

The Benchmarks for Excellent Student Thinking (B.E.S.T.) Standards for Mathematics are the state's mathematical standards that pave the way for Florida students to receive a world-class education and prepare them for a successful future.

Education leaders from across the state came together to develop Florida's B.E.S.T. Standards for Mathematics. These standards and benchmarks are goals that students are expected to achieve by the end of the school year. A standard is an overarching criterion for a grade level or grade band. A benchmark is a specific expectation or skill for the grade level or grade band that falls within a standard. The B.E.S.T. Standards are designed to ensure that ALL students reach their greatest potential.

THESE STANDARDS WERE WRITTEN TO:

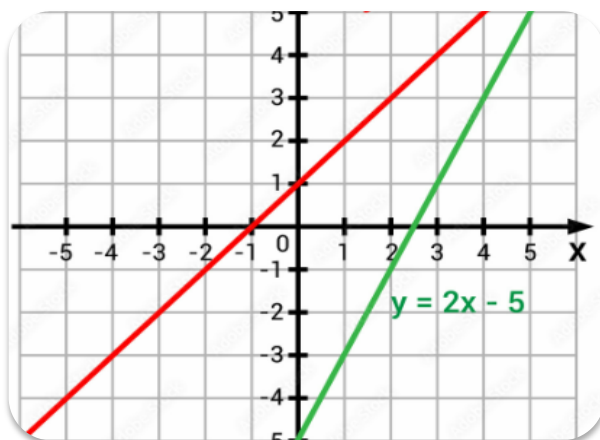
Provide clarity on the grade-level expectations for educators, parents and students.

Allow students flexibility to solve problems using a method/strategy of their choice.

Allow for student discovery (i.e., exploration) of strategies rather than the teaching, naming and assessing of each strategy individually.

Preparing your student for success begins in Kindergarten and continues as your child progresses through each grade. This guide will support parents, guardians and families with students in Grade 7 Accelerated by helping them:

- ☐ **LEARN** about the B.E.S.T. Standards for Mathematics and why they matter for your student.
- ☐ **UNDERSTAND** important educational (academic) words that you will see in your student's grade-level standards and benchmarks.
- ☐ **TALK** with your student's teacher about what they will be learning in the classroom.
- ☐ **LOCATE** activities and resources to support your student's learning in practical ways at home.



Learn About the Grade 7 Accelerated Mathematics Standards

This table describes the areas of emphasis within Grade 7 Accelerated and provides examples of specific expectations within each area of emphasis. The purpose of the areas of emphasis is not to guide specific units of learning and instruction but rather provide insight on major mathematical topics that will be covered within the grade level. The table below is not in any set order in which areas should be taught. Areas of emphasis may be taught in any order, combined with others and taught throughout the year.

Area of Emphasis	Examples
Recognize that fractions, decimals and percentages are different representations.	<input type="checkbox"/> Rewrite numbers in different but equivalent forms (fractions, decimals and percents).
Develop an understanding of and apply proportional relationships in two variables.	<input type="checkbox"/> Determine whether two quantities have a proportional relationship, using a table, graph or written description. <input type="checkbox"/> Given a mathematical or real-world situation, find the constant of proportionality. <input type="checkbox"/> Solve conversions between the metric and customary systems.
Represent numbers in scientific notation and extend the set of numbers to the system of real numbers, which includes irrational numbers.	<input type="checkbox"/> Approximate the value of rational and irrational numbers on a number line. <input type="checkbox"/> Express numbers in scientific notation. <input type="checkbox"/> Add, subtract, multiply and divide numbers expressed in scientific notation.
Generate equivalent numeric and algebraic expressions including using the Laws of Exponents.	<input type="checkbox"/> Apply the Laws of Exponents to evaluate numerical expressions and generate equivalent algebraic expressions. <input type="checkbox"/> Multiply two linear expressions.
Create and reason about linear relationships including modeling an association in bivariate data with a linear equation.	<input type="checkbox"/> When given a table, graph or written description of a linear relationship, determine the slope and write an equation in slope-intercept form ($y = mx + b$). <input type="checkbox"/> Construct a scatter plot or a line graph. <input type="checkbox"/> Find the theoretical probability of an event related to a repeated experiment.
Solve linear equations, inequalities and systems of linear equations.	<input type="checkbox"/> Write and solve two-step equations with rational numbers. <input type="checkbox"/> Solve multi-step linear equations and two-step linear inequalities. <input type="checkbox"/> Determine which ordered pairs satisfy a system of linear equations. <input type="checkbox"/> Given a system of equations, determine whether there is one solution, no solution or infinitely many solutions.
Develop an understanding of the concept of a function.	<input type="checkbox"/> Determine if the relationship is a function given a table, graph, set of ordered pairs or mapping diagram. <input type="checkbox"/> Identify the domain and range of a relation. <input type="checkbox"/> Identify from a function where it is increasing, decreasing or constant.



