- Prioritize drill and practice activities for relevance
- Vary the method of lesson presentation using multi-sensory techniques:
  - a) lecture plus overhead/board demonstration support
  - b) small groups required to produce a written product
  - c) large groups required to demonstrate a process
  - d) computer-assisted instruction
  - e) peer tutors or cross-age tutors



f) demonstrations, simulations

g) experiments

h) games

- Ask student to repeat/paraphrase context to check understanding
- Arrange for a mentor to work with student in his or her interest area or area of greatest strength
- Provide peer tutoring
- Simplify and repeat instructions about in-class and homework assignments
- Vary instructional pace
- Reinforce the use of compensatory strategies, i.e. pencil grip, mnemonic devices, “spell check”
- Vary kind of instructional materials used
- Assess whether student has the necessary prerequisite skills. Determine whether materials are appropriate to the student's current functioning levels
- 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
- 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.

Unit 3 GEOMETRY		
Content & Practice Standards	Interdisciplinary Standards	Critical Knowledge & Skills
<ul style="list-style-type: none"><li>● G-CO.C.9: Prove theorems about lines and angles. Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment’s endpoints.</li><li>● G-CO.A.1: Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.</li><li>● G-CO.D.12: Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line</li></ul>	<ul style="list-style-type: none"><li>● - RI.11-12.7. Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.</li><li>● - SL.11-12.4 Present information, findings and support evidence clearly, concisely, and logically. The content, organization, development, and style are appropriate to purpose, and audience.</li></ul>	<ul style="list-style-type: none"><li>● 1.5- Name and classify angles. Measure and construct angles and angle bisectors Apply formulas for perimeter, area, and circumference.</li><li>● 1.6- Identify adjacent, vertical, complementary, and supplementary angles. Find measures of pairs of angles</li><li>● 2.5 Write basic two-column proofs (This includes algebraic proofs and fill in the blank proofs.)</li><li>● 3.1- Identify parallel, perpendicular, and skew lines. Identify the angles formed by two lines and a transversal.</li><li>● 3.2-Prove and use theorems about the angles formed by parallel lines and a transversal.</li><li>● 3.3-Use the angles formed by a transversal to prove two lines are parallel.</li></ul>
Unit 3 GEOMETRY		
Stage 1 – Desired Results		
UNIT SUMMARY	CORE AND SUPPLEMENTAL MATERIALS/RESOURCES	
<i>In this unit, students will be able to identify angle measures and solve problems using angle relationships and diagrams.</i>	<ul style="list-style-type: none"><li>● Khan Academy</li><li>● Kahoot</li><li>● Desmos</li><li>● Geometer’s Sketchpad</li><li>● On-line Textbook</li></ul>	
UNDERSTANDINGS		
Students will understand how to calculate angle measures, use angle relationships to solve problems and complete angle proofs.		
Students will know...	Students will be able to...	
<i>What content will be covered that students must master?</i> <ul style="list-style-type: none"><li>● How to measure, classify and name angles</li></ul>	<i>What should students be able to accomplish to demonstrate understanding?</i> <ul style="list-style-type: none"><li>● name angles</li></ul>	

## Curricular Framework MATH-Geometry

<ul style="list-style-type: none"> <li>• <i>How to solve problems using the angle addition postulate and the definition of an angle bisector</i></li> <li>• <i>How to identify complementary and supplementary angles</i></li> <li>• <i>How to solve problems using complementary and supplementary angles</i></li> <li>• <i>How to interpret diagrams dealing with angles</i></li> <li>• <i>How to identify and solve problems using the definition of a linear pair and vertical angles</i></li> <li>• <i>How to solve problems using angle pairs</i></li> <li>• <i>How to solve problems using angle pairs that are formed by parallel lines</i></li> <li>• <i>How to using angle pair to identify parallel lines</i></li> <li>• <i>How to complete angle proofs</i></li> </ul>	<ul style="list-style-type: none"> <li>• classify and measure angles</li> <li>• identify congruent angles</li> <li>• use angle addition postulate to find angle measures</li> <li>• bisect angles</li> <li>• write two column proofs for angles</li> <li>• identify complementary and supplementary angles</li> <li>• identify linear pairs &amp; vertical angles</li> <li>• name and prove properties of congruence</li> <li>• identify pairs of angles formed by transversals</li> <li>• use properties of parallel lines</li> <li>• prove theorems about parallel lines</li> <li>• use corresponding angles converse theorem</li> <li>• use transitive property of parallel lines</li> </ul>
<b>Stage 2 – Assessment Evidence</b>	
<p>Performance Tasks:  <i>What projects, hands-on lessons, use of manipulatives, active participation in new situations, etc. will reveal evidence of meaning-making and transfer (true understanding)?</i></p> <p><b><u>Performance Tasks/Use of Technology</u></b></p> <ul style="list-style-type: none"> <li>• 1.5 –Students learn how to use a protractor to measure angles. Construct congruent angles and construct angle bisectors using a compass</li> <li>• 2.5-Introduction to proof as giving directions-this develops understanding of necessity of detailed thinking</li> <li>• 3.1- Algebra connection using systems of equations</li> <li>• 3.2- Have students sketch and label two parallel lines cut by a transversal. Use a protractor to measure the angles and use the sketch to explain the relationship among all the angles.</li> <li>• 3.3- Construct parallel lines</li> </ul>	<p>Other Evidence:  <i>What other means of assessment will be used throughout this unit?</i></p> <p><b><u>Formative</u></b></p> <ul style="list-style-type: none"> <li>• Do Now Activities</li> <li>• Homework</li> <li>• Class Participation</li> <li>• Exit Tickets</li> <li>• Class Games</li> <li>• Notebook Checks</li> <li>• Teacher Observation</li> <li>• White Board Communicators</li> <li>• In Class Activities</li> </ul> <p><b><u>Summative</u></b></p> <ul style="list-style-type: none"> <li>• Paper Quizzes</li> <li>• Online Quizzes</li> <li>• Link-It Benchmarks</li> <li>• Tests</li> <li>• Unit Projects</li> </ul>
<b>Stage 3 – Learning Plan</b>	
<p>1.5 Measuring, classifying, and naming angles          Include definition perpendicular lines          Include Protractor Postulate</p>	

