ILEARN Performance Level Descriptors
Grade 4 Mathematics

Updated July 1, 2022

Performance Level Descriptors (PLDs) serve as a foundational resource in the assessment development process to inform item development and characterize student performance based on Indiana Academic Standards. PLDs are written from three perspectives: Policy PLDs, Range PLDs and Threshold PLDs.

Policy PLDs: Policy PLDs provide overarching claims about a student's performance and are used by policymakers and stakeholders to articulate expectations about a state's performance standards.

Range PLDs: Range PLDs provide content-specific claims across each Indiana Academic Standard to represent the range of expectations for student performance within each proficiency level.

Threshold PLDs: Threshold PLDs provide content-specific claims across each Academic Standard to represent expectations for student performance surrounding each cut point as a model for standard setting.

The Policy PLDs approved by the Indiana State Board of Education for ILEARN consist of the following:

LEVEL 1: Below Proficiency
Indiana students below proficiency have not met current grade level standards. Students may require significant support to develop the knowledge, application, and analytical skills needed to be on track for college and career readiness.

LEVEL 2: Approaching Proficiency
Indiana students approaching proficiency have nearly met current grade level standards by demonstrating some basic knowledge, application, and limited analytical skills. Students may require support to be on track for college and career readiness.

LEVEL 3: At Proficiency
Indiana students at proficiency have met current grade level standards by demonstrating essential knowledge, application, and analytical skills to be on track for college and career readiness.

LEVEL 4: Above Proficiency
Indiana students above proficiency have mastered current grade level standards by demonstrating more complex knowledge, application, and analytical skills to be on track for college and career readiness.

The subsequent pages highlight the Range PLDs for each Indiana Academic Standard. These PLDs can be used to inform instructional practices as educators consider proficiency of the content. Additionally, educators may use the content examples to consider how to remediate or extend key instructional concepts to transition students across proficiency levels of performance.

Review this sample which models ways you can use the PLDs to think about the expectations across the continuum of proficiency. The sample provides context around how you could think about the way the descriptors differentiate student performance across the continuum and how you could use those descriptors in your classroom.

	Below Proficiency	Approaching Proficiency	At Proficiency	Above Proficiency
Mathematics 4 Standard: 4.AT.3	Identifies that any two factors and their product can be read as a comparison using given models.	Identifies that any two factors and their product can be read as a comparison; represents those comparisons as equations using given models.	Interprets multiplication equations as comparisons; represents verbal comparisons as equations.	Constructs models to represent multiplicative comparisons.
Classroom Implications	The key difference between Below Proficiency and Approaching Proficiency lies in a student's ability to recognize a comparison without models and representing those comparisons as equations with models. When thinking about moving students into Approaching Proficiency, focus on identifying factors and products as comparisons. Then guide students to analyze models of comparisons to write equations.	Students who are Approaching Proficiency can use models to create equations to model multiplicative comparisons but may not be able to create the equations without models. When moving students into At Proficiency, guide students to consider the verbal multiplicative comparisons as equations without the models.	The main difference between students At Proficiency and Above Proficiency is the student's ability to construct models to represent multiplicative comparisons. When moving students into Above Proficiency, ask students to create visual models to represent the relationship between factors and their products.	

	Standard	Below Proficiency	Approaching Proficiency	At Proficiency	Above Proficiency
Algebraic Thinking and Data Analysis					
4.AT.1	Solve real-world problems involving addition and subtraction of multi-digit whole numbers (e.g., by using drawings and equations with a symbol for the unknown number to represent the problem).	**Identifies** real-world problems as addition or subtraction.	**Solves** real-world problems involving addition and subtraction of multi-digit whole numbers when given models or equations.	**Solves** real-world problems involving addition and subtraction of multi-digit whole numbers.	**Solves** real-world problems involving addition and subtraction of multi-digit whole numbers, including complex situations.
4.AT.2	Recognize and apply the relationships between addition and multiplication, between subtraction and division, and the inverse relationship between multiplication and division to solve real-world and other mathematical problems.	**Identifies** the equivalent expressions relating addition and multiplication or subtraction and division without a context.	**Identifies** and **applies** the relationships between the four operations without a context.	**Identifies** and **applies** the relationships between the four operations to solve real-world and mathematical problems.	**Identifies** and **applies** the relationship between the four operations to solve real-world and other mathematical problems and explain the relationship as it relates to the situation.
4.AT.3	Interpret a multiplication equation as a comparison (e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7, and 7 times as many as 5). Represent verbal statements of multiplicative comparisons as multiplication equations.	**Identifies** that any two factors and their product can be read as a comparison using given models.	**Identifies** that any two factors and their product can be read as a comparison; **represents** those comparisons as equations using given models.	**Interprets** multiplication equations as comparisons; **represents** verbal comparisons as equations.	**Constructs** models to represent multiplicative comparisons.
4.AT.4	Solve real-world problems with whole numbers involving multiplicative comparison (e.g., by using drawings and equations with a symbol for the unknown number to represent the problem), distinguishing multiplicative comparison from additive comparison. [In grade 4, division problems should not include a remainder.]	**Identifies** real-world problems as situations involving multiplicative comparison.	**Identifies** and **solves** real-world problems involving multiplicative comparison.	**Solves** real-world problems with whole numbers involving multiplicative comparison, **distinguishes** multiplicative comparison from additive comparison.	**Solves** real-world problems with whole numbers involving multiplicative comparison, **distinguishes** multiplicative comparison from additive comparison including complex situations.

	Standard	Below Proficiency	Approaching Proficiency	At Proficiency	Above Proficiency
4.AT.5	Solve real-world problems involving addition and subtraction of fractions referring to the same whole and having common denominators (e.g., by using visual fraction models and equations to represent the problem).	**Identifies** real-world problems as addition or subtraction of fractions.	**Solves** real-world problems involving addition and subtraction of fractions referring to the same whole when given models or equations.	**Solves** real-world problems involving addition and subtraction of fractions referring to the same whole.	**Solves** real-world problems involving addition and subtraction of fractions referring to the same whole including complex situations.
4.AT.6	Describe a relationship between two variables and can be used to find a second number when a first number is given. Generate a number pattern that follows a given rule.	**Continues** a number pattern that follows a given rule.	**Generates** a number pattern that follows a given rule.	**Applies** a rule that describes a relationship between two variables and can be used to find a second number when a first number is given. **Generates** a number pattern that follows a given rule.	**Constructs** an equation or rule to describe a number pattern.
4.DA.1	Formulate questions that can be addressed with data. Use observations, surveys, and experiments to collect, represent, and interpret the data using tables (including frequency tables), line plots, and bar graphs.	**Identifies** questions that can be addressed with data.	**Formulates** questions that can be addressed with data. **Uses** observations, surveys, and experiments to collect and represent the data using tables, line plots, and bar graphs.	**Formulates** questions that can be addressed with data. **Uses** observations, surveys, and experiments to collect, represent, and interpret the data using tables, line plots, and bar graphs.	**Interprets** and **represents** data from more than one source using data tables, line plots, and bar graphs.
4.DA.2	Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using data displayed in line plots.	**Identifies** a line plot that represents a set of measurement data involving fractions.	**Creates** a line plot to display a data set of measurements in fractions of a unit.	**Makes** a line plot to display a data set of measurements in fractions of a unit. **Solves** problems involving addition and subtraction of fractions by using data displayed in line plots.	**Solves** complex problems involving addition and subtraction of fractions by using data displayed in line plots.
4.DA.3	Interpret data displayed in a circle graph.	**Identifies** a circle graph.	**Identifies** a circle graph that matches a set of data.	**Interprets** data displayed in a circle graph.	**Creates** a circle graph to represent a set of data.

	Standard	Below Proficiency	Approaching Proficiency	At Proficiency	Above Proficiency
Computation					
4.C.1	Add and subtract multi-digit whole numbers fluently using a standard algorithmic approach.	**Identifies** and **attempts** the process of adding and subtracting multi-digit whole numbers.	**Adds** and **subtracts** multi-digit whole numbers using models or pictures.	**Adds** and **subtracts** multi-digit whole numbers fluently using a standard algorithmic approach.	**Adds** and **subtracts** multi-digit whole numbers fluently using a standard algorithmic approach and **verifies** the results using multiple approaches.
4.C.2	Multiply a whole number of up to four digits by a one-digit whole number and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Describe the strategy and explain the reasoning.	**Identifies** and **attempts** the process of multiplying a whole number of up to four digits by a one-digit whole number and multiplying two two-digit numbers.	**Multiplies** a whole number of up to four digits by a one-digit whole number and multiplies two two-digit numbers, using strategies based on place value and the properties of operations.	**Multiplies** a whole number of up to four digits by a one-digit whole number and multiplies two two-digit numbers, using strategies based on place value and the properties of operations. **Describes** the strategy and **explains** the reasoning.	**Multiplies** a whole number of up to four digits by a one-digit whole number and multiplies two two-digit numbers, using strategies based on place value and the properties of operations. **Describes** the strategy, **explains** the reasoning, and **represents** the problem using a mathematical model.
4.C.3	Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Describe the strategy and explain the reasoning.	**Identifies** and **attempts** the process for finding whole-number quotients and remainders with up to four-digit dividends and one-digit divisors.	**Finds** whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division.	**Finds** whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. **Describes** the strategy and **explains** the reasoning.	**Finds** whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division**. Describes** the strategy, **explains** the reasoning, and **represents** the problem using a mathematical model.
4.C.4	Multiply fluently within 100.	**Multiplies** within 100 using models or pictures.	**Multiplies** within 100 using models or pictures.	**Multiplies** fluently within 100.	**Multiplies** fluently within 100.

	Standard	Below Proficiency	Approaching Proficiency	At Proficiency	Above Proficiency
4.C.5	Add and subtract fractions with common denominators. Decompose a fraction into a sum of fractions with common denominators. Understand addition and subtraction of fractions as combining and separating parts referring to the same whole.	**Identifies** a model for adding and subtracting fractions with common denominators.	**Adds** and **subtracts** fractions with common denominators.	**Adds** and **subtracts** fractions with common denominators. **Decomposes** a fraction into a sum of fractions with common denominators. **Understands** addition and subtraction of fractions as combining and separating parts referring to the same whole.	**Adds** and **subtracts** fractions with common denominators. **Decomposes** a fraction into a sum of fractions with common denominators. **Understands** addition and subtraction of fractions as combining and separating parts referring to the same whole. **Describes** the strategy and **explains** the reasoning used.
4.C.6	Add and subtract mixed numbers with common denominators (e.g., by replacing each mixed number with an equivalent fraction and/or by using properties of operations and the relationship between addition and subtraction).	**Identifies** a model for adding and subtracting fractions with common denominators.	Given the model, **adds** and **subtracts** mixed numbers with common denominators.	**Adds** and **subtracts** mixed numbers with common denominators.	**Adds** and **subtracts** mixed numbers with common denominators by creating visual fraction models and equations to represent the problem.
4.C.7	Show how the order in which two numbers are multiplied (commutative property) and how numbers are grouped in multiplication (associative property) will not change the product. Use these properties to show that numbers can be multiplied in any order. Understand and use the distributive property.	**Identifies** equivalent expressions based on the properties of multiplication.	**Identifies** equivalent expressions based on the properties of multiplication.	**Uses** the commutative and associative properties to evaluate expressions. **Uses** the distributive property to evaluate expressions.	**Applies** the commutative, associative, and distributive properties to identify a missing number in an equation.

