Science Process Skills:
All students can explore the world by developing skills in...

SPS1: Scientific Inquiry and Critical Thinking Skills (INQ)

Topic	By the End of Grade 2	By the End of Grade 4 apply skills from previous grades and…
1. MAKING OBSERVATIONS AND ASKING QUESTIONS.	S(SPS1)-2-1.1 Make observations and explore materials using all of their senses. (one sense at a time). S(SPS1)-2-1.2 Record observations using language, concrete objects, and symbolic representations. S(SPS1)-2-1.3 Ask questions about objects, organisms and events in their immediate environment. S(SPS1)-2-1.4 As a result of working with materials and objects, ask questions that lead to exploration and investigation. S(SPS1)-2-1.5 Sort and classify object materials and events based on one or more attributes, and explain the methods used for sorting.	S(SPS1)-4-1.1 Extend the senses using simple tools. S(SPS1)-4-1.2 Make and record observations for a given purpose. S(SPS1)-4-1.3 Differentiate between observations and inferences. S(SPS1)-4-1.4 Record observations using standard units of measurement. S(SPS1)-4-1.5 Classify according to several attributes and describe or show the method for classification. S(SPS1)-4-1.6 Compare methods of classifying based on the goal. S(SPS1)-4-1.7 Ask questions about objects, organisms and events in their local environment. S(SPS1)-4-1.8 Pose questions to investigate and practical problems to solve.
2. DESIGNING SCIENTIFIC INVESTIGATIONS	S(SPS1)-2-2.1 Select tools and procedures, in a purposeful way, to explore objects and materials. S(SPS1)-2-2.2 Suggest a plan and describe a sequence of events for conducting an exploration. S(SPS1)-2-2.3 Predict how changing one part of an exploration will effect the outcome.	S(SPS1)-4-2.1 Plan a step-by-step process to solve a practical problem or to carry out a “fair test” of a simple scientific question. S(SPS1)-4-2.2 Select an activity and justify it as an effective means of collecting appropriate data.

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SPS1: Scientific Inquiry and Critical Thinking Skills (INQ)		
	By the End of Grade 2	**By the End of Grade 4** apply skills from previous grades and…
3. CONDUCTING SCIENTIFIC INVESTIGATIONS	S(SPS1)-2-3.1 Follow their own plan for conducting an investigation. S(SPS1)-2-3.2 Follow a simple step-by-step procedure.	S(SPS1)-4-3.1 Follow a set of procedures. S(SPS1)-4-3.2 Plan and test ideas through guided experiments. S(SPS1)-4-3.3 Identify and use appropriate tools.
4. REPRESENTING AND UNDERSTANDING RESULTS OF INVESTIGATIONS	S(SPS1)-2-4.1 Represent and interpret information and observations in many ways (such as in tally, pictographs, bar graphs, tables). S(SPS1)-2-4.2 Identify and describe patterns and relationships in observed objects and events.	S(SPS1)-4-4.1 Compile and display data in a variety of formats. S(SPS1)-4-4.2 Select an appropriate format to represent data or observations. S(SPS1)-4-4.3 Identify and suggest possible explanations for patterns. S(SPS1)-4-4.4 Analyze data and identify discrepancies.
5. EVALUATING SCIENTIFIC EXPLANATIONS	♦ *None at this level*	S(SPS1)-4-5.1 Cite evidence or data to support conclusions. S(SPS1)-4-5.2 Determine if an observation or measurement supports a given scientific explanation. S(SPS1)-4-5.3 Draw a conclusion to answer an initial question, based on the evidence collected.

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SPS1: Scientific Inquiry and Critical Thinking Skills (INQ)	
	By the End of Grade 4 apply skills from previous grades and…
TRI-STATE TARGETS FOR INQUIRY **(MAY BE SUBJECT OF PERFORMANCE COMPONENT)**	TRI-STATE SCIENCE TARGETS: NH [TRI-STATE CODE NUMBER] S(ESS1) – 4 - 2.4 [ESS1 (K-**4**) INQ –**1**] S(ESS1) – 4 - 5.2 [ESS1 (K-**4**) INQ+SAE –**4**] S(ESS1) – 4 - 6.4 [ESS1 (K-**4**) INQ –**2**] S(LS1) – 4 - 1.2 [LS1 (K-**4**) INQ+POC –**1**] S(PS1) – 4 - 2.5 [PS1 (K-**4**) INQ –**1**] S(PS2) – 4 - 3.8 [PS2 (K-4) INQ+SAE –6] S(PS3) – 4 - 2.1 [PS3 (K-**4**)-INQ+SAE –**7**] S(PS3) – 4 - 1.5 [PS3 (K-**4**) INQ+ SAE –**8**]

Science Process Skills:
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SPS2: Unifying Concepts of Science.