1.5 Angle addition postulate (include concept of adjacent angles)

1.5 Angle bisector

1.5 Congruent angles

Do not include constructions

1.6 Complementary and supplementary angles (not as linear pair)

1.6 Interpreting pictures

2.5/2.6 Prove statements about angles (nothing with vertical angles or linear pairs)

Include properties of angle congruence

Include right angles congruence theorem

Students should be able to follow proof of congruent supps/comp theorems, but do not have them memorize these

1.6 Linear Pair and vertical angles

Include definitions and Post. 2.8, theorem 2.6

3.1 Alternate interior, corresponding, consecutive interior angles

Stress naming 2 lines and transversal that form the pair of angles

Do not include alternate or consecutive exterior angles

Do not include skew lines, parallel planes, perpendicular postulate

3.2 Angle pairs formed by parallel lines

Optional: include Parallel Postulate

Include theorems 3.1, 3.2, 3.4

Do not include theorem 3.3 (alternate exterior angles)

3.3 Using angle pairs to identify lines that are parallel

Include theorems 3.5, 3.6, 3.8

Do not include theorem 3.7 (alternate exterior angles)

Do not include theorem 3.9

Angle proofs from sections 2.6 (especially use of vertical angles/linear pairs), 3.2, 3.3, 3.4

Do not formally include theorems 3.10-3.12 (other ways to do this)

#### Planned Differentiation & Interventions for Tiers I, II, III, ELL, SPED, and Gift & Talented Students

• *Rethink and revise. Dig deeper into ideas at issue (through the faces of understanding). Revise, rehearse, and refine, as needed. Guide students in self-assessment and self-adjustment, based on feedback from inquiry, results, and discussion.*

• *Evaluate understandings. Reveal what has been understood through final performances and products. Involve students in a final self-assessment to identify remaining questions, set future goals, and point toward new units and lessons.*

• *Tailor (personalize) the work to ensure maximum interest and achievement. Differentiate the approaches used and provide sufficient options and variety (without compromising goals) to make it most likely that all students will be engaged and effective.*

### **Gifted & Talented:**

- “Differentiating the Lesson” in Big Ideas online resources for all sections
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- Provide visual and verbal directions
- Simplify directions into one-step
- Check back after two steps have been completed
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- At beginning to intermediate levels of proficiency, English Language Learners should be shown examples of a completed assignment to model the correct format.
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- Vocabulary Flash Cards
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- Multi-Sensory Instruction
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- Gradual Release Model
- [TODOS: Mathematics for ALL](#) - Excellence and Equity in Mathematics
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**SPED:**

This course of instruction shall be modified through varying techniques, strategies, materials, etc. to meet the needs of all students, including, but not limited to, special education, E.S.L. and basic skills.

## Setting Accommodations

1. Administering the assessment:
  - a. individually in a separate room
  - b. in a small group in a separate room
  - c. in the resource room
  - d. in a special education classroom
  - e. at home or in a hospital (this will depend on the nature of the assessment task)
2. Seating the student in the front of the room near the examiner or proctor
3. Seating the student facing the examiner or proctor
4. Providing special lighting
5. Providing special furniture e.g., desks, trays, carrels

## Scheduling Accommodations

1. Adding time as needed
2. Providing frequent breaks
3. Terminating a section of the test when a student has indicated that he/she has completed all the items he/she can. The examiner must ensure that the student has attempted all items in a section since items are not ordered by difficulty. When this accommodation is used, the test must be administered in a small group or individually to avoid distraction.

## Test Materials Modifications

1. Administering the large-print version of the test
2. Administering the Braille version of the test

## Test Procedure Modifications



## 1. Administration modifications

- a. reading directions aloud
- b. reading test items aloud (do not read aloud or sign the reading passages in Language Arts Literacy –the reading items may be read or signed); ONLY the teacher who must read the test items aloud or sign is permitted to have a test booklet assigned to him/her for this task
- c. providing and ensuring that amplification (hearing aid and/or FM system) is in working order
- d. using a sign language or cued speech interpreter to sign or cue the directions or test items but NOT the reading passages
- e. masking a portion of the test booklet and/or answer folder to eliminate visual distractors or providing reading windows
- f. repeating, clarifying, or rewording directions ONLY
- g. providing written directions on a separate sheet or transparency
- h. using an examiner who is familiar with the student
- i. using an examiner who can communicate fluently in sign language (American Sign Language or a form of Manually Coded English)
- j. providing manipulatives for math items e.g., number line, counting chips, abacus

## Response modifications

- a. having an examiner record the student's identification information on the test booklet and/or answer folder
- b. dictating oral responses to a scribe (examiner or proctor who writes from dictation)
- c. using a Braille writer to record responses
- d. signing responses to a sign language interpreter (student must indicate all punctuation and must spell all keywords)
- e. recording responses on a word processor (all editorial functions MUST be disabled)
- f. providing an augmentative communication device
- g. using a larger diameter or modified special grip # 2 pencil
- h. circling answers in the test booklet (the examiner subsequently transfer the answers to the answer folder)
- i. allowing separate additional continuation pages for writing tasks

**504:**

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

## Environmental Strategies

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

- Provide sensory breaks
- Provide a written or picture schedule

#### Organizational Strategies

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

#### Behavioral Strategies

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

#### Presentation Strategies

- Tape lessons so the student can listen to them again; allow students to tape lessons
- Use computer-aided instruction and other audiovisual equipment
- Select alternative textbooks, workbooks, or provide books on tape
- Highlight main ideas and supporting details in the book
- Provide copied material for extra practice (i.e. outlines, study guides)
- Prioritize drill and practice activities for relevance
- Vary the method of lesson presentation using multi-sensory techniques:
  - a) lecture plus overhead/board demonstration support
  - b) small groups required to produce a written product
  - c) large groups required to demonstrate a process
  - d) computer-assisted instruction
  - e) peer tutors or cross-age tutors
  - f) demonstrations, simulations
  - g) experiments

h) games

- Ask student to repeat/paraphrase context to check understanding
- Arrange for a mentor to work with student in his or her interest area or area of greatest strength
- Provide peer tutoring
- Simplify and repeat instructions about in-class and homework assignments
- Vary instructional pace
- Reinforce the use of compensatory strategies, i.e. pencil grip, mnemonic devices, “spell check”
- Vary kind of instructional materials used
- Assess whether student has the necessary prerequisite skills. Determine whether materials are appropriate to the student's current functioning levels
- 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
- 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.

