

Carolina™ Curriculum Correlation to New Hampshire Curriculum Framework



K-8 Science Literacy

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CAROLINA

World-Class Support for Science & Math

Carolina™ Curriculum Correlation to New Hampshire Curriculum Framework

The following STC PROGRAM™ Units are recommended based on the New Hampshire Science Literacy Framework. Provided for each grade level, are the units that most strongly align with the content objectives. Other STC PROGRAM™ Units may also match objectives within each grade level.

K-2	<p>STC</p> <ul style="list-style-type: none"> • <i>Rocks and Minerals</i> • <i>Soils</i> • <i>Solids and Liquids</i> <p>Building Blocks of Science</p> <ul style="list-style-type: none"> • <i>Sky Watchers</i>
3-4	<p>STC</p> <ul style="list-style-type: none"> • <i>Animal Studies</i> • <i>Electric Circuits</i> • <i>Land and Water</i> <p>GEMS</p> <ul style="list-style-type: none"> • <i>Space Science Sequence</i> • <i>Moons of Jupiter</i>
5-6	<p>STC</p> <ul style="list-style-type: none"> • <i>Ecosystems</i> • <i>Experiments With Plants</i> • <i>Floating and Sinking</i> • <i>Motion and Design</i> • <i>Sound</i>
7-8	<p>STC</p> <ul style="list-style-type: none"> • <i>Catastrophic Events</i> • <i>Earth in Space</i> • <i>Organisms – From Macro to Micro</i> • <i>Properties of Matter</i>

Legend

To save paper, the curriculum location information in this document has been abbreviated as follows:

- Unit abbreviations = noted in parentheses in the chart above
- TG = Teacher’s Guide
- S-Sec3 = Section 3 (containing a section on safety) in the STC® Teacher’s Guide
- L01, L02, etc. = Lesson 1, Lesson 2, etc.
- p, pp = page, pages
- RB = STC BOOK™ (a science reading book included in some of the grades 3–5 STC® unit kits)
- Exts = Extensions (found at the end of most lessons in the Teacher’s Guide)
- App-A, App-B = Appendix A, Appendix B (found at the end of Section 4 in the Teacher’s Guide)

Building Blocks of Science™ is a K-5 supplementary science curriculum that can be used as stand-alone instruction.

Titles include: Sky Watchers, Understanding My Body, Light, Human Bodyworks, Understanding Cells and DNA

GEMS® Space Science is research-based 3-5 science curriculum that teach fundamental concepts in space science.

GEMS Kits® are standards-based PreK-8 math and science supplemental kits. They have been tested for specific grade levels and can be used at lower or higher levels.

SPS1– Scientific Inquiry and Critical Thinking Skills (INQ)		
	By the end of Grade 2, all students will...	By the end of Grade 4, all students will apply skills from previous grades and...
1. MAKING OBSERVATIONS AND ASKING QUESTIONS	<p>S:SPS1:2:1.1 Make observations and explore materials using all of their senses (one sense at a time).</p> <p>Rocks and Minerals TG: Sec4.L06 (pp43-50)</p> <p>Soils TG: L03-5 (pp27-56)</p> <p>Solids and Liquids TG: L05.Exts (pp43-45)</p> <p>S:SPS1:2:1.2 Record observations using language, concrete objects, and symbolic representations.</p> <p>Rocks and Minerals TG: L01-16 (pp3-126)</p> <p>Solids and Liquids TG: L01-16 (pp3-136)</p> <p>S:SPS1:2:1.3 Ask questions about objects, organisms and events in their immediate environment.</p> <p>Rocks and Minerals TG: L01-16 (pp3-126)</p> <p>Soils TG: L17 (pp169-172)</p> <p>Solids and Liquids TG: L01-16 (pp3-136)</p> <p>S:SPS1:2:1.4 Ask questions that lead to exploration and investigation as a result of working with materials and objects.</p> <p>Rocks and Minerals TG: L01-16 (pp3-126)</p> <p>Soils TG: L17 (pp169-172)</p> <p>Solids and Liquids TG: L01-16 (pp3-136)</p> <p>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.</p>	<p>S:SPS1:4:1.1 Extend the senses using simple tools.</p> <p>Animal Studies TG: L02-10 (pp11-114) TG: L12-15 (pp123-164)</p> <p>Electric Circuits TG: L01-17 (pp3-86)</p> <p>Land and Water RB: (pp32-35) TG: L04-16 (pp37-182)</p> <p>S:SPS1:4:1.2 Make and record observations for a given purpose.</p> <p>Animal Studies RB: (pp12-15) RB: (pp38-39) RB: (pp45-49) TG: L04-9 (pp37-106) TG: L10.Exts (p110) TG: L11-12 (pp115-134) TG: L14.Exts (p145)</p> <p>Electric Circuits TG: L01-17 (pp3-86)</p> <p>Land and Water TG: L01-5 (pp3-62) TG: L07 (pp75-84) TG: L09 (pp99-108) TG: L13-14 (pp143-162) TG: L17 (pp182-186)</p> <p>S:SPS1:4:1.3 Differentiate between observations and inferences.</p> <p>Animal Studies TG: L02 (pp11-20) TG: L04-9 (pp37-106) TG: L11-12 (pp115-134) TG: L17 (pp169-172)</p> <p>Electric Circuits TG: L01-17 (pp3-86)</p> <p>Land and Water</p>

	<p>Rocks and Minerals TG: L01-3 (pp3-26) TG: L04.Exts (p32) TG: L07 (pp51-56) TG: L09-10 (pp63-78) TG: L12 (pp85-90) TG: L16.Exts (p117) Solids and Liquids TG: L01-17 (pp3-140)</p>	<p>RB: (pp07-18) RB: (pp21-38) RB: (pp41-61) TG: L01-17 (pp3-186)</p> <p>S:SPS1:4:1.4 Record observations using standard units of measurement.</p> <p>S:SPS1:4:1.5 Classify according to several attributes and describe or show the method for classification.</p> <p>S:SPS1:4:1.6 Compare methods of classifying based on the goal.</p> <p>S:SPS1:4:1.7 Ask questions about objects, organisms and events in their local environment.</p> <p>S:SPS1:4:1.8 Pose questions to investigate and practical problems to solve.</p>
<p>2. DESIGNING SCIENTIFIC INVESTIGATIONS</p>	<p>S:SPS1:2:2.1 Select tools and procedures, in a purposeful way, to explore objects and materials.</p> <p>Rocks and Minerals TG: L01-16 (pp3-126)</p> <p>Soils TG: L01.Exts (p12) TG: L02-3 (pp17-36) TG: L05-8 (pp45-86) TG: L10-15 (pp97-158)</p> <p>Solids and Liquids TG: L11 (pp87-94)</p> <p>S:SPS1:2:2.2 Suggest a plan and describe a sequence of events for conducting an exploration.</p> <p>S:SPS1:2:2.3 Predict how changing one part of an exploration will affect the outcome.</p> <p>Soils TG: L01-2 (pp3-26) TG: L06 (pp57-64) TG: L14 (pp139-148)</p> <p>Solids and Liquids TG: L04 (pp29-40)</p>	<p>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.</p> <p>S:SPS1:4:2.2 Select an activity and justify it as an effective means of collecting appropriate data.</p> <p>Animal Studies RB: (pp12-15) RB: (pp38-39) RB: (pp45-49) TG: L04-9 (pp37-106) TG: L10.Exts (p110) TG: L11 (pp115-122) TG: L12 (pp123-134) TG: L14.Exts (p145)</p> <p>Electric Circuits TG: L01-17 (pp3-86)</p> <p>Land and Water TG: L01-5 (pp3-62) TG: L07 (pp75-84) TG: L09 (pp99-108) TG: L13-14 (pp143-162) TG: L17 (pp182-186)</p>

	<p>TG: L10-13.Exts (pp85-105) TG: L13-14 (pp101-120) TG: L15.Exts (p124) TG: L16 (pp131-136)</p>	
<p>3. CONDUCTING SCIENTIFIC INVESTIGATIONS</p>	<p>S:SPS1:2:3.1 Follow their own plan for conducting an investigation. All STC Units</p> <p>S:SPS1:2:3.2 Follow a simple step-by-step procedure. All STC Units</p>	<p>S:SPS1:4:3.1 Follow a set of procedures. All STC Units</p> <p>S:SPS1:4:3.2 Plan and test ideas through guided experiments. Animal Studies RB: (pp30-32) RB: (pp38-39) RB: (pp53-57) TG: L05.Exts (p58) TG: L10 (pp107-114) Electric Circuits RB: (pp11-12) TG: L02-3 (pp7-20) TG: L05-8 (pp25-48) TG: L11.Exts (p63) TG: L14 (pp73-76) Land and Water TG: L16 (pp173-182)</p> <p>S:SPS1:4:3.3 Identify and use appropriate tools. Animal Studies TG: L02-10 (pp11-114) TG: L12-15 (pp123-164) Electric Circuits TG: L01-17 (pp3-86) Land and Water RB: (pp32-35) TG: L04-16 (pp37-182)</p>

Science Process Skills		
SPS1– Scientific Inquiry and Critical Thinking Skills (INQ)		
	By the end of Grade 2, all students will...	By the end of Grade 4, all students will apply skills from previous grades and...
4. REPRESENTING AND UNDERSTANDING RESULTS OF INVESTIGATIONS	<p>S:SPS1:2:4.1 Represent and interpret information and observations in many ways (such as in tally, pictographs, bar graphs, tables).</p> <p>Rocks and Minerals TG: L03 (pp19-26)</p> <p>Solids and Liquids TG: L01 (pp3-10) TG: L05.Exts (pp43-45) TG: L06.Exts (pp51-52) TG: L10.Exts (p85) TG: L12 (pp95-100) TG: L16.Exts (pp135-136) TG: L17 (pp137-140)</p> <p>S:SPS1:2:4.2 Identify and describe patterns and relationships in observed objects and events.</p> <p>All STC Units</p>	<p>S:SPS1:4:4.1 Compile and display data in a variety of formats.</p> <p>Animal Studies RB: (pp50-52) TG: L02-9 (pp11-106) TG: L11.Exts (p119) TG: L14.Exts (p145) TG: L15 (pp157-164)</p> <p>Electric Circuits RB: (pp07-21) RB: (pp24-44) RB: (pp47-61) TG: L02-16 (pp7-84)</p> <p>Land and Water TG: L01-5 (pp3-62) TG: L07-9 (pp75-108) TG: L12 (pp129-142) TG: L13 (pp143-152) TG: L16 (pp173-182)</p> <p>S:SPS1:4:4.2 Select an appropriate format to represent data or observations.</p> <p>Animal Studies RB: (pp50-52) TG: L02-9 (pp11-106) TG: L11.Exts (p119) TG: L14.Exts (p145) TG: L15 (pp157-164)</p> <p>Electric Circuits RB: (pp07-21) RB: (pp24-44) RB: (pp47-61) TG: L02-16 (pp7-84)</p> <p>Land and Water TG: L01-2 (pp3-28) TG: L04-5 (pp37-62) TG: L07-9 (pp75-108)</p>

		<p>TG: L12-13 (pp129-152) TG: L16 (pp173-182) S:SPS1:4:4.3 Identify and suggest possible explanations for patterns. Animal Studies TG: L11.Exts (p119)</p> <p>S:SPS1:24:4.4 Analyze data and identify discrepancies. All STC Units</p>										
<p>5. EVALUATING SCIENTIFIC EXPLANATIONS</p>	<p><i>None at this level.</i></p>	<p>S:SPS1:4:5.1 Cite evidence or data to support conclusions. Land and Water TG: L05 (pp51-62) TG: L10 (pp109-118) TG: L13-14 (pp143-162) TG: L17 (pp182-186)</p> <p>S:SPS1:4:5.2 Determine if an observation or measurement supports a given scientific explanation. Land and Water TG: L05 (pp51-62) TG: L10 (pp109-118) TG: L13-14 (pp143-162) TG: L17 (pp182-186)</p> <p>S:SPS1:4:5.3 Draw a conclusion to answer an initial question, based on the evidence collected. Land and Water TG: L05 (pp51-62) TG: L10 (pp109-118) TG: L13-14 (pp143-162) TG: L17 (pp182-186)</p>										
<p>NECAP ASSESSMENT TARGETS FOR INQUIRY</p> <p><i>MAY BE SUBJECT OF PERFORMANCE COMPONENT</i></p>		<table border="1" style="width: 100%; text-align: center;"> <tr> <td colspan="2">NECAP ASSESSMENT TARGETS</td> </tr> <tr> <td>S:ESS1:4:2.4</td> <td>S:ESS1:4:5.2</td> </tr> <tr> <td>S:ESS1:4:6.4</td> <td>S:LS1:4:1.2</td> </tr> <tr> <td>S:PS1:4:2.5</td> <td>S:PS2:4:3.8</td> </tr> <tr> <td>S:PS3:4:2.1</td> <td>S:PS3:4:1.5</td> </tr> </table> <p>(For actual text: please see GSE’s for Earth Space, Life, and Physical Science.)</p>	NECAP ASSESSMENT TARGETS		S:ESS1:4:2.4	S:ESS1:4:5.2	S:ESS1:4:6.4	S:LS1:4:1.2	S:PS1:4:2.5	S:PS2:4:3.8	S:PS3:4:2.1	S:PS3:4:1.5
NECAP ASSESSMENT TARGETS												
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S:PS1:4:2.5	S:PS2:4:3.8											
S:PS3:4:2.1	S:PS3:4:1.5											

Science Process Skills		
SPS2– Unifying Concepts of Science		
	By the end of Grade 2, all students will...	By the end of Grade 4, all students will apply skills from previous grades and...
<p>1. NATURE OF SCIENCE (NOS)</p>	<p>S:SPS2:2:1.1 Recognize that information can be obtained merely by careful observation, but sometimes even more data can be collected by conducting scientific investigations. Rocks and Minerals TG: L01-16 (pp3-126) Solids and Liquids TG: L01-16 (pp3-136)</p> <p>S:SPS2:2:1.2 Discover that when a scientific investigation is done the way it was done before, we expect to get a very similar result. All STC Units</p> <p>S:SPS2:2:1.3 Explain that sometimes people aren't sure what will happen because they don't know all the factors that may have an effect on the outcome. All STC Units</p>	<p>S:SPS2:4:1.1 Recognize that sometimes scientists have different explanations for the same set of observations which usually lead them to make more observations to resolve the differences.</p> <p>S:SPS2:4:1.2 Realize that 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.</p> <p>S:SPS2:4:1.3 Know when comparisons might not be fair because some conditions are not kept the same. Land and Water TG: L14.Exts (p156) TG: L15 (pp163-172)</p> <p>S:SPS2:4:1.4 Explain that 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; and that investigations can focus on physical, biological, and social questions. Animal Studies RB: (pp12-15) TG: L01-13 (pp3-142) TG: L17 (pp169-172) Electric Circuits RB: (pp13-16) RB: (pp60-61) TG: L01-17 (pp3-86) Land and Water RB: (pp07-18) RB: (pp21-38) RB: (pp41-61) TG: L01-17 (pp3-186)</p>

		<p>S:SPS2:4:1.5 Realize that scientists’ explanations about what happens in the world come partly from what they observe, and partly from what they think.</p> <p>Animal Studies RB: (pp12-15) RB: (pp26-29) RB: (pp45-49) RB: (pp56-61) TG: L02 (pp11-20) TG: L04-9 (pp37-106) TG: L11-12 (pp115-134) TG: L13.Exts (p138) TG: L16.Exts (p167) TG: L17 (pp169-172)</p>
<p>2. SYSTEMS AND ENERGY (SAE)</p>	<p>S:SPS2:2:2.1 Show how most things are made of parts.</p> <p>S:SPS2:2:2.2 Observe that when parts are put together, they can do things that they couldn’t do by themselves.</p> <p>S:SPS2:2:2.3 Explain that something may not work if some of its parts are missing.</p>	<p>S:SPS2:4:2.1 Demonstrate that if something consists of many parts, the parts usually influence one another.</p> <p>Land and Water TG: L02-3 (pp11-36) TG: L08-12 (pp85-142) TG: L14-15 (pp153-172)</p> <p>S:SPS2:4:2.2 Provide examples that demonstrate that something may not work well (or at all) if a part of it is missing, broken, worn out, mismatched, or misconnected.</p> <p>Land and Water TG: L02-3 (pp11-36) TG: L08-12 (pp85-142) TG: L14-15 (pp153-172)</p>

