

NEW HAMPSHIRE ALIGNMENT FOR DOING SCIENCE: THE PROCESS OF SCIENTIFIC INQUIRY

DOING SCIENCE: THE PROCESS OF SCIENTIFIC INQUIRY		
New Hampshire Science GSEs: Grades 6 & 8		
Grade 6		
Lesson	Standard	GSE
1, 3	S:SPS1:6:1.1	Make observations and record measurements using a variety of tools and instruments.
All lessons	S:SPS1:6:1.2	Plan observations based on a given purpose.
All lessons	S:SPS1:6:1.3	Identify and investigate similarities and differences among observations and sets of observations.
All lessons	S:SPS1:6:1.8	Ask questions about relationships between and among observations.
All lessons	S:SPS1:6:1.9	Determine which observations will be helpful to a given investigation.
All lessons	S:SPS1:6:1.10	Distinguish between those questions that can be answered by science and those that cannot.
2, 3, 4	S:SPS1:6:2.1	Design and record a simple step-by-step procedure to follow in order to carry out a fair test of a scientific question.
1, 3	S:SPS1:6:2.2	Identify and utilize appropriate tools/technology for collecting data in designing investigations.
2	S:SPS1:6:2.3	Incorporate components of good experimental design, such as controls and multiple trials, into investigations.
1, 3, 4	S:SPS1:6:3.1	Carry out simple student or teacher-developed procedures or experiments.
1, 3, 4	S:SPS1:6:3.2	Use appropriate tools to collect and record data.
1, 3, 4	S:SPS1:6:3.3	Follow the teacher's instructions in performing experiments, following all appropriate safety rules and procedures.
1, 3, 4	S:SPS1:6:4.1	Use appropriate tools to organize, represent, analyze and explain data.
1, 3, 4	S:SPS1:6:4.2	Make and record observations using a pre-determined format.
3, 4	S:SPS1:6:4.3	Compare and display data in a variety of student or computer generated formats (such as diagrams, flow charts, tables, bar graphs, line graphs, scatter plots, and histograms).
3, 4	S:SPS1:6:4.4	Identify patterns and relationships in data and formulate basic explanations.
1, 3, 4	S:SPS1:6:4.5	Draw appropriate conclusions based on data collected.
1, 3, 4	S:SPS1:6:5.1	Determine if the results of an experiment support or fail to support the scientific idea tested.
All lessons	S:SPS1:6:5.2	Explain how a hypothesis is a direct extension of a scientific idea and therefore makes that idea "testable."
All lessons	S:SPS2:6:1.2	Describe how results of similar and repeated investigations may vary and suggest possible explanations for variations.
All lessons	S:SPS2:6:1.3	Explain that sometimes similar investigations get different results because of unexpected differences in the things being investigated, the methods used, or the circumstances in which the investigation is carried out, and sometimes just because of uncertainties of observations.
All lessons	S:SPS2:6:1.4	Realize that if more than one variable changes at the same time in an experiment, the outcome of the experiment