Unit 4 GEOMETRY		
Content & Practice Standards	Interdisciplinary Standards	Critical Knowledge & Skills
<ul style="list-style-type: none"> <li>● G-MG.A.1: Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).</li> <li>● G-MG.A.3: Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios)</li> <li>● G-CO.B.7: Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.</li> <li>● G-CO.B.8: Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.</li> <li>● G-CO.C.10: Prove theorems about triangles. Theorems include: measures of interior angles of a triangle sum to <math>180^\circ</math>; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.</li> <li>● G-CO.D.13: Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.</li> <li>● G-SRT.A.2: Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.</li> <li>● G-SRT.B.4: Prove theorems about triangles. Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity</li> </ul>	<ul style="list-style-type: none"> <li>● - RI.11-12.7. Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.</li> <li>● - SL.11-12.4 Present information, findings and support evidence clearly, concisely, and logically. The content, organization, development, and style are appropriate to purpose, and audience.</li> </ul>	<ul style="list-style-type: none"> <li>● 5.1- Classify triangles by their angle measures and side lengths. Use triangle classification to find angle measures and side lengths. Find the measures of interior and exterior angles of triangles. Apply theorems about the interior and exterior of triangles.</li> <li>● 5.2- Use properties of congruent triangles. Prove triangles congruent by using the definition of congruence.</li> <li>● 5.3- Apply SAS to prove triangles congruent.</li> <li>● 5.4- Prove theorems about isosceles and equilateral triangles. Apply properties of isosceles and equilateral triangles.</li> <li>● 5.5- Prove triangles congruent by using SSS.</li> <li>● 5.6- Prove triangles congruent by ASA and AAS.</li> <li>● 5.7- To use congruent triangles to solve problems.</li> <li>● 6.5- Apply inequalities in one triangle</li> <li>● 8.1- To use similarity statements. Find corresponding lengths, perimeter and area in similar polygons.</li> <li>● 8.2- Prove certain triangles are similar by using AA. Use triangle similarity to solve problems.</li> <li>● 8.3 Prove certain triangles are similar by using SSS and SAS. Use triangle similarity to solve problems.</li> <li>● 8.4- Use properties of similar triangles to find segment lengths. Apply proportionality and triangle angle bisector theorems.</li> <li>● 9.1- Use the Pythagorean Theorem and its converse.</li> <li>● 9.4- Use the tangent ratio to solve real-life problems.</li> <li>● 9.5- Find the sine and cosine of an acute angle. Use trigonometric ratios to find side lengths in right triangles and to solve real-world problems.</li> <li>● 9.6- Use trigonometric ratios to find angle measures in right triangles and to solve real-world problems.</li> </ul>

<ul style="list-style-type: none"><li>● G-SRT.B.5: Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.</li><li>● G-SRT.C.6: Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.</li><li>● G-SRT.C.7: Explain and use the relationship between the sine and cosine of complementary angles.</li><li>● G-SRT.C.8: Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.</li><li>● G-GPE.B.5: Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).</li><li>● G-GPE.B.6: Find the point on a directed line segment between two given points that partitions the segment in a given ratio.</li></ul>		
Unit 4 GEOMETRY		
Stage 1 – Desired Results		
UNIT SUMMARY	CORE AND SUPPLEMENTAL MATERIALS/RESOURCES	
<i>In this unit, students will be able to complete problems dealing with congruent, similar and right triangles.</i>	<ul style="list-style-type: none"><li>● Khan Academy</li><li>● Kahoot</li><li>● Desmos</li><li>● Geometer’s Sketchpad</li><li>● On-line Textbook</li></ul>	
UNDERSTANDINGS		
Students will understand the congruent triangle theorems, the similar triangle theorems and how to use trigonometry to solve problems in right triangles.		
Students will know...	Students will be able to...	
<i>What content will be covered that students must master?</i> <ul style="list-style-type: none"><li>● How to find interior and exterior angle measures</li><li>● How to identify congruent parts of congruent triangles</li></ul>	<i>What should students be able to accomplish to demonstrate understanding?</i> <ul style="list-style-type: none"><li>● classify triangles by sides and angles</li><li>● find interior and exterior angle measures of triangles</li><li>● identify and use corresponding parts</li></ul>	

## Curricular Framework MATH-Geometry

<ul style="list-style-type: none"> <li>• <i>How to prove triangles are congruent using SSS, SAS, ASA, AAS and HL congruence</i></li> <li>• <i>How to use triangle inequalities to solve problems</i></li> <li>• <i>How to prove triangles are similar using AA, SSS and SAS similarity</i></li> <li>• <i>How to solve problems using triangle proportionality</i></li> <li>• <i>How to solve for a side of a right triangle using the Pythagorean theorem</i></li> <li>• <i>How to solve right triangles completely</i></li> </ul>	<ul style="list-style-type: none"> <li>• use Third Angles Theorem</li> <li>• use SAS, SSS, AAS, ASA and HL congruence theorems</li> <li>• solve real life problems with triangle congruence</li> <li>• use the base angles theorem</li> <li>• use isosceles and equilateral triangles</li> <li>• use congruent triangles</li> <li>• write indirect proofs</li> <li>• list sides and angles of a triangle in size order</li> <li>• use triangle inequality theorem to find possible side lengths of triangles</li> <li>• use similarity statements</li> <li>• find corresponding lengths in similar polygons</li> <li>• decide whether polygons are similar</li> <li>• use AA, SSS and SAS similarity theorems</li> <li>• use triangle proportionality theorem and converse</li> <li>• use other proportionality theorems</li> <li>• use Pythagorean Theorem</li> <li>• use Converse of the Pythagorean Theorem</li> <li>• classify triangles</li> <li>• use sine, cosine and tangent ratios</li> <li>• solve real life problems using sine, cosine &amp; tangent ratios</li> <li>• use inverse sine, cosine and tangent</li> <li>• solve real life problems using inverse sine, cosine and tangent</li> <li>• solve right triangles</li> </ul>
<b>Stage 2 – Assessment Evidence</b>	
<p>Performance Tasks:  <i>What projects, hands-on lessons, use of manipulatives, active participation in new situations, etc. will reveal evidence of meaning-making and transfer (true understanding)?</i></p> <p><b><u>Performance Tasks/Use of Technology</u></b></p> <ul style="list-style-type: none"> <li>• 5.1- Proving the triangle sum theorem activity</li> <li>• 5.3- Optional activity to explore SSS and SAS</li> <li>• 5.6- Construction activity to construct congruent triangles by using ASA</li> <li>• 8.3- Test prep problems as exit questions</li> <li>• 9.5- In pairs, give students coordinates of a right triangle. They need to graph, and solve right triangle for all angles and sides.</li> <li>• 9.4-9.6- Think-pair-share with word problems. Students need to draw picture for problem, label it, and solve for indicated measure.</li> <li>• 9.4-9.6- FlagpoleProject: Students go outside in cooperative groups and use the clinometer and walking stick to find the height of various objects</li> </ul>	<p>Other Evidence:  <i>What other means of assessment will be used throughout this unit?</i></p> <p><b><u>Formative</u></b></p> <ul style="list-style-type: none"> <li>• Do Now Activities</li> <li>• Homework</li> <li>• Class Participation</li> <li>• Exit Tickets</li> <li>• Class Games</li> <li>• Notebook Checks</li> <li>• Teacher Observation</li> <li>• White Board Communicators</li> <li>• In Class Activities</li> </ul> <p><b><u>Summative</u></b></p>