Science Process Skills		
SPS2– Unifying Concepts of Science		
	By the end of Grade 2, all students will...	By the end of Grade 4, all students will apply skills from previous grades and...
<p>3. MODELS AND SCALE (MAS)</p>	<p>S:SPS2:2:3.1 Describe how a model of something is different from the real thing but can be used to learn something about the real thing.</p> <p>S:SPS2:2:3.2 Explain how one way to describe something is to say how it is like something else.</p> <p style="padding-left: 20px;">Rocks and Minerals TG: L02-16 (pp13-126)</p> <p style="padding-left: 20px;">Soils TG: L02.Exts (p23) TG: L04 (pp37-44) TG: L06-8 (pp57-86) TG: L11 (pp109-114) TG: L13-17 (pp125-172)</p> <p style="padding-left: 20px;">Solids and Liquids TG: L01-17 (pp3-140)</p> <p>S:SPS2:2:3.3 Provide examples to explain that things in nature and things people make have very different sizes, weights, ages and speeds.</p> <p style="padding-left: 20px;">Rocks and Minerals TG: L13 (pp91-94)</p> <p style="padding-left: 20px;">Solids and Liquids TG: L02-17 (pp11-140)</p>	<p>S:SPS2:4:3.1 Know that 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.</p> <p style="padding-left: 20px;">Electric Circuits TG: L02-16 (pp7-84)</p> <p style="padding-left: 20px;">Land and Water TG: L02-4 (pp11-50) TG: L09-12 (pp99-142) TG: L15.Exts (p167) TG: L16 (pp173-182)</p> <p>S:SPS2:4:3.2 Use geometric figures, number sequences, graphs, diagrams, and pictures as scientific models.</p> <p style="padding-left: 20px;">Animal Studies TG: L02-6 (pp11-74) TG: L08-9 (pp87-106) TG: L15 (pp157-164)</p> <p style="padding-left: 20px;">Electric Circuits RB: (pp07-21) RB: (pp24-44) RB: (pp47-61) TG: L02-16 (pp7-84)</p> <p style="padding-left: 20px;">Land and Water TG: L01-5 (pp3-62) TG: L076-9 (pp75-108) TG: L10 (pp109-118) TG: L12-13 (pp129-152) TG: L16 (pp173-182)</p> <p>S:SPS2:4:3.3 Recognize that most everything has limits on how big or small it can be.</p> <p style="padding-left: 20px;">Land and Water TG: L01 (pp3-10)</p>

<p>4. PATTERNS OF CHANGE (POC)</p>	<p>S:SPS2:2:4.1 Discover that things change in some ways and stay the same in some ways.</p> <p>S:SPS2:2:4.2 Understand that people can keep track of some things by seeing where they come from and where they go.</p> <p>Rocks and Minerals TG: L01-16 (pp3-126)</p> <p>Soils TG: L01-16 (pp3-168)</p> <p>Solids and Liquids TG: L01-16 (pp3-136)</p> <p>S:SPS2:2:4.3 Observe that things can change in different ways, such as in size, weight, color and movement.</p> <p>Solids and Liquids TG: L02-4 (pp11-40) TG: L05.Exts (pp43-45) TG: L06.Exts (pp51-52) TG: L09 (pp69-80) TG: L11 (pp87-94) TG: L15 (pp121-130)</p>	<p>S:SPS2:4:4.1 Observe that some small changes can be detected by taking measurements.</p> <p>Animal Studies RB: (pp12-15)</p> <p>Electric Circuits RB: (pp34-38)</p> <p>Land and Water TG: L02-7 (pp11-84) TG: L10-11 (pp109-128) TG: L12-13 (pp129-152)</p> <p>S:SPS2:4:4.2 Understand that some changes are so slow or so fast that they are hard to see.</p> <p>Land and Water TG: L04 (pp37-50) TG: L09 (pp99-108) TG: L12 (pp129-142)</p> <p>S:SPS2:4:4.3 Demonstrate that some features of things may stay the same even when other features change (e.g., some patterns look the same when they are shifted over, turned, reflected, or seen from different directions).</p> <p>Land and Water TG: L04 (pp37-50) TG: L09 (pp99-108) TG: L12 (pp129-142)</p>
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<p>5. FORM AND FUNCTION (FAF)</p>	<p>S:SPS2:2:5.1 Identify shape and use of objects.</p> <p>S:SPS2:2:5.2 Draw an object and the object in use.</p> <p>Rocks and Minerals TG: L06 (pp43-50) TG: L1617 (pp113-128)</p> <p>Soils TG: L01-17 (pp3-172)</p> <p>Solids and Liquids TG: L01.Exts (pp7-8) TG: L03-4 (pp19-40) TG: L05.Exts (pp43-45) TG: L06 (pp47-54) TG: L16 (pp131-136)</p>	<p>S:SPS2:4:5.1 Discover the relationship between shape and use.</p> <p>S:SPS2:4:5.2 Explore methods, designs and problems of transporting liquids.</p>
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Science Process Skills		
SPS3– Personal, Social, and Technological Perspectives		
	By the end of Grade 2, all students will...	By the end of Grade 4, all students will apply skills from previous grades and...
1. COLLABORATION IN SCIENTIFIC ENDEAVORS	<p>S:SPS3:2:1.1 Work with a partner to accomplish a specific task.</p> <p>Rocks and Minerals TG: L01-16 (pp3-126)</p> <p>Soils TG: L01-17 (pp3-172)</p> <p>Solids and Liquids TG: L01-16 (pp3-136)</p> <p>S:SPS3:2:1.2 Take turns.</p> <p>Rocks and Minerals TG: L01-16 (pp3-126)</p> <p>Soils TG: L01-17 (pp3-172)</p> <p>Solids and Liquids TG: L01-16 (pp3-136)</p> <p>S:SPS3:2:1.3 Ask questions of others about their work.</p> <p>Rocks and Minerals TG: L01-16 (pp3-126)</p> <p>Soils TG: L17 (pp169-172)</p> <p>Solids and Liquids TG: L01-16 (pp3-136)</p>	<p>S:SPS3:4:1.1 Be able to complete an assigned task when given a specific role in a group.</p> <p>Animal Studies TG: L01-17 (pp3-172)</p> <p>Electric Circuits TG: L01-17 (pp3-86)</p> <p>Land and Water TG: L01-9 (pp3-108) TG: L11-13 (pp119-152) TG: L15-17 (pp163-186)</p> <p>S:SPS3:4:1.2 Communicate ideas to others.</p> <p>Animal Studies RB: (pp58-61) TG: L17 (pp169-172)</p> <p>Electric Circuits TG: L01-17 (pp3-86)</p> <p>Land and Water TG: L01-5 (pp3-62) TG: L08 (pp85-98) TG: L10-14 (pp109-162) TG: L16-17 (pp173-186)</p> <p>S:SPS3:4:1.3 Give specific feedback about work of others.</p> <p>Animal Studies TG: L01-17 (pp3-172)</p> <p>Electric Circuits TG: L01-17 (pp3-86)</p> <p>Land and Water TG: L01-9 (pp3-108) TG: L11-13 (pp119-152) TG: L15-17 (pp163-186)</p>

<p>2. COMMON ENVIRONMENTAL ISSUES, NATURAL RESOURCES MANAGEMENT AND CONSERVATION</p>	<p>S:SPS3:2:2.1 Use observation skills to describe the area around their homes and school.</p>	<p>S:SPS3:4:2.1 Demonstrate a basic conservation action such as recycling or a schoolyard habitat project. Animal Studies RB: (pp09-15) RB: (pp35-37) RB: (pp40-42) RB: (pp58-61) Land and Water RB: (pp36-38)</p> <p>S:SPS3:4:2.2 Develop questions based upon their observations about the natural world and design a simple investigation. Animal Studies TG: L07 (pp75 - 86) TG: L12 (pp123-134)</p> <p>S:SPS3:4:2.3 Develop questions that help them learn about the environment; and design and conduct simple investigations.</p> <p>S:SPS3:4:2.4 Locate and collect information about the environment and environmental and natural resources topics. Animal Studies TG: L14.Exts (p145) Land and Water TG: L12 (pp129-142) TG: L14-16 (pp153-182)</p> <p>S:SPS3:4:2.5 Use reliable information to answer questions.</p> <p>S:SPS3:4:2.6 Organize information to search for relationships and patterns concerning the environment and environmental topics. Animal Studies TG: L14.Exts (p145)</p> <p>S:SPS3:4:2.7 Identify and investigate issues in their local environments and communities.</p>
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Science Process Skills		
SPS3– Personal, Social, and Technological Perspectives		
	By the end of Grade 2, all students will...	By the end of Grade 4, all students will apply skills from previous grades and...
3. SCIENCE AND TECHNOLOGY, TECHNOLOGICAL DESIGN AND APPLICATION	<p>S:SPS3:2:3.1 Demonstrate that all tools have a special purpose (e.g., to measure, to help in observations, to make things or to make things better).</p> <p>Rocks and Minerals TG: L01-16 (pp3-126)</p> <p>Soils TG: L01.Exts (p12) TG: L02 (pp17-26) TG: L03 (pp27-36) TG: L05-8 (pp45-86) TG: L10-15 (pp97-158)</p> <p>Solids and Liquids TG: L11 (pp87-94)</p> <p>S:SPS3:2:3.2 Provide examples that highlight the importance of the planning phase of any project.</p> <p>Solids and Liquids TG: L06.Exts (pp51-52)</p> <p>S:SPS3:2:3.3 Identify multiple ways to solve a design problem.</p> <p>Rocks and Minerals TG: L14 (pp95-102)</p> <p>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.</p> <p>S:SPS3:2:3.5 Provide examples of how people throughout history have used legends and stories to explain how the world works.</p>	<p>S:SPS3:4:3.1 Describe the design process as a logical progression for transforming ideas into reality.</p> <p>Animal Studies TG: L01.Exts (p6) TG: L03 (pp21-36) TG: L05 (pp49-64) TG: L08 (pp87-96)</p> <p>Electric Circuits TG: L09.Exts (pp51-52) TG: L12 (pp65-68) TG: L13.Exts (p71) TG: L15 (pp77-80) TG: L16.Exts (p83)</p> <p>Land and Water TG: L15 (pp163-172)</p> <p>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.</p> <p>Land and Water RB: (pp32-35)</p> <p>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.</p> <p>Animal Studies RB: (pp50-61)</p> <p>Electric Circuits RB: (pp07-21) RB: (pp50-59)</p> <p>Land and Water RB: (pp07-09) RB: (pp36-38) RB: (pp41-44) RB: (pp57-58)</p>

Science Process Skills		
SPS4– Science Skills for Information, Communication and Media Literacy (from <i>ICT Literacy Map for Science</i>, www.21stcenturyskills.org)		
	By the end of Grade 2, all students will...	By the end of Grade 4, all students will apply skills from previous grades and...
1. INFORMATION AND MEDIA LITERACY	<p>S:SPS4:2:1.1 Have experience with a variety of media sources.</p> <p style="padding-left: 20px;">Soils TG: L04.Exts (p41) TG: L09-11 Exts (pp92-113)</p> <p style="padding-left: 20px;">Solids and Liquids TG: L11 (pp87-94)</p> <p>S:SPS4:2:1.2 Use tools.</p> <p style="padding-left: 20px;">Rocks and Minerals TG: L01-16 (pp3-126)</p> <p style="padding-left: 20px;">Solids and Liquids TG: L11 (pp87-94)</p> <p style="padding-left: 20px;">Soils TG: L01.Exts (p12) TG: L02-3 (pp17-36) TG: L05-8 (pp45-86) TG: L10-15 (pp97-158)</p> <p>S:SPS4:2:1.3 Use age-appropriate sources such as newspapers, books and websites.</p> <p style="padding-left: 20px;">Soils TG: L04.Exts (p41) TG: L09.Exts (p92) TG: L10.Exts (pp102-103) TG: L11.Exts (p113)</p>	<p>S:SPS4:4:1.1 Access information from a variety of media sources (e.g., Internet, CD-ROM programs, print resources).</p> <p style="padding-left: 20px;">Animal Studies TG: L14 (pp143-156)</p> <p style="padding-left: 20px;">Land and Water TG: L02 (pp11-28) TG: L06-7 (pp63-84) TG: L12 (pp129-142) TG: L16 (pp173-182)</p> <p>S:SPS4:4:1.2 Use appropriate tools to measure and graph data.</p> <p style="padding-left: 20px;">Animal Studies RB: (pp12-15) TG: L02-10 (pp11-114) TG: L12-15 (pp123-164)</p> <p style="padding-left: 20px;">Electric Circuits RB: (pp34-38) TG: L01-17 (pp3-86)</p> <p style="padding-left: 20px;">Land and Water RB: (pp32-35) TG: L01-16 (pp3-182)</p> <p>S:SPS4:4:1.3 Analyze and compare data from a variety of age-appropriate sources such as newspapers and websites.</p> <p style="padding-left: 20px;">Animal Studies TG: L14 (pp143-156) TG: L16 (pp165-168)</p> <p style="padding-left: 20px;">Land and Water TG: L02 (pp11-28) TG: L06-8 (pp63-98) TG: L10-12 (pp109-142) TG: L15-16 (pp163-182)</p>

<p>2. COMMUNICATION SKILLS</p>	<p>S:SPS4:2:2.1 Communicate ideas and observations through a variety of tools and formats (e.g., oral, journal, drawing, projects, multimedia).</p> <p>Rocks and Minerals TG: L01-17 (pp3-128)</p> <p>Soils TG: L01-17 (pp3-172)</p> <p>Solids and Liquids TG: L01 (pp3-10) TG: L03-4 (pp19-40) TG: L05.Exts (pp43-45) TG: L06 (pp47-54) TG: L09 (pp69-80) TG: L11.Exts (p92) TG: L15.Exts (p124) TG: L16-17 (pp131-140)</p>	<p>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.</p> <p>Animal Studies RB: (pp58-61) TG: L02.Exts (pp15-16) TG: L13.Exts (p138) TG: L16-17 (pp165-172)</p> <p>Electric Circuits TG: L01-17 (pp3-86)</p> <p>Land and Water TG: L01-5 (pp3-62) TG: L08 (pp85-98) TG: L10-14 (pp109-162) TG: L16-17 (pp173-186)</p>
<p>3. CRITICAL THINKING AND SYSTEMS THINKING</p>	<p>S:SPS4:2:3.1 Make observations and tell ideas about real-life issues.</p> <p>Rocks and Minerals TG: L01-16 (pp3-126)</p> <p>Soils TG: L01-16 (pp3-168)</p> <p>Solids and Liquids TG: L01-16 (pp3-136)</p> <p>S:SPS4:2:3.2 Use pictures or other means to organize ideas.</p> <p>Rocks and Minerals TG: L06 (pp43-50) TG: L16-17 (pp113-128)</p> <p>Soils TG: L01-17 (pp3-172)</p> <p>Solids and Liquids TG: L01.Exts (pp7-8) TG: L03-4 (pp19-40) TG: L05.Exts (pp43-45) TG: L06 (pp47-54) TG: L16 (pp131-136)</p>	<p>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).</p> <p>Electric Circuits RB: (pp17-21) RB: (pp29-38) RB: (pp42-44) TG: L01.Exts (p5)</p> <p>S:SPS4:4:3.2 Build a concept map (or other graphic organizer) to understand a complex problem.</p> <p>Animal Studies RB: (pp50-52) TG: L03.Exts (p32) TG: L04.Exts (pp41-42) TG: L05.Exts (p58) TG: L07.Exts (pp79-80) TG: L08.Exts (p94) TG: L11.Exts (p119) TG: L14.Exts (p145) TG: L15.Exts (pp159-160)</p>

	<p>S:SPS4:2:3.3 Make a graph to represent data.</p> <p>Rocks and Minerals TG: L03 (pp19-26)</p> <p>Solids and Liquids TG: L01 (pp3-10) TG: L05.Exts (pp43-45) TG: L06.Exts (pp51-52) TG: L10.Exts (p85) TG: L12 (pp95-100) TG: L16.Exts (pp135-136) TG: L17 (pp137-140)</p>	<p>Electric Circuits RB: (pp07-21) RB: (pp24-44) RB: (pp47-61) TG: L02.Exts (p13) TG: L03-4- (pp15-24) TG: L05.Exts (p30) TG: L06 (pp33-38) TG: L08-15 (pp45-80)</p> <p>Land and Water TG: L07.Exts (p79) TG: L08-9 (pp85-108) TG: L12.Exts (pp132-133) TG: L16 (pp173-182)</p> <p>S:SPS4:4:3.3 Organize observations and data into tables, charts and graphs.</p> <p>Animal Studies TG: L02-6 (pp11-74) TG: L08-9 (pp87-106) TG: L15 (pp157-164) CT - TG: L05 (pp45-56) CT - TG: L08 (pp79-84) CT - TG: L11 (pp101-106)</p> <p>Electric Circuits TG: L02-16 (pp7-84)</p> <p>Land and Water TG: L01-2 (pp3-28) TG: L04-5 (pp37-62) TG: L07-9 (pp75-108) TG: L12 (pp129-142) TG: L13 (pp143-152)</p>
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<p>4. PROBLEM IDENTIFICATION, FORMULATION, AND SOLUTION</p>	<p>S:SPS4:2:4.1 Ask questions and take part in investigations. Rocks and Minerals TG: L01-16 (pp3-126) Soils TG: L01-16 (pp3-168) Solids and Liquids TG: L02-16 (pp11-136)</p> <p>S:SPS4:2:4.2 Compile observations (one to one relationship) by making or using simple pictographs, tally charts or simple graphs. Rocks and Minerals TG: L03 (pp19-26) Solids and Liquids TG: L01 (pp3-10) TG: L05.Exts (pp43-45) TG: L06.Exts (pp51-52) TG: L10.Exts (p85) TG: L12 (pp95-100) TG: L16.Exts (pp135-136) TG: L17 (pp137-140)</p> <p>S:SPS4:2:4.3 Look for evidence to support ideas. All STC Units</p>	<p>S:SPS4:4:4.1 Ask questions and plan investigations to find answers. Animal Studies TG: L07 (pp75 - 86) TG: L12 (pp123-134) Electric Circuits TG: L01 (pp3-6) TG: L17 (pp85-86)</p> <p>S:SPS4:4:4.2 Compile data gathered through observations to record and present results using tally charts, tables and graphs. Animal Studies TG: L02-6 (pp11-74) TG: L08-9 (pp87-106) TG: L15 (pp157-164) Electric Circuits TG: L02-16 (pp7-84) Land and Water TG: L01-2 (pp3-28) TG: L04-5 (pp37-62) TG: L07-9 (pp75-108) TG: L12-13 (pp129-152)</p> <p>S:SPS4:4:4.3 Use evidence to construct explanations. Animal Studies TG: L11.Exts (p119) Electric Circuits TG: L17 (pp85-86) Land and Water RB: (pp07-09) TG: L01-4 (pp3-50) TG: L05.Exts (p56) TG: L07.Exts (p79) TG: L09 (pp99-108) TG: L13 (pp143-152) TG: L17 (pp182-186)</p>
<p>5. CREATIVITY AND INTELLECTUAL CURIOSITY</p>	<p>S:SPS4:2:5.1 Use computer software and various technologies as appropriate to display and communicate information and ideas.</p>	<p>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 (e.g., brainstorming software, collaboration software, telecommunications, presentation software, digital cameras, projectors).</p>