	Standard	Below Proficiency	Approaching Proficiency	At Proficiency	Above Proficiency
Geometry and Measurement					
4.G.1	Identify, describe, and draw parallelograms, rhombuses, and trapezoids using appropriate tools (e.g., ruler, straightedge and technology).	**Identifies** parallelograms, rhombuses, and trapezoids.	**Identifies** and **draws** parallelograms, rhombuses, and trapezoids.	**Identifies**, **describes**, and **draws** parallelograms, rhombuses, and trapezoids using appropriate tools.	**Identifies** parallelograms, rhombuses, and trapezoids based upon each figure's written characteristics.
4.G.2	Recognize and draw lines of symmetry in two-dimensional figures. Identify figures that have lines of symmetry.	**Identifies** whether a drawn example is a line of symmetry in two-dimensional figures. **Identifies** figures that have lines of symmetry.	**Identifies** multiple lines of symmetry in two-dimensional figures. **Identifies** figures that have lines of symmetry.	**Identifies** and **draws** lines of symmetry in two-dimensional figures. **Identifies** figures that have lines of symmetry.	**Constructs** a figure with a given number of lines of symmetry.
4.G.3	Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint.	**Identifies** an angle.	**Identifies** an angle.	**Identifies** angles as geometric shapes that are formed wherever two rays share a common endpoint.	**Constructs** a geometric figure with a given number of angles.
4.G.4	Identify, describe, and draw rays, angles (right, acute, obtuse), and perpendicular and parallel lines using appropriate tools (e.g., ruler, straightedge, and technology). Identify these in two-dimensional figures.	**Identifies** rays, angles (right, acute, obtuse), and perpendicular and parallel lines.	**Identifies** and **draws** rays, angles (right, acute, obtuse), and perpendicular and parallel lines using appropriate tools.	**Identifies**, **describes**, and **draws** rays, angles (right, acute, obtuse), and perpendicular and parallel lines using appropriate tools. **Identifies** these in two-dimensional figures.	**Constructs** a figure with given properties.
4.G.5	Classify triangles and quadrilaterals based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles (right, acute, obtuse).	**Identifies** triangles and quadrilaterals.	**Identifies** triangles and quadrilaterals based upon a given attribute.	**Classifies** triangles and quadrilaterals based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles (right, acute, obtuse).	**Explains** how triangles and quadrilaterals were classified into groups and what attributes were used in the classification.
4.M.1	Measure length to the nearest quarter-inch, eighth-inch, and millimeter.	**Measures** length to the nearest inch.	**Measures** length to the nearest half-inch and centimeter.	**Measures** length to the nearest quarter-inch, eighth-inch, and millimeter.	**Draws** a line to a given length.

	Standard	Below Proficiency	Approaching Proficiency	At Proficiency	Above Proficiency
4.M.2	Know relative sizes of measurement units within one system of units, including km, m, cm; kg, g; lb, oz; l, ml; hr, min, sec. Express measurements in a larger unit in terms of a smaller unit within a single system of measurement. Record measurement equivalents in a two-column table.	**Compares** relative sizes of measurement units within the customary system of units, including lb, oz; hr, min, sec.	**Compares** relative sizes of measurement units within one system of units, including km, m, cm; kg, g; lb, oz; l, ml; hr, min, sec. **Identifies** measurements in a larger unit in terms of a smaller unit within a single system of measurement.	**Compares** relative sizes of measurement units within one system of units, including km, m, cm; kg, g; lb, oz; l, ml; hr, min, sec. **Expresses** measurements in a larger unit in terms of a smaller unit within a single system of measurement. **Records** measurement equivalents in a two-column table.	**Expresses** measurements in a larger unit in terms of a smaller unit within a single system of measurement where the units are nonadjacent.
4.M.3	Use the four operations to solve real-world problems involving distances, intervals of time, volumes, masses of objects, and money.Include addition and subtractionproblems involving simple fractions and problems that require expressing measurements given in a larger unit in terms of a smaller unit.	**Identifies** the operation needed to solve real-world problems involving distances, intervals of time, volumes, masses of objects, and money.	**Uses** the four operations (addition, subtraction, multiplication, and division) to solve real-world problems involving distances, intervals of time, volumes, masses of objects, and money given models or equations.	**Uses** the four operations (addition, subtraction, multiplication, and division) to solve real-world problems involving distances, intervals of time, volumes, masses of objects, and money, including addition and subtraction problems involving simple fractions and problems that require expressing measurements given in a larger unit in terms of a smaller unit.	**Solves** multiple-step real-world problems involving distances, intervals of time, volumes, masses of objects, and money, including addition and subtraction problems involving simple fractions and problems that require expressing measurements given in a larger unit in terms of a smaller unit.
4.M.4	Apply the area and perimeter formulas for rectangles to solve real-world problems and other mathematical problems. Recognize area as additive and find the area of complex shapes composed of rectangles by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts; apply this technique to solve real-world problems and other mathematical problems.	Given a model with grid squares, **finds** the area and perimeter.	**Applies** the area and perimeter formulas for rectangles to solve real-world problems and other mathematical problems.	**Applies** the area and perimeter formulas for rectangles to solve real-world problems and other mathematical problems. **Finds** the area of complex shapes composed of rectangles by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts; **applies** this technique to solve real-world problems and other mathematical problems.	**Constructs** a figure with a given area or perimeter.

	Standard	Below Proficiency	Approaching Proficiency	At Proficiency	Above Proficiency
4.M.5	Understand that an angle is measured with reference to a circle, with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. Understand an angle that turns through 1/360 of a circle is called a "one-degree angle," and can be used to measure other angles. Understand an angle that turns through *n* one-degree angles is said to have an angle measure of *n* degrees.	From a given group of figures, **places** the figures in order from smallest to largest based upon their angle measures.	Given a model with different angles from a center, **identifies** common benchmark angles.	**Understands** that an angle is measured with reference to a circle, with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. **Understands** an angle that turns through 1/360 of a circle is called a "one-degree angle," and can be used to measure other angles. **Understands** an angle that turns through *n* one-degree angles is said to have an angle measure of *n* degrees.	**Compares** the relative size of angles regardless of lengths of the rays in reference to the fractional part of circle.
4.M.6	Measure angles in whole-number degrees using appropriate tools. Sketch angles of specified measure.	Given an angle superimposed on a protractor, **identifies** the measure of the angle, with increments of 5 or 10 and one horizontal ray.	**Measures** angles in whole-number degrees using appropriate tools; angles should have a increments of 5 or 10 and one horizontal ray.	**Measures** angles in whole-number degrees using appropriate tools. **Sketches** angles of specified measure.	**Measures** angles in whole-number degrees in a polygon using appropriate tools. **Sketches** angles of specified measure.
Number Sense					
4.NS.1	Read and write whole numbers up to 1,000,000. Use words, models, standard form and expanded form to represent and show equivalent forms of whole numbers up to 1,000,000.	**Matches** standard-form and expanded-form whole numbers up to 1,000,000.	When given the standard form, **writes** the expanded form of numbers up to 1,000,000.	**Reads** and **writes** whole numbers up to 1,000,000. **Uses** words, models, standard form, and expanded form to represent and show equivalent forms of whole numbers up to 1,000,000.	**Applies** equivalent forms of whole numbers up to 1,000,000 to other mathematical contexts (e.g., 45 is also 4 tens and 5 ones or 45 ones).
4.NS.2	Compare two whole numbers up to 1,000,000 using >, =, and < symbols.	**Compares** two whole numbers up to 100,000.	**Compares** two whole numbers up to 100,000 using >, =, and < symbols.	**Compares** two whole numbers up to 1,000,000 using >, =, and < symbols.	**Orders** a set of whole numbers up to 1,000,000 from least to greatest.

	Standard	Below Proficiency	Approaching Proficiency	At Proficiency	Above Proficiency
4.NS.3	Express whole numbers as fractions and recognize fractions that are equivalent to whole numbers. Name and write mixed numbers using objects or pictures. Name and write mixed numbers as improper fractions using objects or pictures.	**Identifies** whole numbers as fractions and fractions that are equivalent to whole numbers.	**Identifies** whole numbers as fractions and fractions that are equivalent to whole numbers. **Identifies** mixed numbers using objects or pictures. **Identifies** mixed numbers as improper fractions using objects or pictures.	**Expresses** whole numbers as fractions and recognizes fractions that are equivalent to whole numbers. **Names** and **writes** mixed numbers using objects or pictures. **Names** and **writes** mixed numbers as improper fractions using objects or pictures.	**Names** and **writes** mixed numbers. **Names** and **writes** mixed numbers as improper fractions.
4.NS.4	Explain why a fraction, a/b, is equivalent to a fraction, $(n \times a)/(n \times b)$, by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions. [In grade 4, limit denominators of fractions to 2, 3, 4, 5, 6, 8, 10, 25, 100.]	**Identifies** a fraction, a/b, as equivalent to a fraction, $(n \times a)/(n \times b)$, by using visual fraction models.	**Identifies** a fraction, a/b, as equivalent to a fraction, $(n \times a)/(n \times b)$, by using visual fraction models. **Uses** this principle to identify and choose the equivalent fractions from a given set.	**Explains** why a fraction, a/b, is equivalent to a fraction, $(n \times a)/(n \times b)$, by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. **Uses** this principle to identify and generate equivalent fractions.	**Explains** why a fraction, a/b, is equivalent to a fraction, $(n \times a)/(n \times b)$, by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. **Uses** this principle to identify and generate equivalent fractions.
4.NS.5	Compare two fractions with different numerators and different denominators (e.g., by creating common denominators or numerators, or by comparing to a benchmark, such as 0, 1/2, and 1). Recognize comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions (e.g., by using a visual fraction model).	**Compares** two fractions with different numerators and different denominators on a number line. **Identifies** that comparisons are valid only when the two fractions refer to the same whole.	**Compares** two fractions with different numerators and different denominators, when given a visual. **Identifies** that comparisons are valid only when the two fractions refer to the same whole. **Records** the results of comparisons with symbols >, =, or <.	**Compares** two fractions with different numerators and different denominators. **Identifies** that comparisons are valid only when the two fractions refer to the same whole. **Records** the results of comparisons with symbols >, =, or <, and **justifies** the conclusions.	**Compares** more than two fractions with different numerators and different denominators. **Identifies** that comparisons are valid only when the two fractions refer to the same whole. **Records** the results of comparisons with symbols >, =, or <, and **justifies** the conclusions.

	Standard	Below Proficiency	Approaching Proficiency	At Proficiency	Above Proficiency
4.NS.6	Write tenths and hundredths in decimal and fraction notations. Use words, models, standard form and expanded form to represent decimal numbers to hundredths. Know the fraction and decimal equivalents for halves and fourths (e.g., 1/2 = 0.5 = 0.50, 7/4 = 1 3/4 = 1.75).	When given models for tenths and hundredths, **identifies** the corresponding fraction or decimal.	When given models for tenths and hundredths, **uses** words, standard form, and expanded form to represent the models; **identifies** the fraction and decimal equivalents for halves and fourths.	**Writes** tenths and hundredths in decimal and fraction notations. **Uses** words, models, standard form, and expanded form to represent decimal numbers to hundredths. **Identifies** the fraction and decimal equivalents for halves and fourths.	**Explains** the relationship between fractions and decimals.
4.NS.7	Compare two decimals to hundredths by reasoning about their size based on the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions (e.g., by using a visual model).	**Compares** two decimals to the same place value when given a model (e.g., tenths to tenths and hundredths to hundredths).	**Compares** two decimals to hundredths by reasoning about their size based on the same whole when given a model. **Records** the results of comparisons with the symbols >, =, or <.	**Compares** two decimals to hundredths by reasoning about their size based on the same whole. **Records** the results of comparisons with the symbols >, =, or <, and **justifies** the conclusions.	**Compares** and **orders** two or more decimals to hundredths by reasoning about their size based on the same whole. **Records** the results of comparisons with the symbols >, =, or <, and **justifies** the conclusions.
4.NS.8	Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number.	**Identifies** a number that is a factor or multiple of another number.	**Identifies** some factor pairs for a whole number in the range 1–100. **Identifies** that a whole number is a multiple of each of its factors. **Determines** whether a given whole number in the range 1–100 is a multiple of a given one-digit number.	**Generates** all factor pairs for a whole number in the range 1-100. **Identifies** that a whole number is a multiple of its factors. **Determines** whether a given whole number in the range 1-100 is a multiple of a given one-digit number.	**Explains** why a number is or is not a factor or multiple of another number.
4.NS.9	Use place value understanding to round multi-digit whole numbers to any given place value.	**Identifies** a place value within a multi-digit whole number.	**Uses** place value understanding to round multi-digit whole numbers to any given place value when given a model such as a number line.	**Uses** place value understanding to round multi-digit whole numbers to any given place value.	**Generates** numbers that would round to a given value.