- Paper Quizzes
- Online Quizzes
- Link-It Benchmarks
- Tests
- Unit Projects
- 

### Stage 3 – Learning Plan

5.1 Sum of interior angles/ext angle = sum remote interior angles

Review naming and classifying triangles

Include theorems 5.1 and 5.2

Do not include corollary 5.1

5.2 Definition congruent triangles; naming congruent triangles with corresponding parts

Do not do congruent triangle proofs using definition of congruent triangles

Include theorem 5.4

5.3 SAS

5.5 SSS and HL

5.6 ASA and AAS

5.7 CPCTC

5.4 Isosceles Triangles

Include Theorems 5.6 and 5.7

Include Corollaries 5.2-5.3

6.5 Triangle inequalities

Include Theorems 6.9, 6.10, and 6.11

Definitions of median and altitude should be included in this unit

*Proportion review*

8.1 *Similar Polygons (not area)*

*Do not include theorems 8.1 and 8.2*

8.2 AA

8.3 SSS/SAS for similar triangles

8.4 *Triangle Proportionality*

*Include theorems 8.6, 8.7, 8.8*

*Do not include theorem 8.9*

9.1 *Pythagorean Theorem*

*Include Theorems 9.1, 9.2, 9.3*

9.4 *Tangent*

9.5 *Sine and Cosine*

9.6 *Solving Right Triangles*

*Include “parcc-like” problems – especially those where the triangles aren’t visibly present*  
*Do not include similar right triangles or “special” right triangles in this unit*  
*Answers as decimals – no radical form*

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- Show students how to prepare a card file of number words. Write the word on one side and the symbol on the opposite side.
- Big Ideas Math Student Editions are available online in Spanish

- Letters to Parents are available in the Resources by Chapter book to assist in guiding parents through each chapter and offer helpful suggestions they can use to demonstrate mathematical concepts for their child in daily activities. These letters are editable so teachers can customize them.
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This course of instruction shall be modified through varying techniques, strategies, materials, etc. to meet the needs of all students, including, but not limited to, special education, E.S.L. and basic skills.

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Unit 5 GEOMETRY		
Content & Practice Standards	Interdisciplinary Standards	Critical Knowledge & Skills
<ul style="list-style-type: none"> <li>● G-CO.A.1: Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.</li> <li>● G-CO.D.13: Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.</li> <li>● G-C.A.1: Prove that all circles are similar</li> <li>● G-C.A.2: Identify and describe relationships among inscribed angles, radii, and chords. Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.</li> <li>● G-C.A.3: Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.</li> <li>● G-C.A.4: (+) Construct a tangent line from a point outside a given circle to the circle.</li> <li>● G-C.B.5: Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector.</li> <li>● G-MG.A.1: Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder)</li> <li>● G-MG.A.2: Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot)</li> <li>● G-MG.A.3: Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).</li> </ul>	<ul style="list-style-type: none"> <li>● - RI.11-12.7. Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.</li> <li>● - SL.11-12.4 Present information, findings and support evidence clearly, concisely, and logically. The content, organization, development, and style are appropriate to purpose, and audience.</li> </ul>	<ul style="list-style-type: none"> <li>● 10.1- lines and segments that intersect circles.</li> <li>● 10.2- finding arc measures.</li> <li>● 10.3- using chords.</li> <li>● 10.4- inscribed angle relationships in circles.</li> <li>● 10.5- angle relationships in circles.</li> <li>● 10.6- segment relationships in circles.</li> <li>● 11.1- Use formula for circumference. Use arc lengths to find measures.</li> <li>● 11.2- Use formula for area of a circle, population density. To find areas of sectors.</li> </ul>



<ul style="list-style-type: none"><li>● G-GMD.A.1: Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone. Use dissection arguments, Cavalieri’s principle, and informal limit arguments.</li><li>● G-GMD.A.3: Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems</li><li>● N-Q.A2: Define appropriate quantities for the purpose of descriptive modeling.</li><li>● G–GPE.4: Use coordinates to prove simple geometric theorems algebraically. For example, prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle; prove or disprove that the point (1, <math>\sqrt{3}</math>) lies on the circle centered at the origin and containing the point (0, 2).</li><li>● G-GPE.7: Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula</li></ul>		
Unit 5 GEOMETRY		
Stage 1 – Desired Results		
UNIT SUMMARY	CORE AND SUPPLEMENTAL MATERIALS/RESOURCES	
<i>In this unit, students will be able to learn all the terms dealing with circles and 3d figures. They will also apply the terms to solve problems dealing with circles and apply surface area and volume formulas to 3d figures.</i>	<ul style="list-style-type: none"><li>● Khan Academy</li><li>● Kahoot</li><li>● Desmos</li><li>● Geometer’s Sketchpad</li><li>● On-line Textbook</li></ul>	
UNDERSTANDINGS		
Students will understand terms and definitions that can be applied to solve problems dealing with circles and 3d figures.		
Students will know...	Students will be able to...	