Science Process Skills		
SPS4– Science Skills for Information, Communication and Media Literacy (from <i>ICT Literacy Map for Science</i>, www.21stcenturyskills.org)		
	By the end of Grade 2, all students will...	By the end of Grade 4, all students will apply skills from previous grades and...
6. INTERPERSONAL AND COLLABORATIVE SKILLS	<p>S:SPS4:2:6.1 Plan and carry out simple activities with a group.</p> <p>Rocks and Minerals TG: L01-16 (pp3-126)</p> <p>Soils TG: L01-17 (pp3-172)</p> <p>Solids and Liquids TG: L01-16 (pp3-136)</p>	<p>S:SPS4:4:6.1 Plan and conduct a scientific investigation in group settings.</p> <p>S:SPS4:4:6.2 Engage in group decision making activities.</p> <p>Animal Studies TG: L01-17 (pp3-172)</p> <p>Electric Circuits TG: L01-17 (pp3-86)</p> <p>Land and Water TG: L01-9 (pp3-108) TG: L11-13 (pp119-152) TG: L15-17 (pp163-186)</p> <p>S:SPS4:4:6.3 Role-play different points of view on an issue.</p> <p>Animal Studies RB: (pp58-61) TG: L02.Exts (pp15-16) TG: L13.Exts (p138) TG: L16-17 (pp165-172)</p> <p>Electric Circuits TG: L01-17 (pp3-86)</p> <p>Land and Water TG: L01-17 (pp3-186)</p>
7. SELF DIRECTION	<p>S:SPS4:2:7.1 Keep a visual or written journal.</p> <p>Rocks and Minerals TG: L01-16 (pp3-126)</p> <p>Solids and Liquids TG: L01 (pp3-10) TG: L15.Exts (p124)</p>	<p>S:SPS4:4:7.1 Keep a journal record of observations, recognizing patterns, summarizing findings, and reflecting on the observations.</p>

<p>8. ACCOUNTABILITY AND ADAPTABILITY</p>	<p>S:SPS4:2:8.1 Take part in sharing information with another classroom or school as a group.</p> <p>Rocks and Minerals TG: L15 (pp103-112) Soils TG: L01-17 (pp3-172)</p> <p>Solids and Liquids TG: L01 (pp3-10) TG: L09 (pp69-80) TG: L11.Exts (p92) TG: L17 (pp137-140)</p>	<p>S:SPS4:4:8.1 Establish ongoing communication with students from other communities or countries to share and compare data.</p> <p>Animal Studies RB: (pp58-61) TG: L17 (pp169-172)</p> <p>Electric Circuits TG: L01-17 (pp3-86)</p> <p>Land and Water TG: L01-5 (pp3-62) TG: L08 (pp85-98) TG: L10-14 (pp109-162) TG: L16-17 (pp173-186)</p>
<p>9. SOCIAL RESPONSIBILITY</p>	<p>S:SPS4:2:9.1 Collaborate, as a group, with another classroom or school.</p> <p>Rocks and Minerals TG: L01-16 (pp3-126) Soils TG: L01-17 (pp3-172)</p> <p>Solids and Liquids TG: L01-16 (pp3-136)</p>	<p>S:SPS4:4:9.1 Collaborate with other learners by letter, phone, or online.</p> <p>Animal Studies TG: L01-17 (pp3-172)</p> <p>Electric Circuits TG: L01-17 (pp3-86)</p> <p>Land and Water TG: L01-9 (pp3-108) TG: L11-13 (pp119-152) TG: L15-17 (pp163-186)</p>

Science Process Skills		
SPS1– Scientific Inquiry and Critical Thinking Skills (INQ)		
	By the end of Grade 6, all students will apply skills from previous grades and...	By the end of Grade 8, all students will apply skills from previous grades and...
1. MAKING OBSERVATIONS AND ASKING QUESTIONS	<p>S:SPS1:6:1.1 Make observations and record measurements using a variety of tools and instruments.</p> <p style="padding-left: 20px;">Experiments With Plants TG: L01-16 (pp9-128)</p> <p style="padding-left: 20px;">Ecosystems RB: (pp43-44) TG: L01-17 (pp3-171)</p> <p style="padding-left: 20px;">Floating and Sinking TG: L01-17 (pp3-136)</p> <p style="padding-left: 20px;">Motion and Design TG: L01-17 (pp1-156)</p> <p>S:SPS1:6:1.2 Plan observations based on a given purpose.</p> <p style="padding-left: 20px;">Experiments With Plants TG: L01-16 (pp9-128)</p> <p style="padding-left: 20px;">Ecosystems RB: (pp43-44) TG: L01-17 (pp3-171)</p> <p style="padding-left: 20px;">Floating and Sinking TG: L01-17 (pp3-136)</p> <p style="padding-left: 20px;">Motion and Design TG: L01-17 (pp1-156)</p> <p>S:SPS1:6:1.3 Identify and investigate similarities and differences among observations and sets of observations.</p> <p style="padding-left: 20px;">Experiments With Plants TG: L16 (pp123-128)</p> <p style="padding-left: 20px;">Ecosystems TG: L04 (pp39-52) TG: L07 (pp75-82) TG: L08 (pp83-94) TG: L13 (pp125-132) TG: L16 (pp165-168) TG: L17 (pp169-171)</p> <p style="padding-left: 20px;">Floating and Sinking TG: L03 (pp21-30)</p>	<p>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).</p> <p style="padding-left: 20px;">Catastrophic Events SG: L03-4 (pp26-53) SG: L11-12 (pp120-153) SG: L14 (pp164-169) SG: L16 (pp190-193) SG: L22-23 (pp240-263) TG: L03-4 (pp27-56) TG: L11-12 (pp149-176) TG: L14 (pp187-196) TG: L16 (pp219-232) TG: L22-23 (pp303-328) TG: L24.Exts (pp337-338)</p> <p style="padding-left: 20px;">Earth in Space SG: L01-22 (pp2-343) TG: L01-22 (pp3-326)</p> <p style="padding-left: 20px;">Organisms-From Macro to Micro SG: L02-20 (pp12-243) TG: L02-20 (pp15-350)</p> <p style="padding-left: 20px;">Properties of Matter SG: L01-26 (pp2-235) TG: L01-9 (pp3-112) TG: L11-26 (pp125-332)</p> <p>S:SPS1:8:1.2 Determine the degree of accuracy that can be obtained using a given instrument.</p> <p style="padding-left: 20px;">Properties of Matter SG: L04 (pp30-37) SG: L13 (pp112-115) SG: L26 (pp230-235) TG: L04 (pp39-48) TG: L13 (pp143-152) TG: L26 (pp313-332)</p>

	<p>TG: L06.Exts (p52) TG: L16 (pp129-134)</p> <p>S:SPS1:6:1.4 Use appropriate units and precision of metric measurement when recording data.</p> <p>S:SPS1:6:1.5 Use a classification key, such as a dichotomous key, to identify and distinguish among members of a group or set.</p> <p>Experiments With Plants RB: (pp07-10) RB: (pp54-56) Floating and Sinking RB: (pp24-26) TG: L03 (pp21-30)</p> <p>S:SPS1:6:1.6 Construct a simple classification key.</p> <p>Experiments With Plants RB: (pp07-10) RB: (pp54-56) Floating and Sinking RB: (pp24-26) TG: L03 (pp21-30)</p> <p>S:SPS1:6:1.7 Compare methods of classification for a specific purpose.</p> <p>Floating and Sinking RB: (pp24-26) TG: L03 (pp21-30)</p> <p>S:SPS1:6:1.8 Ask questions about relationships between and among observations.</p> <p>Experiments With Plants RB: (pp57-59) RB: (pp62) TG: L09-10 (pp75-84) TG: L13 (pp101-104) TG: L15 (pp115-122) Ecosystems TG: L13-14 (pp125-144)</p>	<p>S:SPS1:8:1.3 Investigate similarities and differences noted when making observations.</p> <p>Catastrophic Events SG: L01-25 (pp2-282) TG: L01-25 (pp3-372) Earth in Space SG: L01-23 (pp2-343) TG: L01-22 (pp3-326) Organisms-From Macro to Micro TG: L03.Exts (p41) TG: L06.Exts (pp89-91) TG: L12.Exts (p207) Properties of Matter SG: L11 (pp98-105) SG: L21 (pp186-197) TG: L08.Exts (p96) TG: L11 (pp125-134) TG: L21 (pp241-260)</p> <p>S:SPS1:8:1.4 Construct and use a dichotomous key to classify a given set of objects or organisms.</p> <p>Catastrophic Events SG: L21 (pp232-239) SG: L23 (pp252-263) TG: L21 (pp293-302) TG: L23 (pp217-328) Earth in Space TG: L12 (pp181-196) Organisms-From Macro to Micro SG: L01 (pp2-11) SG: L20 (pp236-243) TG: L01 (pp3-14) TG: L20 (pp331-350) Properties of Matter SG: L11-12 (pp98-111) SG: L21-22 (pp186-207) TG: L11-12 (pp125-142) TG: L21-22 (pp241-274)</p>
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Science Process Skills		
SPS1– Scientific Inquiry and Critical Thinking Skills (INQ)		
	By the end of Grade 6, all students will apply skills from previous grades and...	By the end of Grade 8, all students will apply skills from previous grades and...
2. DESIGNING SCIENTIFIC INVESTIGATIONS	<p>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. Experiments With Plants TG: L01-16 (pp9-128)</p> <p>S:SPS1:6:2.2 Identify and utilize appropriate tools/technology for collecting data in designing investigations. Experiments With Plants TG: L02 (pp21-30) TG: L06 (pp57-64) Ecosystems TG: L02 (pp13-24) Floating and Sinking TG: L0-171 (pp3-136) Motion and Design TG: L02-3 (pp15-34) TG: L06 (pp57-64) TG: L08-9 (pp73-90) TG: L11-14 (pp101-138) TG: L16 (pp145-152)</p> <p>S:SPS1:6:2.3 Incorporate components of good experimental design, such as controls and multiple trials, into investigations. Experiments With Plants</p>	<p>S:SPS1:8:2.1 Identify the manipulated, responding and controlled variables in an experiment.</p> <p>S:SPS1:8:2.2 Design a controlled experiment, identifying and controlling the major variables. Organisms-From Macro to Micro SG: L15 (pp180-187) TG: L15 (pp253-266) Properties of Matter SG: L13 (pp112-115) SG: L15-16 (pp122-139) SG: L23-24 (pp208-223) TG: L13 (pp143-152) TG: L15-16 (pp161-178) TG: L23-24 (pp275-302)</p> <p>S:SPS1:8:2.3 Identify flaws or omissions in the design of simple experiments.</p>

	<p>TG: L12 (pp91-100) TG: L14.Exts (pp109-110) Floating and Sinking TG: L05 (pp39-48)</p>	
<p>3. CONDUCTING SCIENTIFIC INVESTIGATIONS</p>	<p>S:SPS1:6:3.1 Carry out simple student or teacher-developed procedures or experiments. Experiments With Plants RB: (pp14-17) RB: (pp36-40) RB: (pp54-56) TG: L01-16 (pp9-128) Ecosystems RB: (pp43-44) TG: L02-17 (pp13-171) Floating and Sinking RB: (pp60-61) TG: L01-17 (pp3-136) Motion and Design RB: (pp23-28) TG: L01 (pp1-14) TG: L03-15 (pp25-144) TG: L17 (pp153-156)</p> <p>S:SPS1:6:3.2 Use appropriate tools to collect and record data. Experiments With Plants TG: L02 (pp21-30) TG: L06 (pp57-64) Ecosystems TG: L02 (pp13-24) Floating and Sinking TG: L0-171 (pp3-136) Motion and Design TG: L02-3 (pp15-34) TG: L06 (pp57-64) TG: L08-9 (pp73-90) TG: L11-14 (6pp101-138) TG: L16 (pp145-152)</p>	<p>S:SPS1:8:3.1 Use appropriate laboratory techniques to carry out student- or teacher-developed procedures or experiments. Properties of Matter SG: L17 (pp140-149) TG: L17 (pp179-192)</p> <p>S:SPS1:8:3.2 Use appropriate tools to gather data as part of an investigation (e.g., ruler, meter stick, thermometer, spring scale, graduated cylinder, calipers, balance, probes, microscopes). Catastrophic Events SG: L12 (pp134-153) SG: L14 (pp164-169) SG: L16 (pp190-193) SG: L22-23 (pp240-263) TG: L12 (pp163-176) TG: L14 (pp187-196) TG: L16 (pp219-232) TG: L22-23 (pp303-328) Earth in Space SG: L01-22 (pp2-343) TG: L01-22 (pp3-326) Organisms-From Macro to Micro SG: L02-20 (pp12-243) TG: L02-20 (pp15-350) Properties of Matter SG: L01-9 (pp2-83) SG: L11-26 (pp98-235) TG: L01-9 (pp3-112) TG: L11-26 (pp125-332)</p>

	<p>S:SPS1:6:3.3 Follow the teacher’s instructions in performing experiments, following all appropriate safety rules and procedures.</p> <p>Experiments With Plants RB: (pp14-17) RB: (pp36-40) RB: (pp54-56) TG: L0-161 (pp9-128)</p> <p>Ecosystems RB: (pp43-44) TG: L02-17 (pp13-171) TG: S-Sec3 (pp34-44)</p> <p>Floating and Sinking RB: (pp60-61) TG: L0-17 (pp3-136) TG: S-Sec3 (pp10-15)</p> <p>Motion and Design RB: (pp23-28) TG: L01-17 (pp1-156) TG: S-Sec3 (pp8-11)</p>	<p>S:SPS1:8:3.3 Follow the teacher’s instructions in performing experiments, following all appropriate safety rules and procedures.</p> <p>Catastrophic Events SG: L01-25 (pp2-282) TG: (pp xxxiii - xxxv) TG: L01-25 (pp3-372)</p> <p>Earth in Space SG: L02-22 (pp12-343) TG: (pp xxxiv - xxxvi) TG: L01-22 (pp3-326)</p> <p>Organisms-From Macro to Micro SG: L02-20 (pp12-243) TG: (pp xxxiv-xxxv) TG: L02-20 (pp15-350)</p> <p>Properties of Matter SG: L01-9 (pp2-83) SG: L11-26 (pp98-235) TG: (pp xxxi - xxxiii) TG: L01-9 (pp3-112) TG: L11-26 (pp125-332)</p>
<p>4. REPRESENTING AND UNDERSTANDING RESULTS OF INVESTIGATIONS</p>	<p>S:SPS1:6:4.1 Use appropriate tools to organize, represent, analyze and explain data.</p> <p>Experiments With Plants TG: L02 (pp21-30) TG: L06 (pp57-64)</p> <p>Ecosystems TG: L02 (pp13-24)</p> <p>Floating and Sinking TG: L0-17 (pp3-136)</p> <p>Motion and Design TG: L02-3 (pp15-34) TG: L06 (pp57-64) TG: L08-9 (pp73-90) TG: L11-14 (pp101-138) TG: L16 (pp145-152)</p>	<p>S:SPS1:8:4.1 Use appropriate tools (including computer hardware and software) to collect, organize, represent, analyze and explain data.</p> <p>Catastrophic Events SG: L03-4 (pp26-53) SG: L11-12 (pp120-153) SG: L14 (pp164-169) SG: L16 (pp190-193) SG: L22-23 (pp240-263) TG: L03-4 (pp27-56) TG: L09.Exts (p132) TG: L11-12 (pp149-176) TG: L13.Exts (p182) TG: L14 (pp187-196) TG: L16 (pp219-232) TG: L18.Exts (pp262-263) TG: L21.Exts (p299) TG: L22-23 (pp303-328)</p>