	Standard	Below Proficiency	Approaching Proficiency	At Proficiency	Above Proficiency
Process Standards					
1	**Make sense of problems and persevere in solving them.** // Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals. They make conjectures about the form and meaning of the solution and plan a solution pathway, rather than simply jumping into a solution attempt. They consider analogous problems and try special cases and simpler forms of the original problem in order to gain insight into its solution. They monitor and evaluate their progress and change course if necessary. Mathematically proficient students check their answers to problems using a different method, and they continually ask themselves, “Does this make sense?” and “Is my answer reasonable?” They understand the approaches of others to solving complex problems and identify correspondences between different approaches. Mathematically proficient students understand how	**Identifies** important unknown quantities and key terms in order to solve real-world problems.	**Identifies** the overall objective to develop ideas and plan strategies to solve real-world problems.	**Perseveres** in developing and implementing strategies to solve real-world problems. **Solves** or **checks** the reasonableness of solutions and methods.	**Perseveres** in developing and implementing multiple strategies to solve unconventional real-world problems. **Solves** or **checks** the reasonableness of solutions and methods using different methods.

	Standard	Below Proficiency	Approaching Proficiency	At Proficiency	Above Proficiency
	mathematical ideas interconnect and build on one another to produce a coherent whole.				
2	**Reason abstractly and quantitatively.** // Mathematically proficient students make sense of quantities and their relationships in problem situations. They bring two complementary abilities to bear on problems involving quantitative relationships: the ability to decontextualize—to abstract a given situation and represent it symbolically and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents—and the ability to contextualize, to pause as needed during the manipulation process in order to probe into the referents for the symbols involved. Quantitative reasoning entails habits of creating a coherent representation of the problem at hand; considering the units involved; attending to the meaning of quantities, not just how to compute them; and knowing and flexibly using different properties of operations and objects.	**Identifies** quantities and operations necessary for solving problems.	**Represents** quantitative problems without considering all possible constraints or units.	**Applies** reasoning to create coherent representations of quantitative and abstract problems, considering relevant referents.	**Applies** reasoning to create coherent representations of problems, considering relevant referents. Flexibly **uses** a variety of properties and operations.

	Standard	Below Proficiency	Approaching Proficiency	At Proficiency	Above Proficiency
3	**Construct viable arguments and critique the reasoning of others.** // Mathematically proficient students understand and use stated assumptions, definitions, and previously established results in constructing arguments. They make conjectures and build a logical progression of statements to explore the truth of their conjectures. They analyze situations by breaking them into cases and recognize and use counterexamples. They organize their mathematical thinking, justify their conclusions and communicate them to others, and respond to the arguments of others. They reason inductively about data, making plausible arguments that take into account the context from which the data arose. Mathematically proficient students are also able to compare the effectiveness of two plausible arguments, distinguish correct logic or reasoning from that which is flawed, and—if there is a flaw in an argument—explain what it is. They justify whether a given statement is true always, sometimes, or never.	**Generates** responses based on limited prior knowledge or understanding of evidence.	**Develops** arguments based on limited prior knowledge or understanding of evidence.	**Develops** and **defends** arguments, taking into consideration prior knowledge or evidence, to test conjectures or critique others' conjectures for clarity or improvement.	**Develops** and **defends** arguments, taking into consideration prior knowledge, evidence, and other possible explanations, to test conjectures or critique others' conjectures for clarity or improvement. **Asks** useful and probing questions to strengthen conjectures or the conjectures of others.

	Standard	Below Proficiency	Approaching Proficiency	At Proficiency	Above Proficiency
	Mathematically proficient students participate and collaborate in a mathematics community. They listen to or read the arguments of others, decide whether they make sense, and ask useful questions to clarify or improve the arguments.				
4	**Model with mathematics.** // Mathematically proficient students apply the mathematics they know to solve problems arising in everyday life, society, and the workplace using a variety of appropriate strategies. They create and use a variety of representations to solve problems and to organize and communicate mathematical ideas. Mathematically proficient students apply what they know and are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. They are able to identify important quantities in a practical situation and map their relationships using such tools as diagrams, two-way tables, graphs, flowcharts and formulas. They analyze those relationships mathematically to draw conclusions. They	**Identifies** models to represent situations.	**Develops** appropriate models to solve real-world problems using mathematical knowledge.	**Models** real-world problems using appropriate tools to analyze and draw mathematical conclusions. **Interprets** results for reasonableness and possible revision.	**Develops** and **compares** multiple models to solve real-world problems.

	Standard	Below Proficiency	Approaching Proficiency	At Proficiency	Above Proficiency
	routinely interpret their mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.				
5	**Use appropriate tools strategically.** // Mathematically proficient students consider the available tools when solving a mathematical problem. These tools might include pencil and paper, models, a ruler, a protractor, a calculator, a spreadsheet, a computer algebra system, a statistical package, or dynamic geometry software. Mathematically proficient students are sufficiently familiar with tools appropriate for their grade or course to make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained and their limitations. Mathematically proficient students identify relevant external mathematical resources, such as digital content, and use them to pose or solve problems. They use technological tools to explore and deepen their understanding of concepts and to support the	**Identifies** tools to solve problems.	**Uses** given tools correctly for the tasks at hand.	**Identifies** and **uses** tools to solve problems with an understanding of mathematical concepts.	**Uses** a variety of tools to develop mathematical understanding, reasoning, and problem solving.

	Standard	Below Proficiency	Approaching Proficiency	At Proficiency	Above Proficiency
	development of learning mathematics. They use technology to contribute to concept development, simulation, representation, reasoning, communication and problem solving.				
6	**Attend to precision.** // Mathematically proficient students communicate precisely to others. They use clear definitions, including correct mathematical language, in discussion with others and in their own reasoning. They state the meaning of the symbols they choose, including using the equal sign consistently and appropriately. They express solutions clearly and logically by using the appropriate mathematical terms and notation. They specify units of measure and label axes to clarify the correspondence with quantities in a problem. They calculate accurately and efficiently and check the validity of their results in the context of the problem. They express numerical answers with a degree of precision appropriate for the problem context.	**Computes** solutions to problems without attending to precision.	**Computes** solutions to problems and **explains** with limited mathematical vocabulary.	Precisely **communicates** mathematical reasoning using appropriate vocabulary. **Performs** calculations with precision and efficiency, checking validity of results.	**Uses** appropriate mathematical vocabulary to precisely and logically explain the validity of results in the context of problems.

	Standard	Below Proficiency	Approaching Proficiency	At Proficiency	Above Proficiency
7	**Look for and make use of structure.** // Mathematically proficient students look closely to discern a pattern or structure. They step back for an overview and shift perspective. They recognize and use properties of operations and equality. They organize and classify geometric shapes based on their attributes. They see expressions, equations, and geometric figures as single objects or as being composed of several objects.	**Applies** basic ideas of mathematical principles to solve simple problems.	**Applies** ideas of mathematical principles to solve any problem. **Identifies** simple patterns to solve related problems.	**Identifies** patterns in mathematics to solve related problems. **Applies** ideas of mathematical principles to solve any problem. **Provides** different representations of the same math concept to solve problems.	**Analyzes** patterns and structures to make predictions about related problems.
8	**Look for and express regularity in repeated reasoning.** // Mathematically proficient students notice if calculations are repeated and look for general methods and shortcuts. They notice regularity in mathematical problems and their work to create a rule or formula. Mathematically proficient students maintain oversight of the process, while attending to the details as they solve a problem. They continually evaluate the reasonableness of their intermediate results.	**Recognizes** that a general method or rule is possible for repeated calculations.	**Applies** general methods and rules for repeated calculations.	**Develops** general methods and rules for solving mathematical problems.	**Evaluates** the reasonableness of general methods and rules.

ILEARN Performance Level Descriptors
Grade 4 English/Language Arts (ELA)

Updated July 1, 2022

Performance Level Descriptors (PLDs) serve as a foundational resource in the assessment process to inform item development and characterize student performance based on Indiana Academic Standards. PLDs are written from three perspectives: Policy PLDs, RangePLDs, and Threshold PLDs.

Policy PLDs: Policy PLDs provide overarching claims about a student's performance and are used by policymakers and stakeholders to articulate expectations about a state's performance standards.

Range PLDs: Range PLDs provide content-specific claims across each Indiana Academic Standard to represent the range of expectations for student performance within each proficiency level.

Threshold PLDs: Threshold PLDs provide content-specific claims across each Indiana Academic Standard to represent expectations for student performance surrounding each cut score as a model for standard setting.

The Policy PLDs approved by the Indiana State Board of Education for ILEARN consist of the following:

LEVEL 1: Below Proficiency
Indiana students below proficiency have not met current grade level standards. Students may require significant support to develop the knowledge, application, and analytical skills needed to be on track for college and career readiness.

LEVEL 2: Approaching Proficiency
Indiana students approaching proficiency have nearly met current grade level standards by demonstrating some basic knowledge, application, and limited analytical skills. Students may require support to be on track for college and career readiness.

LEVEL 3: At Proficiency
Indiana students at proficiency have met current grade level standards by demonstrating essential knowledge, application, and analytical skills to be on track for college and career readiness.

LEVEL 4: Above Proficiency
Indiana students above proficiency have mastered current grade level standards by demonstrating more complex knowledge, application, and analytical skills to be on track for college and career readiness.

The subsequent pages highlight the Range PLDs for each Indiana Academic Standard. These PLDs can be used to inform instructional practices as educators consider proficiency of the content. Additionally, educators may use the content examples to consider how to remediate or extend key instructional concepts to transition students across proficiency levels of performance.

Review this sample from grade four, which models ways you can use PLDs to think about the expectations across the continuum of proficiency. The sample provides context around how you could think about the way the descriptors differentiate student performance across the continuum and how you could use those descriptors in your classroom.

	Below Proficiency	Approaching Proficiency	At Proficiency	Above Proficiency
ELA 4 Standard: 4.RL.2.3	Provide a limited description of a character, setting, or event in a story or play, giving minimal details that pertain to plot.	Describe a character, setting, or event in a story or play, providing some details from the text that impact the plot.	Describe a character, setting, or event in a story or play, drawing on specific details in the text, and how that impacts the plot.	Explain how a character, setting, or event in a story or play impacts the plot, providing support of the impact by drawing on specific details from the text.

Classroom Implications	Below Proficiency students may provide a limited description of a character, setting, or event in a story or play, while Approaching Proficiency students may be able to describe characters, settings, and events by using details. When moving students into Approaching Proficiency, build on limited descriptions by asking students probing questions that lead to more description about the characters, setting, and events in the story.	At Proficiency students build on the skills of Approaching Proficiency in their ability to use specific details to describe how a character, setting, or event in a story or play impacts the plot. When moving students into the At Proficiency level, ask them guiding questions to help them focus their descriptions of characters, settings, and events. Guide students toward relating their descriptions of characters, settings, and events to the impact they have on the plot.	Students who are Above Proficiency are able to extend their understanding by explaining how a character, setting, or event impacts the plot, using specific details to support the explanation. When moving students into the Above Proficiency level, guide students toward thinking about specific details that support their explanation of how a character, setting, or event impacts the plot.