NEW HAMPSHIRE ALIGNMENT FOR DOING SCIENCE: THE PROCESS OF SCIENTIFIC INQUIRY

		may not be clearly attributable to any one of the variables.
1	S:SPS2:6:3.1	Understand that models are often used to think about processes that happen too slowly, too quickly, or on too small a scale to observe directly; or that are too vast to be changed deliberately; or that are potentially dangerous.
3, 4	S:SPS2:6:4.1	Understand that things change in steady, repetitive, or irregular ways, or sometimes in more than one way at the same time; often the best way to tell which kinds of change are happening is to make a table or graph of measurements.
All lessons	S:SPS3:6:1.1	Work effectively within a cooperative group setting, accepting and executing assigned roles and responsibilities.
All lessons	S:SPS3:6:1.2	Work collectively within a group toward a common goal.
All lessons	S:SPS3:6:1.3	Demonstrate respect of one another's abilities and contributions to the group.
3	S:SPS3:6:2.1	Develop, focus and explain questions about the environment and do environmental investigations.
1, 3, 4	S:LS4:6:1.1	Recognize that learning requires more than just storage and retrieval of information and that prior knowledge needs to be tapped in order to make sense out of new experiences or information.
3, 4	S:LS4:6:1.2	Explain that people can learn about others from direct experience, from the media, and from listening to others talk about their life and work.
4	S:LS4:6:2.2	Recognize that there are some diseases that human beings can only get once; and explain how many diseases can be prevented by vaccination.
3, 4	S:LS4:6:3.1	Recognize that the length and quality of human life are influenced by many factors, including sanitation, diet, medical care, gender, genes, environmental conditions, and personal health behaviors.
1, 3, 4	S:LS5:6:2.1	Demonstrate the appropriate use of tools, such as thermometers, probes, microscopes and computers to gather, analyze and interpret data in the life sciences.
3, 4	S:LS5:6:4.1	Understand that some form of science is used in most jobs/careers and that some jobs/careers specifically require knowledge of life science.
Grade 8		
Lesson	Standard	GSE
1, 3	S:SPS1:8:1.1	Use appropriate tools to accurately collect and record both qualitative and quantitative data gathered through observations (e.g., temperature probes, electronic balances, spring scales, microscopes, stop watches).
All lessons	S:SPS1:8:1.3	Investigate similarities and differences noted when making observations.
All lessons	S:SPS1:8:1.6	Rephrase questions so that they can be tested or investigated using scientific methodologies.
All lessons	S:SPS1:8:1.7	Ask questions about relationships between and among observable variables.
1, 2, 3	S:SPS1:8:2.1	Identify the manipulated, responding and controlled variables in an experiment.
2	S:SPS1:8:2.2	Design a controlled experiment, identifying and controlling the major variables.
1, 3	S:SPS1:8:3.1	Use appropriate laboratory techniques to carry out student- or teacher-developed procedures or experiments.
1	S:SPS1:8:3.2	Use appropriate tools to gather data as part of an investigation (e.g., ruler, meter stick, thermometer, spring scale,

NEW HAMPSHIRE ALIGNMENT FOR DOING SCIENCE: THE PROCESS OF SCIENTIFIC INQUIRY

		graduated cylinder, calipers, balance, probes, and microscopes).
1, 3, 4	S:SPS1:8:3.3	Follow the teacher's instructions in performing experiments, following all appropriate safety rules and procedures.
1, 3, 4	S:SPS1:8:4.1	Use appropriate tools (including computer hardware and software) to collect, organize, represent, analyze and explain data.
All lessons	S:SPS1:8:4.2	Identify sources of error in experiments.
All lessons	S:SPS1:8:4.3	Draw appropriate conclusions regarding the scientific question under investigation, based on the data collected.
All lessons	S:SPS1:8:5.1	Determine if the results of an experiment support or refute the scientific idea tested.
All lessons	S:SPS1:8:5.2	Evaluate whether the information and data collected allows an evaluation of the scientific idea under investigation.
All lessons	S:SPS1:8:5.3	Determine what additional information would be helpful in answering the scientific question.
All lessons	S:SPS2:8:1.1	Describe how scientific investigations usually involve the collection of relevant evidence, the use of logical reasoning, and the application of imagination in devising hypotheses and explanations to make sense of the collected evidence.
All lessons	S:SPS2:8:1.2	Realize that when similar investigations give different results, the scientific challenge is to judge whether the differences are trivial or significant, and this often requires more investigations.
All lessons	S:SPS2:8:1.3	Realize that knowledge, based on science, is subject to modification as new information challenges prevailing theories and as a new theory leads to looking at old observations in a new way.
3, 4	S:SPS2:8:1.4	Provide examples that show how some scientific knowledge is very old and yet is still applicable today.
1, 2	S:SPS2:8:1.5	Recognize that some matters cannot be examined usefully in a scientific way, such as those matters that by their nature cannot be tested objectively and those that are essentially matters of morality.
4	S:SPS2:8:1.6	Give examples of how science can sometimes be used to inform ethical decisions by identifying the likely consequences of particular actions but cannot be used to establish that some action is either moral or immoral.
1	S:SPS2:8:3.2	Know that different models can be used to represent the same thing; what kind of model is used and how complex it should be depends on its purpose; and the usefulness of a model is one of the instances in which intuition and creativity come into play in science, mathematics and engineering.
All lessons	S:SPS3:8:1.1	Work effectively within a cooperative group setting, accepting and executing assigned roles and responsibilities.
All lessons	S:SPS3:8:1.2	Work collectively within a group toward a common goal.
All lessons	S:SPS3:8:1.3	Demonstrate respect of one another's abilities and contributions to the group.
3, 4	S:SPS3:8:1.4	Demonstrate an understanding of the ethics involved in scientific inquiry.
1	S:SPS3:8:2.3	Explore the uses and limitations of models.
1, 3, 4	S:SPS4:8:1.1	Use a variety of information access tools to locate, gather, and organize potential sources of scientific information to answer questions.
1, 3, 4	S:SPS4:8:1.3	Use appropriate tools to analyze and synthesize information (e.g., diagrams, flow charts, frequency tables, bar graphs, line graphs, stem-and-leaf plots) to draw conclusions and implications based on investigations of an issue or question.
All lessons	S:SPS4:8:3.1	Execute steps of scientific inquiry to engage in the problem-solving and decision making processes.