	<p>S:SPS1:6:4.2 Make and record observations using a pre-determined format.</p> <p>Experiments With Plants TG: L03 (pp31-38) TG: L06 (pp57-64) TG: L08 (pp71-74) TG: L12 (pp91-100)</p> <p>Ecosystems TG: L02-4 (pp13-52) TG: L06 (pp61-74) TG: L09-12 (pp95-124) TG: L14 (pp133-144) TG: L16.Exts (p167)</p> <p>Floating and Sinking TG: L0-17 (pp3-136)</p> <p>Motion and Design TG: L03-5 (pp25-56) TG: L07 (pp65-72) TG: L14 (pp125-138)</p> <p>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).</p> <p>Experiments With Plants RB: (pp07-10) RB: (pp30-33) RB: (pp50-53) RB: (pp57-59) TG: L01-14 (pp9-114) TG: L15.Exts (p117) TG: L16 (pp123-128)</p> <p>Ecosystems TG: L02-12 (pp13-124) TG: L14 (pp133-144)</p> <p>Floating and Sinking TG: L0-31 (pp3-30) TG: L05-7 (pp39-60) TG: L1-121 (pp87-102) TG: L14 (pp113-118) TG: L17 (pp135-136)</p>	<p>TG: L24.Exts (pp337-338)</p> <p>Earth in Space SG: L01-22 (pp2-343) TG: L01-22 (pp3-326)</p> <p>Organisms-From Macro to Micro SG: L02-20 (pp12-243) TG: L02-20 (pp15-350)</p> <p>Properties of Matter SG: L01-9 (pp2-83) SG: L11-26 (pp98-235) TG: L01-26 (pp3-332)</p> <p>S:SPS1:8:4.2 Identify sources of error in experiments.</p> <p>S:SPS1:8:4.3 Draw appropriate conclusions regarding the scientific question under investigation, based on the data collected.</p> <p>Catastrophic Events SG: L04 (pp42-53) SG: L06 (pp68-79) SG: L08 (pp96-101) SG: L12 (pp134-153) SG: L22-25 (pp240-282) TG: L04 (pp45-56) TG: L06 (pp69-82) TG: L08 (pp103-126) TG: L12 (pp163-176) TG: L22-25 (pp303-372)</p> <p>Earth in Space SG: L04 (pp42-61) SG: L09 (pp122-127) SG: L14 (pp200-215) SG: L16 (pp244-265) SG: L22 (pp340-343) TG: L04 (pp37-52) TG: L09 (pp121-146) TG: L14 (pp209-220) TG: L16 (pp245-268) TG: L22 (pp311-326)</p> <p>Properties of Matter</p>
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	<p>Motion and Design TG: L02 (pp15-24) TG: L04 (pp35-46) TG: L14-16 (pp125-152)</p> <p>S:SPS1:6:4.4 Identify patterns and relationships in data and formulate basic explanations.</p> <p>Experiments With Plants RB: (pp57-59) RB: (pp62) TG: L09-10 (pp75-84) TG: L13 (pp101-104) TG: L15 (pp115-122)</p> <p>Ecosystems TG: L13-14 (pp125-144)</p> <p>Floating and Sinking TG: L03 (pp21-30) TG: L09-14 (pp69-118) TG: L16 (pp129-134)</p> <p>Motion and Design TG: L04-5 (pp35-56) TG: L07 (pp65-72) TG: L10 (pp91-100) TG: L12 (pp109-116) TG: L15-16 (pp139-152)</p> <p>S:SPS1:6:4.5 Draw appropriate conclusions based on data collected.</p> <p>Experiments With Plants TG: L10-11 (pp81-90) TG: L13 (pp101-104) TG: L15 (pp115-122)</p> <p>Ecosystems TG: L13-14 (pp125-144)</p> <p>Floating and Sinking TG: L17 (pp135-136)</p> <p>Motion and Design TG: L03 (pp25-34)</p>	<p>SG: L16 (pp130-139) TG: L16 (pp169-178)</p>
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Science Process Skills		
SPS1– Scientific Inquiry and Critical Thinking Skills (INQ)		
	By the end of Grade 6, all students will apply skills from previous grades and...	By the end of Grade 8, all students will apply skills from previous grades and...
5. EVALUATING SCIENTIFIC EXPLANATIONS	<p>S:SPS1:6:5.1 Determine if the results of an experiment support or fail to support the scientific idea tested.</p> <p>Experiments With Plants RB: (pp57-59) RB: (pp62) TG: L09-10 (pp75-84) TG: L15 (pp115-122)</p> <p>Ecosystems TG: L05 (pp53-60)</p> <p>Floating and Sinking TG: L09 (pp69-78) TG: L10.Exts (p82) TG: L12-14 (pp95-118) TG: L16 (pp129-134)</p> <p>S:SPS1:6:5.2 Explain how a hypothesis is a direct extension of a scientific idea and therefore makes that idea “testable.”</p> <p>Experiments With Plants TG: L12 (pp91-100)</p>	<p>S:SPS1:8:5.1 Determine if the results of an experiment support or refute the scientific idea tested.</p> <p>Organisms-From Macro to Micro SG: L15 (pp180-187) TG: L15 (pp253-266)</p> <p>Properties of Matter SG: L03 (pp24-29) TG: L03 (pp27-38)</p> <p>S:SPS1:8:5.2 Evaluate whether the information and data collected allows an evaluation of the scientific idea under investigation.</p> <p>S:SPS1:8:5.3 Determine what additional information would be helpful in answering the scientific question.</p> <p>Catastrophic Events SG: L03 (pp26-41) SG: L06 (pp68-79) SG: L08 (pp96-101) SG: L12-13 (pp134-163) SG: L15 (pp170-189) SG: L17 (pp194-197) SG: L25 (pp274-282) TG: L01.Exts (pp10-11) TG: L03 (pp27-44) TG: L06 (pp69-82) TG: L08 (pp103-126) TG: L12-13 (pp163-186) TG: L15 (pp197-218) TG: L17 (pp233-256) TG: L25 (pp347-372)</p> <p>Earth in Space SG: L03 (pp22-41) SG: L07-9 (pp88-127) SG: L14 (pp200-215) SG: L16 (pp244-265)</p>

		<p>SG: L22 (pp340-343) TG: L03 (pp21-36) TG: L07-9 (pp83-146) TG: L14 (pp209-220) TG: L16 (pp245-268) TG: L22 (pp311-326) Properties of Matter SG: L03-4 (pp24-37) SG: L08-9 (pp74-83) SG: L13-14 (pp112-121) SG: L17 (pp140-149) SG: L19 (pp162-167) SG: L23-24 (pp208-2237) SG: L26 (pp230-235) TG: L03-4 (pp27-48) TG: L08-9 (pp91-112) TG: L13-14 (pp143-160) TG: L17 (pp179-192) TG: L19 (pp209-226) TG: L23-24 (pp275-302) TG: L26 (pp313-332)</p>														
<p>NECAP ASSESSMENT TARGETS FOR INQUIRY</p> <p><i>MAY BE SUBJECT OF PERFORMANCE COMPONENT</i></p>		<table border="1"> <tr> <th colspan="2">NECAP ASSESSMENT TARGETS</th> </tr> <tr> <td>S:ESS1:8:2.2</td> <td>S:ESS1:8:6.4</td> </tr> <tr> <td>S:LS1:8:2.5</td> <td>S:LS2:8:1.3</td> </tr> <tr> <td>S:LS4:8:2.4</td> <td>S:LS1:8:3.7</td> </tr> <tr> <td>S:LS4:8:3.4</td> <td>S:PS1:8:2.4</td> </tr> <tr> <td>S:PS1:8:2.5</td> <td>S:PS1:8:1.6</td> </tr> <tr> <td>S:PS2:8:3.6</td> <td>S:PS3:8:1.3</td> </tr> </table> <p>(For actual text: please see GSE's for Earth Space, Life, and Physical Science.)</p>	NECAP ASSESSMENT TARGETS		S:ESS1:8:2.2	S:ESS1:8:6.4	S:LS1:8:2.5	S:LS2:8:1.3	S:LS4:8:2.4	S:LS1:8:3.7	S:LS4:8:3.4	S:PS1:8:2.4	S:PS1:8:2.5	S:PS1:8:1.6	S:PS2:8:3.6	S:PS3:8:1.3
NECAP ASSESSMENT TARGETS																
S:ESS1:8:2.2	S:ESS1:8:6.4															
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S:LS4:8:2.4	S:LS1:8:3.7															
S:LS4:8:3.4	S:PS1:8:2.4															
S:PS1:8:2.5	S:PS1:8:1.6															
S:PS2:8:3.6	S:PS3:8:1.3															

Science Process Skills		
SPS2– Unifying Concepts of Science		
	By the end of Grade 6, all students will apply skills from previous grades and...	By the end of Grade 8, all students will apply skills from previous grades and...
1. NATURE OF SCIENCE (NOS)	<p>S:SPS2:6:1.1 Explain that scientists do not pay much attention to claims about how something works unless they are backed up with evidence that can be confirmed with a logical argument.</p> <p style="text-align: center;">Experiments With Plants RB: (pp57-59) RB: (pp62) TG: L09-10 (pp75-84) TG: L15 (pp115-122)</p> <p style="text-align: center;">Ecosystems TG: L05 (pp53-60)</p> <p style="text-align: center;">Floating and Sinking TG: L09 (pp69-78) TG: L10.Exts (p82) TG: L12 (pp95-102) TG: L13-14 (pp103-118) TG: L16 (pp129-134)</p> <p>S:SPS2:6:1.2 Describe how results of similar and repeated investigations may vary and suggest possible explanations for variations.</p> <p style="text-align: center;">Experiments With Plants TG: L14.Exts (pp109-110)</p> <p style="text-align: center;">Floating and Sinking TG: L05 (pp39-48)</p> <p>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.</p>	<p>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.</p> <p>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.</p> <p style="text-align: center;">Catastrophic Events SG: L12-13 (pp134-163) SG: L15 (pp170-189) SG: L17 (pp194-197) SG: L25 (pp274-282) TG: L06.Exts (pp77-78) TG: L12-13 (pp163-186) TG: L15 (pp197-218) TG: L17 (pp233-256) TG: L25 (pp347-372)</p> <p style="text-align: center;">Earth in Space SG: L03 (pp22-41) SG: L22 (pp340-343) TG: L03 (pp21-36) TG: L22 (pp311-326)</p> <p style="text-align: center;">Properties of Matter SG: L03-4 (pp24-37) SG: L08-9 (pp74-83) SG: L13-14 (pp112-121) SG: L17 (pp140-149) SG: L19 (pp162-167) SG: L23-24 (pp208-2237) SG: L26 (pp230-235) TG: L03-4 (pp27-48) TG: L08-9 (pp91-112) TG: L13-14 (pp143-160)</p>

	<p>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 may not be clearly attributable to any one of the variables.</p> <p>Experiments With Plants TG: L01-5 (pp9-56) TG: L12 (pp91-100) TG: L14 (pp105-114)</p>	<p>TG: L17 (pp179-192) TG: L19 (pp209-226) TG: L23-24 (pp275-302) TG: L26 (pp313-332)</p> <p>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.</p> <p>Properties of Matter TG: L01.Exts (p9)</p> <p>S:SPS2:8:1.4 Provide examples that show how some scientific knowledge is very old and yet is still applicable today.</p> <p>Catastrophic Events SG: L18 (pp200-209) TG: L18 (pp257-264)</p> <p>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.</p> <p>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.</p>
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Science Process Skills		
SPS2– Unifying Concepts of Science		
	By the end of Grade 6, all students will apply skills from previous grades and...	By the end of Grade 8, all students will apply skills from previous grades and...
2. SYSTEMS AND ENERGY (SAE)	<p>S:SPS2:6:2.1 Recognize that thinking about things as systems means looking for how every part relates to others.</p> <p>Experiments With Plants TG: L04 (pp39-50)</p> <p>Ecosystems TG: L02-7 (pp13-82)</p> <p>S:SPS2:6:2.2 Discover that collections of pieces (e.g., powders, marbles, sugar cubes or wooden blocks) may have properties that the individual pieces do not.</p> <p>Experiments With Plants TG: L12.Exts (p95)</p> <p>Ecosystems TG: L03.Exts (p29) TG: L06.Exts (pp64-65)</p> <p>Floating and Sinking TG: L02 (pp13-20) TG: L06-9 (pp49-78) TG: L14-16 (pp113-134)</p> <p>S:SPS2:6:2.3 Estimate or predict the effect that making a change in one part of the system will have on other parts, and on the system as a whole.</p> <p>Experiments With Plants TG: L04 (pp39-50)</p> <p>Ecosystems TG: L02-7 (pp13-82)</p> <p>S:SPS2:6:2.4 Compare a variety of forms of energy, including heat, light, sound, mechanical, electrical, and chemical energy.</p> <p>Motion and Design TG: L06 (pp57-64) TG: L11 (pp101-108) TG: L12 (pp109-116)</p>	<p>S:SPS2:8:2.1 Understand that any system is usually connected to other systems, both internally and externally; thus a system may be thought of as containing subsystems and as being a subsystem of a larger system.</p> <p>Earth in Space TG: L06.Exts (p81)</p> <p>Properties of Matter TG: L25.Exts (pp307-308)</p> <p>S:SPS2:8:2.2 Analyze how the output of one part of a system, which can include materials, energy or information, can become the input to other parts.</p> <p>Earth in Space TG: L06.Exts (p81)</p> <p>Properties of Matter TG: L25.Exts (pp307-308)</p> <p>S:SPS2:8:2.3 Realize that as the complexity of any system increases, gaining an understanding of it depends increasingly on summaries (such as averages and ranges) and on descriptions of typical examples of that system.</p> <p>Earth in Space TG: L06.Exts (p81)</p> <p>Properties of Matter TG: L25.Exts (pp307-308)</p> <p>S:SPS2:8:2.4 Explain that when energy is transformed or converted from one type to another, there is no net loss of energy.</p> <p>S:SPS2:8:2.5 Describe how objects and substances can store energy (e.g., a battery, food, gasoline).</p> <p>Earth in Space TG: L07.Exts (pp92-93)</p>

	<p>S:SPS2:6:2.5 Demonstrate how energy can be transformed from one form to another (e.g., from electrical energy to heat, light or mechanical energy).</p> <p>Motion and Design TG: L06-7 (pp57-72) TG: L12 (pp109-116) TG: L15 (pp139-144)</p>	
Science Process Skills		
SPS2– Unifying Concepts of Science		
	By the end of Grade 6, all students will apply skills from previous grades and...	By the end of Grade 8, all students will apply skills from previous grades and...
<p>3. MODELS AND SCALE (MAS)</p>	<p>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.</p> <p>Experiments With Plants TG: L06.Exts (p62)</p> <p>Ecosystems TG: L02-7 (pp13-82) TG: L10 (pp99-110) TG: L13 (pp125-132)</p> <p>Floating and Sinking TG: L06 (pp49-54)</p> <p>S:SPS2:6:3.2 Analyze how finding out the biggest and smallest values of something are often as revealing as knowing what the usual value is.</p>	<p>S:SPS2:8:3.1 Demonstrate how mathematical models can be displayed on a computer and then modified to see what happens.</p> <p>Catastrophic Events SG: L02 (pp12-25) SG: L06 (pp68-79) SG: L11-12 (pp120-153) SG: L14 (pp164-169) SG: L15-17 (pp170-197) SG: L19-20 (pp210-231) SG: L24-25 (pp264-282) TG: L02 (pp17-26) TG: L04.Exts (p54) TG: L06 (pp69-82) TG: L09.Exts (p132) TG: L11-12 (pp149-176) TG: L13.Exts (p182) TG: L14-17 (pp187-256) TG: L18.Exts (pp262-263) TG: L19-20 (pp265-292) TG: L21.Exts (p299) TG: L23.Exts (pp325-326) TG: L24-25 (pp329-372)</p> <p>Earth in Space SG: L02-7 (pp12-101)</p>

		<p>SG: L09 (pp122-127) SG: L11-14 (pp146-215) SG: L18 (pp290-311) TG: L01.Exts (p10) TG: L02-7(pp11-96) TG: L08.Exts (pp108-109) TG: L09 (pp121-146) TG: L11-14 (pp159-220) TG: L16.Exts (p256) TG: L17.Exts (pp275-276) TG: L18 (pp277-286) TG: L20.Exts (p297)</p> <p>Organisms-From Macro to Micro SG: L08 (pp96-105) SG: L10 (pp120-131) TG: L06.Exts (pp89-91) TG: L07.Exts (pp118-119) TG: L08 (pp131-150) TG: L10 (pp167-184) TG: L17.Exts (pp287-288) TG: L18.Exts (pp299-300)</p> <p>Properties of Matter TG: L06.Exts (p74) TG: L07.Exts (p86) TG: L08.Exts (p96) TG: L11.Exts (p132) TG: L12.Exts (p140) TG: L14-18.Exts (p201) TG: L21.Exts (p251) TG: L23.Exts (p284)</p> <p>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.</p> <p>Catastrophic Events SG: L02 (pp12-25) SG: L06 (pp68-79)</p>
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		<p>SG: L11-12 (pp120-153) SG: L15 (pp170-189) SG: L17 (pp194-197) SG: L19-20 (pp210-231) SG: L24-25 (pp264-282) TG: L02 (pp17-26) TG: L06 (pp69-82) TG: L11 (pp149-162) TG: L12 (pp163-176) TG: L14.Exts (pp193-194) TG: L15 (pp197-218) TG: L17 (pp233-256) TG: L19-20 (pp265-292) TG: L23.Exts (pp325-326) TG: L24-25 (pp329-372)</p> <p>Earth in Space SG: L02--9 (pp12-127) SG: L11-14 (pp146-215) SG: L18 (pp290-311) TG: L02-7 (pp11-96) TG: L08.Exts (pp108-109) TG: L09 (pp121-146) TG: L11-14 (pp159-220) TG: L16.Exts (p256) TG: L17.Exts (pp275-276) TG: L18 (pp277-286) TG: L20.Exts (p297)</p> <p>Organisms-From Macro to Micro SG: L08 (pp96-105) SG: L10 (pp120-131) TG: L07.Exts (pp118-119) TG: L08 (pp131-150) TG: L10 (pp167-184) TG: L17.Exts (pp287-288) TG: L18.Exts (pp299-300)</p> <p>Properties of Matter TG: L07.Exts (p86) TG: L08.Exts (p96) TG: L12.Exts (p140) TG: L14.Exts (p157)</p>
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		<p>TG: L15.Exts (p166)</p> <p>S:SPS2:8:3.3 Discover how properties of systems that depend on volume, such as capacity and weight change, change out of proportion to properties that depend on area, such as strength or surface processes.</p> <p>Catastrophic Events SG: L18 (pp200-209) TG: L18 (pp257-264) EP - TG: L16 (pp123-128)</p> <p>Earth in Space SG: L02 (pp12-21) SG: L11 (pp146-159) TG: L02 (pp11-20) TG: L11 (pp159-180)</p> <p>Organisms-From Macro to Micro SG: L02 (pp12-27) TG: L02 (pp15-32)</p> <p>S:SPS2:8:3.4 Recognize that as the complexity of any system increases, gaining an understanding increasingly depends on summaries (such as averages and ranges) and on descriptions of typical examples of that system.</p> <p>Earth in Space TG: L06.Exts (p81)</p> <p>Properties of Matter TG: L25.Exts (pp307-308)</p>
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Science Process Skills		
SPS2– Unifying Concepts of Science		
	By the end of Grade 6, all students will apply skills from previous grades and...	By the end of Grade 8, all students will apply skills from previous grades and...
4. PATTERNS OF CHANGE (POC)	<p>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.</p> <p>Ecosystems TG: L05 (pp53-60)</p> <p>S:SPS2:6:4.2 Discover how a system may stay the same because nothing is happening or because things are happening that exactly balance each other out.</p> <p>Experiments With Plants TG: L04 (pp39-50)</p> <p>Ecosystems TG: L02-7 (pp13-82)</p>	<p>S:SPS2:8:4.1 Analyze how physical and biological systems tend to change until they become stable and then stay that way unless their surroundings change.</p> <p>Catastrophic Events SG: L09-10 (pp102-119) SG: L20 (pp224-231) TG: L09-10(pp127-148) TG: L20 (pp279-292)</p> <p>Earth in Space SG: L08 (pp102-121) TG: L08 (pp97-120)</p> <p>S:SPS2:8:4.2 Recognize how many systems contain feedback mechanisms that serve to keep changes within specified limits.</p> <p>Catastrophic Events SG: L13 (pp154-163) SG: L18-21 (pp200-239) SG: L23 (pp252-263) TG: L13 (pp177-186) TG: L18-21 (pp257-302) TG: L23 (pp217-328)</p> <p>S:SPS2:8:4.3 Realize that symbolic equations can be used to summarize how the quantity of something changes over time or in response to other changes.</p> <p>S:SPS2:8:4.4 Explain how symmetry (or the lack of it) may determine properties of many objects, from molecules and crystals to organisms and designed structures.</p>