	Standard	Below Proficiency	Approaching Proficiency	At Proficiency	Above Proficiency
Key Ideas and Textual Support/Vocabulary					
4.RL.2.1	Refer to details and examples in a text when explaining what a text says explicitly and when drawing inferences from the text.	Refer to details and examples when providing a minimal explanation of what the text says explicitly.	Refer to details and examples in a text when explaining what a text says explicitly and when making simple inferences from the text.	Refer to details and examples in a text when explaining what a text says explicitly and when drawing inferences from the text.	Refer to details and examples in a text when explaining what a text says explicitly and when drawing complex inferences from the text.
4.RL.2.2	Paraphrase or summarize the main events in a story, myth, legend, or novel; identify the theme and provide evidence for the interpretation.	Minimally paraphrase or summarize some main events in a story, myth, legend, or novel; identify a basic theme in a simple work of literature and provide minimal evidence to support the theme.	Mostly paraphrase or summarize the main events in a story, myth, legend, or novel; identify an explicit theme and provide some evidence to support the theme.	Paraphrase or summarize the main events in a story, myth, legend,or novel; identify the theme and provide evidence to support the theme.	Thoroughly paraphrase or summarize the main events in a story, myth, legend, or novel; identify the theme and provide thorough evidence to support the theme.
4.RL.2.3	Describe a character, setting, or event in a story or play, drawing on specific details in the text, and how that impacts the plot.	Provide a limited description of a character, setting, or event in a story or play, giving minimal details that pertain to plot.	Describe a character, setting, or event in a story or play, providing some details from the text that impact the plot.	Describe a character, setting, or event in a story or play, drawing on specific details in the text, and how that impacts the plot.	Explain how a character, setting, or event in a story or play impacts the plot, providing support of the impact by drawing on specific details from the text.
4.RN.2.1	Refer to details and examples in a text when explaining what a text says explicitly and when drawing inferences from the text.	Provides a minimal explanation of what the text says when referring to details and examples and/or drawing basic inferences from the text.	Refer to details and examples in a text when explaining what a text says explicitly and when drawing basic inferences from the text.	Refer to details and examples in a text when explaining what a text says explicitly and when drawing inferences from the text.	Refer to details and examples in a text when explaining what a text says explicitly and when drawing complex inferences from the text.
4.RN.2.2	Determine the main idea of a text and explain how it is supported by key details; summarize the text.	Identify a main idea of a text and/or details; provide a limited summary of the text.	Determine the main idea of a text and identify how it is supported by key details; provide a basic summary of the text.	Determine the main idea of a text and explain how it is supported by key details; summarize the text.	Determine the main idea of a complex text and explain how it is supported by key details; summarize the text precisely.

	Standard	Below Proficiency	Approaching Proficiency	At Proficiency	Above Proficiency
4.RN.2.3	Explain the relationships between events, procedures, ideas, or concepts in a historical, scientific, or technical text, based on specific information in the text.	Provide limited explanation of basic relationships between events, procedures, ideas, or concepts in a historical, scientific, or technical text, based on information in a simple text.	Provide limited explanation of the relationships between events, procedures, ideas, or concepts in a historical, scientific, or technical text, based on information in the text.	Explain the relationships between events, procedures, ideas, or concepts in a historical, scientific, or technical text, based on specific information in the text.	Explain in depth the relationships between events, procedures, ideas, or concepts in a historic, scientific, or technical text, based on specific information in a more complex text.
4.RV.2.1	Apply context clues (e.g., word, phrase, sentence, and paragraph clues) and text features (e.g., charts, headings/subheadings, font/format) to determine the meanings of unknown words.	Recognize context clues and text features to identify the meanings of simple unknown words, using explicitly-stated context or text features.	Apply context clues and text features to determine the meanings of simple unknown words, using explicitly-stated context or text features.	Apply context clues and text features to determine the meanings of unknown words.	Apply context clues and text features to determine the meanings of complex unknown words.
4.RV.2.2	Identify relationships among words, including more complex homographs, homonyms, synonyms, antonyms, and multiple meanings.	Identify relationships among words given heavy context, including homographs, homonyms, synonyms, antonyms, and well-known multiple meanings.	Identify relationships among words, including homographs, homonyms, synonyms, antonyms, and multiple meanings.	Identify relationships among words, including more complex homographs, homonyms, synonyms, antonyms, and multiple meanings.	Identify subtle relationships among words, including more complex homographs, homonyms, synonyms, antonyms, and multiple meanings.
4.RV.2.4	Apply knowledge of word structure elements (e.g., suffixes, prefixes, common Greek and Latin affixes and roots), known words, and word patterns to determine meaning.	Recognize word structure elements, known words, and word patterns to identify meaning.	Apply limited knowledge of word structure elements, known words, and word patterns to determine meaning.	Apply knowledge of word structure elements, known words, and word patterns to determine meaning.	Apply knowledge of complex word structure elements, known words, and word patterns to determine meaning.
4.RV.2.5	Consult reference materials, both print and digital (e.g., dictionary), to find the pronunciation and clarify the precise meanings of words and phrases.	Consult reference materials, both print and digital, to locate the pronunciation and the meanings of words and phrases.	Consult reference materials, both print and digital, to locate the pronunciation and the meanings of words and phrases.	Consult reference materials, both print and digital, to find the pronunciation and clarify the precise meanings of words and phrases.	Consult reference materials, both print and digital, to find the pronunciation and clarify the precise meanings of words and phrases.

	Standard	Below Proficiency	Approaching Proficiency	At Proficiency	Above Proficiency
4.RV.3.1	Determine how words and phrases provide meaning to works of literature, including figurative language (e.g., similes, metaphors, or hyperbole).	Identify words and phrases that provide meaning to works of literature, including figurative language.	Determine how familiar words and phrases provide meaning to works of literature, including figurative language.	Determine how words and phrases provide meaning to works of literature, including figurative language.	Determine how words and phrases provide meaning to more complex works of literature, including figurative language.
4.RV.3.2	Determine the meanings of general academic and content-specific words and phrases in a nonfiction text relevant to a fourth grade topic or subject area.	Identify the meanings of basic academic and content-specific words and phrases in a nonfiction text relevant to a fourth grade topic or subject area.	Identify the meanings of general academic and content-specific words and phrases in a nonfiction text relevant to a fourth grade topic or subject area.	Determine the meanings of general academic and content-specific words and phrases in a nonfiction text relevant to a fourth grade topic or subject area.	Determine the meanings of complex academic and content-specific words and phrases in a nonfiction text relevant to a fourth grade topic or subject area.
4.RV.3.3	Explain the meanings of proverbs, adages, and idioms in context.	Recognize the meanings of proverbs, adages, and idioms in context.	Explain the meanings of common proverbs, adages, and idioms in context.	Explain the meanings of proverbs, adages, and idioms in context.	Explain the meanings of complex proverbs, adages, and idioms in context.
Structural Elements and Organization/Connection of Ideas/Media Literacy					
4.ML.2.1	Recognize claims in print, image, and multimedia and identify evidence used to support these claims.	Recognize explicit ideas or claims in print, image, and multimedia.	Recognize claims in print, image, and multimedia and identify basic details.	Recognize claims in print, image, and multimedia and identify evidence used to support these claims.	Recognize implicit claims in more complex print, image, and multimedia. Identify and explain evidence used to support these claims.
4.RL.3.1	Explain major differences between poems, plays, and prose, and refer to the structural elements of poems and drama.	Identify that there are differences between poems, plays, and prose.	Identify differences between poems, plays, and prose, and refer to basic structural elements of poems and drama.	Explain major differences between poems, plays, and prose, and refer to the structural elements of poems and drama.	Explain major differences between poems, plays, and prose, and cite specific evidence about the structural elements of poems and drama.
4.RL.3.2	Compare and contrast the point of view from which different stories are narrated, including the difference between first- and third-person narrations.	Identify similarities or differences in point of view from which different stories are narrated. Identify point of view.	Compare or contrast the point of view from which different stories are narrated. Identify first- and third-person narrations.	Compare and contrast the point of view from which different stories are narrated, including the difference between first- and third-person narrations.	Compare and contrast in-depth the point of view from which different complex stories are narrated, including the difference between first- and third-person narrations.

	Standard	Below Proficiency	Approaching Proficiency	At Proficiency	Above Proficiency
4.RL.4.1	Describe how visual and multimedia presentations and representations can enhance the meaning of a text.	Identify visual and multimedia presentations that help to understand the meaning of a text.	Use visual and multimedia presentations and representations to help understand the meaning of a text.	Describe how visual and multimedia presentations and representations can enhance the meaning of a text.	Describe in-depth how visual and multimedia presentations and representations can enhance the meaning of a text.
4.RL.4.2	Compare and contrast the treatment of similar themes and topics and patterns of events in stories, myths, and traditional literature from different cultures.	Identify similarities and differences of similar topics and patterns of events in stories, myths, and traditional literature from different cultures.	Compare or contrast similar themes and topics and patterns of events in stories, myths, and traditional literature from different cultures.	Compare and contrast the treatment of similar themes and topics and patterns of events in stories, myths, and traditional literature from different cultures.	Compare and contrast the treatment of similar themes and topics and patterns of events in more complex stories, myths, and traditional literature from different cultures.
4.RN.3.1	Apply knowledge of text features to locate information and gain meaning from a text (e.g., charts, tables, graphs, headings, subheadings, font/format).	Recognize text features to locate information (e.g., charts, tables, graphs, headings, subheadings, font/format).	Apply basic knowledge of text features to locate information and gain meaning from a text (e.g., charts, tables, graphs, headings, subheadings, font/format).	Apply knowledge of text features to locate information and gain meaning from a text (e.g., charts, tables, graphs, headings, subheadings, font/format).	Apply knowledge of text features to locate information and gain meaning from a more complex text (e.g., charts, tables, graphs, headings, subheadings, font/format).
4.RN.3.2	Describe the organizational structure (e.g., chronological, problem-solution, comparison/contrast, procedural, cause/effect, sequential, description) of events, ideas, concepts, or information in a text or part of a text.	Identify the basic organizational structure (e.g., chronological, problem-solution, comparison/contrast, procedural, cause/effect, sequential, description) of events, ideas, concepts, or information in a text or part of a text.	Determine the basic organizational structure (e.g., chronological, problem-solution, comparison/contrast, procedural, cause/effect, sequential, description) of events, ideas, concepts, or information in a text or part of a text.	Describe the organizational structure (e.g., chronological, problem-solution, comparison/contrast, procedural, cause/effect, sequential, description) of events, ideas, concepts, or information in a text or part of a text.	Describe the organizational structure (e.g., chronological, problem-solution, comparison/contrast, procedural, cause/effect, sequential, description) of events, ideas, concepts, or information in a more complex text or part of a text.
4.RN.3.3	Compare and contrast a firsthand and secondhand account of the same event or topic; describe the differences in focus and the information provided in the accounts.	Identify similarities and differences in an account of the same event or topic; describe some differences and/or general information provided in the accounts.	Compare or contrast a firsthand and secondhand account of the same event or topic; describe some differences in focus and/or the information provided in the accounts.	Compare and contrast a firsthand and secondhand account of the same event or topic; describe the differences in focus and the information provided in the accounts.	Compare and contrast a first-hand and secondhand account of the same event or topic; describe the similarities and differences in focus, the information provided in the accounts, and how the perspective of the account impacts meaning.

	Standard	Below Proficiency	Approaching Proficiency	At Proficiency	Above Proficiency
4.RN.4.1	Distinguish between fact and opinion; explain how an author uses reasons and evidence to support a statement or position (claim) in a text.	Identify facts and opinions; identify evidence or reasons that support the claim.	Distinguish between fact and opinion; locate reasons and evidence to support a statement or position (claim) in a text.	Distinguish between fact and opinion; explain how an author uses reasons and evidence to support a statement or position (claim) in a text.	Distinguish between more complex fact and opinion; thoroughly explain how an author uses reasons and evidence to support a statement or position (claim) in a text.
4.RN.4.2	Combine information from two texts on the same topic in order to demonstrate knowledge about the subject.	Identify information from two texts on the same topic in order to provide basic information related to the topic.	Combine information from two texts on the same topic in order to provide basic information related to the topic.	Combine information from two texts on the same topic in order to demonstrate knowledge about the subject.	Combine information from two more complex texts on the same topic in order to demonstrate knowledge about the subject.
Writing					
4.W.3.1	Write persuasive compositions in a variety of forms that – • In an introductory statement, clearly state an opinion to a particular audience. • Support the opinion with facts and details from various sources, including texts. • Use an organizational structure to group related ideas that support the purpose. • Connect opinion and reasons using words and phrases. • Provide a concluding statement or section related to the position presented.	Write persuasive compositions in a variety of forms that – • Provide little to no introductory statement. May state an unclear opinion to a general audience. • Support of the opinion does not exist from various sources, including texts. • Use little to no organizational structure. • Connect little to no opinions and/or reasons using words and phrases. • Provide little to no concluding statement, or sections may not relate to the position presented.	Write persuasive compositions in a variety of forms that – • In an introductory statement, state a weak opinion to a general audience. • Support the opinion with minimal facts and details from various sources, including texts. • Use an organizational structure to group related ideas. • Connect a few opinions and/or reasons using words and phrases. • Provide a concluding statement or section somewhat related to the position presented.	Write persuasive compositions in a variety of forms that – • In an introductory statement, clearly state an opinion to a particular audience. • Support the opinion with facts and details from various sources, including texts. • Use an organizational structure to group related ideas that support the purpose. • Connect opinion and reasons using words and phrases. • Provide a concluding statement or section related to the position presented.	Write persuasive compositions in a variety of forms that – • In an introductory statement, clearly state a well-formed opinion to a particular audience. • Support the opinion effectively with facts and details from various sources, including texts. • Use an intentional organizational structure to group related ideas that support the purpose. • Connect all opinions and reasons using words and phrases. • Provide a clear, precise concluding statement and sections related to the position presented.