NEW HAMPSHIRE ALIGNMENT FOR DOING SCIENCE: THE PROCESS OF SCIENTIFIC INQUIRY

All lessons	S:SPS4:8:3.2	Apply new and unusual applications of existing knowledge to new and different situations.
3, 4	S:SPS4:8:3.3	Make sketches, graphs, and diagrams to explain ideas and to demonstrate the interconnections between systems.
All lessons	S:SPS4:8:4.1	Formulate a scientific question about phenomena, a problem, or an issue and using a broad range of tools and techniques; and plan and conduct an inquiry to address the question.
All lessons	S:SPS4:8:4.2	Use evidence collected from observations or other sources and use them to create models and explanations.
3, 4	S:SPS4:8:5.1	Use a variety of media tools to make oral and written presentations, which include written notes and descriptions, drawings, photos, and charts to communicate the procedures and results of an investigation.
All lessons	S:SPS4:8:6.1	Work in diverse pairs/teams to answer questions, solve problems and make decisions.
All lessons	S:SPS4:8:6.3	Articulate understanding of content through personal interaction and sharing with peers.
2, 3, 4	S:SPS4:8:8.1	Develop and execute a plan to collect and record accurate and complete data from various sources to solve a problem or answer a question; and gather and critically analyze data from a variety of sources.
3, 4	S:LS4:8:2.1	Recognize that disease in organisms can be caused by intrinsic failures of the system or infection from other organisms.
3, 4	S:LS4:8:2.4	Use data and observations to support the concept that environmental or biological factors affect human body systems (biotic and abiotic).
4	S:LS5:8:2.1	Recognize and provide examples of how technology has enhanced the study of life sciences, as in the development of advanced diagnosing equipment improving medicine.
4	S:LS5:8:3.3	Describes ways biotechnology helps humans, including improved health and medicine.
3, 4	S:LS5:8:4.1	Understand that some scientific jobs/careers involve the application of life science content knowledge and experience in specific ways that meet the goals of the job.

New Hampshire Mathematics GSEs: Grades 6 – 8

Grade 6

Lesson	Standard	GSE
3, 4	M:N&O:6:3	Demonstrates conceptual understanding of mathematical operations by adding and subtracting positive fractions and integers; and multiplying and dividing fractions and decimals.
3, 4	M:N&O:6:4	Accurately solves problems involving single or multiple operations on fractions (proper, improper, and mixed), or decimals; and addition or subtraction of integers; percent of a whole; or problems involving greatest common factor or least common multiple.
3, 4	M:N&O:6:6	Uses a variety of mental computation strategies to solve problems (e.g., using compatible numbers, applying properties of operations, using mental imagery, using patterns) and to determine the reasonableness of answers
1	M:N&O:6:7	Makes estimates in a given situation by identifying when estimation is appropriate, selecting the appropriate method of estimation, determining the level of accuracy needed given the situation, analyzing the effect of the estimation method on the accuracy of results, and evaluating the reasonableness of solutions appropriate to grade level GLEs