		<p>S:SPS2:8:4.5 Realize that cycles, such as the seasons or body temperature, can be described by their cycle length or frequency, what their highest and lowest values are, and when those values occur; different cycles range from many thousand years down to less than a billionth of a second.</p> <p>Catastrophic Events SG: L03 (pp26-41) TG: L03-4(pp27-61) SG: L08 (pp102-121) SG: L16 (pp244-265) TG: L04 (pp37-52) TG: L06.Exts (p81) TG: L08 (pp97-120) TG: L16 (pp245-268)</p> <p>Organisms-From Macro to Micro TG: L10.Exts (pp175-176)</p>
<p>5. FORM AND FUNCTION (FAF)</p>	<p>S:SPS2:6:5.1 Describe the structure and function of organs.</p> <p>Experiments With Plants RB: (pp07-13) RB: (pp26-29) RB: (pp30-33) TG: L01-2 (pp9-30) TG: L05-7 (pp51-70) TG: L09 (pp75-80) TG: L12-14 (pp91-114) TG: L15.Exts (p117) TG: L16 (pp123-128)</p> <p>Floating and Sinking RB: (pp54-61)</p> <p>Motion and Design RB: (pp07-09)</p> <p>S:SPS2:6:5.2 Diagram and label the structure of the primary components of representative organs in plants and animals.</p> <p>Experiments With Plants RB: (pp07-13) RB: (pp26-33) TG: L01-2 (pp9-30) TG: L05-7 (pp51-70)</p>	<p>S:SPS2:8:5.1 Describe the relationship between structure and function of organ systems in plants and animals.</p> <p>S:SPS2:8:5.2 Describe the structure and function of various organ systems (i.e., digestion, respiration, circulation, nervous, protection and support) and how these systems contribute to homeostasis of the organism.</p> <p>S:SPS2:8:5.3 Compare the structure and function of organ systems in one organism to the structure and function in another organism.</p>

	<p>TG: L09 (pp75-80) TG: L12-14 (pp91-114) TG: L15.Exts (p117) TG: L16 (pp123-128) Floating and Sinking RB: (pp54-61) Motion and Design RB: (pp07-09)</p> <p>S:SPS2:6:5.3 Investigate the relationship between various landforms and wind currents.</p>	
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Science Process Skills		
SPS3– Personal, Social, and Technological Perspectives		
	By the end of Grade 6, all students will apply skills from previous grades and...	By the end of Grade 8, all students will apply skills from previous grades and...
1. COLLABORATION IN SCIENTIFIC ENDEAVORS	<p>S:SPS3:6:1.1 Work effectively within a cooperative group setting, accepting and executing assigned roles and responsibilities.</p> <p>Experiments With Plants TG: L02-3 (pp21-38) TG: L09-11 (pp75-90) TG: L13 (pp101-104)</p> <p>Ecosystems TG: L02-10 (pp13-110) TG: L12-17 (pp117-171)</p> <p>Floating and Sinking TG: L01-17 (pp3-136)</p> <p>Motion and Design TG: L01 (pp1-14) TG: L03-4 (pp25-46) TG: L06-17 (pp57-156)</p> <p>S:SPS3:6:1.2 Work collectively within a group toward a common goal.</p> <p>Experiments With Plants TG: L02-3 (pp21-38) TG: L09-11 (pp75-90) TG: L13 (pp101-104)</p> <p>Ecosystems TG: L02-10 (pp13-110) TG: L12-17 (pp117-171)</p> <p>Floating and Sinking TG: L01-17 (pp3-136)</p> <p>Motion and Design TG: L01 (pp1-14) TG: L03-4 (pp25-46) TG: L06-17 (pp57-156)</p>	<p>S:SPS3:8:1.1 Work effectively within a cooperative group setting, accepting and executing assigned roles and responsibilities.</p> <p>Catastrophic Events SG: L01-25 (pp2-282) TG: L01-25 (pp3-372)</p> <p>Earth in Space SG: L01-3 (pp2-41) SG: L05-13 (pp62-199) SG: L15-16 (pp216-265) SG: L18-22 (pp290-343)</p> <p>TG: L01-2 (pp3-20) TG: L05 (pp53-72) TG: L08-11 (pp97-180) TG: L13-16 (pp197-268) TG: L18-22 (pp277-326)</p> <p>Organisms-From Macro to Micro SG: L01-20 (pp2-243) TG: L01-20 (pp3-350)</p> <p>Properties of Matter SG: G - (pp237-239) SG: L01-25 (pp2-229) TG: L01-25 (pp3-312)</p> <p>S:SPS3:8:1.2 Work collectively within a group toward a common goal.</p> <p>Catastrophic Events SG: L01-25 (pp2-282) TG: L01-25 (pp36-372)</p> <p>Earth in Space SG: L01-3 (pp2-41) SG: L05-13 (pp62-199) SG: L15-16 (pp216-265) SG: L18-22 (pp290-343)</p> <p>TG: L01-2 (pp3-20) TG: L05 (pp53-72)</p>

	<p>S:SPS3:6:1.3 Demonstrate respect of one another’s abilities and contributions to the group.</p> <p>Experiments With Plants TG: L02-3 (pp21-38) TG: L09-11 (pp75-90) TG: L13 (pp101-104)</p> <p>Ecosystems TG: L02-10 (pp13-110) TG: L12-17 (pp117-171.)</p> <p>Floating and Sinking TG: L01-17 (pp3-136)</p> <p>Motion and Design TG: L01 (pp1-14) TG: L03-4 (pp25-46) TG: L06-17 (pp57-156)</p>	<p>TG: L08-11 (pp97-180) TG: L13-16 (pp197-268) TG: L18-19 (pp277-292) TG: L21-22 (pp309-326)</p> <p>Organisms-From Macro to Micro SG: L01-20 (pp2-243) TG: L01-20 (pp3-350)</p> <p>Properties of Matter SG: G - (pp237-239) SG: L01-25 (pp2-229) TG: L01-25 (pp3-312)</p> <p>S:SPS3:8:1.3 Demonstrate respect of one another’s abilities and contributions to the group.</p> <p>Catastrophic Events SG: L01-25 (pp2-282) TG: L01-25 (pp36-372)</p> <p>Earth in Space SG: L01-22 (pp2-343) TG: L01-22 (pp3-326)</p> <p>Organisms-From Macro to Micro SG: L01-20 (pp2-243) TG: L01-20 (pp3-350)</p> <p>Properties of Matter SG: G - (pp237-239) SG: L01-25 (pp2-229) TG: L01-25 (pp3-312)</p> <p>S:SPS3:8:1.4 Demonstrate an understanding of the ethics involved in scientific inquiry.</p>
<p>2. COMMON ENVIRONMENTAL ISSUES, NATURAL RESOURCES MANAGEMENT AND CONSERVATION</p>	<p>S:SPS3:6:2.1 Develop, focus and explain questions about the environment and do environmental investigations.</p> <p>Ecosystems RB: (pp40-42) RB: (pp60-61) TG: L08-16(pp83-168)</p> <p>Floating and Sinking RB: (pp48-50)</p>	<p>S:SPS3:8:2.1 Locate and collect reliable information about the environment and environmental topics using a variety of methods and sources.</p> <p>Catastrophic Events TG: L09.Exts (p132) TG: L13.Exts (p182) TG: L14.Exts (pp193-194) EP - TG: L02.Exts (p24)</p> <p>Earth in Space SG: L10-11 (pp130-159) SG: L13-14 (pp174-215)</p>

	<p>S:SPS3:6:2.2 Design environmental investigations to answer particular questions.</p> <p>Experiments With Plants TG: L12 (pp91-100)</p> <p>Ecosystems RB: (pp07-10) RB: (pp40-42) RB: (pp60-61) TG: L08-16 (pp83-168)</p> <p>Floating and Sinking RB: (pp48-50)</p> <p>S:SPS3:6:2.3 Explore evidence that human-caused changes have consequences for the immediate environment as well as for other places and future times.</p> <p>Experiments With Plants RB: (pp20-21) RB: (pp24-25)</p> <p>Experiments With Plants TG: L02.Exts (p24)</p> <p>Ecosystems RB: (pp31-37) RB: (pp40-42) RB: (pp60-61)</p> <p>Ecosystems TG: L08-11 (pp83-116)</p> <p>Floating and Sinking RB: (pp24-26) RB: (pp48-50)</p> <p>S:SPS3:6:2.4 Explore how humans shape and control the environment while creating knowledge and developing new technologies.</p> <p>Experiments With Plants RB: (pp20-21) RB: (pp24-25) TG: L02.Exts (p24)</p> <p>Ecosystems RB: (pp31-37) RB: (pp40-42)</p>	<p>TG: L10-11 (pp147-180) TG: L13-14 (pp197-220)</p> <p>Properties of Matter TG: L16.Exts (p178) TG: L23.Exts (p284)</p> <p>S:SPS3:8:2.2 Judge the weaknesses and strengths of the information they are using.</p> <p>Catastrophic Events SG: L05-8 (pp54-101) SG: L11-13 (pp120-163) SG: L18 (pp200-209) SG: L20 (pp224-231) SG: L22-23 (pp240-263) TG: L05-8 (pp57-126) TG: L11-13 (pp149-186) TG: L18 (pp257-264) TG: L20 (pp279-292) TG: L22-23 (pp303-316)</p> <p>Earth in Space SG: L05-6 (pp62-87) SG: L12 (pp160-173) SG: L13 (pp174-199) SG: L15-17 (pp216-289) TG: L05-6 (pp53-82) TG: L13 (pp197-208) TG: L15-17 (pp221-276)</p> <p>Properties of Matter SG: L25 (pp224-229) TG: L25 (pp303-312)</p> <p>S:SPS3:8:2.3 Explore the uses and limitations of models.</p> <p>Catastrophic Events SG: L02 (pp12-25) SG: L06 (pp68-79) SG: L11-12 (pp120-153) SG: L15 (pp170-189) SG: L17 (pp194-197) SG: L19-20 (pp210-231) SG: L24-25 (pp264-282) TG: L02 (pp17-26)</p>
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	<p>RB: (pp60-61) TG: L08-11 (pp83-116) Floating and Sinking RB: (pp24-26) RB: (pp31-35) RB: (pp43-45) RB: (pp48-50)</p> <p>S:SPS3:6:2.5 Investigate environmental and resource management issues at scales that range from local to national to global.</p> <p>Experiments With Plants RB: (pp24-25)</p> <p>Ecosystems RB: (pp26-37) RB: (pp40-42) RB: (pp45-51) RB: (pp54-61) TG: L08-16 (pp83-168)</p> <p>Floating and Sinking RB: (pp48-50)</p>	<p>TG: L06 (pp69-82) TG: L11-12 (pp149-176) TG: L14.Exts (pp193-194) TG: L15 (pp197-218) TG: L17 (pp233-256) TG: L19-20 (pp265-292) TG: L23.Exts (pp325-326) TG: L24-25 (pp329-372)</p> <p>Earth in Space SG: L02-1 (pp12-101) SG: L09 (pp122-127) SG: L11-14 (pp146-215) SG: L18 (pp290-311) TG: L01.Exts (p10) TG: L02-7 (pp11-96) TG: L08.Exts (pp108-109) TG: L09 (pp121-146)</p> <p>Earth in Space TG: L11-14 (pp159-220) TG: L16.Exts (p256) TG: L17.Exts (pp275-276) TG: L18 (pp277-286) TG: L20.Exts (p297)</p> <p>Organisms-From Macro to Micro SG: L08 (pp96-105) SG: L10 (pp120-131) TG: L07.Exts (pp118-119) TG: L08 (pp131-150) TG: L10 (pp167-184) TG: L17.Exts (pp287-288) TG: L18.Exts (pp299-300)</p> <p>Properties of Matter TG: L07.Exts (p86) TG: L08.Exts (p96) TG: L12.Exts (p140) TG: L14.Exts (p157) TG: L15.Exts (p166)</p> <p>S:SPS3:8:2.4 Synthesize observations and findings into coherent explanations about natural resources and the environment.</p>
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Science Process Skills		
SPS3– Personal, Social, and Technological Perspectives		
	By the end of Grade 6, all students will apply skills from previous grades and...	By the end of Grade 8, all students will apply skills from previous grades and...
3. SCIENCE AND TECHNOLOGY, TECHNOLOGICAL DESIGN AND APPLICATION	<p>S:SPS3:6:3.1 Identify problems/issues that can be addressed by design technology.</p> <p>Experiments With Plants RB: (pp11-13) RB: (pp41-43) RB: (pp50-53)</p> <p>Floating and Sinking RB: (pp11-14) RB: (pp18-26) RB: (pp29-35) RB: (pp43-45) TG: L15 (pp119-128)</p> <p>Motion and Design RB: (pp29-36) RB: (pp49-57) RB: (pp62) TG: L01-2 (pp1-24) TG: L05 (pp47-56) TG: L09 (pp81-90) TG: L13-17 (pp117-156)</p> <p>S:SPS3:6:3.2 Identify and describe the procedure for designing a product, including identifying a need, researching, brainstorming, selecting, developing a prototype, testing and evaluating.</p> <p>Experiments With Plants RB: (pp50-53) TG: L02-3 (pp21-38) TG: L15 (pp115-122)</p> <p>Ecosystems TG: L07.Exts (p79) TG: L14.Exts (p136) FC - TG: L10.Exts (p97) FC - TG: L10 (pp95-100) FC - TG: L13 (pp117-124) FC - TG: L16 (pp149-154)</p>	<p>S:SPS3:8:3.1 Design a product or solution to a problem.</p> <p>Catastrophic Events SG: L08-9 (pp96-112) SG: L17 (pp194-197) TG: L08-9 (pp103-142) TG: L17 (pp233-256)</p> <p>Properties of Matter SG: L26 (pp230-235) TG: L26 (pp313-332)</p> <p>S:SPS3:8:3.2 Build a product that has been designed in class.</p> <p>Catastrophic Events SG: L11 (pp120-133) SG: L17 (pp194-197) SG: L24-25 (pp264-282) TG: L02.Exts (p23) TG: L03.Exts (pp35-36) TG: L06.Exts (pp77-78) TG: L11 (pp149-162) TG: L14.Exts (pp193-194) TG: L17 (pp233-256) TG: L18.Exts (pp262-263) TG: L23.Exts (pp325-326) TG: L24-25 (pp329-372)</p> <p>Earth in Space SG: L20-22 (pp324-343) TG: L10.Exts (p152) TG: L20-22 (pp293-326)</p> <p>Organisms-From Macro to Micro SG: L15 (pp180-187) SG: L20 (pp236-243) TG: L05.Exts (pp69-70) TG: L15 (pp253-266) TG: L20 (pp331-350)</p> <p>Properties of Matter SG: L10 (pp86-97)</p>