	Standard	Below Proficiency	Approaching Proficiency	At Proficiency	Above Proficiency
4.W.3.2	Write informative compositions on a variety of topics that – • Provide an introductory paragraph with a clear main idea. • Provide supporting paragraphs with topic and summary sentences. • Provide facts, specific details, and examples from various sources and texts to support ideas and extend explanations. • Connect ideas using words and phrases. • Include text features (e.g., formatting, pictures, graphics) and multimedia when useful to aid comprehension. • Use language and vocabulary appropriate for audience and topic. • Provide a concluding statement or section.	Write informative compositions on a variety of topics that – • Provide little to no introductory paragraph or statement. May be related to the topic discussed. • Provide little to no supporting paragraphs with or without topic and/or summary sentences. • Provide facts, details, and/or examples from various sources and texts that may be relevant to the topic • Connect little to no ideas using words and phrases. • Does not include text features and multimedia when useful. • Use little to no language and/or vocabulary appropriate for audience and topic. • Provide little to no concluding statement or sections; may not relate to the topic presented.	Write informative compositions on a variety of topics that – • Provide an introductory paragraph with a main idea. • Provide some supporting paragraphs with topic and/or summary sentences. • Provide facts, details, and examples from various sources and texts to support ideas and explanations. • Connect few ideas using words and phrases. • Include very little text features and multimedia when useful. • Use some language and vocabulary appropriate for audience and topic. • Provide a concluding statement or section somewhat relevant to the topic presented.	Write informative compositions on a variety of topics that – • Provide an introductory paragraph with a clear main idea. • Provide supporting paragraphs with topic and summary sentences. • Provide facts, specific details, and examples from various sources and texts to support ideas and extend explanations. • Connect ideas using words and phrases. • Include some text features and multimedia when useful to aid comprehension. • Use language and vocabulary appropriate for audience and topic. • Provide a concluding statement or section related to the topic presented.	Write informative compositions on a variety of topics that – • Provide an introductory paragraph with a well-developed main idea. • Provide precise supporting paragraphs with topic and summary sentences. • Provide facts, specific details, and examples from various sources and texts to strongly connect and support ideas and extend explanations. • Connect all ideas using words and phrases. • Include text features and multimedia when useful to aid comprehension. • Use clear, precise language and vocabulary appropriate for audience and topic. • Provide a clear, concise concluding statement and sections related to the topic presented.

	Standard	Below Proficiency	Approaching Proficiency	At Proficiency	Above Proficiency
4.W.3.3	Write narrative compositions in a variety of forms that– • Establish an introduction, with a context to allow the reader to imagine the world of the event or experience. • Organize events that unfold naturally, using meaningful paragraphing and transitional words and phrases. • Use dialogue and descriptive details to develop events and reveal characters' personalities, feelings, and responses to situations. • Employ vocabulary with sufficient sensory (sight, sound, smell, touch, taste) details to give clear pictures of ideas and events. • Provide an ending that follows the narrated experiences or events.	Write narrative compositions in a variety of forms that – • Provide an insufficient introduction with the character(s), setting, and little to no events that does not allow the reader to imagine the world of the event or experience. • Use little to no organization of events, with little to no paragraphing and transitional words and phrases. • Use little to no dialogue and descriptive details to develop events and reveal characters' personalities and feelings. • Use little to no vocabulary with sensory (sight, sound, smell, touch, taste) details to give unclear pictures of ideas and events. • Provide an insufficient ending that follows the narrated experiences or events.	Write narrative compositions in a variety of forms that – • Develop a minimal introduction that describes the character(s), setting, and events with some context to allow the reader to imagine the world of the event or experience. • Use weak organization to unfold events naturally, using some paragraphing and transitional words and phrases. • Use minimal dialogue and descriptive details to develop events and reveal characters' personalities and feelings. • Use vocabulary with weak sensory (sight, sound, smell, touch, taste) details to give general pictures of ideas and events. • Provide a minimal ending that somewhat follows the narrated experiences or events.	Write narrative compositions in a variety of forms that – • Develop an introduction that establishes the character(s), setting, and events with a context to allow the reader to imagine the world of the event or experience. • Use organization to unfold events naturally, using meaningful paragraphing and transitional words and phrases. • Use adequate dialogue and descriptive details to develop events and reveal characters' personalities, feelings, and responses to situations. • Use adequate vocabulary with sufficient sensory (sight, sound, smell, touch, taste) details to give clear pictures of ideas and events. • Provide an ending that follows the narrated experiences or events.	Write narrative compositions in a variety of forms that – • Establish an introduction, with a context to allow the reader to vividly imagine the world of the event or experience. • Use purposeful organization to unfold events naturally, using meaningful paragraphing and precise transitional words and phrases. • Use purposeful dialogue and vivid descriptive details to establish events and reveal characters' personalities, feelings, and responses to situations. • Use purposeful vocabulary with precise sensory (sight, sound, smell, touch, taste) details to give vivid pictures of ideas and events. • Provide a clear, precise ending that follows the narrated experiences or events.

	Standard	Below Proficiency	Approaching Proficiency	At Proficiency	Above Proficiency
4.W.4	Apply the writing process to – • Generate a draft by developing, selecting and organizing ideas relevant to topic, purpose, and genre; revise to improve writing, using appropriate reference materials (e.g., quality of ideas, organization, sentence fluency, word choice); edit writing for format and conventions (e.g., spelling, capitalization, usage, punctuation). • Use technology to interact and collaborate with others to publish legible documents.	Apply the writing process to – • Generate a draft by developing, selecting and organizing unclear ideas with little to no relevance to topic, purpose, and genre; little to no revision to improve writing, little to no use of appropriate reference materials and/or editing for format and conventions. • Minimally use technology to interact and collaborate with others.	Apply the writing process to – • Generate a draft by developing, selecting and organizing weak ideas related to topic, purpose, and genre; some revision to improve writing, use of some reference materials; weakly edit writing for format and conventions. • Minimally use technology to interact and collaborate with others.	Apply the writing process to – • Generate a draft by developing, selecting and organizing adequate ideas relevant to topic, purpose, and genre; revise to improve writing, using appropriate reference materials; adequately edit writing for format and conventions. • Use technology to interact and collaborate with others to publish legible documents.	Apply the writing process to – • Generate a high-quality draft by developing, selecting and organizing complex ideas relevant to topic, purpose, and genre; revise to improve writing, using appropriate reference materials; edit writing for format and conventions. • Use technology to interact and collaborate with others to publish legible documents.
4.W.5	Conduct short research on a topic. • Identify a specific question to address (e.g., What is the history of the Indy 500?). • Use organizational features of print and digital sources to efficiently to locate further information. • Determine the reliability of the sources. • Summarize and organize information in their own words, giving credit to the source. • Present the research information, choosing from a variety of formats.	Conduct short research on a topic. • Identify a question to address with support. • Use little to no organizational features of print and digital sources to locate further information. • Unable to determine the reliability of the sources. • Recall and organize information pulling directly from the text.	Conduct short research on a topic. • Identify a question to address some of the time. • Use some organizational features of print and digital sources to locate further information. • Determines the reliability of the sources some of the time. • Recount and organize informa-tion in their own words. • Present the research information.	Conduct short research on a topic. • Identify a specific question to address. • Use organizational features of print and digital sources to efficiently locate further information. • Determine the reliability of the sources. • Summarize and organize information in their own words, giving credit to the source. • Present the research information, choosing from a variety of formats.	Conduct short research on a topic. • Identify a specific complex question to address. • Use organizational features of print and digital sources logically to efficiently locate further relevant information. • Determine the reliability of the sources. • Sufficiently summarize and organize information in their own words, giving credit to the source. • Present the research information, choosing from a variety of formats.

	Standard	Below Proficiency	Approaching Proficiency	At Proficiency	Above Proficiency
4.W.6.1a	Nouns/Pronouns – Writing sentences that include relative pronouns (e.g., who, which) and reflexive pronouns (e.g., myself, ourselves) and explaining their functions in the sentence.	Nouns/Pronouns – Writing simple sentences that include relative pronouns (e.g., who, which) and reflexive pronouns (e.g., myself, ourselves) and beginning to apply their functions in the sentence.	Nouns/Pronouns – Writing sentences that include relative pronouns (e.g., who, which) and reflexive pronouns (e.g., myself, ourselves) and applying their functions in the sentence.	Nouns/Pronouns – Writing sentences that include relative pronouns (e.g., who, which) and reflexive pronouns (e.g., myself, ourselves) and explaining their functions in the sentence.	Nouns/Pronouns – Writing complex sentences that include relative pronouns (e.g., who, which) and reflexive pronouns (e.g., myself, ourselves) and explaining their functions in the sentence.
4.W.6.1b	Verbs – • Writing sentences that use the progressive verb tenses. • Recognizing and correcting inappropriate shifts in verb tense. • Using modal auxiliaries (e.g., can, may, must).	Verbs (Inconsistently) – • Writing simple sentences that use the progressive verb tenses. • Recognizing and/or correcting inappropriate shifts in verb tense. • Using modal auxiliaries (e.g., can, may, must).	Verbs – • Writing simple sentences that use the progressive verb tenses. • Beginning to recognize and correct inappropriate shifts in verb tense. • Using modal auxiliaries (e.g., can, may, must).	Verbs – • Writing sentences that use the progressive verb tenses. • Recognizing and correcting inappropriate shifts in verb tense. • Using modal auxiliaries (e.g., can, may, must).	Verbs – • Writing complex sentences that use the progressive verb tenses. • Recognizing and correcting inappropriate shifts in verb tense. • Using modal auxiliaries (e.g., can, may, must).
4.W.6.1c	Adjectives/Adverbs – Writing sentences using relative adverbs (e.g., where, when) and explaining their functions in the sentence.	Adjectives/Adverbs – Writing simple sentences using relative adverbs (e.g., where, when) and beginning to apply their functions in the sentence.	Adjectives/Adverbs – Writing sentences using relative adverbs (e.g., where, when) and applying their functions in the sentence.	Adjectives/Adverbs – Writing sentences using relative adverbs (e.g., where, when) and explaining their functions in the sentence.	Adjectives/Adverbs – Writing complex sentences using relative adverbs (e.g., where, when) and explaining their functions in the sentence.
4.W.6.1d	Prepositions – Writing sentences that include prepositions, explaining their functions in the sentence.	Prepositions – Writing simple sentences that include prepositions, beginning to apply their functions in the sentence.	Prepositions – Writing sentences that include prepositions, applying their functions in the sentence.	Prepositions – Writing sentences that include prepositions, explaining their functions in the sentence.	Prepositions – Writing complex sentences that include prepositions, explaining their functions in the sentence.
4.W.6.1e	Usage – Writing correctly complete simple, compound, and complex declarative, interrogative, imperative, and exclamatory sentences, using coordinating and subordinating conjunctions (e.g., yet, nor, so).	Usage – Inconsistently writing correct complete simple, compound, and complex declarative, interrogative, imperative, and exclamatory sentences, using coordinating and subordinating conjunctions (e.g., yet, nor, so).	Usage – Writing mostly correct complete simple, compound, and complex declarative, interrogative, imperative, and exclamatory sentences, using coordinating and subordinating conjunctions (e.g., yet, nor, so).	Usage – Writing correctly complete simple, compound, and complex declarative, interrogative, imperative, and exclamatory sentences, using coordinating and subordinating conjunctions (e.g., yet, nor, so).	Usage – Writing correctly more elaborate complete simple, compound, and complex declarative, interrogative, imperative, and exclamatory sentences, using coordinating and subordinating conjunctions (e.g., yet, nor, so).