NEW HAMPSHIRE ALIGNMENT FOR DOING SCIENCE: THE PROCESS OF SCIENTIFIC INQUIRY

		across content strands.
3, 4	M:N&O:6:8	Applies properties of numbers (odd, even, positive, negative, remainders, divisibility, and prime factorization) and field properties (commutative, associative, identity [including the multiplicative property of one, e.g., $1 = 2/2$ and $2/2 \times 3/4 = 6/8$, so $3/4 = 6/8$], distributive, and additive inverses) to solve problems and to simplify computations.
1	M:G&M:6:7	Measures and uses units of measures appropriately and consistently, and makes conversions within systems when solving problems across the content strands.
3, 4	M:F&A:6:1	Identifies and extends to specific cases a variety of patterns (linear and nonlinear) represented in models, tables, sequences, graphs, or in problem situations
3, 4	M:DSP:6:1	Interprets a given representation (circle graphs, line graphs, or stem-and-leaf plots) to answer questions related to the data, to analyze the data to formulate or justify conclusions, to make predictions, or to solve problems.
3, 4	M:DSP:6:3	Organizes and displays data using tables, line graphs, or stem-and-leaf plots to answer questions related to the data, to analyze the data to formulate or justify conclusions, to make predictions, or to solve problems.
3, 4	M:DSP:6:6	In response to a teacher or student generated question or hypothesis decides the most effective method (e.g., survey, observation, experimentation) to collect the data (numerical or categorical) necessary to answer the question; collects, organizes, and appropriately displays the data; analyzes the data to draw conclusions about the question or hypothesis being tested, and when appropriate makes predictions; and asks new questions and makes connections to real world situations.
3, 4	M:PRP:8:1	Students will use problem-solving strategies to investigate and understand increasingly complex mathematical content and be able to: <ul style="list-style-type: none"> ▪ Use problem-solving strategies appropriately and effectively for a given situation. ▪ Determine, collect and organize the relevant information needed to solve real-world problems. ▪ Apply integrated problem-solving strategies to solve problems in the physical, natural, and social sciences and in pure mathematics. ▪ Use technology when appropriate to solve problems. ▪ Reflect on solutions and the problem-solving process for a given situation and refine strategies as needed.
3, 4	M:PRP:8:2	Students will use mathematical reasoning and proof and be able to: <ul style="list-style-type: none"> ▪ Draw logical conclusions and make generalizations using deductive and inductive reasoning. ▪ Formulate, test, and justify mathematical conjectures and arguments. ▪ Construct and determine the validity of a mathematical argument or a solution. ▪ Apply mathematical reasoning skills in other disciplines.
3, 4	M:CCR:8:1	Students will communicate their understanding of mathematics and be able to: <ul style="list-style-type: none"> ▪ Articulate ideas clearly and logically in both written and oral form. ▪ Present, share, explain, and justify thinking with others and build upon the ideas of others to solve problems. ▪ Use mathematical symbols and notation. ▪ Formulate questions, conjectures, definitions, and generalizations about data, information, and problem situations.
3, 4	M:CCR:8:2	Students will create and use representations to communicate mathematical ideas and to solve problems and be able to:

NEW HAMPSHIRE ALIGNMENT FOR DOING SCIENCE: THE PROCESS OF SCIENTIFIC INQUIRY

		<ul style="list-style-type: none"> ▪ Use models and technology to develop equivalent representations of the same mathematical concept. ▪ Use and create representations to solve problems and organize their thoughts and ideas. ▪ Convert between representations (e.g., a table of values, an equation, and a graph may all be representations of the same function).
Grade 7		
Lesson	Standard	GSE
3, 4	M:N&O:7:1	Demonstrates conceptual understanding of rational numbers with respect to percents as a means of comparing the same or different parts of the whole when the wholes vary in magnitude (e.g., 8 girls in a classroom of 16 students compared to 8 girls in a classroom of 20 students, or 20% of 400 compared to 50% of 100); and percents as a way of expressing multiples of a number (e.g., 200% of 50) using models, explanations, or other representations.
3, 4	M:N&O:7:3	Demonstrates conceptual understanding of operations with integers and whole number exponents (where the base is a whole number) using models, diagrams, or explanations.
3, 4	M:N&O:7:4	Accurately solves problems involving the addition or subtraction of integers
3, 4	M:N&O:7:6	Uses a variety of mental computation strategies to solve problems (e.g., using compatible numbers, applying properties of operations, using mental imagery, using patterns) and to determine the reasonableness of answers
1	M:N&O:7:7	Makes estimates in a given situation (including tips, discounts, and tax) by identifying when estimation is appropriate, selecting the appropriate method of estimation, determining the level of accuracy needed given the situation, analyzing the effect of the estimation method on the accuracy of results, and evaluating the reasonableness of solutions appropriate to grade level GLEs across content strands.
3, 4	M:N&O:7:8	Applies properties of numbers (odd, even, positive, negative, remainders, divisibility, and prime factorization) and field properties (commutative, associative, identity, distributive, inverses) to solve problems and to simplify computations, and demonstrates conceptual understanding of field properties as they apply to subsets of the real numbers (e.g., the set of whole numbers does not have additive inverses, the set of integers does not have multiplicative inverses).
3, 4	M:F&A:7:1	Identifies and extends to specific cases a variety of patterns (linear and nonlinear) represented in models, tables, sequences, graphs, or in problem situations
3, 4	M:DSP:7:1	Interprets a given representation (circle graphs, scatter plots that represent discrete linear relationships, or histograms) to analyze the data to formulate or justify conclusions, to make predictions, or to solve problems.
3, 4	M:DSP:7:3	Organizes and displays data using tables, line graphs, scatter plots, and circle graphs to answer questions related to the data, to analyze the data to formulate or justify conclusions, to make predictions, or to solve problems.
3, 4	M:DSP:7:6	In response to a teacher or student generated question or hypothesis decides the most effective method (e.g., survey, observation, experimentation) to collect the data (numerical or categorical) necessary to answer the question; collects, organizes, and appropriately displays the data; analyzes the data to draw conclusions about the question or hypothesis being tested while considering the limitations that could affect interpretations; and when appropriate makes predictions; and asks new questions and makes connections to real world situations.
3, 4	M:PRP:8:1	Students will use problem-solving strategies to investigate and understand increasingly complex mathematical

NEW HAMPSHIRE ALIGNMENT FOR DOING SCIENCE: THE PROCESS OF SCIENTIFIC INQUIRY

		<p>content and be able to:</p> <ul style="list-style-type: none"> ▪ Use problem-solving strategies appropriately and effectively for a given situation. ▪ Determine, collect and organize the relevant information needed to solve real-world problems. ▪ Apply integrated problem-solving strategies to solve problems in the physical, natural, and social sciences and in pure mathematics. ▪ Use technology when appropriate to solve problems. ▪ Reflect on solutions and the problem-solving process for a given situation and refine strategies as needed.
3, 4	M:PRP:8:2	<p>Students will use mathematical reasoning and proof and be able to:</p> <ul style="list-style-type: none"> ▪ Draw logical conclusions and make generalizations using deductive and inductive reasoning. ▪ Formulate, test, and justify mathematical conjectures and arguments. ▪ Construct and determine the validity of a mathematical argument or a solution. ▪ Apply mathematical reasoning skills in other disciplines.
3, 4	M:CCR:8:1	<p>Students will communicate their understanding of mathematics and be able to:</p> <ul style="list-style-type: none"> ▪ Articulate ideas clearly and logically in both written and oral form. ▪ Present, share, explain, and justify thinking with others and build upon the ideas of others to solve problems. ▪ Use mathematical symbols and notation. ▪ Formulate questions, conjectures, definitions, and generalizations about data, information, and problem situations.
3, 4	M:CCR:8:2	<p>Students will create and use representations to communicate mathematical ideas and to solve problems and be able to:</p> <ul style="list-style-type: none"> ▪ Use models and technology to develop equivalent representations of the same mathematical concept. ▪ Use and create representations to solve problems and organize their thoughts and ideas. ▪ Convert between representations (e.g., a table of values, an equation, and a graph may all be representations of the same function).
Grade 8		
Lesson	Standard	GSE
3, 4	M:N&O:8:4	Accurately solves problems involving proportional reasoning (percent increase or decrease, interest rates, markups, or rates); multiplication or division of integers.
3, 4	M:N&O:8:6	Uses a variety of mental computation strategies to solve problems (e.g., using compatible numbers, applying properties of operations, using mental imagery, using patterns) and to determine the reasonableness of answers
1	M:N&O:8:7	Makes estimates in a given situation (including tips, discounts, tax, and the value of a non-perfect square root as between two whole numbers) by identifying when estimation is appropriate, selecting the appropriate method of estimation; determining the level of accuracy needed given the situation; analyzing the effect of the estimation method on the accuracy of results; and evaluating the reasonableness of solutions appropriate to grade level GLEs across content strands.
3, 4	M:N&O:8:8	Applies properties of numbers (odd, even, positive, negative, remainders, divisibility, and prime factorization) and field properties (commutative, associative, identity [including the multiplicative property of one, e.g., $20 \times 23 = 20+3 =$