	<p>Floating and Sinking RB: (pp29-35) RB: (pp43-45) TG: L06 (pp49-54) TG: L08 (pp61-68) LW - TG: L12.Exts (pp132-133) LW - TG: L15 (pp163-172)</p> <p>Motion and Design RB: (pp29-31) RB: (pp49-51) RB: (pp54-57) RB: (pp62)</p> <p>S:SPS3:6:3.3 Evaluate technological designs using established criteria.</p> <p>Experiments With Plants RB: (pp50-53)</p> <p>Floating and Sinking RB: (pp29-30) RB: (pp34-35)</p> <p>Motion and Design RB: (pp29-31) RB: (pp54-57) RB: (pp62) TG: L01-2 (pp1-24) TG: L05 (pp47-56) TG: L09 (pp81-90) TG: L13.Exts (pp120-121) TG: L15-17 (pp139-156)</p>	<p>TG: L04.Exts (p45) TG: L07.Exts (p86) TG: L10 (pp113-124) TG: L13.Exts (p148) TG: L21.Exts (p251)</p> <p>S:SPS3:8:3.3 Evaluate student-designed products according to established criteria and recommend improvements or modifications.</p> <p>Catastrophic Events TG: L23.Exts (pp325-326)</p> <p>Earth in Space SG: L21 (pp334-339) TG: L20.Exts (p297) TG: L21 (pp309-310)</p> <p>Properties of Matter SG: L16 (pp130-139) TG: L16 (pp169-178)</p>
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Science Process Skills	
SPS4– Science Skills for Information, Communication and Media Literacy (from <i>ICT Literacy Map for Science</i>, www.21stcenturyskills.org)	
By the end of Grade 8, all students will apply skills from previous grades and...	
1. INFORMATION AND MEDIA LITERACY	<p>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.</p> <p>Catastrophic Events SG: L16 (pp190-193) TG: L04.Exts (p54) TG: L09.Exts (p132) TG: L13.Exts (p182) TG: L14.Exts (pp193-194) TG: L16 (pp219-232) TG: L18.Exts (pp262-263) TG: L21.Exts (p299)</p> <p>Earth in Space SG: L03-4 (pp22-61) SG: L10-11 (pp130-159) SG: L13 (pp174-199) SG: L14 (pp200-215) TG: L03-4 (pp21-52) TG: L08.Exts (pp108-109) TG: L10--11 (pp147-180) TG: L13-14 (pp197-220)</p> <p>Properties of Matter TG: L06.Exts (p74) TG: L16.Exts (p178) TG: L23.Exts (p284)</p> <p>S:SPS4:8:1.2 Collect real-time observations and data, synthesizing and building upon existing information (e.g., online databases, NOAA, EPA, USGS) to solve problems.</p> <p>Catastrophic Events SG: L01-25 (pp2-282) TG: L01-25 (pp3-372)</p> <p>Earth in Space SG: L01-22 (pp2-343) TG: L01-22 (pp3-326)</p> <p>Organisms-From Macro to Micro TG: L03.Exts (p41) TG: L06.Exts (pp89-91) TG: L12.Exts (p207)</p>

	<p>Properties of Matter SG: L11 (pp98-105) SG: L21 (pp186-197) TG: L08.Exts (p96) TG: L11 (pp125-134) TG: L21 (pp241-260)</p> <p>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.</p> <p>Catastrophic Events SG: L01-6 (pp2-79) SG: L11 (pp120-133) SG: L13 (pp154-163) SG: L19-21 (pp210-239) SG: L23-25 (pp252-282) TG: L01-6 (pp3-82) TG: L11 (pp149-162) TG: L13 (pp177-186) TG: L14.Exts (pp193-194) TG: L16.Exts (p225) TG: L19-21 (pp265-302) TG: L22.Exts (p312) TG: L23-25 (pp217-372)</p> <p>Earth in Space SG: L03-14 (pp22-215) SG: L16-17 (pp244-289) SG: L20-22 (pp324-343) TG: L01.Exts (p10) TG: L03-17 (pp21-276) TG: L20-22 (pp293-326)</p> <p>Organisms-From Macro to Micro SG: L02-10 (pp12-131) SG: L12 (pp146-155) SG: L16-17 (pp188-203) TG: L02-12 (pp15-218) TG: L14.Exts (p247) TG: L15.Exts (p260) TG: L16-17 (pp267-292)</p> <p>Properties of Matter SG: L01-26 (pp14-235) TG: L01-26 (pp3-332)</p>
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<p>2. COMMUNICATION SKILLS</p>	<p>S:SPS4:8:2.1 Use a wide range of tools and a variety of oral, written, and graphic formats to share information and results from observations and investigations.</p> <p>Catastrophic Events SG: L01-25 (pp2-282) TG: L01-25 (pp3-372)</p> <p>Earth in Space SG: L01 (pp2-11) SG: L05 (pp62-73) SG: L09-11 (pp122-159) SG: L14 (pp200-215) SG: L18-22 (pp290-343) TG: L01 (pp3-10) TG: L02.Exts (pp18-19) TG: L05 (pp53-72) TG: L09-11 (pp121-180) TG: L13-14 (pp197-220) TG: L18-22 (pp277-326)</p> <p>Organisms-From Macro to Micro TG: L02 (pp15-32) TG: L03.Exts (p41) TG: L04.Exts (pp53-54) TG: L06.Exts (pp89-91) TG: L07.Exts (pp118-119) TG: L10.Exts (pp175-176) TG: L11.Exts (pp192-193) TG: L13 (pp219-236) TG: L14.Exts (p247) TG: L15.Exts (p260) TG: L17.Exts (pp287-288) TG: L18.Exts (pp299-300) TG: L19.Exts (pp317-318)</p> <p>Properties of Matter SG: L02 (pp14-23) SG: L10 (pp86-97) SG: L16 (pp130-139) SG: L24 (pp218-223) TG: L02 (pp15-26) TG: L10 (pp113-124) TG: L16 (pp169-178)</p>
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	<p>Properties of Matter TG: L17.Exts (p185) TG: L21.Exts (p251) TG: L24 (pp295-302) TG: L25.Exts (pp307-308)</p>
<p>3. CRITICAL THINKING AND SYSTEMS THINKING</p>	<p>S:SPS4:8:3.1 Execute steps of scientific inquiry to engage in the problem-solving and decision making processes. Earth in Space TG: L03.Exts (p33)</p> <p>S:SPS4:8:3.2 Apply new and unusual applications of existing knowledge to new and different situations. Catastrophic Events SG: L08-9 (pp96-112) SG: L17 (pp194-197) TG: L08-9 (pp103-142) TG: L17 (pp233-256) Properties of Matter SG: L26 (pp230-235) TG: L26 (pp313-332)</p> <p>S:SPS4:8:3.3 Make sketches, graphs, and diagrams to explain ideas and to demonstrate the interconnections between systems. Catastrophic Events SG: L01-6 (pp2-79) SG: L11 (pp120-133) SG: L13 (pp154-163) SG: L19-25 (pp210-282) TG: L01-6 (pp3-82) TG: L11 (pp149-162) TG: L13 (pp177-186) TG: L14.Exts (pp193-194) TG: L16.Exts (p225) TG: L19-21 (pp265-302) TG: L22.Exts (p312) TG: L23-25 (pp217-372) Earth in Space SG: L03-17 (pp22-289) SG: L20-22 (pp324-343) TG: L01.Exts (p10) TG: L03-14 (pp21-220) TG: L16-17 (pp245-276) TG: L20-22 (pp293-326)</p>

	<p>Organisms-From Macro to Micro SG: L02-10 (pp12-131) SG: L12 (pp146-155) SG: L16-17 (pp188-203) TG: L02-12 (pp15-218) TG: L14.Exts (p247) TG: L15.Exts (p260) TG: L16-17 (pp267-292)</p> <p>Properties of Matter SG: L01-26 (pp2-235) TG: L01-26 (pp3-332)</p>
<p>4. PROBLEM IDENTIFICATION, FORMULATION, AND SOLUTION</p>	<p>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.</p> <p>Earth in Space SG: L01-22 (pp2-343) TG: L01-22 (pp3-326)</p> <p>Organisms-From Macro to Micro SG: L02-20 (pp12-23) TG: L02-20 (pp15-350)</p> <p>Properties of Matter SG: L13 (pp112-115) SG: L15-16 (pp122-139) SG: L23-24 (pp208-223) TG: L13 (pp143-152) TG: L15-16 (pp161-178) TG: L23-24 (pp275-302)</p> <p>S:SPS4:8:4.2 Use evidence collected from observations or other sources and use them to create models and explanations.</p> <p>Catastrophic Events SG: L12 (pp134-153) SG: L15 (pp170-189) SG: L17 (pp194-197) SG: L19-20 (pp210-231) SG: L24-25 (pp264-282) TG: L12 (pp163-176) TG: L14.Exts (pp193-194) TG: L15 (pp197-218) TG: L17 (pp233-256) TG: L19-20 (pp265-292)</p>

	<p>TG: L23.Exts (pp325-326) TG: L24-25 (pp329-372) Earth in Space SG: L03-4 (pp22-61) SG: L18 (pp290-311) TG: L03-4 (pp21-52) TG: L18 (pp277-286) TG: L20.Exts (p297) Organisms-From Macro to Micro SG: L10 (pp120-131) SG: L15 (pp180-187) TG: L10 (pp167-184) TG: L15 (pp253-266) Properties of Matter SG: L03 (pp24-29) TG: L03 (pp27-38) TG: L07.Exts (p86) TG: L08.Exts (p96) TG: L12.Exts (p140) TG: L14.Exts (p157) TG: L15.Exts (p166)</p>
<p>5. CREATIVITY AND INTELLECTUAL CURIOSITY</p>	<p>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. Catastrophic Events SG: L01-25 (pp2-282) TG: L01-25 (pp3-372) Earth in Space SG: L01 (pp2-11) SG: L03-5 (pp22-73) SG: L09 (pp122-127) SG: L10-11 (pp130-159) SG: L14 (pp200-215) SG: L18-22 (pp290-343) TG: L01 (pp3-10) TG: L02.Exts (pp18-19) TG: L03-5 (pp21-72) TG: L09-11 (pp121-180) TG: L13-14 (pp197-220) TG: L18-22 (pp277-326)</p>

	<p>Organisms-From Macro to Micro SG: L02-10 (pp12-131) SG: L16-17(pp188-203) TG: L02-11 (pp15-200) TG: L13 (pp219-236) TG: L14.Exts (p247) TG: L15.Exts (p260) TG: L16-17 (pp267-292) TG: L18.Exts (pp299-300) TG: L19.Exts (pp317-318) Properties of Matter SG: L01-26 (pp2-235) TG: L01-26 (pp3-332)</p>
<p>6. INTERPERSONAL AND COLLABORATIVE SKILLS</p>	<p>S:SPS4:8:6.1 Work in diverse pairs/teams to answer questions, solve problems and make decisions. Catastrophic Events SG: L01-25 (pp2-282) TG: L01-25 (pp3-372) Earth in Space SG: L01-22 (pp2-343) TG: L01-22 (pp3-326) Organisms-From Macro to Micro SG: L01-20 (pp11-23) TG: L01-20 (pp3-350) Properties of Matter SG: L01-26 (pp2-235) TG: L01-26 (pp3-332)</p> <p>S:SPS4:8:6.2 Plan and develop team science projects. Catastrophic Events SG: L11 (pp120-133) TG: L11 (pp149-162) Earth in Space SG: L02 (pp12-21) SG: L10 (pp130-145) SG: L19-20 (pp312-333) TG: L02 (pp11-20) TG: L10 (pp147-158) TG: L19-20 (pp287-308) Organisms-From Macro to Micro</p>

	<p>SG: L04 (pp38-45) TG: L04 (pp49-56) Properties of Matter SG: L10 (pp86-97) TG: L10 (pp113-124)</p> <p>S:SPS4:8:6.3 Articulate understanding of content through personal interaction and sharing with peers.</p> <p>Catastrophic Events SG: L01-25 (pp2-282) TG: L01-25 (pp3-372)</p> <p>Earth in Space SG: L01-3 (pp2-41) SG: L05-13 (pp62-199) SG: L15-16 (pp216-265) SG: L18-22 (pp290-343) TG: L01-2 (pp3-20) TG: L05 (pp53-72) TG: L08-11 (pp97-180) TG: L13-16 (pp197-268) TG: L18-22 (pp277-326)</p> <p>Organisms-From Macro to Micro SG: L01-20 (pp11-23) TG: L01-20 (pp3-350)</p> <p>Properties of Matter SG: L01-25 (pp2-229) TG: L01-25 (pp3-312)</p>
<p>7. SELF DIRECTION</p>	<p>S:SPS4:8:7.1 Keep a journal of observations and investigations, and periodically evaluate entries to assess progress toward achieving the understanding of key ideas.</p> <p>Properties of Matter SG: L01-25 (pp2-229) TG: L01-25 (pp3-312)</p>
<p>8. ACCOUNTABILITY AND ADAPTABILITY</p>	<p>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.</p> <p>Catastrophic Events SG: L01-25 (pp2-282) TG: L01-25 (pp3-372)</p> <p>Earth in Space SG: L01-22 (pp2-343) TG: L01-22 (pp3-326)</p>

	<p>Organisms-From Macro to Micro TG: L03.Exts (p41) TG: L06.Exts (pp89-91) TG: L12.Exts (p207)</p> <p>Properties of Matter SG: L03-4 (pp24-37) SG: L08-9 (pp74-83) SG: L11 (pp98-105) SG: L13-14 (pp112-121) SG: L17 (pp140-149) SG: L19 (pp162-167) SG: L21 (pp186-197) SG: L23-24 (pp208-223) SG: L26 (pp230-235) TG: L03-4 (pp27-48) TG: L08-9 (pp91-112) TG: L11 (pp125-134) TG: L13-14 (pp143-160) TG: L17 (pp179-192) TG: L19 (pp209-226) TG: L21 (pp241-260) TG: L23-24 (pp275-302) TG: L26 (pp313-332)</p> <p>S:SPS4:8:8.2 Participate in science competitions, where students are responsible for creating a product or participating in an event.</p> <p>Catastrophic Events SG: L11 (pp120-133) TG: L11 (pp149-162)</p> <p>Earth in Space SG: L02 (pp12-21) SG: L10 (pp130-145) SG: L19-20 (pp312-333) TG: L02 (pp11-20) TG: L10 (pp147-158) TG: L19-20 (pp287-308)</p> <p>Organisms-From Macro to Micro SG: L04 (pp38-45) TG: L04 (pp49-56)</p> <p>Properties of Matter SG: L10 (pp86-97)</p>
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<p>9. SOCIAL RESPONSIBILITY</p>	<p>TG: L10 (pp113-124)</p> <p>S:SPS4:8:9.1 Collaborate with a network of learners by phone, video, virtual classroom platform.</p> <p>Catastrophic Events SG: L01-25 (pp2-282) TG: L01-25 (pp3-372)</p> <p>Earth in Space SG: L01-22 (pp2-343) TG: L01-22 (pp3-326)</p> <p>Organisms-From Macro to Micro SG: L01-20 (pp11-23) TG: L01-20 (pp3-350)</p> <p>Properties of Matter SG: L01-25 (pp2-229) TG: L01-25 (pp3-312)</p> <p>S:SPS4:8:9.2 Participate in simulation or role-playing activities in which students grapple with the ethics of complex issues.</p> <p>Catastrophic Events SG: L09 (pp102-112) SG: L11 (pp120-133) SG: L25 (pp274-282) TG: L09 (pp127-142) TG: L11 (pp149-162) TG: L25 (pp347-372)</p> <p>Earth in Space SG: L10 (pp130-145) SG: L19-21 (pp312-339) TG: L10 (pp147-158) TG: L19-21 (pp287-310)</p> <p>Organisms-From Macro to Micro TG: L03.Exts (p41) TG: L06.Exts (pp89-91) TG: L10.Exts (pp175-176) TG: L11.Exts (pp192-193) TG: L13 (pp219-236)</p> <p>Properties of Matter SG: L10 (pp86-97) SG: L16 (pp130-139) TG: L10 (pp113-124) TG: L16 (pp169-178)</p>
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Earth Space Science		
ESS1– The Earth and Earth materials, as we know them today, have developed over long periods of time, through constant change processes.		
	K-2	3-4
1. ATMOSPHERE, CLIMATE, AND WEATHER	<p>S:ESS1:2:1.1 Recognize that weather conditions change frequently, and that weather patterns change over the seasons.</p> <p>S:ESS1:2:1.2 Describe and compare weather using observations and measurements of local weather conditions.</p>	<p>S:ESS1:4:1.1 Explain how water exists in the atmosphere in different forms and describe how it changes from one form to another through various processes such as freezing, condensation, precipitation and evaporation.</p> <p style="text-align: center;">Land and Water RB: (pp21-25)</p> <p>S:ESS1:4:1.2 Explain that air surrounds the Earth, it takes up space, and it moves around as wind.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>S:ESS1:4:1.3 Based on data collected from daily weather observations, describe weather changes or weather patterns. [ESS1(K-4)POC-5]</p> </div> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>S:ESS1:4:1.4 Explain how the use of scientific tools helps to extend senses and gather data about weather (i.e., weather/wind vane– direction; wind sock– wind intensity; anemometer– speed; thermometer– temperature; meter sticks/rulers– snow depth; rain gauges– rain amount in inches). [ESS1(K-4)NOS-3]</p> <p style="text-align: center;">Electric Circuits RB: (pp56-59)</p> <p style="text-align: center;">Land and Water RB: (pp59-61)</p> </div>
2. COMPOSITION AND FEATURES	<p>S:ESS1:2:2.1 Recognize that solid rocks, soils, and water in its liquid and solid states can be found on the Earth’s surface.</p> <p style="text-align: center;">Rocks and Minerals TG: L16 (pp113-126)</p> <p style="text-align: center;">Soils TG: L01-17 (pp3-172)</p>	<p>S:ESS1:4:2.1 Describe Earth materials such as gases found in the atmosphere, rocks, soils, and water in its liquid and solid states.</p> <p style="text-align: center;">Land and Water RB: (pp15-18) RB: (pp21-25) RB: (pp36-38) TG: L01-2 (pp3-28) TG: L05.Exts (p56)</p>