	Standard	Below Proficiency	Approaching Proficiency	At Proficiency	Above Proficiency
4.W.6.2a	Capitalization – Capitalizing names of magazines, newspapers, works of art, musical compositions, organizations, and the first word in quotations, when appropriate.	Capitalization – Inconsistently capitalizing names of magazines, newspapers, works of art, musical compositions, organizations, and the first word in quotations, when appropriate.	Capitalization – Capitalizing most names of magazines, newspapers, works of art, musical compositions, organizations, and the first word in quotations, when appropriate.	Capitalization – Capitalizing names of magazines, newspapers, works of art, musical compositions, organizations, and the first word in quotations, when appropriate.	Capitalization – Capitalizing names of magazines, newspapers, works of art, musical compositions, organizations, and the first word in quotations, when appropriate.
4.W.6.2b	Punctuation – • Correctly using apostrophes to form possessives and contractions. • Correctly using quotation marks and commas to mark direct speech. • Using a comma before a coordinating conjunction in a compound sentence.	Punctuation (Inconsistently) – • Correctly using apostrophes to form possessives and contractions. • Correctly using quotation marks and commas to mark direct speech. • Using a comma before a coordinating conjunction in a compound sentence.	Punctuation (Mostly correct) – • Correctly using apostrophes to form possessives and contractions. • Correctly using quotation marks and commas to mark direct speech. • Using a comma before a coordinating conjunction in a compound sentence.	Punctuation – • Correctly using apostrophes to form possessives and contractions. • Correctly using quotation marks and commas to mark direct speech. • Using a comma before a coordinating conjunction in a compound sentence.	Punctuation (Purposefully) – • Correctly using apostrophes to form possessives and contractions. • Correctly using quotation marks and commas to mark direct speech. • Using a comma before a coordinating conjunction in a compound sentence.
4.W.6.2c	Spelling – Using spelling patterns and generalizations (e.g., word families, position-based spellings, syllable patterns, ending rules, meaningful word parts, homophones/homographs) in writing single and multi-syllable words.	Spelling – Beginning to use spelling patterns and generalizations (e.g., word families, position-based spellings, syllable patterns, ending rules, meaningful word parts, homophones/ homographs) in writing single and multi-syllable words.	Spelling – Using spelling patterns and generalizations most of the time (e.g., word families, position-based spellings, syllable patterns, ending rules, meaningful word parts, homophones/ homographs) in writing single and multi-syllable words.	Spelling – Using spelling patterns and generalizations (e.g., word families, position-based spellings, syllable patterns, ending rules, meaningful word parts, homophones/ homographs) in writing single and multi-syllable words.	Spelling – Using more complex spelling patterns and generalizations (e.g., word families, position-based spellings, syllable patterns, ending rules, meaningful word parts, homophones/ homographs) in writing single and multi-syllable words.

	Standard	Below Proficiency	Approaching Proficiency	At Proficiency	Above Proficiency
Speaking and Listening					
4.SL.3.1	Summarize major ideas and supportive evidence from text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.	Summarize ideas and/or details from text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.	Summarize ideas and/or supportive evidence from text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.	Summarize major ideas and supportive evidence from text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.	Precisely summarize major ideas and supportive evidence from text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
4.SL.3.2	Identify and use evidence a speaker provides to support particular points.	Recall information and main ideas a speaker provides.	Identify evidence a speaker provides to support particular points.	Identify and use evidence a speaker provides to support particular points.	Identify and use evidence a speaker provides to support particular points. Explain how the evidence supports the speaker's perspective.

ILEARN Performance Level Descriptors (PLDs)
Grade 4 Science

Performance Level Descriptors (PLDs) serve as a foundational resource in the assessment process to inform item development and characterize student performance based on Indiana Academic Standards. PLDs are written from three perspectives: Policy PLDs, RangePLDs, and Threshold PLDs.

Policy PLDs: Policy PLDs provide overarching claims about a student's performance and are used by policymakers and stakeholders to articulate expectations about a state's performance standards.

Range PLDs: Range PLDs provide content-specific claims across each Indiana Academic Standard to represent the range of expectations for student performance within each proficiency level.

Threshold PLDs: Threshold PLDs provide content-specific claims across each Indiana Academic Standard to represent expectations for student performance surrounding each cut score as a model for standard setting.

The Policy PLDs approved by the Indiana State Board of Education for ILEARN consist of the following:

LEVEL 1: Below Proficiency
Indiana students below proficiency have not met current grade level standards. Students may require significant support to develop the knowledge, application, and analytical skills needed to be on track for college and career readiness.

LEVEL 2: Approaching Proficiency
Indiana students approaching proficiency have nearly met current grade level standards by demonstrating some basic knowledge, application, and limited analytical skills. Students may require support to be on track for college and career readiness.

LEVEL 3: At Proficiency
Indiana students at proficiency have met current grade level standards by demonstrating essential knowledge, application, and analytical skills to be on track for college and career readiness.

LEVEL 4: Above Proficiency
Indiana students above proficiency have mastered current grade level standards by demonstrating more complex knowledge, application, and analytical skills to be on track for college and career readiness.

The subsequent pages highlight the Range PLDs for each Indiana Academic Standard. These PLDs can be used to inform instructional practices as educators consider proficiency of the content. Additionally, educators may use the content examples to consider how to remediate or extend key instructional concepts to transition students across proficiency levels of performance.

Review this sample from grade four, which models ways you can use PLDs to think about the expectations across the continuum of proficiency. The sample provides context around how you could think about the way the descriptors differentiate student performance across the continuum and how you could use those descriptors in your classroom.

	Below Proficiency	Approaching Proficiency	At Proficiency	Above Proficiency
Science 4 Standard: 4.ESS.3	Identify that geological forces change the shape of the land.	Identify how geological forces change the shape of the land suddenly and over time.	Describe how geological forces change the shape of the land suddenly and over time.	Explain how geological forces change the shape of the land suddenly and over time.
Classroom Implications	The key difference between Below Proficiency and Approaching Proficiency lies in a student's ability to identify that geological forces change land suddenly and over long periods of time as opposed to identifying that land can be changed by geologic forces. When thinking about moving students into Approaching Proficiency, focus on the time scales for specific geologic forces. Then guide students to explain why some geological forces cause sudden changes to land while other can take millions of years to cause change.	Students who are Approaching Proficiency can identify that geologic forces change the land over different time periods, but may not describe how this happens. When moving students into At Proficiency, guide students toward thinking about how each geological force results in either a sudden change to land or a change over a longer period of time.	The main difference between students At Proficiency and Above Proficiency is the student's ability to explain how a geological force changes the land suddenly or over longer periods of time. When moving students into Above Proficiency, ask students to explain how a specific geological force changes the land, including the time scale of the change and characteristics of the geological force that result in either a rapid or slow change.	

	Standard	Below Proficiency	Approaching Proficiency	At Proficiency	Above Proficiency
Science 4					
4.PS.1	Investigate transportation systems and devices that operate on or in land, water, air and space and recognize the forces (lift, drag, friction, thrust and gravity) that affect their motion.	Identify transportation systems and devices that operate on or in land, water, air and space and recognize the forces (lift, drag, friction, thrust and gravity).	Describe transportation systems and devices that operate on or in land, water, air and space and recognize the forces (lift, drag, friction, thrust and gravity) that affect their motion.	Explain transportation systems and devices that operate on or in land, water, air and space and recognize the forces (lift, drag, friction, thrust and gravity) that affect their motion.	Synthesize information about transportation systems and devices that operate on or in land, water, air and space and explain how forces (lift, drag, friction, thrust and gravity) affect their motion.
4.PS.2	Investigate the relationship of the speed of an object to the energy of that object.	Identify that a relationship exists between the speed of an object and the energy of that object	Describe the relationship of the speed of an object to the energy of that object.	Explain the relationship of the speed of an object to the energy of that object.	Evaluate the relationship of the speed of an object to the energy of that object.
4.PS.3	Investigate how multiple simple machines work together to perform everyday tasks.	Identify multiple simple machines that work together to perform everyday tasks.	Describe multiple simple machines that work together to perform everyday tasks.	Explain how multiple simple machines work together to perform everyday tasks.	Synthesize information about how multiple simple machines work together to perform everyday tasks.
4.PS.4	Describe and investigate the different ways in which energy can be generated and/or converted from one form of energy to another form of energy.	Identify the different ways in which energy can be generated and/or converted from one form of energy to another form of energy.	Describe the different ways in which energy can be generated and/or converted from one form of energy to another form of energy.	Explain the different ways in which energy can be generated and/or converted from one form of energy to another form of energy.	Evaluate the different ways in which energy can be generated and/or converted from one form of energy to another form of energy.
4.PS.5	Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.	Identify that energy can be transferred from place to place.	Identify that energy can be transferred from place to place by sound, light, heat, and electric currents.	Make observations and provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.	Explain how energy can be transferred from place to place by sound, light, heat, and electric currents by providing evidence from observations.

	Standard	Below Proficiency	Approaching Proficiency	At Proficiency	Above Proficiency
4.ESS.1	Investigate how the moon appears to move through the sky and it changes day to day, emphasizing the importance of how the moon impacts the Earth, the rising and setting times, and solar and lunar eclipses.	Identify that the moon appears to move through the sky and it changes day to day, emphasizing the importance of how the moon impacts the Earth, the rising and setting times.	Describe how the moon appears to move through the sky and it changes day to day, emphasizing the importance of how the moon impacts the Earth, the rising and setting times, and solar and lunar eclipses.	Explain how the moon appears to move through the sky and it changes day to day, emphasizing the importance of how the moon impacts the Earth, the rising and setting times, and solar and lunar eclipses.	Analyze how the moon appears to move through the sky and it changes day to day, emphasizing the importance of how the moon impacts the Earth, the rising and setting times, and solar and lunar eclipses.
4.ESS.2	Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.	Identify information that describes that energy and fuels are derived from natural resources.	Identify information that describes that energy and fuels are derived from natural resources and their uses affect the environment.	Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.	Obtain, combine and evaluate information to describe that energy and fuels are derived from natural resources and their uses affect the environment.
4.ESS.3	Describe how geological forces change the shape of the land suddenly and over time.	Identify that geological forces change the shape of the land.	Identify how geological forces change the shape of the land suddenly and over time.	Describe how geological forces change the shape of the land suddenly and over time.	Explain how geological forces change the shape of the land suddenly and over time.
4.ESS.4	Develop solutions that could be implemented to reduce the impact of humans on the natural environment and the natural environment on humans.	Identify solutions that could be implemented to reduce the impact of humans on the natural environment and the natural environment on humans.	Describe solutions that could be implemented to reduce the impact of humans on the natural environment and the natural environment on humans.	Develop solutions that could be implemented to reduce the impact of humans on the natural environment and the natural environment on humans.	Evaluate solutions that could be implemented to reduce the impact of humans on the natural environment and the natural environment on humans.
4.LS.1	Observe, analyze, and interpret how offspring are very much, but not exactly, like their parents or one another. Describe how these differences in physical characteristics among individuals in a population may be advantageous for survival and reproduction.	Observe how offspring are very much, but not exactly, like their parents or one another.	Observe how offspring are very much, but not exactly, like their parents or one another. Describe how these differences in physical characteristics among individuals in a population may be advantageous for survival and reproduction.	Observe, analyze, and interpret how offspring are very much, but not exactly, like their parents or one another. Describe how these differences in physical characteristics among individuals in a population may be advantageous for survival and reproduction.	Observe, analyze, and interpret how offspring are very much, but not exactly, like their parents or one another. Evaluate how these differences in physical characteristics among individuals in a population may be advantageous for survival and reproduction.