Area of Emphasis	Examples
Extend analysis of two- and three-dimensional figures to include circles and cylinders.	<input type="checkbox"/> Find the circumference and area of a circle. <input type="checkbox"/> Solve problems involving scale drawings and scale factor. <input type="checkbox"/> Find the surface area and volume of a right circular cylinder.
Represent and compare categorical and numerical data and develop an understanding of probability.	<input type="checkbox"/> Interpret data in circle graphs and create circle graphs from data. <input type="checkbox"/> Choose an appropriate graphical representation.
Analyze two-dimensional figures, particularly triangles, using distance, angle and applying the Pythagorean Theorem.	<input type="checkbox"/> Apply the Pythagorean Theorem. <input type="checkbox"/> Use the Triangle Inequality Theorem. <input type="checkbox"/> Solve problems involving supplementary, complementary, vertical or adjacent angles. <input type="checkbox"/> Given a preimage and image generated by a single transformation, identify the transformation that describes the relationship.

B.E.S.T. Instructional Guide for Mathematics

The B.E.S.T. Instructional Guide for Mathematics (B1G-M) is intended to assist educators with planning for student learning and instruction aligned to Florida's Benchmarks for Excellent Student Thinking (B.E.S.T.) Standards. This guide is designed to aid high-quality instruction through the identification of components that support the learning and teaching of the B.E.S.T. Mathematics Standards and Benchmarks. The B1G-M can be utilized by parents, guardians and families to support learning at home through the Instructional Strategies section.

This document is posted on the B.E.S.T. Standards for Mathematics webpage (<https://www.fldoe.org/academics/standards/subject-areas/math-science/mathematics/bestmath.shtml>) of the Florida Department of Education's website and will continue to undergo edits as needed.



Mathematical Words to Know and Use in Grade 7 Accelerated

Adjacent Angles	Coordinate Plane	Integer	Origin	Reflection	Supplementary Angles
Angle	Customary Units	Intercept	Outlier	Regular Polygon	Surface Area
Area	Cylinder	Interior Angles	Pi (π)	Rotation	Systems of Equations
Base	Diameter	Irrational Numbers	Proportional Relationship	Sample Space	Theoretical Probability
Bivariate Data	Dilation	Line of Fit	Pythagorean Theorem	Scale Factor	Transformation
Circumference	Domain	Linear Equation	Radical	Scatter Plot	Translation
Coefficient	Exponent	Linear Expression	Radius	Scientific Notation	Triangle Inequality Theorem
Complementary Angles	Expression	Linear Function	Range	Significant Digits	Unit Rate
Congruent	Exterior Angles	Metric Unit	Rate	Similarity	Vertical Angles
Constant of Proportionality	Function	Monomial	Rational Numbers	Slope	Y-Intercept
Coordinate	Hypotenuse	Number Line	Real Numbers	Slope Intercept Form	

This is not a comprehensive list – please access the 6-12 Glossary.

To access the full K-12 Mathematics Glossary, visit <https://cpalmsmediaproduct.blob.core.windows.net/uploads/docs/standards/best/ma/appendixc.pdf>.



Support Learning at Home

You can encourage learning mathematics at home in ways that are fun for you and your student. Try these ideas after school, on weekends and during the summer:

- ✓ Use everyday items. For example, have your child look at the battery life on their cell phone. If their battery is at 60% have them convert that percent to a fraction of $\frac{60}{100}$ and then a decimal of 0.60.
- ✓ Look up the current population of the United States and another country you would like to visit. Write each population in scientific notation. What is the difference in populations? How many times bigger is one population versus the other?
- ✓ Using a deck of cards, have your student find the theoretical probability of pulling a 5, with replacement, then pulling a spade. [Answer = $p(5, \text{spade}) = \frac{4}{52} \cdot \frac{13}{52} = \frac{52}{2704} = \frac{1}{52}$]
- ✓ Using chalk on a sidewalk, draw two straight lines. Have your student determine if there is one solution, no solution or infinitely many solutions. [Parallel lines = no solution, intersecting lines = 1 solution, lines drawn on top of each other (same line) = infinitely many solutions].
- ✓ Look up the different elevations (heights) during the track of your favorite rollercoaster. Describe when the rollercoaster's elevation is increasing, decreasing or constant.
- ✓ Look at a map of your neighborhood. Determine which streets represent a pair of supplementary, complementary, vertical or adjacent angles.
- ✓ Give your child a map and have them measure the distance from your home to school on the map versus the actual distance when driven. Here is another example, a map has a scale of 1:50, meaning 1 inch on the map represents 50 miles in reality. If the distance between two towns on the map is 6.5 inches, what is the actual distance between them? [Answer = 325 miles]
- ✓ Sit down as a family with your monthly budget and visualize how your money is spent. Use a circle graph (pie chart) to represent the different categories of your expenses. For example, Housing: \$1200, Food: \$600, Utilities: \$300, Transportation: \$400, Entertainment: \$200, and Savings: \$300. Have them calculate the percentages for each category and then take those percentages and multiply by 360 degrees to find the angles for the sectors of the pie chart.
- ✓ Find three crayons and create a straight angle (180°) with 2 crayons. Where the two crayons touch, add a third crayon, which will create 2 adjacent angles that will also be supplementary angles (adds up to 180°).
- ✓ Find three crayons and create a right angle (90°) with 2 crayons. Where the two crayons touch, add a third crayon, which will create 2 adjacent angles that will also be complementary angles (adds up to 90°).
- ✓ Plan an outside activity and have your child check the weather forecast for both Saturday and Sunday. Have them compare the probability of rain for both days. For example, on Saturday there is a 30% chance of rain and on Sunday there is a 50% chance. There is a higher chance of rain on Sunday than on Saturday.



Talk with Your Student's Teacher

Think about a parent-teacher conference as a “team meeting” in which you will discover the special contributions each of you bring to your student's success. Here are some questions you could ask to prompt discussions:

What topic is my student currently working on? Which have they mastered? How can I support them at home?

In the area of mathematics, what are my student's strengths? How are those strengths supported during instruction? Where is my student struggling and how can I help?

Can my student show you that they understand what they are learning about through manipulatives, drawing, talking and writing? If not, what challenges are they facing?

What additional resources can I use at home to help support my student's mathematical learning?

What behaviors should I see when my student is doing math? Can I see an example of the type of problems my student is given? How can I support them at home?



Mathematical Thinking and Reasoning Standards (MTRs)

Florida students are expected to engage with mathematics through the Mathematical Thinking and Reasoning Standards (MTRs). These standards are written in clear language so all stakeholders can understand them and teachers can assist students to use them as self-monitoring tools. The MTRs promote deeper learning and understanding of mathematics. By understanding the MTRs, parents, guardians and families can support the development of these skills at home.

MA.K12.MTR.1.1 Actively participate in effortful learning both individually and collectively.		MA.K12.MTR.2.1 Demonstrate understanding by representing problems in multiple ways.	
MA.K12.MTR.3.1 Complete tasks with mathematical fluency.		MA.K12.MTR.4.1 Engage in discussions that reflect on the mathematical thinking of self and others.	
MA.K12.MTR.5.1 Use patterns and structure to connect mathematical concepts.	MA.K12.MTR.6.1 Assess the reasonableness of solutions.		MA.K12.MTR.7.1 Apply mathematics to real-world contexts.

Your student will develop the above skills (MTRs) throughout their education and during their life. These skills will help maintain positive relationships through effective communication, collaboration, conflict resolution and problem solving.

Below are some ways you can help develop mathematical thinking and reasoning skills for your Grade 7 Accelerated student:

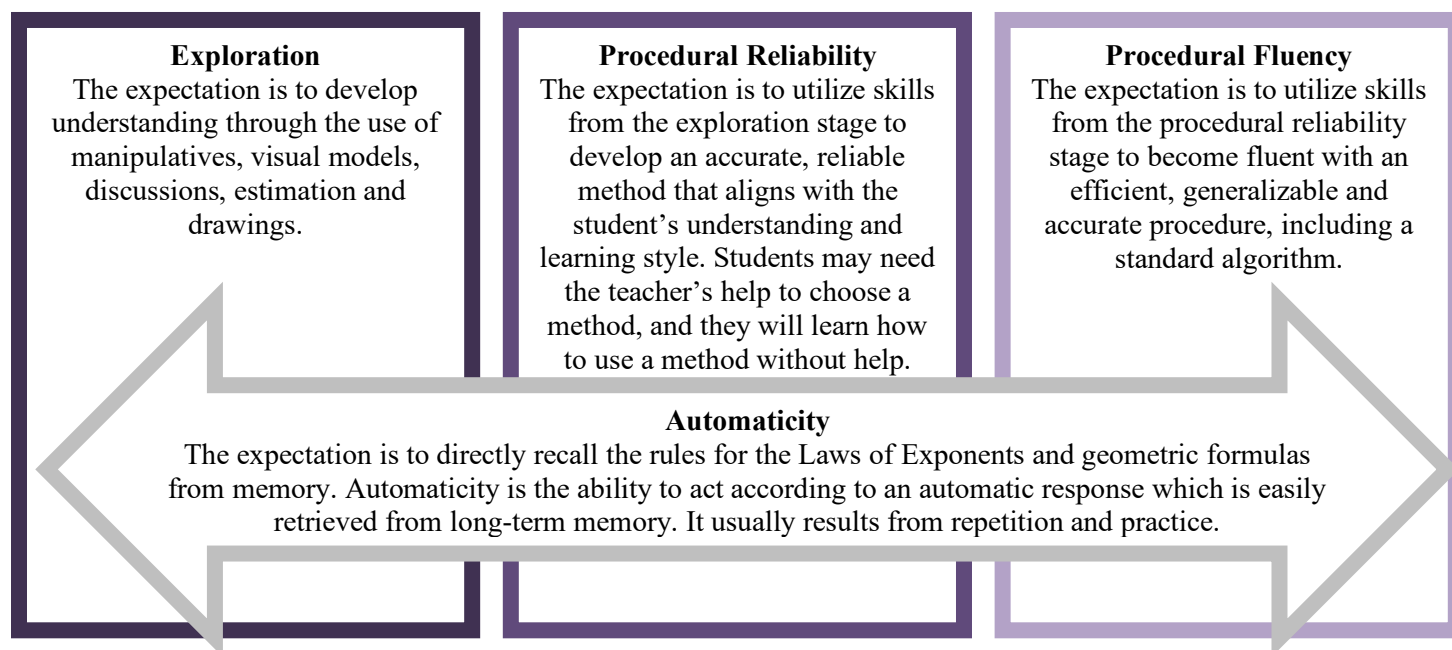
- ✓ Encourage your student to ask questions when they do not understand what is being asked of them.
- ✓ Ask your student to estimate before determining a solution to the task at hand.
- ✓ Identify a problem and create a plan to tackle it in smaller steps that are more manageable.
- ✓ Try activities like a scavenger hunt or a puzzle.

By helping to develop your student's mathematical thinking and reasoning skills, you will prepare them to become a confident, independent and successful individual.



Fluency

Building a strong numeracy foundation is critical to every child's mathematical success. The B.E.S.T. Standards for Mathematics were developed to allow skills to build upon one another within a grade level as well as from one grade to the next. Benchmark expectations have been developed with a hierarchy in mind consisting of three stages: exploration, procedural reliability and procedural fluency. The three stages illustrated below show the stages students may work through when learning new skills and concepts.



In Grade 7 Accelerated, students are expected to explore the circumference and area of a circle.

Exploring circumference: have your student measure the diameter of any circle and then have them cut the length of it out using a piece of string. Next, have your student count how many times the string can be wrapped around the outside of the circle. (This represents **circumference**). Your student will discover that the diameter can be wrapped around the outside of the circle 3 times with a little bit left over. This represents π (≈ 3.14) which is the ratio of circumference to diameter.

Exploring area: have your student determine which scenario would get you more pizza, 2 small personal pizzas with a radius of 5 inches or one large pizza with a radius of 10 inches. To find the **area**, have your student multiply 3.14 times radius squared. After solving they will see the area of the small pizza is 78.5 inches^2 , so two of them together would be 157 inches^2 while the area of the large pizza is 314 inches^2 , so the large pizza would get you the most food.

In Grade 7 Accelerated, students are expected to be PROCEDURALLY FLUENT when:

1. Adding, subtracting, multiplying and dividing rational numbers (fractions, decimals, negatives, etc.);
For example, $-\frac{5}{8} + 2\frac{2}{3}$. [Answer: $2\frac{1}{24}$ or an approximate answer; 2.04167]
2. Using Laws of Exponents to evaluate numerical expressions and generate equivalent algebraic expressions.
For example, $(4st^2)(-12s^6t^9)$. [Answer: $-48s^7t^{11}$] and $\frac{14xy^8}{2y^3}$ [Answer: $7xy^5$]
3. Adding, subtracting, multiplying and dividing numbers expressed in scientific notation.
For example, $7.63 \times 10^5 - 5.2 \times 10^5$. [Answer: 2.43×10^5 or 243,000]