	<p>S:ESS1:2:2.2 Use observable properties, such as color and texture, to classify and organize rocks and minerals. Rocks and Minerals TG: L01-17 (pp3-128) Solids and Liquids TG: L04.Exts (p34)</p> <p>S:ESS1:2:2.3 Recognize that Earth materials have a variety of properties, including size, shape, color and texture. Rocks and Minerals TG: L01-12 (pp3-90) TG: L17 (pp127-128)</p>	<p>S:ESS1:4:2.2 Describe rock as being composed of different combinations of minerals. Land and Water RB: (pp15-18)</p> <div style="border: 2px solid black; padding: 5px; margin: 5px 0;"> <p>S:ESS1:4:2.3 Given information about Earth materials, explain how their characteristics lend themselves to specific uses. [ESS1(K-4)FAF-6]</p> </div> <div style="border: 2px solid black; padding: 5px;"> <p>S:ESS1:4:2.4 Given certain Earth materials (soils, rocks, or minerals) use physical properties to sort, classify, and/or describe them. [ESS1(K-4)INQ-1]</p> </div>
Earth Space Science		
ESS1– The Earth and Earth materials, as we know them today, have developed over long periods of time, through constant change processes.		
	K-2	3-4
3. FOSSILS	<i>None at this grade span.</i>	S:ESS1:4:3.1 Recognize and explain that fossils offer evidence of plants, animals and the nature of environments that existed long ago.
4. OBSERVATION OF THE EARTH FROM SPACE	<i>None at this grade span.</i>	S:ESS1:4:4.1 Recognize features of the Earth as viewed by astronauts in orbit and as transmitted by scientific instruments on satellites and spacecraft.
5. PROCESSES AND RATES OF CHANGE	S:ESS1:2:5.1 Recognize that some changes are too slow or too fast to be easily observed.	S:ESS1:4:5.1 Identify and describe processes that affect the features of the Earth’s surface, including weathering, erosion, deposition of sediment. Land and Water RB: (pp36-38) TG: L03-15 (pp29-172)

		<p>S:ESS1:4:5.2 Explain how wind, water, or ice shape and reshape the Earth’s surface. [ESS1(K-4)INQ+SAE-4]</p> <p>Land and Water RB: (pp36-38) RB: (pp50-52) TG: L03-16 (pp29-182)</p>
<p>6. ROCK CYCLE</p>	<p>S:ESS1:2:6.1 Explain that large rocks can be broken down into smaller rocks.</p> <p>S:ESS1:2:6.2 Describe rocks and soils in terms of their physical properties.</p> <p>Rocks and Minerals TG: L01-2 (pp3-18) TG: L03.Exts (p22) TG: L04 (pp27-34) TG: L16-17 (pp113-128)</p> <p>Soils TG: L01 (pp3-16) TG: L03-5 (pp27-56) TG: L08 (pp73-86) TG: L11-12 (pp109-124) TG: L14.Exts (p143)</p> <p>Solids and Liquids TG: L04.Exts (p34)</p>	<p>S:ESS1:4:6.1 Explain that smaller rocks come from the breaking and weathering of larger rocks and bedrock.</p> <p>Land and Water RB: (pp36-38) TG: L03-15 (pp29-172)</p> <p>S:ESS1:4:6.2 Distinguish between the three categories of rocks (metamorphic, igneous and sedimentary) and describe the processes that create them.</p> <p>Land and Water RB: (pp15-18) TG: L06.Exts (pp67-68)</p> <p>S:ESS1:4:6.3 Identify minerals by their physical properties, such as color, texture and cleavage, and describe simple tests used in the identification process.</p> <p>S:ESS1:4:6.4 Use results from an experiment to draw conclusions about how water interacts with earth materials (e.g., percolation, erosion, frost heaves). [ESS1(K-4)INQ-2]</p> <p>Land and Water TG: L01 (pp3-10) TG: L02-3 (pp11-36) TG: L06 (pp63-74) TG: L09.Exts (p103) TG: L14.Exts (p156) TG: L15.Exts (p167)</p>
<p>7. WATER</p>	<p>S:ESS1:2:7.1 Recognize that water can be a liquid or a solid; and explain that it can be made to change from one state to the other, but the amount (mass) of water always remains the same in either state.</p>	<p>S:ESS1:4:7.1 Recognize and describe the Earth’s surface as mostly covered by water.</p> <p>S:ESS1:4:7.2 Explain that most of Earth’s water is salt water, which is found in the oceans, and that fresh water is found in rivers, lakes, underground sources, and glaciers.</p>

Earth Space Science		
ESS2– The Earth is part of a solar system, made up of distinct parts, which have temporal and spatial interrelationships.		
	K-2	3-4
1. EARTH, SUN, AND MOON	<p>S:ESS2:2:1.1 Recognize the basic patterns of the Sun, including its appearance during the daytime, and how its position in the sky changes through the seasons.</p> <p style="text-align: center;">Soils TG: L01.Exts (p12) TG: L02 (pp17-26)</p> <p>S:ESS2:2:1.2 Recognize the basic patterns of the Moon, including its appearance sometimes at night and sometimes during the day; and how it appears to change shape through the month.</p> <p style="text-align: center;">Building Blocks of Science Sky Watchers-Lesson 4</p>	<p>S:ESS2:4:1.1 Explain that night and day are caused by the Earth’s rotation on its axis; and that the Earth rotates approximately once, every 24 hours.</p> <p style="text-align: center;">GEMS Space Science Sequence Unit 3</p> <p>S:ESS2:4:1.2 Describe the Sun as a star.</p> <p style="text-align: center;">GEMS Space Science Sequence Unit 1</p>
2. ENERGY	<p>S:ESS2:2:2.1 Recognize that the light and heat the Sun provides to the Earth is necessary for life</p> <p style="text-align: center;">Building Blocks of Science Sky Watchers-Lesson 3</p>	<p>S:ESS2:4:2.1 Recognize that the Sun provides the light and heat necessary to maintain the temperature of the Earth.</p> <p style="text-align: center;">GEMS Moons of Jupiter</p>
3. SOLAR SYSTEM	<p><i>None at this grade span.</i></p>	<p>S:ESS2:4:3.1 Recognize that the Moon orbits the Earth.</p> <p style="text-align: center;">GEMS Space Science Sequence Unit 4</p> <p>S:ESS2:4:3.2 Recognize that the Earth is one of a number of planets that orbit the Sun.</p> <p style="text-align: center;">GEMS Space Science Sequence Unit 3</p>
4. VIEW FROM EARTH	<p>S:ESS2:2:4.1 Recognize that the Sun, Moon and stars all appear to move slowly across the sky.</p> <p style="text-align: center;">Building Blocks of Science Sky Watchers-Lesson 4</p> <p>S:ESS2:2:4.2 Recognize that as the position of the Sun changes in relation to the Earth it creates shadows of varying length and direction.</p> <p style="text-align: center;">Building Blocks of Science Sky Watchers-Lesson 1</p>	<p>S:ESS2:4:4.1 Recognize that although star patterns seen in the sky appear to move slowly each night from east to west they actually remain the same, and explain why different stars can be seen during different seasons.</p> <p style="text-align: center;">GEMS Space Science Sequence Unit 3</p> <p>S:ESS2:4:4.2 Explain why the planets look like stars, and why, over a period of time, they appear to wander among the constellations.</p>

	<p>S:ESS2:2:4.3 Explain that people should not look directly at the Sun because it is dangerous and may cause injury to the eyes.</p> <p>Building Blocks of Science Sky Watchers-Lesson 1</p>	<p>GEMS Moons of Jupiter</p>
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Earth Space Science		
ESS3– The origin and evolution of galaxies and the universe demonstrate fundamental principles of physical science across vast distances and time.		
	K-2	3-4
1. SIZE AND SCALE	<i>None at this grade span.</i>	<p>S:ESS3:4:1.1 Recognize that astronomical objects in space are massive in size and are separated from one another by vast distances.</p> <p>GEMS Space Science Unit 1</p> <p>S:ESS3:4:1.2 Explain that telescopes magnify the size of distant objects and significantly increase the number of these objects that can be viewed from Earth.</p>
2. STARS AND GALAXIES	<p>S:ESS3:2:2.1 Recognize there are too many stars to count, and that they are unequal in their brightness.</p> <p>Building Blocks of Science Sky Watchers-Lesson 5</p>	<p>S:ESS3:4:2.1 Recognize and describe the stars, like the Sun, as spherical in nature.</p> <p>GEMS Space Science Unit 2</p> <p>S:ESS3:4:2.2 Recognize that stars come in different colors, and that the Sun is a yellow star.</p>
3. UNIVERSE	<i>None at this grade span.</i>	<i>None at this grade span.</i>

Earth Space Science		
ESS4– The growth of scientific knowledge in Earth Space Science has been advanced through the development of technology and is used (alone or in combination with other sciences) to identify, understand and solve local and global issues.		
	K-2	3-4
1. DESIGN TECHNOLOGY	<i>None at this grade span.</i>	S:ESS4:4:1.1 Recognize that man uses various mechanical devices to record changes in the weather and the Earth. Electric Circuits RB: (pp56-59) RB: (pp32-35) RB: (pp59-61)
2. TOOLS	S:ESS4:2:2.1 Recognize, and with assistance, safely demonstrate the use of tools to gather data and extend the senses, such as thermometers, hand lenses and balances. Rocks and Minerals TG: L01.Exts (p9)	S:ESS4:4:2.1 Demonstrate the use of simple instruments to collect weather data, including thermometers, windsocks, meter sticks, and rain gauges. Electric Circuits RB: (pp56-59) Land and Water RB: (pp59-61)
3. LOCAL AND GLOBAL ENVIRONMENTAL ISSUES	S:ESS4:2:3.1 Differentiate between natural and man-made materials. S:ESS4:2:3.2 Identify environments that are natural, such as a forest, meadow, or mountains and those that have been built or modified by people, including cities, roads, farms, and houses. S:ESS4:2:3.3 Describe actions that can help the environment, such as recycling and proper disposal of waste materials. Solids and Liquids TG: L14.Exts (p114)	S:ESS4:4:3.1 Distinguish between and provide examples of materials that can be recycled/reused and those that cannot. S:ESS4:4:3.2 Provide examples of technology that have changed the environment and explain whether the effect had a positive or negative impact. Animal Studies RB: (pp09-11) RB: (pp38-39) TG: L03.Exts (p32) Electric Circuits RB: (pp17-21) Land and Water TG: L14 (pp153-162) S:ESS4:4:3.3 Explain how to dispose of waste so that it does not harm the environment.

		<p>S:ESS4:4:3.4 Recognize there are pros and cons to using different types of energy, such as solar energy and fossil fuels, and compare the differences.</p> <p>Electric Circuits RB: (pp24-28) TG: L01.Exts (p5)</p>
4. CAREER TECHNICAL EDUCATION CONNECTIONS	<p>S:ESS4:2:4.1 Recognize that some jobs/careers require knowledge and use of Earth science content and/or skills.</p> <p>Rocks and Minerals TG: L03.Exts (p22)</p>	<p>S:ESS4:4:4.1 Identify some jobs/careers that require knowledge and use of Earth science content and/or skills.</p> <p>Land and Water RB: (pp26-29) RB: (pp32-35) RB: (pp59-61)</p>
Earth Space Science		
ESS1– The Earth and Earth materials, as we know them today, have developed over long periods of time, through constant change processes.		
	5-6	7-8
1. ATMOSPHERE, CLIMATE, AND WEATHER	<p>S:ESS1:6:1.1 Describe and make predictions about local and regional weather conditions using observation and data collection methods.</p> <p>S:ESS1:6:1.2 Identify weather patterns by tracking weather related events, such as hurricanes.</p> <p>S:ESS1:6:1.3 Explain the composition and structure of the Earth’s atmosphere.</p> <p>Floating and Sinking RB: (pp36-40)</p> <p>S:ESS1:6:1.4 Describe weather in terms of temperature, wind speed and direction, precipitation, and cloud cover.</p> <p>S:ESS1:6:1.5 Describe how clouds affect weather and climate, including precipitation, reflecting light from the sun, and retaining heat energy emitted from the Earth’s surface.</p> <p>Ecosystems RB: (pp26-27)</p>	<p>S:ESS1:8:1.1 Identify and describe the processes of the water cycle and explain their effects on climatic patterns.</p> <p>Catastrophic Events SG: L06 (pp68-79) TG: L06 (pp69-82)</p> <p>Properties of Matter SG: L01 (pp2-13)</p> <p>S:ESS1:8:1.2 Identify and describe the impact certain factors have on the Earth’s climate, including changes in the oceans’ temperature, changes in the composition of the atmosphere, and geological shifts due to events such as volcanic eruptions and glacial movements.</p> <p>Catastrophic Events SG: L03 (pp26-41) SG: L07 (pp80-95) TG: L03 (pp27-44) TG: L07 (pp83-102) TG: L08.Exts (p108)</p> <p>Earth in Space SG: L17 (pp268-289) SG: L19 (pp312-323) TG: L17 (pp269-276)</p>

		<p>TG: L19 (pp287-292) Organisms-From Macro to Micro TG: L17.Exts (pp287-288)</p>
<p>2. COMPOSITION AND FEATURES</p>	<p>S:ESS1:6:2.1 Differentiate between renewable and non-renewable resources.</p> <p>S:ESS1:6:2.2 Describe and define the different landforms on the Earth’s surface, such as coastlines, rivers, mountains, deltas, canyons, etc.</p> <p>S:ESS1:6:2.3 Identify and distinguish between various landforms using a map and/or digital images.</p>	<p>S:ESS1:8:2.1 Describe the layers of the Earth, including the core, mantle, lithosphere, hydrosphere, and atmosphere.</p> <p>Catastrophic Events SG: L10 (pp114-119) SG: L14-16 (pp164-193) TG: L03.Exts (pp35-36) TG: L10 (pp143-148) TG: L14-16 (pp187-232) SG: L05 (pp38-55) Properties of Matter TG: L05.Exts (p56)</p> <div style="border: 2px solid black; padding: 5px;"> <p>S:ESS1:8:2.2 Use geological evidence provided to support the idea that Earth’s crust/lithosphere is composed of plates that move. [ESS1(5-8)INQ+POC-1]</p> <p>Catastrophic Events SG: L10 (pp114-119) SG: L13-17 (pp154-197) TG: L10 (pp143-148) TG: L13-17 (pp177-256)</p> <p>Earth in Space SG: L13 (pp174-199) TG: L13 (pp197-208)</p> <p>Properties of Matter SG: L05 (pp38-55) TG: L05.Exts (p56)</p> </div>
<p>3. FOSSILS</p>	<p>S:ESS1:6:3.1 Recognize that fossils offer important evidence relating to changes in life forms and environmental conditions over geologic time.</p> <p>S:ESS1:6:3.2 Identify connections between fossil evidence and geological events, such as changes in atmospheric composition, movement of tectonic plates, and asteroid/comet impact; and develop a means of sequencing this evidence.</p>	<p>S:ESS1:8:3.1 Explain how fossils found in sedimentary rock can be used to support the theories of Earth’s evolution over geologic time; and describe how the folding, breaking, and uplifting of the layers affects the evidence.</p>

Earth Space Science		
ESS1– The Earth and Earth materials, as we know them today, have developed over long periods of time, through constant change processes.		
	5-6	7-8
<p>4. OBSERVATION OF THE EARTH FROM SPACE</p>	<p>S:ESS1:6:4.1 Recognize that images taken of the Earth from space can show its features and any changes in those features that appear over time.</p> <p>S:ESS1:6:4.2 Explain that satellites can be used to view and track storms and Earth events, such as hurricanes and wild fires.</p>	<p>S:ESS1:8:4.1 Describe how catastrophic changes that have taken place on the Earth’s surface can be revealed by satellite images.</p> <p>Catastrophic Events SG: L01-25 (pp2-282) TG: L01-25 (pp3-372)</p>
<p>5. PROCESSES AND RATES OF CHANGE</p>	<p>S:ESS1:6:5.1 Recognize that things change in steady, repetitive, or irregular ways, or sometimes in more than one way at the same time.</p> <p>S:ESS1:6:5.2 Explain how some changes to the Earth’s surface happen abruptly, as a result of landslides, earthquakes and volcanic eruptions; while other changes happen very slowly as a result of weathering, erosions and deposition of sediment caused by waves, wind, water and ice.</p> <p>Experiments With Plants RB: (pp20-21) TG: L02.Exts (p24)</p> <p>S:ESS1:6:5.3 Recognize that vibrations in materials set up wavelike disturbances that spread away from the source, as with earthquakes.</p>	<p>S:ESS1:8:5.1 Explain that the Earth’s crust is divided into plates which move at extremely slow rates in response to movements in the mantle.</p> <p>Catastrophic Events SG: L10 (pp114-119) SG: L13-17 (pp154-197) TG: L10 (pp143-148) TG: L13-17 (pp177-256)</p> <p>Earth in Space SG: L13 (pp174-199) TG: L13 (pp197-208)</p> <p>Properties of Matter SG: L05 (pp38-55) TG: L05.Exts (p56)</p> <div style="border: 2px solid black; padding: 5px; margin-top: 10px;"> <p>S:ESS1:8:5.2 Explain how Earth events, abruptly and over time, can bring about changes on Earth’s surface (e.g., landforms, ocean floor, rock features, climate). [ESS1(5-8)POC-3]</p> <p>Catastrophic Events SG: L15 (pp170-189) TG: L15 (pp197-218)</p> <p>Earth in Space SG: L18 (pp290-311) TG: L18 (pp277-286)</p> </div> <p>S:ESS1:8:5.3 Explain the role of differential heating or convection in ocean currents, winds, weather and weather patterns, atmosphere, or climate. [ESS1(5-8)SAE+POC-4]</p> <p>Catastrophic Events</p>