	Standard	Below Proficiency	Approaching Proficiency	At Proficiency	Above Proficiency
4.LS.2	Use evidence to support the explanation that a change in the environment may result in a plant or animal will survive and reproduce, move to a new location, or die.	Identify evidence to support the explanation that a change in the environment may result in a plant or animal surviving and reproducing, moving to a new location, or dying.	Describe evidence that supports the explanation that a change in the environment may result in a plant or animal surviving and reproducing, moving to a new location, or dying.	Use evidence to support the explanation that a change in the environment may result in a plant or animal surviving and reproducing, moving to a new location, or dying.	Use evidence to evaluate whether a change in the environment will result in a plant or animal will surviving and reproducing, moving to a new location, or dying
4.LS.3	Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction in a different ecosystems.	Identify an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction in different ecosystems.	Use an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction in different ecosystems.	Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction in different ecosystems.	Construct an argument that plants and animals have internal and external structures and explain how those structures function to support survival, growth, behavior, and reproduction in different ecosystems.
3-5.E.1	Identify a simple problem with the design of an object that reflects a need or a want. Include criteria for success and constraints on materials, time, or cost.	Identify a simple problem with the design of an object that reflects a need or a want.	Identify a simple problem with the design of an object that reflects a need or a want. Include criteria for success.	Identify a simple problem with the design of an object that reflects a need or a want. Include criteria for success and constraints on materials, time, or cost.	Explain a simple problem with the design of an object that reflects a need or a want. Include and analyze criteria for success and constraints on materials, time, or cost.
3-5.E.2	Construct and compare multiple plausible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.	Identify multiple plausible solutions to a problem based on how well each is likely to meet the criteria of the problem.	Explain multiple plausible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.	Construct and compare multiple plausible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.	Analyze multiple plausible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
3-5.E.3	Construct and perform fair investigations in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.	Identify and perform fair investigations in which variables are controlled.	Identify and perform fair investigations in which variables are controlled to identify aspects of a model or prototype that can be improved.	Construct and perform fair investigations in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.	Construct, perform and analyze fair investigations in which variables are controlled and failure points are considered to evaluate aspects of a model or prototype that can be improved.

	Standard	Below Proficiency	Approaching Proficiency	At Proficiency	Above Proficiency
Computer Science 3–5					
3-5.DI.1	Understand and use the basic steps in algorithmic problem solving (e.g., problem statement and exploration, examination of sample instances, design, implementation, and testing).	Identify the basic steps in algorithmic problem solving (e.g., problem statement, sample instances, implementation, and testing).	Describe the basic steps in algorithmic problem solving (e.g., problem statement, examination of sample instances, design, implementation, and testing).	Demonstrate the basic steps in algorithmic problem solving (e.g., problem statement and exploration, examination of sample instances, design, implementation, and testing).	Analyze and apply the basic steps in algorithmic problem solving (e.g., problem statement and exploration, examination of sample instances, design, implementation, and testing).
3-5.DI.2	Develop a simple understanding of an algorithm (e.g., search, sequence of events, or sorting) using computer-free exercises	Identify a simple algorithm (e.g., search, sequence of events, or sorting) using computer-free exercises	Use a simple algorithm (e.g., search, sequence of events, or sorting) using computer-free exercises	Develop a simple algorithm (e.g., search, sequence of events, or sorting) using computer-free exercises	Develop and analyze a simple algorithm (e.g., search, sequence of events, or sorting) using computer-free exercises
3-5.DI.3	Demonstrate how a string of bits can be used to represent alphanumeric information and how 1's and 0's represent information.	Identify that a string of bits can be used to represent alphanumeric information.	Identify how a string of bits can be used to represent alphanumeric information and how 1's and 0's represent information	Demonstrate how a string of bits can be used to represent alphanumeric information and how 1's and 0's represent information.	Explain how a string of bits can be used to represent alphanumeric information and how 1's and 0's represent information.
3-5.DI.4	Describe how a simulation can be used to solve a problem.	Identify that a simulation can be used to solve a problem.	Identify how a simulation can be used to solve a problem.	Describe how a simulation can be used to solve a problem.	Apply and explain how a simulation can be used to solve a problem.
3-5.DI.5	Understand the connections between computer science and other fields.	Identify the connections between computer science and other fields.	Describe the connections between computer science and other fields.	Demonstrate and explain how computer science connects to and supports other fields.	Analyze and evaluate the connections between computer science and other fields.
3-5.CD.1	Demonstrate proficiency with keyboards and other input and output devices.	Demonstrate use of a keyboard.	Demonstrate use of keyboards and other input and output devices.	Demonstrate proficiency with keyboards and other input and output devices.	Demonstrate proficiency with keyboards and other input and output devices.

	Standard	Below Proficiency	Approaching Proficiency	At Proficiency	Above Proficiency
3-5.CD.2	Understand the pervasiveness of computers and computing in daily life (e.g., voicemail, down-loading videos and audio files, microwave ovens, thermostats, wireless Internet, mobile computing devices, GPS systems).	Recognize computers and computing in daily life (e.g., voicemail, downloading videos and audio files)	Recognize computers and computing in daily life (e.g., voicemail, downloading videos and audio files, microwave ovens, thermostats, wireless Internet, mobile computing devices, GPS systems).	Describe how computers and computing influence daily life (e.g., voicemail, downloading videos and audio files, microwave ovens, thermostats, wireless Internet, mobile computing devices, GPS systems).	Analyze and explain how computers and computing influence daily life (e.g., voicemail, downloading videos and audio files, microwave ovens, thermostats, wireless Internet, mobile computing devices, GPS systems).
3-5.CD.3	Apply troubleshooting strategies for identifying simple hardware and software problems that may occur during use.	Identify simple hardware and software problems that may occur during use.	Identify troubleshooting strategies for identifying simple hardware and software problems that may occur during use.	Apply troubleshooting strategies for identifying simple hardware and software problems that may occur during use.	Apply and predict outcomes of troubleshooting strategies for identifying simple hardware and software problems that may occur during use.
3-5.CD.4	Recognize that computers model intelligent behavior (as found in robotics, speech and language recognition, and computer animation).	Identify that computers model intelligent behavior.	Identify how computers model intelligent behavior (as found in robotics, speech and language recognition, and computer animation).	Demonstrate the intellectual relationship between humans and computers. (as found in robotics, speech and language recognition, and computer animation).	Explain the intellectual relationship between humans and computers. (as found in robotics, speech and language recognition, and computer animation).
3-5.PA.1	Use technology resources (e.g., calculators, data col-lection probes, mobile de-vices, videos, educational software, and web tools) for problem-solving and self-directed learning, and general-purpose productivity tools and peripherals to support personal productiv-ity, remediate skill deficits, facilitate learning, and individual/collaborative writing, communication, and publishing activities.	Identify technology resources for problem-solving.	Identify technology resources (e.g., calculators, data collection probes, mobile devices, videos, educational software, and web tools) for problem-solving and self-directed learning, and general-purpose productivity tools and peripherals to support personal productivity, remediate skill deficits, facilitate learning, and individual/collaborative writing, communication, and publishing activities.	Use technology resources (e.g., calculators, data collection probes, mobile devices, videos, educational software, and web tools) for problem-solving and self-directed learning, and general-purpose productivity tools and peripherals to support personal productivity, remediate skill deficits, facilitate learning, and individual/collaborative writing, communication, and publishing activities.	Demonstrate and analyze technology resources (e.g., calculators, data collection probes, mobile devices, videos, educational software, and web tools) for problem-solving and self-directed learning, and general-purpose productivity tools and peripherals to support personal productiv-ity, remediate skill deficits, facilitate learning, and individual/collaborative writing, communication, and publishing activities.

	Standard	Below Proficiency	Approaching Proficiency	At Proficiency	Above Proficiency
3-5.PA.2	Use digital tools to gather, manipulate, and modify data for use by a program.	Identify digital tools.	Identify digital tools to gather, manipulate, and modify data for use by a program.	Use digital tools to gather, manipulate, and modify data for use by a program.	Use, analyze, and explain digital tools to gather, manipulate, and modify data for use by a program.
3-5.PA.3	Implement problem solutions using a block-based visual programming language.	Identify problem solutions using a block-based visual programming language.	Describe problem solutions using a block-based visual programming language.	Implement problem solutions using a block-based visual programming language.	Implement, troubleshoot and test problem solutions using a block-based visual programming language.
3-5.NC.1	Use online resources (e.g., email, online discussions, collaborative web environments) to participate in collaborative problem-solving activities for the purpose of developing solutions or products	Identify online resources (e.g., email, online discussions, collaborative web environments)	Use online resources (e.g., email, online discussions, collaborative web environments)	Use online resources (e.g., email, online discussions, collaborative web environments) to participate in collaborative problem-solving activities for the purpose of developing solutions or products	Use and evaluate online resources (e.g., email, online discussions, collaborative web environments) to participate in collaborative problem-solving activities for the purpose of developing solutions or products
3-5.NC.2	Use productivity technology tools (e.g., word processing, spreadsheet, presentation software) for individual and collaborative writing, communication, and publishing activities.	Identify technology tools (e.g., word processing, spreadsheet, presentation software) for individual writing, communication, and publishing activities.	Use productivity technology tools (e.g., word processing, spreadsheet, presentation software) for individual writing, communication, and publishing activities.	Use productivity technology tools (e.g., word processing, spreadsheet, presentation software) for individual and collaborative writing, communication, and publishing activities.	Use, analyze, and evaluate productivity technology tools (e.g., word processing, spreadsheet, presentation software) for individual and collaborative writing, communication, and publishing activities.
3-5.IC.1	Discuss basic issues related to responsible use of technology and information, and the consequences of inappropriate use.	Identify responsible use of technology and information.	Demonstrate responsible use of technology and information.	Demonstrate how to responsibly use technology and information, and the consequences of inappropriate use.	Explain responsible use of technology and information, and the consequences of inappropriate use.

	Standard	Below Proficiency	Approaching Proficiency	At Proficiency	Above Proficiency
3-5.IC.2	Identify the impact of technology (e.g., social networking, cyber bullying, mobile computing and communication, web technologies, cyber security, and virtualization) on personal life and society.	Identify the impact of technology (social networking, and cyber bullying) on personal life.	Identify the impact of technology (e.g., social networking, cyber bullying, mobile computing and communication, web technologies, cyber security, and virtualization) on personal life.	Identify the impact of technology (e.g., social networking, cyber bullying, mobile computing and communication, web technologies, cyber security, and virtualization) on personal life and society.	Describe the impact of technology (e.g., social networking, cyber bullying, mobile computing and communication, web technologies, cyber security, and virtualization) on personal life and society.
3-5.IC.3	Evaluate the accuracy, relevance, appropriateness, comprehensiveness, and biases that occur in electronic information sources.	Identify the accuracy, relevance, appropriateness, comprehensiveness, and biases that occur in electronic information sources.	Describe the accuracy, relevance, appropriateness, comprehensiveness, and biases that occur in electronic information sources.	Evaluate the accuracy, relevance, appropriateness, comprehensiveness, and biases that occur in electronic information sources.	Evaluate and predict the accuracy, relevance, appropriateness, comprehensiveness, and biases that occur in electronic information sources.
3-5.IC.4	Understand ethical issues that relate to computers and networks (e.g., equity of access, security, privacy, copyright, and intellectual property).	Identify ethical issues that relate to computers and networks (e.g., equity of access, security, privacy, copyright, and intellectual property).	Describe ethical issues that relate to computers and networks (e.g., equity of access, security, privacy, copyright, and intellectual property).	Explain ethical issues that relate to computers and networks (e.g., equity of access, security, privacy, copyright, and intellectual property).	Analyze ethical issues that relate to computers and networks (e.g., equity of access, security, privacy, copyright, and intellectual property).
SEPS					
SEPS.1 Posing questions (for science) and defining problems (for engineering)	A practice of science is posing and refining questions that lead to descriptions and explanations of how the natural and designed world(s) work and these questions can be scientifically tested. Engineering questions clarify problems to determine criteria for possible solutions and identify constraints to solve problems about the designed world.	Identify questions that lead to descriptions and explanations of how the natural and designed world(s) work. Identify engineering problems.	Identify questions that lead to descriptions and explanations of how the natural and designed world(s) work and scientifically tests these questions. Identify engineering problems to determine criteria for possible solutions and identify constraints to solve problems about the designed world.	Pose and evaluate questions that lead to descriptions and explanations of how the natural and designed world(s) work and scientifically tests these questions. Clarify engineering problems to determine criteria for possible solutions and identify constraints to solve problems about the designed world.	Pose, evaluate and refine questions that lead to descriptions and explanations of how the natural and designed world(s) work and scientifically tests these questions. Solve engineering problems to determine criteria for possible solutions and analyze constraints to solve problems about the designed world.