## Curricular Framework MATH-Geometry

<p><i>What content will be covered that students must master?</i></p> <ul style="list-style-type: none"> <li>• <i>How to use tangent lines to solve problems</i></li> <li>• <i>How to find the measure of central angles and arcs</i></li> <li>• <i>How to use chords to solve problems</i></li> <li>• <i>How to find the measure of inscribed angles</i></li> <li>• <i>How to solve problems using segment lengths in circles</i></li> <li>• <i>How to calculate the circumference and arc length</i></li> <li>• <i>How to calculate the area of a circle and the area of a sector</i></li> <li>• <i>How to find the surface area of 3d figures</i></li> <li>• <i>How to find the volume of 3d figures</i></li> <li>• <i>How to find the volume of composite figures</i></li> </ul>	<p><i>What should students be able to accomplish to demonstrate understanding?</i></p> <ul style="list-style-type: none"> <li>• Identify tangents, chords, diameters, radii, and secants.</li> <li>• Identify and measure central and inscribed arcs.</li> <li>• use the arc addition postulate</li> <li>• use the congruent corresponding chords theorem</li> <li>• use perpendicular chord bisector theorem &amp; converse</li> <li>• use inscribed right angle theorem</li> <li>• use tangent and intersected chord theorem</li> <li>• use angles inside and outside circles theorems</li> <li>• identify and use circumscribed angles theorem</li> <li>• use segments of chords theorem</li> <li>• use segments of secants theorem</li> <li>• use segments of secants and tangents theorem</li> <li>• Use chords, arcs and radii to determine circle congruence.</li> <li>• Find arc lengths and sector areas.</li> <li>• Find angle measures in inscribed polygons</li> <li>• Use volume formulas for 3-d and composite figures</li> <li>• Derive and use surface area formulas</li> </ul>
<b>Stage 2 – Assessment Evidence</b>	
<p>Performance Tasks:  <i>What projects, hands-on lessons, use of manipulatives, active participation in new situations, etc. will reveal evidence of meaning-making and transfer (true understanding)?</i></p> <p><b><u>Performance Tasks/Use of Technology</u></b></p> <ul style="list-style-type: none"> <li>• 10.1- Make a circle out of construction paper and label all types of segments and lines to outline vocabulary.</li> <li>• 11.1- Students develop the value of <math>\pi</math></li> </ul>	<p>Other Evidence:  <i>What other means of assessment will be used throughout this unit?</i></p> <p><b><u>Formative</u></b></p> <ul style="list-style-type: none"> <li>• Do Now Activities</li> <li>• Homework</li> <li>• Class Participation</li> <li>• Exit Tickets</li> <li>• Class Games</li> <li>• Notebook Checks</li> <li>• Teacher Observation</li> <li>• White Board Communicators</li> <li>• In Class Activities</li> </ul> <p><b><u>Summative</u></b></p> <ul style="list-style-type: none"> <li>• Paper Quizzes</li> <li>• Online Quizzes</li> <li>• Link-It Benchmarks</li> <li>• Tests</li> </ul>

- Unit Projects

## Stage 3 – Learning Plan

*10.1 Tangents*

*Do not include coplanar circles and common tangents*

*Include theorems 10.1-10.2*

*10.2 Central angles and arcs*

*Do not formally include arc addition postulate*

*Do not include theorems 10.3 or 10.5*

*Include theorem 10.4*

*Include definition congruent arcs, but not similar arcs*

*10.3 Chords*

*Include theorems 10.6-10.9*

*10.4 Inscribed Angles*

*Include theorem 10.10*

*Do not formally include 10.11 or 10.12 (follows from 10.10)*

***Include theorem 10.13***

*10.5 Other Angles*

*Include theorems 10.14-10.16*

*Do not include circumscribed angles of theorem 10.17 (as a theorem – problem solving follows from theorem 10.16)*

*10.6 Product of segment lengths in circles*

*Include theorems 10.18-10.20*

*11.1 Circumference and arc length**11.2 Area of circle and sector**1.4 Area using coordinate geometry*

*Use PARCC formula sheet – only do problems that use these formulas*

*Stress  $\text{Volume} = Bh$  for “odd” shaped prisms*

*Composite Area*

*Area and Perimeter of similar figures*

***NO REGULAR POLYGON, TRAPEZOID, KITE OR RHOMBUS AREA***

***NO SURFACE AREA OTHER THAN APPLICATIONS USING GIVEN AREA FORMULAS (like the “paint and shingles” questions)***

**Planned Differentiation & Interventions for Tiers I, II, III, ELL, SPED, and Gift & Talented Students**

- *Rethink and revise. Dig deeper into ideas at issue (through the faces of understanding). Revise, rehearse, and refine, as needed. Guide students in self-assessment and self-adjustment, based on feedback from inquiry, results, and discussion.*
- *Evaluate understandings. Reveal what has been understood through final performances and products. Involve students in a final self-assessment to identify remaining questions, set future goals, and point toward new units and lessons.*
- *Tailor (personalize) the work to ensure maximum interest and achievement. Differentiate the approaches used and provide sufficient options and variety (without compromising goals) to make it most likely that all students will be engaged and effective.*

#### **Gifted & Talented:**

- “Differentiating the Lesson” in Big Ideas online resources for all sections
- “Additional Topics” in Big Ideas online resources to extend and enhance instruction
- Big Ideas Game Closet
- Big Ideas Differentiated Instruction options
- Big Ideas Mini-Assessments
- Design Challenges
- Student Choice/Driven Activities
- Group Projects
- MobyMax
- LinkIt!
- Rocket Math
- [Intervention Central](#)
- [Do to Learn](#)
- [Differentiation Strategies for Math](#)
- [Discovery Education Math](#)
- [Everyday Mathematics](#)
- [Homework Spot](#)
- [Math Fact Fluency](#)

