

8TH GRADE MATH PRIORITY STANDARDS- "I CAN..."

The Number System

- I can identify rational and irrational numbers. (8.NS.1)
- I can understand irrational numbers and approximate them by rational numbers. (8.NS.2)
- I can use rational approximations of irrational numbers to compare the size of irrational numbers, locate and plot them approximately on a number line diagram, and then estimate the value of the expressions. (8.NS.2)

Expressions and Equations

- I can use the properties of integer exponents to simplify expressions. (8.EE.1)
- I can use square and cube root symbols to represent solutions to equations of the form $x^2=p$ and $x^3=p$. (8.EE.2)
- I can evaluate the square root of a perfect square and the cube root of a perfect cube. (8.EE.2)
- I can compare quantities written as the product of a single-digit number and a power of ten (scientific notation). (8.EE.3, 8.EE.4)
- I can graph proportional relationships, interpreting the unit rate as the slope of the graph. (8.EE.5)
- I can use a table, an equation or graph to decide the unit rate of a proportional relationship and compare the proportional relationships. (8.EE.5)
- I can use similar triangles to explain why the slope m is the same between two points on a non-vertical line in a coordinate plane. (8.EE.6)
- I can explain that an equation in the form of $y=mx + b$ represents the graph of a linear relationship with a slope of m and a y -intercept of b . (8.EE.6)
- I can solve linear equations with rational number coefficients, including equations when solutions require expanding expressions using the distributive property and combining like terms. (8.EE.7)
- I can give examples of linear equations with one solution, infinitely many solutions or no solutions. (8.EE.7)
- I can analyze and solve pairs of simultaneous linear equations. (8.EE.8)
- I can solve a system of two linear equations in two unknowns algebraically. (8.EE.8)
- I can identify cases in which a system of two equations in two unknowns has no solution or an infinite number of solutions. (8.EE.8)
- I can solve real-world and mathematical problems leading to two linear equations in two variables. (8.EE.8)

Functions

- I can define a function is a rule, where for each input exactly one output and the graph of a function is the set of ordered pairs consisting of an input and the corresponding output. (8.F.1)
- I can compare the properties of two functions that are represented differently (equations, tables, graphs or given verbally). (8.F.2)
- I can explain why the equation $y=mx+b$ represents a linear function and then find the slope and y -intercept in relation to the function. (8.F.3)
- I can give examples of relationships and create a table of values that can be defined as a nonlinear function. (8.F.3)
- I can create a function to model a linear relationship between two quantities. (8.F.4)
- I can find the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values. (8.F.4)
- I can match the graph of a function to a given situation. (8.F.5)
- I can sketch a graph that exhibits the qualitative features of a function that has been described verbally. (8.F.5)

Geometry

- I can prove when 2 two-dimensional figures are congruent to each other through a sequence of rotations, reflections, and translations. (8.G.2)
- I can prove when two two-dimensional figures are similar to each other through a sequence of rotations, reflections, translations and dilations. (8.G.4)

Statistics and Probability

- I can construct, interpret and describe patterns in scatter plots. (8.SP.1)
- I can construct and interpret two way tables. (8.SP.4)

8 STANDARDS FOR MATHEMATICAL PRACTICE: GRADES K- 12

Mathematical Practice

How a student can use the standard. Student "I can" statements.

How a parent or caregiver can support the standard.

Make sense of problems and persevere in solving them.

- I can make a plan for solving the problem.
- I can keep going even when it is difficult.
- I can check if my answer is reasonable.
- I can solve it in another way to check my answer.
- I can visualise the problem to help me make a plan to solve it.
- I will try another strategy if my first one does not work.

- Allow time for students to think when asking questions.
- "What plan can you make to solve this problem?"
- "What information is in the problem and what are you trying to figure out?"
- For word problems encourage them to explain what it is about without considering the math or how to solve it first.
- Encourage the math to become about the process/students thinking rather than the one right answer.
- "Why do you think that might be the answer?"

Reason abstractly and quantitatively

- I can use numbers and words to help make sense of the problem.
- I can think about the relationships between the numbers in the problem.
- I can think about what each number or variable in the problem represents.
- I can show the problem in ways that are not the standard algorithm (symbols, pictures, manipulatives, etc.)
- I can explain my thinking.

- "Can you explain what the numbers or variables in the problem mean?"
- "How did you decide to use this operation or strategy?"
- Ask questions that help lead students to understanding.
- Encourage critical thinking and reasoning.
- Encourage students to explain their thinking even if the answer is not correct.

Construct viable arguments and critique the reasoning of others.

- I can ask questions to clarify my understanding.
- I can make connections to other strategies.
- I can communicate to others what I am thinking and why.
- I can justify my answer/conclusion.
- I can consider the thinking of other students.
- I can use mathematical language and evidence to support my answer.

- "How did you get your answer?"
- "How do you know that your answer is correct?"
- Ask clarifying questions.
- Establish an environment where the student is not afraid to get the answer incorrect as long as they can explain their reasoning.

Model with mathematics

- I can relate mathematics to real life situations.
- I can use pictures, words, objects, or symbols to solve problems.
- I can use different manipulatives (ex. number lines, arrays, base 10 blocks, algebra tiles, etc.) to represent and solve my problem.

- What model can you use to help you solve this problem?"
- "Can you visualize what is happening in this problem?"
- Point out where math is in real life situations.

8 STANDARDS FOR MATHEMATICAL PRACTICE: GRADES K- 12

Mathematical Practice

How a student can use the standard. Student "I can" statements.

How a parent or caregiver can support the standard.

Use appropriate tools strategically.

- I can select and use math tools such as number lines, calculators, objects, tables, graphs, words, manipulatives, etc. to help me solve the problem.
- I can explain why I chose a specific tool to solve the problem.
- I can estimate to help me solve the problem.

- "Is there a tool that might help you solve this problem?"
- "What information do you have/know that might help you solve this problem?"
- "Why did you choose this tool to help you solve this problem?"
- "Before you solve the problem can you estimate the answer?"
- Encourage them to find everyday items to help solve the problem.

Attend to precision.

- I always think about whether my answer is reasonable.
- I am able to communicate to others using mathematics vocabulary so that they understand what I am doing.
- I am precise in my calculations.
- I use appropriate symbols and units of measure.

- "How do you know that your solution is reasonable?"
- "What units of measure are you using?"
- Encourage students to use mathematical language.
- Encourage students to take their time and always have a reason for their actions.
- Encourage students to explain exactly what they do and do not understand. (Discourage the phrase, "I do not get any of it")

Look for and make use of structure.

- I look for patterns that can help me solve a problem.
- I can relate other problems that I have solved previously to help me solve new problems.
- I try to connect mathematical ideas.

- "What are some other problems that are similar to this one?"
- "Do you see any patterns/similarities in the problems you have been solving?"

Look for and express regularity in repeated reasoning.

- I can notice when calculations are repeated and use these ideas to create a strategy.
- I can create rules for patterns.
- I can determine if my answer is reasonable..

- Encourage students to create rules for patterns they observe and explore if they are always true.
- "What do you think is happening in this problem?"
- "What shortcut can you think of that will always work for these kinds of problems?"