NEW HAMPSHIRE ALIGNMENT FOR DOING SCIENCE: THE PROCESS OF SCIENTIFIC INQUIRY

		23, so $20 = 1$], distributive, inverses) to solve problems and to simplify computations, and demonstrates conceptual understanding of field properties as they apply to subsets of real numbers when addition and multiplication are not defined in the traditional ways.
3, 4	M:F&A:8:1	Identifies and extends to specific cases a variety of patterns (linear and nonlinear) represented in models, tables, sequences, graphs, or in problem situations.
3, 4	M:DSP:8:1	Interprets a given representation (line graphs, scatter plots, histograms, or box-and-whisker plots) to analyze the data to formulate or justify conclusions, to make predictions, or to solve problems.
3, 4	M:DSP:8:6	In response to a teacher or student generated question or hypothesis decides the most effective method (e.g., survey, observation, experimentation) to collect the data (numerical or categorical) necessary to answer the question; collects, organizes, and appropriately displays the data; analyzes the data to draw conclusions about the question or hypothesis being tested while considering the limitations that could affect interpretations; and when appropriate makes predictions; and asks new questions and makes connections to real world situations.
3, 4	M:PRP:8:1	Students will use problem-solving strategies to investigate and understand increasingly complex mathematical content and be able to: <ul style="list-style-type: none"> ▪ Use problem-solving strategies appropriately and effectively for a given situation. ▪ Determine, collect and organize the relevant information needed to solve real-world problems. ▪ Apply integrated problem-solving strategies to solve problems in the physical, natural, and social sciences and in pure mathematics. ▪ Use technology when appropriate to solve problems. ▪ Reflect on solutions and the problem-solving process for a given situation and refine strategies as needed.
3, 4	M:PRP:8:2	Students will use mathematical reasoning and proof and be able to: <ul style="list-style-type: none"> ▪ Draw logical conclusions and make generalizations using deductive and inductive reasoning. ▪ Formulate, test, and justify mathematical conjectures and arguments. ▪ Construct and determine the validity of a mathematical argument or a solution. ▪ Apply mathematical reasoning skills in other disciplines.
3, 4	M:CCR:8:1	Students will communicate their understanding of mathematics and be able to: <ul style="list-style-type: none"> ▪ Articulate ideas clearly and logically in both written and oral form. ▪ Present, share, explain, and justify thinking with others and build upon the ideas of others to solve problems. ▪ Use mathematical symbols and notation. ▪ Formulate questions, conjectures, definitions, and generalizations about data, information, and problem situations.
3, 4	M:CCR:8:2	Students will create and use representations to communicate mathematical ideas and to solve problems and be able to: <ul style="list-style-type: none"> ▪ Use models and technology to develop equivalent representations of the same mathematical concept. ▪ Use and create representations to solve problems and organize their thoughts and ideas. ▪ Convert between representations (e.g., a table of values, an equation, and a graph may all be representations of the same function).