	By the End of Grade 2	By the End of Grade 4 Apply skills from previous grades and…
1. NATURE OF SCIENCE (NOS)	S(SPS2)-2-1.1 People often learn things about things by just observing those things carefully, but sometimes they can learn more by doing something to the things and what happens. S(SPS2)-2-1.2 When a scientific investigation is done the way it was done before, we expect to get a very similar result. S(SPS2)-2-1.3 Sometimes people aren't sure what will happen because they don't know everything that might be having an effect.	S(SPS2)-4-1.1 Sometimes scientists have different explanations for the same set of observations. That usually leads them to make more observations to resolve the differences. S(SPS2)-4-1.2 Results of similar scientific investigations seldom turn out exactly the same, but if the differences are large it's important to try to figure out why. S(SPS2)-4-1.3 Recognize when comparisons might not be fair because some conditions are not kept the same. S(SPS2)-4-1.4 Scientific investigations may take many different forms, including observing what things are like or what is happening somewhere, collecting specimens for analysis, and doing experiments. Investigations can focus on physical, biological, and social questions. S(SPS2)-4-1.5 Scientists' explanations about what happens in the world come partly from what they observe, partly from what they think. TRI-STATE SCIENCE TARGETS: NH CODE [TRI-STATE CODE] S(ESS1) - 4 - 1.4 [ESS1 (K-**4**) NOS –**3**]

Science Process Skills:
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SPS2: Unifying Concepts of Science.		
	By the End of Grade 2	**By the End of Grade 4** Apply skills from previous grades and…
2. SYSTEMS AND ENERGY (SAE) **(includes Systems, Order and Organization)**	S(SPS2)-2-2.1 Most things are made of parts. S(SPS2)-2-2.2 When parts are put together, they can do things that they couldn't do by themselves. S(SPS2)-2-2.3 Something may not work if some of its parts are missing.	S(SPS2)-4-2.1 In something that consists of many parts, the parts usually influence one another. S(SPS2)-4-2.2 Something may not work well (or at all) if a part of it is missing, broken, worn out, mismatched, or misconnected. TRI-STATE SCIENCE TARGETS: NH CODE [TRI-STATE CODE] S(ESS1) – 4 - 5.2 [ESS1 (K-**4**) INQ+SAE –**4**] S(LS1) – 4 - 2.4 [LS1 (K-**4**) SAE -2] S(LS2) – 4 - 2.2 [LS2 (K-**4**) SAE –5] S(LS2) – 4 - 3.2 [LS2 (K-**4**) SAE –**6**] S(LS3) – 4 - 1.3 [LS3 (K-**4**) SAE –**7**] S(PS1) – 4 - 1.2 [PS1 (K-**4**) SAE –**3**] S(PS2) – 4 - 3.6 [PS2 (K-**4**) SAE -**4**] S(PS2) – 4 - 3.7 [PS2 (K-**4**) SAE–**5** S(PS2) – 4 - 3.8 [PS2 (K-**4**)INQ+SAE–**6**] S(PS3) – 4 - 2.1 [PS3(K-**4**) INQ+SAE–**7**] S(PS3) – 4 - 1.5 [PS3(K-**4**) INQ+SAE–**8**]

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SPS2: Unifying Concepts of Science.