#### **Tier I:**

Students thought to be achieving mastery will be given alternative and more in depth assignments in the classroom by the teacher and support staff. Data on these interventions will be tracked and if sufficient progress is not demonstrated, the student may need Tier II interventions. These interventions may include some of the following:

- “Differentiating the Lesson” in Big Ideas online resources for all sections
- Big Ideas MATH Pyramid of Tiered Interventions for additional resources
- Record and Practice Journal
- Differentiated Instruction options
- Fair Game Review
- Vocabulary Support Glossary resources

- Mini-Assessments
- Game Closet
- Lesson Tutorials
- Flash Cards
- Extended Time
- Flexible Grouping
- Small Group Instruction
- Peer Buddies
- Math Tutoring Center (HS only)
- Math Lab/Tutorial
- MobyMax
- LinkIt!
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### **Tier II:**

Students thought to be in need of more support to achieve mastery will be given interventions in the classroom by the teacher and support staff. Data on these interventions will be tracked and if sufficient progress is not demonstrated, the student may need Tier III interventions. These interventions may include some of the following:

- Lesson Tutorials
- Basic Skills Handbook
- Skills Review Handbook
- Differentiated Instruction Big Ideas resources
- Game Closet
- Centers/Small Group Instruction
- Math Tutoring Center (HS only)
- Math Lab/Tutorial
- MobyMax
- LinkIt!
- Math Fact Fluency/Rocket Math

**Tier III:**

Students thought to be at risk for failing or not achieving mastery will be given interventions in the classroom by the teacher and support staff. Data on these interventions will be tracked and if sufficient progress is not demonstrated, that student may be referred to the I&RS team. These interventions may include some of the following:

- Provide visual and verbal directions
- Simplify directions into one-step
- Check back after two steps have been completed
- Model self-talk to complete tasks
- Discuss organizational plans for work and work completion
- Allow for multiple methods of demonstrating learning and competence
- Enforce opportunities to correct work
- Provide 1:1 instructional time
- Provide physical manipulatives whenever possible
- Assess and provide optimal seating arrangement
- Customized Learning Intervention Activities resources
- Intensive Intervention resource
- Systematic Assessments to focus on specific deficits

**ELL:**

- At beginning to intermediate levels of proficiency, English Language Learners should be shown examples of a completed assignment to model the correct format.
- Assignments and directions should be printed on the board and given to the student.
- A bilingual assistant/interpreter, when available, could be used to explain math concepts in the student's primary language.
- Students should have access to counters, number lines and other types of manipulatives, which enable them to complete assignments at their level of instruction.
- Rewrite story problems in simpler English. Use short sentences, pictures, and illustrations to encourage understanding.
- Show students how to prepare a card file of number words. Write the word on one side and the symbol on the opposite side.
- Big Ideas Math Student Editions are available online in Spanish
- Letters to Parents are available in the Resources by Chapter book to assist in guiding parents through each chapter and offer helpful suggestions they can use to demonstrate mathematical concepts for their child in daily activities. These letters are editable so teachers can customize them.
- Student Dynamic eBook Audio has the option to be read in English or Spanish
- Multi-Language Glossary for new Math vocabulary is available in 14 different languages.
- Audio version is available in English or Spanish.
- Game Closet can be accessed in English or Spanish, while also allowing for all students to play and understand these educational games.
- ELL Notes included in Teacher Edition to help teachers overcome obstacles.
- Record & Practice Journal available in Spanish.
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- Chapter Reviews available in English and Spanish.
- Vocabulary Flash Cards
- Chunking Information
- Math Word Wall/Word Bank
- Multi-Sensory Instruction
- Use of Translation software
- Gradual Release Model
- [TODOS: Mathematics for ALL](#) - Excellence and Equity in Mathematics
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Unit 6 GEOMETRY		
Content & Practice Standards	Interdisciplinary Standards	Critical Knowledge & Skills
<ul style="list-style-type: none"><li>● G-CO.C.11: Prove theorems about parallelograms. Theorems include: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals.</li><li>● G-SRT.B.5: Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.</li><li>● G-MG.A.1: Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder)</li><li>● G-MG.A.2: Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot)</li></ul>	<ul style="list-style-type: none"><li>● - RI.11-12.7. Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.</li><li>● - SL.11-12.4 Present information, findings and support evidence clearly, concisely, and logically. The content, organization, development, and style are appropriate to purpose, and audience.</li></ul>	<ul style="list-style-type: none"><li>● 11.3- To find areas of rhombuses and kites. To find areas of regular polygons.</li><li>● 7.2- Prove and apply properties of parallelograms. Use properties of parallelograms to solve problems.</li><li>● 7.3- Prove that a given quadrilateral is a parallelogram.</li><li>● 7.4- Prove and apply properties of rectangles, rhombuses, and squares. Use properties of rectangles, rhombuses, and squares to solve problems.</li><li>● 7.5- Use properties of kites and trapezoids to solve problems</li></ul>
Unit 6 GEOMETRY		
Stage 1 – Desired Results		
UNIT SUMMARY	CORE AND SUPPLEMENTAL MATERIALS/RESOURCES	
<i>In this unit, students will be able to identify and solve problems using the properties of quadrilaterals. Specifically, students will be able to apply the properties of a parallelogram, rectangle, rhombus and square.</i>	<ul style="list-style-type: none"><li>● Khan Academy</li><li>● Kahoot</li><li>● Desmos</li><li>● Geometer’s Sketchpad</li><li>● On-line Textbook</li></ul>	
UNDERSTANDINGS		
Students will understand how the properties of parallelograms relate to one another and be able to solve problems applying them.		
Students will know...	Students will be able to...	
<i>What content will be covered that students must master?</i> <ul style="list-style-type: none"><li>● How to use the properties of a parallelogram to solve problems</li><li>● How to prove a quadrilateral is a parallelogram</li><li>● How to use the properties of a rectangle, rhombus and square to identify the quadrilateral and solve problems</li><li>● How to use the properties of trapezoids and kites to solve problems</li><li>● How to find the area of trapezoids, kites and rhombi</li></ul>	<i>What should students be able to accomplish to demonstrate understanding?</i> <ul style="list-style-type: none"><li>● use properties of parallelograms to find side lengths and angle measures</li><li>● use parallelograms in the coordinate plane</li><li>● identify and verify parallelograms</li><li>● show that a quadrilateral is a parallelogram in the coordinate plane</li><li>● use properties of special parallelograms</li><li>● use properties of diagonals of special parallelograms</li><li>● use coordinate geometry to identify special types of parallelograms</li></ul>	