NEW HAMPSHIRE ALIGNMENT FOR DOING SCIENCE: THE PROCESS OF SCIENTIFIC INQUIRY

New Hampshire Reading GSEs: Grades 6 – 8		
Lesson	Standard	GSE
All lessons	R:V:6:1.1 R:V:7:1.1 R—8—2.1	Students identify the meaning of unfamiliar vocabulary by using strategies to unlock meaning (e.g., knowledge of word structure, including prefixes/suffixes and base words; or context clues; or other resources, such as dictionaries, glossaries, thesauruses; or prior knowledge).
All lessons	R:V:6:2.2 R:V:7:2.2 R—8—3.2	Selecting appropriate words or explaining the use of words in context, including content specific vocabulary, words with multiple meanings, or precise vocabulary.
All lessons	R:IT:6:1.1 R:IT:7:1.1 R—8—7.1	Obtaining information from text features (e.g., table of contents, glossary, index, transition words /phrases, bold or italicized text, headings, subheadings, graphic organizers, charts, graphs, or illustrations).
All lessons	R:IT:6:1.2 R:IT:7:1.2 R—8—7.2	Using information from the text to: answer questions related to main/central ideas or key details (6); answer questions, to state the main/central ideas, or to provide supporting details (7 & 8).
All lessons	R:IT:6:1.3 R:IT:7:1.3 R—8—7.3	Organizing information to show understanding (e.g., representing main/central ideas or details within text through charting, mapping, paraphrasing, summarizing, or comparing/contrasting [6 & 7] or outlining [8]).
All lessons	R—6—7.4 R—7—7.4 R—8—7.4	Generating questions before, during, and after reading to enhance understanding and recall; expand understanding and/or gain new information.
All lessons	R:IT:6:2.1 R:IT:7:2.1 R—8—8.1	Connecting information within a text, across texts (6), or to related ideas (7 & 8).
All lessons	R:IT:6:2.2 R:IT:7:2.2 R—8—8.2	Synthesizing information within or across text(s) (e.g., constructing appropriate titles; or formulating assertions or controlling ideas.
All lessons	R:IT:6:2.3 R:IT:7:2.3 R—8—8.3	Drawing inferences about text, including author’s purpose (e.g., to inform, explain, entertain, persuade) or message; or forming and supporting opinions/judgments and assertions about central ideas that are relevant.
All lessons	R:IT:6:2.4 R:IT:7:2.4 R—7—8.4	Distinguishing fact from opinion, and identifying possible bias/propaganda (6) or conflicting information within or across texts (7 & 8).
All lessons	R:IT:6:2.5 R:IT:7:2.5 R—8—8.5	Making inferences about causes or effects.

NEW HAMPSHIRE ALIGNMENT FOR DOING SCIENCE: THE PROCESS OF SCIENTIFIC INQUIRY

All lessons	R—6—13 R—7—13 R—8—13	Uses comprehension strategies (flexibly and as needed) before, during, and after reading literary and informational text.
All lessons	R—6—15.2 R—7—15.2 R—8—15.2	Evaluating information presented, in terms of relevance.
All lessons	R—6—15.3 R—7—15.3 R—8—15.3	Gathering, organizing, and interpreting the information.
All lessons	R—6—15.4 R—7—15.4 R—8—15.4	Using evidence to support conclusions.
All lessons	R—6—17.2 R—7—17.2 R—8—17.2	Participating in in-depth discussions about text, ideas, and student writing by offering comments and supporting evidence, recommending books and other materials, and responding to the comments and recommendations of peers, librarians, teachers, and others.