	By the End of Grade 2	By the End of Grade 4 Apply skills from previous grades and…
3. MODELS AND SCALE (MAS) **(EVIDENCE, MODELS, MEASUREMENT, AND EXPLANATION)**	S(SPS2)-2-3.1 A model of something is different from the real thing but can be used to learn something about the real thing. S(SPS2)-2-3.2 One way to describe something is to say how it is like something else. S(SPS2)-2-3.3 Things in nature ands things people make have very different sizes, weights, ages and speeds.	S(SPS2)-4-3.1 Seeing how a model works after changes are made to it may suggest how the real thing would work if the same changes were done to it. S(SPS2)-4-3.2 Geometric figures, number sequences, graphs, diagrams, pictures. S(SPS2)-4-3.3 Almost everything has limits on how big or small it can be. TRI-STATE SCIENCE TARGETS: None at this grade span
4. PATTERNS OF CHANGE (POC) **(CONSTANCY, CHANGE, EVOLUTION AND EQUILIBRIUM)**	S(SPS2)-2-4.1 Things change in some ways and stay the same in some ways. S(SPS2)-2-4.2 People can keep track of some things, seeing where they come from and where they go. S(SPS2)-2-4.3 Things can change in different ways, such as in size, weight, color and movement.	S(SPS2)-4-4.1 Some small changes can be detected by taking measurements. S(SPS2)-4-4.2 Some changes are so slow or so fast that they are hard to see. S(SPS2)-4-4.3 Some features of things may stay the same even when other features change. Some patterns look the same when they are shifted over, or turned, or reflected, or seen from different directions. STATE SCIENCE TARGETS: NH CODE [TRI-STATE CODE] S(ESS1) – 4 - 1.3 [ESS1 (K-**4**) POC –**5]** S(LS1) – 4 - 1.2 [LS1(K-**4**)INQ+POC –**1**] S(LS1) – 4 - 3.4 [LS1 (K-**4**) POC –**3**] S(LS4) – 4 - 3.2 [LS4 (K-**4**) POC -**9**] S(PS1) – 4 - 2.4 [PS1 (K-**4**) POC –**2**]

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SPS2: Unifying Concepts of Science		
Topic	**By the End of Grade 2**	**By the End of Grade 4** apply skills from previous grades and…
5. FORM AND FUNCTION (FAF)	S(SPS2)-2-5.1 Identify shape and use of objects. S(SPS2)-2-5.2 Draw and object and the object in use.	S(SPS2)-4-5.1 Discover the relationship between shape and use. S(SPS2)-4-5.2 Explore methods, designs and problems of transporting liquids. TRI-STATE SCIENCE TARGETS: NH CODE [TRI-STATE CODE] S(ESS1) – 4 - 2.3 [ESS1 (K-**4**) FAF -**6**] S(LS1) – 4 - 2.3 [LS1 (K-**4**) FAF –**4**] S(LS4) – 4 - 3.1 [LS4 (K-**4**) FAF -**8**]

Science Process Skills:
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SPS3: Personal, Social, and Technological Perspectives (Includes Design)		
Topic	**By the End of Grade 2**	**By the End of Grade 4** apply skills from previous grades and…
1. COLLABORATION IN SCIENTIFIC ENDEAVORS	S(SPS3)-2-1.1 Work with a partner to accomplish a specific task. S(SPS3)-2-1.2 Take turns. S(SPS3)-2-1.3 Ask questions of others about their work.	S(SPS3)-4-1.1 Given a specific role in a group, is able to complete the assigned task. S(SPS3)-4-1.2 Communicates ideas to others. S(SPS3)-4-1.3 Gives specific feedback about work of others.
2. COMMON ENVIRONMENTAL ISSUES, NATURAL RESOURCES MANAGEMENT AND CONSERVATION	S(SPS3)-2-2.1 Use observation skills to describe the area around their homes and school.	S(SPS3)-4-2.1 Demonstrate a basic conservation action such as recycling or a schoolyard habitat project. S(SPS3)-4-2.2 Develop questions based upon their observations about the natural world and design a simple investigation. S(SPS3)-4-2.3 Develop questions that help them learn about the environment, design and do simple investigations. S(SPS3)-4-2.4 Locate and collect information about the environment and environmental and natural resources topics. S(SPS3)-4-2.5 Use reliable information to answer

Science Process Skills:
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		questions. S(SPS3)-4-2.6 Organize information to search for relationships and patterns concerning the environment and environmental topics. S(SPS3)-4-2.7 Identify and investigate issues in their local environments and communities.

SPS3: Personal, Social, and Technological Perspectives (Includes Design)		
	By the End of Grade 2	**By the End of Grade 4** apply skills from previous grades and…
3. SCIENCE AND TECHNOLOGY; TECHNOLOGICAL DESIGN AND APPLICATION	S(SPS3)-2-3.1 Demonstrate that all tools have a special purpose, some are used: to measure, to help in observations, to make things or to make things better. S(SPS3)-2-3.2 Provide examples that highlight the importance of the planning phase of any project. S(SPS3)-2-3.3 Identify multiple ways to solve a design problem. S(SPS3)-2-3.4 Describe how most things are made up of multiple parts and explain that things may not work if some parts are missing. S(SPS3)-2-3.5 Provide examples of how people throughout history have used legends	S(SPS3)-4-3.1 Describe the design process as a logical progression for transforming ideas into reality. S(SPS3)-4-3.2 Describe how people have designed and used tools throughout history and provide examples of how many of these tools, while improved, are still in use today. S(SPS3)-4-3.3 Provide examples illustrating that throughout history, people of all ages and from all walks of life, have made significant contributions to the fields of science and technology.