## Curricular Framework MATH-Geometry

	<ul style="list-style-type: none"> <li>• use properties of trapezoids</li> <li>• use trapezoid midsegment theorem to find distances</li> <li>• use properties of kites</li> <li>• identify quadrilaterals</li> <li>• find areas of rhombuses and kites</li> <li>• find angle measures in regular polygons</li> <li>• find areas of regular polygons</li> </ul>
<b>Stage 2 – Assessment Evidence</b>	
<p>Performance Tasks:  <i>What projects, hands-on lessons, use of manipulatives, active participation in new situations, etc. will reveal evidence of meaning-making and transfer (true understanding)?</i></p> <p><b><u>Performance Tasks/Use of Technology</u></b></p> <ul style="list-style-type: none"> <li>• 11.3- Students discover area formulas by using construction paper, scissors, and two-dimensional shapes</li> <li>• 7.2-Parallelogram activity: Students measure sides and angles of various parallelograms to discover relationships between opposite and consecutive angles, opposite sides, and diagonals.</li> <li>• 7.3- Students complete fill-in proofs for proving a quadrilateral to be a parallelogram</li> <li>• 7.4- Have students develop flow chart OR Venn diagram of quadrilaterals as a guide.</li> </ul>	<p>Other Evidence:  <i>What other means of assessment will be used throughout this unit?</i></p> <p><b><u>Formative</u></b></p> <ul style="list-style-type: none"> <li>• Do Now Activities</li> <li>• Homework</li> <li>• Class Participation</li> <li>• Exit Tickets</li> <li>• Class Games</li> <li>• Notebook Checks</li> <li>• Teacher Observation</li> <li>• White Board Communicators</li> <li>• In Class Activities</li> </ul> <p><b><u>Summative</u></b></p> <ul style="list-style-type: none"> <li>• Paper Quizzes</li> <li>• Online Quizzes</li> <li>• Link-It Benchmarks</li> <li>• Tests</li> <li>• Unit Projects</li> </ul>
<b>Stage 3 – Learning Plan</b>	
<p><i>7.2 Properties of Parallelograms</i>  <i>Include theorems 7.3 – 7.6</i></p> <p><i>7.3 Proving quadrilateral is a parallelogram</i>  <i>Include Theorems 7.7 – 7.10</i></p> <p><i>7.4 Rectangles, rhombi, and squares</i>  <i>Include theorems 7.11-7.13</i>  <i>Corollaries 7.2 – 7.4 can be omitted (redundant since defined as parallelogram)</i>  <i>Include using slope and distance formulas to classify quadrilaterals</i></p>	

## 7.5 Trapezoids and kites

*Include Theorems 7.14-7.19*

## 11.3 Area Trapezoids, Kites and Rhombi

*Do not include area of regular polygons*

**Planned Differentiation & Interventions for Tiers I, II, III, ELL, SPED, and Gift & Talented Students**

- *Rethink and revise. Dig deeper into ideas at issue (through the faces of understanding). Revise, rehearse, and refine, as needed. Guide students in self-assessment and self-adjustment, based on feedback from inquiry, results, and discussion.*
- *Evaluate understandings. Reveal what has been understood through final performances and products. Involve students in a final self-assessment to identify remaining questions, set future goals, and point toward new units and lessons.*
- *Tailor (personalize) the work to ensure maximum interest and achievement. Differentiate the approaches used and provide sufficient options and variety (without compromising goals) to make it most likely that all students will be engaged and effective.*

**Gifted & Talented:**

- “Differentiating the Lesson” in Big Ideas online resources for all sections
- “Additional Topics” in Big Ideas online resources to extend and enhance instruction
- Big Ideas Game Closet
- Big Ideas Differentiated Instruction options
- Big Ideas Mini-Assessments
- Design Challenges
- Student Choice/Driven Activities
- Group Projects
- MobyMax
- LinkIt!
- Rocket Math
- [Intervention Central](#)
- [Do to Learn](#)
- [Differentiation Strategies for Math](#)
- [Discovery Education Math](#)
- [Everyday Mathematics](#)
- [Homework Spot](#)
- [Math Fact Fluency](#)

**Tier I:**

Students thought to be achieving mastery will be given alternative and more in depth assignments in the classroom by the teacher and support staff. Data on these interventions will be tracked and if sufficient progress is not demonstrated, the student may need Tier II interventions. These interventions may include some of the following:

- “Differentiating the Lesson” in Big Ideas online resources for all sections
- Big Ideas MATH Pyramid of Tiered Interventions for additional resources
- Record and Practice Journal
- Differentiated Instruction options
- Fair Game Review
- Vocabulary Support Glossary resources
- Mini-Assessments
- Game Closet
- Lesson Tutorials
- Flash Cards
- Extended Time
- Flexible Grouping
- Small Group Instruction
- Peer Buddies
- Math Tutoring Center (HS only)
- Math Lab/Tutorial
- MobyMax
- LinkIt!
- Rocket Math
- [Intervention Central](#)
- [Do to Learn](#)
- [Learning Ally](#)
- [Differentiation Strategies for Math](#)
- [Discovery Education Math](#)
- [Everyday Mathematics](#)
- [Homework Spot](#)
- [Flash Card Math](#)
- [Math Fact Fluency](#)
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**Tier II:**

Students thought to be in need of more support to achieve mastery will be given interventions in the classroom by the teacher and support staff. Data on these interventions will be tracked and if sufficient progress is not demonstrated, the student may need Tier III interventions. These interventions may include some of the following:

- Lesson Tutorials
- Basic Skills Handbook
- Skills Review Handbook
- Differentiated Instruction Big Ideas resources
- Game Closet
- Centers/Small Group Instruction
- Math Tutoring Center (HS only)
- Math Lab/Tutorial
- MobyMax
- LinkIt!
- Math Fact Fluency/Rocket Math

**Tier III:**

Students thought to be at risk for failing or not achieving mastery will be given interventions in the classroom by the teacher and support staff. Data on these interventions will be tracked and if sufficient progress is not demonstrated, that student may be referred to the I&RS team. These interventions may include some of the following:

- Provide visual and verbal directions
- Simplify directions into one-step
- Check back after two steps have been completed
- Model self-talk to complete tasks
- Discuss organizational plans for work and work completion
- Allow for multiple methods of demonstrating learning and competence
- Enforce opportunities to correct work
- Provide 1:1 instructional time
- Provide physical manipulatives whenever possible
- Assess and provide optimal seating arrangement
- Customized Learning Intervention Activities resources
- Intensive Intervention resource
- Systematic Assessments to focus on specific deficits

**ELL:**

- At beginning to intermediate levels of proficiency, English Language Learners should be shown examples of a completed assignment to model the correct format.
- Assignments and directions should be printed on the board and given to the student.
- A bilingual assistant/interpreter, when available, could be used to explain math concepts in the student's primary language.
- Students should have access to counters, number lines and other types of manipulatives, which enable them to complete assignments at their level of instruction.
- Rewrite story problems in simpler English. Use short sentences, pictures, and illustrations to encourage understanding.
- Show students how to prepare a card file of number words. Write the word on one side and the symbol on the opposite side.

- Big Ideas Math Student Editions are available online in Spanish
- Letters to Parents are available in the Resources by Chapter book to assist in guiding parents through each chapter and offer helpful suggestions they can use to demonstrate mathematical concepts for their child in daily activities. These letters are editable so teachers can customize them.
- Student Dynamic eBook Audio has the option to be read in English or Spanish
- Multi-Language Glossary for new Math vocabulary is available in 14 different languages.
- Audio version is available in English or Spanish.
- Game Closet can be accessed in English or Spanish, while also allowing for all students to play and understand these educational games.
- ELL Notes included in Teacher Edition to help teachers overcome obstacles.
- Record & Practice Journal available in Spanish.
- Student Journal available in Spanish.
- Chapter Reviews available in English and Spanish.
- Vocabulary Flash Cards
- Chunking Information
- Math Word Wall/Word Bank
- Multi-Sensory Instruction
- Use of Translation software
- Gradual Release Model
- [TODOS: Mathematics for ALL](#) - Excellence and Equity in Mathematics
- [FABRIC - A Learning Paradigm for ELLs](#) (NJDOE resource)

**SPED:**

This course of instruction shall be modified through varying techniques, strategies, materials, etc. to meet the needs of all students, including, but not limited to, special education, E.S.L. and basic skills.

**Setting Accommodations**

1. Administering the assessment:
  - a. individually in a separate room
  - b. in a small group in a separate room
  - c. in the resource room
  - d. in a special education classroom
  - e. at home or in a hospital (this will depend on the nature of the assessment task)
2. Seating the student in the front of the room near the examiner or proctor
3. Seating the student facing the examiner or proctor
4. Providing special lighting
5. Providing special furniture e.g., desks, trays, carrels

**Scheduling Accommodations**



1. Adding time as needed
2. Providing frequent breaks
3. Terminating a section of the test when a student has indicated that he/she has completed all the items he/she can. The examiner must ensure that the student has attempted all items in a section since items are not ordered by difficulty. When this accommodation is used, the test must be administered in a small group or individually to avoid distraction.

#### Test Materials Modifications

1. Administering the large-print version of the test
2. Administering the Braille version of the test

#### Test Procedure Modifications

1. Administration modifications
  - a. reading directions aloud
  - b. reading test items aloud (do not read aloud or sign the reading passages in Language Arts Literacy –the reading items may be read or signed); ONLY the teacher who must read the test items aloud or sign is permitted to have a test booklet assigned to him/her for this task
  - c. providing and ensuring that amplification (hearing aid and/or FM system) is in working order
  - d. using a sign language or cued speech interpreter to sign or cue the directions or test items but NOT the reading passages
  - e. masking a portion of the test booklet and/or answer folder to eliminate visual distractors or providing reading windows
  - f. repeating, clarifying, or rewording directions ONLY
  - g. providing written directions on a separate sheet or transparency
  - h. using an examiner who is familiar with the student
  - i. using an examiner who can communicate fluently in sign language (American Sign Language or a form of Manually Coded English)
  - j. providing manipulatives for math items e.g., number line, counting chips, abacus

#### Response modifications

- a. having an examiner record the student's identification information on the test booklet and/or answer folder
- b. dictating oral responses to a scribe (examiner or proctor who writes from dictation)
- c. using a Braille writer to record responses
- d. signing responses to a sign language interpreter (student must indicate all punctuation and must spell all keywords)
- e. recording responses on a word processor (all editorial functions MUST be disabled)
- f. providing an augmentative communication device
- g. using a larger diameter or modified special grip # 2 pencil
- h. circling answers in the test booklet (the examiner subsequently transfer the answers to the answer folder)
- i. allowing separate additional continuation pages for writing tasks

**504:**

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

**Environmental Strategies**

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

**Organizational Strategies**

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

**Behavioral Strategies**

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

**Presentation Strategies**

- Tape lessons so the student can listen to them again; allow students to tape lessons
- Use computer-aided instruction and other audiovisual equipment
- Select alternative textbooks, workbooks, or provide books on tape
- Highlight main ideas and supporting details in the book
- Provide copied material for extra practice (i.e. outlines, study guides)
- Prioritize drill and practice activities for relevance
- Vary the method of lesson presentation using multi-sensory techniques:
  - a) lecture plus overhead/board demonstration support
  - b) small groups required to produce a written product
  - c) large groups required to demonstrate a process
  - d) computer-assisted instruction
  - e) peer tutors or cross-age tutors
  - f) demonstrations, simulations
  - g) experiments
  - h) games
- Ask student to repeat/paraphrase context to check understanding
- Arrange for a mentor to work with student in his or her interest area or area of greatest strength
- Provide peer tutoring
- Simplify and repeat instructions about in-class and homework assignments
- Vary instructional pace
- Reinforce the use of compensatory strategies, i.e. pencil grip, mnemonic devices, “spell check”
- Vary kind of instructional materials used
- Assess whether student has the necessary prerequisite skills. Determine whether materials are appropriate to the student's current functioning levels
- 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
- 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.