

**Virginia Standards of Learning Assessment
Grade 6 Mathematics Performance Level Descriptors**

Fail/Below Basic	Fail/Basic	Pass/Proficient	Pass/Advanced
<p>A student performing at this level should be able to:</p> <p><i>Reporting Category 1: Number and Number Sense</i></p> <ul style="list-style-type: none"> • estimate and determine the fraction and decimal represented by: a pictorial area model, base-10 model, or a set model of a number between 0 and 1 • identify and compare integers represented on a number line • identify absolute value of an integer • identify powers of 10 by recognizing patterns • represent an exponential expression as repeated multiplication 	<p>A student performing at this level should be able to:</p> <p><i>Reporting Category 1: Number and Number Sense</i></p> <ul style="list-style-type: none"> • determine the fraction, decimal, and percent represented by a pictorial area model, base-10 model, and set model of a number between 0 and 1 • represent equivalencies between decimals and fractions with and without base-10 models • compare integers on a number line using symbolic notation (<, =, >) • identify the absolute value of an integer using a number line • represent repeated multiplication using exponents 	<p>A student performing at this level should be able to:</p> <p><i>Reporting Category 1: Number and Number Sense</i></p> <ul style="list-style-type: none"> • estimate, represent, and determine equivalencies among fractions and decimals from 0 to 1 and percents using symbols and various representations including area models, base-10 models, or set models • compare (using <, =, >) and order: <ul style="list-style-type: none"> ○ positive rational numbers (fractions with denominators up to 12 that are factors of 100) using multiple strategies with and without area models, base-10 models, or set models 	<p>A student performing at this level should be able to:</p> <p><i>Reporting Category 1: Number and Number Sense</i></p> <ul style="list-style-type: none"> • estimate, represent, and determine equivalent percents for: <ul style="list-style-type: none"> ○ fractions or decimals greater than 1, with and without models ○ fractions with denominators up to 12 that are not factors of 100 • compare and order positive rational numbers, including fractions with denominators up to 12 that are not factors of 100, and justify solutions in writing or with a number line • apply and represent integers and absolute values in contextual situations

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	<ul style="list-style-type: none"> • use pictorial representations to identify perfect squares 	<ul style="list-style-type: none"> ○ integers using multiple strategies and justify solutions, with and without models • describe absolute value of integers with and without a number line • represent patterns with exponents, perfect squares, and powers of 10 using pictorial models or expressions • justify if a number up to 100 is a perfect square through modeling or mathematical reasoning 	<ul style="list-style-type: none"> • justify if a number up to 400 is a perfect square through modeling or mathematical reasoning

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<p>A student performing at this level should be able to:</p> <p><i>Reporting Category 2: Computation and Estimation</i></p> <ul style="list-style-type: none"> • solve single-step multiplication problems involving unit fractions with and without context • model multiplication of a fraction and a whole number • model addition of integers using pictorial representations of sets or manipulatives and identify a corresponding equation 	<p>A student performing at this level should be able to:</p> <p><i>Reporting Category 2: Computation and Estimation</i></p> <ul style="list-style-type: none"> • solve single-step addition or subtraction contextual problems involving proper fractions without regrouping • model the multiplication and division of proper fractions • simplify an expression containing absolute value bars involving one integer • model addition and subtraction of integers using pictorial representations including sets and number lines and identify a corresponding equation • model multiplication and division of integers using pictorial representations of sets or manipulatives and identify a corresponding equation 	<p>A student performing at this level should be able to:</p> <p><i>Reporting Category 2: Computation and Estimation</i></p> <ul style="list-style-type: none"> • estimate and solve single- and multistep contextual problems involving addition and subtraction of fractions and mixed numbers and simplify the result • model the multiplication and division of fractions and mixed numbers • solve single-step problems involving multiplication and division of fractions and mixed numbers, with and without context, and simplify the result • model multiplication and division of integers using pictorial representations including sets or number lines and identify a corresponding equation • simplify a numerical expression containing 	<p>A student performing at this level should be able to:</p> <p><i>Reporting Category 2: Computation and Estimation</i></p> <ul style="list-style-type: none"> • estimate, solve, and justify the solution to multistep contextual problems involving proper and improper fractions and mixed numbers, including: <ul style="list-style-type: none"> ○ adding and subtracting, with and without regrouping ○ multiplying and dividing ○ simplifying the result • explain the effect of multiplying or dividing a fraction, whole number, or mixed number by a fraction between 0 and 1 • evaluate a numerical expression containing absolute value bars and one operation with two integers and plots its value on a number line

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	<ul style="list-style-type: none">• solve single-step contextual problems involving addition, subtraction, multiplication, and division with integers	<p>absolute value bars and one operation with two integers and identify the number line model that represents the corresponding point</p> <ul style="list-style-type: none">• add, subtract, multiply, and divide two integers• estimate and solve one- and two-step contextual problems involving addition, subtraction, multiplication, and division with integers	