	Standard	Below Proficiency	Approaching Proficiency	At Proficiency	Above Proficiency
SEPS.2 Developing and using models and tools	A practice of both science and engineering is to use and construct conceptual models that illustrate ideas and explanations. Models are used to develop questions, predictions and explanations; analyze and identify flaws in systems; build and revise scientific explanations and proposed engineered systems; and communicate ideas. Measurement and observations are used to revise and improve models and designs. Models include, but are not limited to: diagrams, drawings, physical replicas, mathematical representations, analogies and other technological models. Another practice of both science and engineering is to identify and correctly use tools to construct, obtain and evaluate questions and problems. Utilize appropriate tools while identifying their limitations. Tools include, but are not limited to: pencil and paper, models, ruler, a protractor, a calculator, laboratory equipment, safety	Identify conceptual models that illustrate ideas and explanations. Use models to identify questions and explanations; analyze and identify flaws in systems; identify scientific explanations and proposed engineered systems; and communicate ideas. Revise and improve models and designs. Identify and correctly use tools to construct questions and problems. Utilize appropriate tools.	Use conceptual models that illustrate ideas and explanations. Use models to develop questions and explanations; analyze and identify flaws in systems; build scientific explanations and proposed engineered systems; and communicate ideas. Use observations to revise and improve models and designs. Identify and correctly use tools to construct and obtain questions and problems. Utilize appropriate tools.	Use and construct conceptual models that illustrate ideas and explanations. Use models to develop questions, predictions and explanations; analyze and identify flaws in systems; build and revise scientific explanations and proposed engineered systems; and communicate ideas. Use measurements and observations to revise and improve models and designs. Identify and correctly use tools to construct, obtain, and evaluate questions and problems. Utilize appropriate tools while identifying their limitations.	Use, construct, and analyze conceptual models that illustrate ideas and explanations. Use models to develop and evaluate questions, predictions and explanations; analyze and identify flaws in systems; build and revise scientific explanations and proposed engineered systems; and communicate ideas. Use measurements and observations to revise and improve models and designs. Evaluate the use of use tools to construct, obtain, and analyze questions and problems. Utilize appropriate tools and explain their limitations.

	Standard	Below Proficiency	Approaching Proficiency	At Proficiency	Above Proficiency
	gear, a spreadsheet, experiment data collection software, and other technological tools.				
SEPS.3 Constructing and performing investigations	Scientists and engineers are constructing and performing investigations in the field or laboratory, working collaboratively as well as individually. Researching analogous problems in order to gain insight into possible solutions allows them to make conjectures about the form and meaning of the solution. A plan to a solution pathway is developed prior to constructing and performing investigations. Constructing investigations systematically encompasses identified variables and parameters generating quality data. While performing, scientists and engineers monitor and record progress. After performing, they evaluate to make changes to modify and repeat the investigation if necessary.	Perform investigations in the field or laboratory, working collaboratively as well as individually. Identify a plan to a solution pathway prior to performing investigations. Perform investigations that systematically encompass identified variables and parameters generating quality data. Monitor and record progress.	Perform investigations in the field or laboratory, working collaboratively as well as individually. Research analogous problems in order to gain insight into possible solutions will allow them to make conjectures about the form and meaning of the solution. Identify a plan to a solution pathway prior to performing investigations. Perform investigations that systematically encompass identified variables and parameters generating quality data. Monitor and record progress. After performing, evaluate to make changes to modify.	Construct and perform investigations in the field or laboratory, working collaboratively as well as individually. Research analogous problems in order to gain insight into possible solutions will allow them to make conjectures about the form and meaning of the solution. Develop a plan to a solution pathway prior to constructing and performing investigations. Construct investigations that systematically encompass identified variables and parameters generating quality data. Monitor and record progress. After performing, evaluate to make changes to modify and repeat the investigation if necessary.	Construct, perform and analyze investigations in the field or laboratory, working collaboratively as well as individually. Research and evaluate analogous problems in order to gain insight into possible solutions to allow them to make conjectures about the form and meaning of the solution. Develop a plan to a solution pathway prior to constructing and performing investigations. Construct investigations that systematically encompass identified variables and parameters generating quality data. Monitor and record progress. After performing, evaluate and analyze to make changes to modify and repeat the investigation if necessary.
SEPS.4 Analyzing and interpreting data	Investigations produce data that must be analyzed in order to derive meaning. Because data patterns and trends are not always	Use investigations to produce data. Use tools to identify the significant features in the data. Identify solutions efficiently and	Use investigations to produce data. Use tools to identify the significant features in the data. Identify solutions efficiently and	Use investigations to produce data that must be analyzed in order to derive meaning. Use a range of tools to identify the	Use investigations to produce data that must be analyzed in order to derive meaning. Evaluate a range of tools to identify the

	Standard	Below Proficiency	Approaching Proficiency	At Proficiency	Above Proficiency
	obvious, scientists and engineers use a range of tools to identify the significant features in the data. They identify sources of error in the investigations and calculate the degree of certainty in the results. Advances in science and engineering makes analysis of proposed solutions more efficient and effective. They analyze their results by continually asking themselves questions; possible questions may be, but are not limited to: “Does this make sense?” "Could my results be duplicated?" and/or “Does the design solve the problem with the given constraints?”	effectively.	effectively. Analyze results by continually asking questions; possible questions may be, but are not limited to: “Does this make sense?”	significant features in the data. Identify sources of error in the investigations and calculate the degree of certainty in the results. Analyze proposed solutions efficiently and effectively. Analyze results by continually asking questions; possible questions may be, but are not limited to: “Does this make sense?” "Could my results be duplicated?" and/or “Does the design solve the problem with the given constraints?”	significant features in the data. Analyze sources of error in the investigations and calculate the degree of certainty in the results. Analyze proposed solutions efficiently and effectively. Analyze results by continually asking questions; possible questions may be, but are not limited to: “Does this make sense?” "Could my results be duplicated?" and/or “Does the design solve the problem with the given constraints?”
SEPS.5 Using mathematics and computational thinking	In both science and engineering, mathematics and computation are fundamental tools for representing physical variables and their relationships. They are used for a range of tasks such as constructing simulations; solving equations exactly or approximately; and recog-nizing, expressing, and applying quantitative relationships. Mathematical and computational	Use mathematics and computation as fundamental tools for representing physical variables. Use mathematics and computation for a range of tasks such as constructing simulations; solving equations exactly or approximately. Identify how mathematical ideas interconnect and build on one another.	Use mathematics and computation as fundamental tools for representing physical variables. Use mathematics and computation for a range of tasks such as constructing simulations; solving equations exactly or approximately; and recog-nizing quantitative relation-ships. Predict the behavior of systems. Identify how mathematical ideas interconnect and build on	Use mathematics and computation as fundamental tools for representing physical variables and their relationships. Use mathematics and computation for a range of tasks such as constructing simulations; solving equations exactly or approximately; and recog-nizing, expressing, and applying quantitative relationships. Predict the behavior of systems and test	Use mathematics and computation as fundamental tools for representing physical variables and explain their relationships. Use mathematics and computation for a range of tasks such as constructing simulations; solving equations exactly or approximately; and recog-nizing, expressing, and applying quantitative relationships. Predict the behavior of systems and test

	Standard	Below Proficiency	Approaching Proficiency	At Proficiency	Above Proficiency
	approaches enable scientists and engineers to predict the behavior of systems and test the validity of such predictions. Scientists and engineers understand how mathematical ideas interconnect and build on one another to produce a coherent whole.		one another to produce a coherent whole.	the validity of such predictions. Explain how mathematical ideas interconnect and build on one another to produce a coherent whole.	and analyze the validity of such predictions. Explain how mathematical ideas interconnect and build on one another to produce a coherent whole.
SEPS.6 Constructing explanations (for science) and designing solutions (for engineering)	Scientists and engineers use their results from the investigation in constructing descriptions and explanations, citing the interpretation of data, connecting the investigation to how the natural and designed world(s) work. They construct or design logical coherent explanations or solutions of phenomena that incorporate their understanding of science and/or engineering or a model that represents it, and are consistent with the available evidence.	Use results from the investigation in constructing descriptions. Identify logical explanations or solutions of phenomena.	Use results from the investigation in constructing descriptions, citing the interpretation of data, connecting the investigation to how the natural and designed world(s) work. Identify logical coherent explanations or solutions of phenomena that incorporate their understanding of science and/or engineering or a model that represents it.	Use results from the investigation in constructing descriptions and explanations, citing the interpretation of data, connecting the investigation to how the natural and designed world(s) work. Construct or design logical coherent explanations or solutions of phenomena that incorporate their understanding of science and/or engineering or a model that represents it, and are consistent with the available evidence.	Analyze results from the investigation in constructing descriptions and explanations, citing the interpretation of data, connecting the investigation to how the natural and designed world(s) work. Evaluate the construction or the design of logical coherent explanations or solutions of phenomena that incorporate the students' understanding of science and/or engineering or a model that represents it, and its consistency with the available evidence.
SEPS.7 Engaging in argument from evidence	Scientists and engineers use reasoning and argument based on evidence to identify the best explanation for a natural phenomenon or the best solution to a design problem. Scientists and engineers use argumentation, the process by which	Identify an explanation for a natural phenomenon or a solution to a design problem. Identify evidence to evaluate a claim.	Use reasoning and argument based on evidence to identify an explanation for a natural phenomenon or a solution to a design problem. Use argumentation to listen to and compare competing ideas and methods based	Use reasoning and argument based on evidence to identify the best explanation for a natural phenomenon or the best solution to a design problem. Use argumentation to listen to, compare, and evaluate competing ideas and	Use reasoning and argument based on evidence to analyze the best explanation for a natural phenomenon or the best solution to a design problem. Use argumentation to listen to, compare, and evaluate competing ideas and

	Standard	Below Proficiency	Approaching Proficiency	At Proficiency	Above Proficiency
	evidence-based conclusions and solutions are reached, to listen to, compare, and evaluate competing ideas and methods based on merits. Scientists and engineers engage in argumentation when investigating a phenomenon, testing a design solution, resolving questions about measurements, building data models, and using evidence to evaluate claims.		on merits. Engage in argumentation when investigating a phenomenon, testing a design solution, resolving questions about measurements, building data models, and using evidence to evaluate claims.	methods based on merits. Engage in argumentation when investigating a phenomenon, testing a design solution, resolving questions about measurements, building data models, and using evidence to evaluate claims.	methods based on merits. Engage in argumentation when investigating a phenomenon, testing a design solution, resolving questions about measurements, building data models, and analyze evidence to evaluate claims.
SEPS.8 Obtaining, evaluating, and communicating information	Scientists and engineers need to be communicating clearly and articulating the ideas and methods they generate. Critiquing and communicating ideas individually and in groups is a critical professional activity. Communicating information and ideas can be done in multiple ways: using tables, diagrams, graphs, models, and equations, as well as, orally, in writing, and through extended discussions. Scientists and engineers employ multiple sources to obtain information that is used to evaluate the merit and validity of claims, methods, and designs.	Communicate and articulate simple ideas and methods students generate. Communicate ideas individually. Communicate information and ideas in one of the following ways: using tables, diagrams, graphs, models, and equations as well as, orally, in writing, and through extended discussions.	Communicate the ideas and methods students generate. Describe and communicate ideas individually. Communicate information and ideas in two or three of the following ways: using tables, diagrams, graphs, models, and equations, as well as, orally, in writing, and through extended discussions. Employ one source to obtain information that is used to evaluate the merit and validity of claims, methods, and designs.	Communicate clearly and articulate the ideas and methods students generate. Critique and communicate ideas individually and in groups. Communicate information and ideas in multiple ways: use tables, diagrams, graphs, models, and equations, as well as, orally, in writing, and through extended discussions. Employ multiple sources to obtain information that are used to evaluate the merit and validity of claims, methods, and designs.	Defend clearly and articulate the ideas and methods students generate. Critique and communicate ideas individually and in groups. Communicate information and ideas in multiple ways: using tables, diagrams, graphs, models, and equations, as well as, orally, in writing, and through extended discussions. Employ multiple sources to obtain information that is used to evaluate the merit and validity of claims, methods, and designs.