New Hampshire Writing & Oral Communication GSEs: Grades 6 – 8

Lesson	Standard	GSE
All lessons	W—6—1.1 W:SL:7:1.1 W—8—1.1	Using varied sentence length and structure to enhance meaning (e.g., including phrases and clauses).
All lessons	W—6—1.2 W:SL:7:1.2 W—8—1.2	Using the paragraph form: indenting, main idea, supporting details.
All lessons	W—6—1.4 W:SL:7:1.4 W—8—1.4	Applying a format and text structure appropriate to the purpose of the writing
All lessons	W—6—2.1 W:RC:7:1.1 W—8—2.1	Selecting appropriate information to set context/background (6). Selecting and summarizing key ideas to set context (7 & 8).
All lessons	W—6—2.3 W:RC:7:1.3	Connecting what has been read (plot/ideas/concepts) to prior knowledge, other texts (6), or the broader world of ideas (7 & 8) by referring to (6) and explaining (7 & 8) relevant ideas.
All lessons	W—6—3.1 W:RC:7:2.1 W—8—3.1	Stating and maintaining a focus (purpose), a firm judgment, or point of view when responding to a given question.
All lessons	W—6—3.3 W:RC:7:2.3	Using specific details and references to text or relevant citations to support focus or judgment.

NEW HAMPSHIRE ALIGNMENT FOR DOING SCIENCE: THE PROCESS OF SCIENTIFIC INQUIRY

	W—8—3.3	
All lessons	W—6—3.4 W:RC:7:2.4 W—8—3.4	Organizing ideas, using transition words/phrases and writing a conclusion that provides closure.
All lessons	W—6—6.1 W:IW:7:1.1 W—8—6.1	Using an organizational text structure appropriate to focus/controlling idea.
All lessons	W—6—7.1 W:IW:7:2.1 W—8—7.1	Establishing a topic.
All lessons	W—6—7.2 W:IW:7:2.2 W—8—7.2	Stating and maintaining a focus/controlling idea.
All lessons	W:IW:7:2.3 W—8—7.3	Writing with a sense of audience, when appropriate.
All lessons	W—6—8.1 W:IW:7:3.1 W—8—8.1	Including facts and details relevant to focus/controlling idea, and excluding extraneous information.
All lessons	W—6—8.2 W:IW:7:3.2 W—8—8.2	Including sufficient details or facts for appropriate depth of information: naming, describing, explaining, comparing, use of visual images.
All lessons	W:IW:7:3.4 W—8—8.4	Commenting on the significance of information, when appropriate.
All lessons	W—6—9.4	Using punctuation to clarify meaning.
All lessons	W:C:7:1.1 W—8—9.4	Applying rules of standard English usage to correct grammatical errors.
All lessons	W—6—9.5 W:C:7:2.5 W—8—9.5	Correctly spelling grade-appropriate, high-frequency words, including homonyms and homophones and applying syllables and affix spelling patterns/rules (6). Correctly spelling grade-appropriate, high-frequency words and applying conventional spelling patterns/rules (7). Applying conventional and word-derivative spelling patterns/rules (8).
All lessons	W—6—11.4 W—7—11.4 W—8—11.4	Writing in a variety of genres.
All lessons	OC—6—1.1 OC—7—1.1 OC—8—1.1	Following verbal instructions to perform specific tasks, to answer questions, or to solve problems.
All lessons	OC—6—1.2 OC—7—1.2	Summarizing, paraphrasing, questioning, or contributing to information presented.

NEW HAMPSHIRE ALIGNMENT FOR DOING SCIENCE: THE PROCESS OF SCIENTIFIC INQUIRY

	OC—8—1.2	
All lessons	OC—6—1.4 OC—7—1.4 OC—8—1.4	Participating in large and small group discussions showing respect for a range of individual ideas.
New Hampshire Health Education GSEs: Middle School		
Lesson	Standard	Descriptor
All lessons	MH:3.2	Know skills for effective speaking, e.g., I-statements, eye contact, assertiveness.
4	PCH:2.1	Know the importance of immunizations.
All lessons	MH:3.3	Know skills for effective listening, e.g., reflective listening.
3, 4	CEH:1.1	Know home, school, and community resources to promote health, e.g., library, Internet, health department, voluntary agencies.
3	CEH:2.1	Know environmental health risks.
3	CEH:2.2	Know how to analyze the community for health problems.