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<p>A student performing at this level should be able to:</p> <p><i>Reporting Category 3: Measurement and Geometry</i></p> <ul style="list-style-type: none"> • identify radius, diameter, circumference, and chord of a circle • differentiate between circumference and area of a circle • identify the origin, quadrants, x-axis, and y-axis on the coordinate plane • find the perimeter of a figure with dimensions labeled • identify polygons as congruent or not congruent 	<p>A student performing at this level should be able to:</p> <p><i>Reporting Category 3: Measurement and Geometry</i></p> <ul style="list-style-type: none"> • approximate the value of pi when given a pictorial model, diameter, and circumference of a circle • identify relationships between parts of a circle • apply formulas to solve problems involving area and perimeter of rectangular or square parallelograms and triangles • given a graph or ordered pair, identify the quadrant in which a point lies • verify the congruence of polygons and angles • identify a line of symmetry for a regular polygon • determine congruence of line segments and angles in polygons given properties and figures 	<p>A student performing at this level should be able to:</p> <p><i>Reporting Category 3: Measurement and Geometry</i></p> <ul style="list-style-type: none"> • approximate the value of pi using given data • solve contextual problems involving the area and perimeter of parallelograms and triangles • describe the relationship between: <ul style="list-style-type: none"> ○ diameter and radius ○ radius and circumference ○ diameter and circumference • solve contextual problems involving the circumference and area of circles • given coordinates, graph the point on the coordinate plane and describe its location in relation to the x-axis and y-axis • draw polygons in the coordinate plane given coordinates for the vertices 	<p>A student performing at this level should be able to:</p> <p><i>Reporting Category 3: Measurement and Geometry</i></p> <ul style="list-style-type: none"> • solve multistep contextual problems involving: <ul style="list-style-type: none"> ○ area and perimeter of parallelograms and triangles ○ area and circumference of circles • draw polygons in the coordinate plane given coordinates for the vertices, use the coordinates to determine side length(s), and apply techniques to solve contextual and mathematical problems

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		<ul style="list-style-type: none">• determine congruence of line segments, angles, and polygons given their properties, with and without figures• draw and identify lines of symmetry that divide regular polygons into two congruent parts	

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<p>A student performing at this level should be able to:</p> <p><i>Reporting Category 4: Probability, Statistics, Patterns, Functions, and Algebra</i></p> <ul style="list-style-type: none"> • determine data needed to answer a formulated question • read data represented in circle graphs • define or recognize mean as a balance point • identify the ratio that represents a given context using a colon or words (part-to-part) or a fraction (part-to-whole) • find a missing value in a ratio table when given the unit rate • identify examples of algebraic vocabulary • solve one-step linear equations involving whole numbers 	<p>A student performing at this level should be able to:</p> <p><i>Reporting Category 4: Probability, Statistics, Patterns, Functions, and Algebra</i></p> <ul style="list-style-type: none"> • determine a method for collecting data needed to answer a formulated question • apply understanding of benchmark fractions to interpret data represented in a circle graph • determine the balance point of a data set displayed in a line plot • represent the relationship between two quantities in a contextual situation with a ratio • determine whether a proportional relationship exists between two quantities when given a graph 	<p>A student performing at this level should be able to:</p> <p><i>Reporting Category 4: Probability, Statistics, Patterns, Functions, and Algebra</i></p> <ul style="list-style-type: none"> • formulate questions that require the collection or acquisition of data with a focus on circle graphs • identify the circle graph that best represents a given data set • interpret data represented in circle graphs to solve contextual problems • compare data represented in circle graphs with the same data represented in bar graphs or pictographs • determine and represent the mean of a data set graphically as the balance point in a line plot • determine the line plot having a given balance point 	<p>A student performing at this level should be able to:</p> <p><i>Reporting Category 4: Probability, Statistics, Patterns, Functions, and Algebra</i></p> <ul style="list-style-type: none"> • organize and represent data in a circle graph from a contextual situation • interpret data represented in a circle graph to draw conclusions • compare data represented in a circle graph with the same data represented in a line plot • justify which graphical representation best represents the data when comparing circle graphs with bar graphs, pictographs, and line plots • determine the effect of outliers on the mean, median, mode, or range • given a ratio, create a table of equivalent ratios to

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	<ul style="list-style-type: none"> • solve one-step linear equations with and without models • identify the graph that represents a given linear inequality • identify a solution to a linear inequality 	<ul style="list-style-type: none"> • determine the effect of adding, removing, or changing one value in a data set on the mean, median, and mode • determine the effect of outliers on the range • given the relationship between two quantities in a contextual situation, represent the relationship with a ratio and vice versa • determine whether a proportional relationship exists between two quantities when given a table of values or context • determine the unit rate for a proportional relationship • make connections between multiple representations of the same proportional relationship • write, represent, and solve a one-step linear equation for a contextual situation, with and without models • write a linear inequality to represent a graph on a 	<p>represent the same relationship</p> <ul style="list-style-type: none"> • analyze and interpret a proportional relationship in a contextual situation and create a table of equivalent ratios to represent that relationship • apply properties to solve one-step linear equations and confirm solutions • create a contextual situation for a given one-step linear equation • justify whether a number (or set of numbers) makes a linear inequality in one variable true

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		number line or a contextual situation and vice versa	