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	and stories to explain how the world works.	

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SPS4 Science Skills for Information, Communication and Media Literacy *

From www.21stcenturyskills.org ICT Literacy Map for Science

Topic	By the End of Grade 2	By the End of Grade 4 apply skills from previous grades and…
1. Information and Media Literacy	S(SPS4)-2-1.1 Experience with a variety of media sources. S(SPS4)-2-1.2 Using tools. S(SPS4)-2-1.3 Using age-appropriate sources such as newspapers, books and websites.	S(SPS4)-4-1.1 Access information from a variety of media sources (i.e. Internet, CD-ROM programs, print resources). S(SPS4)-4-1.2 Use appropriate tools to measure and graph data. S(SPS4)-4-1.3 Analyze and compare data from a variety of age-appropriate sources such as newspapers and websites.
2. Communication Skills	S(SPS4)-2-2.1 Communicate ideas and observations through a variety of tools and formats (oral, journal, drawing, projects, multimedia).	S(SPS4)-4-2.1 Use a variety of tools and formats (oral presentations, journals, and multimedia presentations) to summarize and communicate the results of observations.
3. Critical Thinking and Systems Thinking	S(SPS4)-2-3.1 Make observations and tell ideas about real-life issues. S(SPS4)-2-3.2 Use pictures or other means to organize ideas. S(SPS4)-2-3.3 Make a graph to represent data.	S(SPS4)-4-3.1 Apply a variety of age-appropriate strategies to address real-life issues (e.g. identify factors that affect plants in a particular habitat). S(SPS4)-4-3.2 Build a Concept Map (or other graphic organizer) to understand a complex problem. S(SPS4)-4-3.3 Organize observations and data into tables, charts and graphs.

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SPS4 Science Skills for Information, Communication and Media Literacy		
Topic	**By the End of Grade 2**	**By the End of Grade 4** apply skills from previous grades and…
4. Problem Identification, Formulation, and Solution	S(SPS4)-2-4.1 Ask questions and take part in investigations. S(SPS4)-2-4.2 Compile observations (one to one relationship) by making or using simple pictographs, tally charts or simple graphs. S(SPS4)-2-4.3 Look for evidence to support ideas.	S(SPS4)-4-4.1 Ask questions and plan investigations to find answers. S(SPS4)-4-4.2 Compile data gathered through observations to record and present results using tally charts, tables and graphs. S(SPS4)-4-4.3 Use evidence to construct explanations.
5. Creativity and Intellectual Curiosity	S(SPS4)-2-5.1 Use computer software and various technologies as appropriate to display and communicate information and ideas.	S(SPS4)-4-5.1 Use a variety of equipment and software packages to enter, process, display, and/or communicate information in different forms using text, tables, pictures, and sound. (i.e. brainstorming software, collaboration software, telecommunications, presentation software, digital cameras, projectors).
6. Interpersonal and Collaborative Skills	S(SPS4)-2-6.1 Plan and carry out simple activities with a group.	S(SPS4)-4-6.1 Plan and conduct a scientific investigation in group settings. S(SPS4)-4-6.2 Engage in group decision making activities. S(SPS4)-4-6.3 Role-play different point of view on an issue.

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SPS4 Science Skills for Information, Communication and Media Literacy		
Topic	**By the End of Grade 2**	**By the End of Grade 4** apply skills from previous grades and…
7. Self Direction	S(SPS4)-2-7.1 Keep a visual or written journal.	S(SPS4)-4-7.1 Keep a journal record of observations, recognizing patterns, summarizing findings, and reflecting on the observations.
8. Accountability and Adaptability	S(SPS4)-2-8.1 Take part in sharing information with another classroom or school as a group.	S(SPS4)-4-8.1 Establish ongoing communication with students from other communities or countries to share and compare data.
9. Social Responsibility	S(SPS4)-2-9.1 Collaborate, as a group, with another classroom or school.	S(SPS4)-4-9.1 Collaborate with other learners by letter, phone, or online.