		<p>SG: L02-3 (pp12-41) SG: L05-7 (pp54-95) TG: L02-3 (pp17-44) TG: L05-7 (pp57-102) Earth in Space SG: L07-9 (pp88-127) TG: L07-9 (pp83-146)</p>
<p>6. ROCK CYCLE</p>	<p>S:ESS1:6:6.1 Explain how soil is formed from combinations of weathered rock and decomposed plant and animal remains, and that it contains living organisms.</p> <p>S:ESS1:6:6.2 Identify the components of soil and other factors, such as bacteria, fungi and worms, which influence its texture, fertility, and resistance to erosion.</p> <p>S:ESS1:6.6.3 Describe the properties of soil, such as color, texture, capacity to retain water, and its ability to support plant life.</p>	<p>S:ESS1:8:6.1 Describe the processes of the rock cycle. Catastrophic Events SG: L21-22 (pp232-251) TG: L21-22 (pp293-316)</p> <p>S:ESS1:8:6.2 Explain that sedimentary, igneous, and metamorphic rocks contain evidence of the minerals, temperatures, and forces that created them. Catastrophic Events SG: L21-23 (pp232-263) TG: L21-23 (pp293-328)</p> <p>S:ESS1:8:6.3 Explain how sediments of sand and smaller particles, which may contain the remains of organisms, are gradually buried and cemented together by dissolved minerals to form solid rock. Catastrophic Events TG: L23.Exts (pp325-326)</p> <p>S:ESS1:8:6.4 Using data about a rock’s physical characteristics, make and support an inference about the rock’s history and connection to the rock cycle. [ESS1(5-8)SAE+POC-5] Catastrophic Events SG: L21-22 (pp232-251) SG: L25 (pp274-282) TG: L21-22 (pp293-316) TG: L23.Exts (pp325-326) TG: L25 (pp347-372) Earth in Space SG: L18 (pp290-311) TG: L12.Exts (pp192-193) TG: L18 (pp277-286)</p>

Earth Space Science		
ESS1– The Earth and Earth materials, as we know them today, have developed over long periods of time, through constant change processes.		
	5-6	7-8
7. WATER	<p>S:ESS1:6:7.1 Explain the properties that make water an essential component of the Earth’s system, including solvency and its ability to maintain a liquid state at most temperatures.</p> <p style="text-align: center;">Ecosystems TG: L11.Exts (p114)</p> <p style="text-align: center;">Floating and Sinking RB: (pp24-26) RB: (pp48-50)</p> <p>S:ESS1:6:7.2 Explain that water quality has a direct effect on Earth’s life forms.</p> <p style="text-align: center;">Ecosystems TG: L11.Exts (p114) TG: L13 (pp125-132) TG: L15-16 (pp145-168)</p> <p style="text-align: center;">Floating and Sinking RB: (pp48-50)</p>	<p>S:ESS1:8:7.1 Describe how water flows into and through a watershed, falling on the land, collecting in rivers and lakes, soil, and porous layers of rock, until much of it flows back into the ocean.</p> <p style="text-align: center;">Catastrophic Events SG: L06 (pp68-79) TG: L06 (pp69-82)</p> <p style="text-align: center;">Properties of Matter SG: L01 (pp2-13)</p> <p>S:ESS1:8:7.2 Identify the physical and chemical properties that make water an essential component of the Earth’s system.</p> <p style="text-align: center;">Properties of Matter SG: L20 (pp170-185) TG: L20 (pp227-240)</p> <div style="border: 2px solid black; padding: 5px;"> <p>S:ESS1:8:7.3 Explain the processes that cause cycling of water into and out of the atmosphere and their connections to our planet’s weather patterns. [ESS1(5-8)SAE-2]</p> <p style="text-align: center;">Catastrophic Events SG: L02-3 (pp12-41) SG: L05-7 (pp54-95) TG: L02-3 (pp17-44) TG: L05-7 (pp57-102)</p> <p style="text-align: center;">Properties of Matter SG: L01 (pp2-13)</p> </div>

Earth Space Science		
ESS2– The Earth is part of a solar system, made up of distinct parts, which have temporal and spatial interrelationships.		
	5-6	7-8
<p>1. EARTH, SUN, AND MOON</p>	<p>S:ESS2:6:1.1 Recognize and describe how the regular and predictable motions of the Earth and Moon explain certain Earth phenomena, such as day and night, the seasons, the year, shadows and the tides.</p> <p>S:ESS2:6:1.2 Recognize that of all the known planets, Earth appears to be somewhat unique; and describe the conditions that exist on Earth that allow it to support life.</p> <p style="padding-left: 40px;">Ecosystems RB: (pp07-10)</p>	<p>S:ESS2:8:1.1 Identify the characteristics of the Sun and its position in the universe.</p> <p style="padding-left: 40px;">Earth in Space SG: L02 (pp12-21) SG: L07-8 (pp88-121) TG: L02 (pp11-20) TG: L03.Exts (p33) TG: L04.Exts (pp45-46) TG: L06.Exts (p81) TG: L07 -9(pp83-146) TG: L11 (pp159-180)</p> <p>S:ESS2:8:1.2 Recognize and describe how the regular and predictable motions of the Earth and Moon account for phenomena, such as the phases of the Moon and eclipses.</p> <p style="padding-left: 40px;">Earth in Space SG: L02 (pp12-21) SG: L05-7(pp62-101) SG: L16 (pp244-265) TG: L02 (pp11-20) TG: L05-7 (pp53-96) TG: L16 (pp245-268)</p> <p>S:ESS2:8:1.3 Recognize the relationships between the tides and the phases of the moon; and use tide charts and NOAA information to describe them.</p> <p style="padding-left: 40px;">Earth in Space SG: L16 (pp244-265) TG: L16 (pp245-268)</p> <div style="border: 2px solid black; padding: 5px;"> <p>S:ESS2:8:1.4 Explain the temporal or positional relationships between or among the Earth, Sun and Moon (e.g., night/day, seasons, year, tide). [ESS2(5-8)SAE+POC-8]</p> <p style="padding-left: 40px;">Catastrophic Events SG: L03 (pp26-41) SG: L07 (pp80-95) TG: L01.Exts (pp10-11) TG: L03 (pp27-44)</p> </div>

		<p>TG: L07 (pp83-102) Earth in Space SG: L01-9 (pp2-127) TG: L01-9 (pp3-146) Organisms-From Macro to Micro TG: L10.Exts (pp175-176)</p>
2. ENERGY	<p>S:ESS2:6:2.1 Recognize how the tilt of the Earth’s axis and the Earth’s revolution around the Sun affect seasons and weather patterns. S:ESS2:6:2.2 Identify and describe seasonal, daylight and weather patterns as they relate to energy.</p>	<p>S:ESS2:8:2.1 Describe the Sun as the principle energy source for phenomena on the Earth’s surface.</p>
Earth Space Science		
ESS2– The Earth is part of a solar system, made up of distinct parts, which have temporal and spatial interrelationships.		
	5-6	7-8
3. SOLAR SYSTEM	<p><i>Districts may choose to work on End of Grade 8 standards in grades 5-8.</i></p>	<p>S:ESS2:8:3.1 Identify the characteristics and movement patterns of the planets in our Solar System and differentiate between them. Earth in Space SG: L02-3 (pp12-41) SG: L06 (pp74-87) 6 TG: L02-3 (pp11-36) TG: L06 (pp73-82)</p> <p>S:ESS2:8:3.2 Explain the effects of gravitational force on the planets and their moons. Earth in Space SG: L14-16 (pp200-265) TG: L14-16 (pp209-268)</p>

		<p>S:ESS2:8:3.3 Explain why Earth and our Solar System appear to be somewhat unique, while acknowledging recent evidence that suggests similar systems exist in the universe.</p> <p>Earth in Space SG: L01-22 (pp2-343) TG: L01-22 (pp3-326)</p> <div style="border: 2px solid black; padding: 5px;"> <p>S:ESS2:8:3.4 Compare and contrast planets based on data provided about size, composition, location, orbital movement, atmosphere, or surface features (includes moons). [ESS2(5-8)MAS-6]</p> <p>Earth in Space SG: L10-11 (pp130-159) SG: L13-16 (pp174-265)</p> </div> <div style="border: 2px solid black; padding: 5px; margin-top: 10px;"> <p>S:ESS2:8:3.5 Explain how gravitational force affects objects in the Solar System (e.g., moons, tides, orbits, satellites). [ESS2(5-8)SAE+POC-8]</p> <p>Earth in Space SG: L14-16 (pp200-265) TG: L14-16 (pp209-268)</p> </div>
<p>4. VIEW FROM EARTH</p>	<p>S:ESS2:6:4.1 Explain the historical perspective of planetary exploration and man’s achievements in space, beginning with Russia’s Sputnik mission in 1957.</p> <p>Motion and Design RB: (pp44-46)</p> <p>S:ESS2:6:4.2 Describe man’s perception of the constellations throughout history; and explain how he has used them to his advantage, including navigational purposes and to explain historical events.</p>	<div style="border: 2px solid black; padding: 5px;"> <p>S:ESS2:8:4.1 Explain how technological advances have allowed scientists to re-evaluate or extend existing ideas about the Solar System. [ESS2(5-8)NOS-7]</p> <p>Catastrophic Events SG: L01 (pp2-11) TG: L01 (pp3-16)</p> <p>Earth in Space SG: L17 (pp268-289) SG: L20 (pp324-333) TG: L17 (pp269-276) TG: L20 (pp293-308)</p> </div>

Earth Space Science		
ESS3– The origin and evolution of galaxies and the universe demonstrate fundamental principles of physical science across vast distances and time.		
	5-6	7-8
1. SIZE AND SCALE	<i>Districts may choose to work on End of Grade 8 standards in grades 5-8.</i>	<p>S:ESS3:8:1.1 Define an astronomical unit as the distance from the Earth to the Sun.</p> <p>Earth in Space SG: L02 (pp12-21) SG: L07 (pp88-101) SG: L11 (pp146-159) SG: L22 (pp340-343) TG: L02 (pp11-20) TG: L04.Exts (pp45-46) TG: L07 (pp83-96) TG: L11 (pp159-180)</p> <p>TG: L22 (pp311-326)</p> <p>S:ESS3:8:1.2 Explain that special units of measure, such as light years and astronomical units, are used to calculate distances in space.</p> <p>Earth in Space SG: L02 (pp12-21) SG: L07 (pp88-101) SG: L11 (pp146-159) SG: L22 (pp340-343) TG: L02 (pp11-20) TG: L04.Exts (pp45-46) TG: L07 (pp83-96) TG: L11 (pp159-180) TG: L22 (pp311-326)</p>
2. STARS AND GALAXIES	<i>Districts may choose to work on End of Grade 8 standards in grades 5-8.</i>	<p>S:ESS3:8:2.1 Describe objects such as asteroids, comets and meteors in terms of their characteristics and movement patterns.</p> <p>Earth in Space SG: L04-5(pp42-73) SG: L08 (pp102-121) SG: L12 (pp160-173) SG: L17 (pp268-289) TG: L04-5 (pp37-72) TG: L08 (pp97-120) TG: L11-13 (pp159-208)</p>

		TG: L15 (pp221-244) TG: L17 (pp269-276)
3. UNIVERSE	<i>Districts may choose to work on End of Grade 8 standards in grades 5-8.</i>	S:ESS3:8:3.1 Describe the universe as being comprised of billions of galaxies, each containing many billions of stars; and explain that there are vast distances separating these galaxies and stars from one another and from the Earth. Earth in Space SG: L02 (pp12-21)

Earth Space Science		
ESS4–The growth of scientific knowledge in Earth Space Science has been advanced through the development of technology and is used (alone or in combination with other sciences) to identify, understand and solve local and global issues.		
	5-6	7-8
1. DESIGN TECHNOLOGY	<p>S:ESS4:6:1.1 Understand that technology is used to design tools that improve our ability to measure and observe the world.</p> <p style="text-align: center;">Floating and Sinking RB: (pp41-42)</p>	<p>S:ESS4:8:1.1 Describe ways in which technology has increased our understanding of the world in which we live. EMM - SG: L16 (pp148-161) Earth in Space SG: L20-21 (pp324-339) TG: L20-21 (pp293-310) Properties of Matter TG: L21.Exts (p251)</p> <p>S:ESS4:8:1.2 Recognize the importance of technology as it relates to science, for purposes such as: access to space and other remote locations, sample collection and treatment, measurement, data collection, and storage, computation, and communication of information. Earth in Space TG: L05.Exts (p64) TG: L07.Exts (pp92-93) TG: L20.Exts (p297) TG: L21.Exts (p310)</p>
2. TOOLS	<p>S:ESS4:6:2.1 Recognize that satellites and Doppler radar can be used to observe or predict the weather.</p> <p>S:ESS4:6:2.2 Employ knowledge of basic weather symbols to read and interpret weather and topographic maps.</p> <p>S:ESS4:6:2.3 Read and interpret data from barometers, sling psychrometers and anemometers.</p>	<p>S:ESS4:8:2.1 Calculate temperature in degrees Celsius.</p> <p>S:ESS4:8:2.2 Perform calculations using metric measurements. Catastrophic Events TG: L03.Exts (pp35-36) Properties of Matter SG: L02-3 (pp14-29) SG: L09 (pp78-83) SG: L14 (pp116-121) SG: L25-26 (pp224-235) TG: L02-3 (pp15-38) TG: L09 (pp101-112) TG: L14 (pp153-160) TG: L25-26 (pp303-332)</p>

		<p>S:ESS4:8:2.3 Describe how man uses land-based light telescopes, radio telescopes, satellites, manned exploration, probes and robots to collect data.</p> <p>Catastrophic Events SG: L01-2 (pp2-25) TG: L01-2 (pp3-26)</p> <p>Earth in Space SG: L08-10 (pp102-145) SG: L13-17 (pp174-289) SG: L20 (pp324-333) TG: L08-10 (pp97-158) TG: L13-17 (pp197-249) TG: L20 (pp293-308)</p>
<p>3. LOCAL AND GLOBAL ENVIRONMENTAL ISSUES</p>	<p>S:ESS4:6:3.1 Provide examples of products that man has developed which allow humans to do things that they could not do otherwise; and identify the natural materials used to produce these products.</p> <p>S:ESS4:6:3.2 Identify the most appropriate materials for a given design task with requirements for specific properties, such as weight, strength, hardness, and flexibility.</p> <p>Floating and Sinking TG: L06-7 (pp49-60)</p> <p>S:ESS4:6:3.3 Provide examples of how to reduce waste through conservation, recycling, and reuse.</p> <p>Ecosystems RB: (pp45-48) RB: (pp57-59)</p>	<p>S:ESS4:8:3.1 Provide examples of how creative thinking and economic need has shaped the way people use natural materials, such as the use of metal ores, petroleum, and fresh water.</p> <p>S:ESS4:8:3.2 Explain how to test natural materials to measure and compare their properties.</p> <p>Catastrophic Events SG: L20-22 (pp224-251) TG: L20-22 (pp279-316)</p> <p>Properties of Matter SG: L23 (pp208-217) TG: L23 (pp275-294)</p> <p>S:ESS4:8:3.3 Explain how technologies can reduce the environmental impact of natural disasters.</p> <p>S:ESS4:8:3.4 Identify the potential impact of converting forested land to uses such as farms, homes, factories, or tourist attractions.</p>
<p>4. CAREER TECHNICAL EDUCATION CONNECTIONS</p>	<p>S:ESS4:6:4.1 Understand that some form of science is used in most jobs/careers and that some jobs/careers specifically require knowledge of Earth science.</p> <p>Floating and Sinking RB: (pp41-42)</p>	<p>S:ESS4:8:4.1 Understand that some scientific jobs/careers involve the application of Earth Space science content knowledge and experience in specific ways that meet the goals of the job.</p>

Life Science		
LS1– All living organisms have identifiable structures and characteristics that allow for survival (organisms, populations, & species).		
	K-2	3-4
1. CLASSIFICATION	<p>S:LS1:2:1.1 Differentiate between living and nonliving things; and categorize objects in each group using the significant observable characteristics they share, such as color, shape and size.</p> <p style="text-align: center;">Soils TG: L01-10 (pp3-108) TG: L13 (pp125-138)</p> <p>S:LS1:2:1.2 Recognize plants and animals as living things and describe how they are alike and different.</p> <p style="text-align: center;">Soils TG: L01-10 (pp3-108) TG: L13 (pp125-138)</p>	<p>S:LS1:4:1.1 Recognize and identify the various ways in which living things can be grouped.</p> <p style="text-align: center;">Animal Studies RB: (pp26-29) TG: L01-3 (pp3-36) TG: L17 (pp169-172)</p> <div style="border: 2px solid black; padding: 5px;"> <p>S:LS1:4:1.2 Sort/classify different living things using similar and different characteristics; and describe why organisms belong to each group or cite evidence about how they are alike or not alike.[LS1(K-4)INQ+POC-1]</p> <p style="text-align: center;">Animal Studies RB: (pp26-29) TG: L01-3 (pp3-36) TG: L17 (pp169-172)</p> </div>
2. LIVING THINGS AND ORGANIZATION	<p>S:LS1:2:2.1 Recognize that plants and animals have features that help them survive in different environments.</p>	<p>S:LS1:4:2.1 Recognize that living organisms have certain structures and systems that perform specific functions, facilitating survival, growth and reproduction.</p> <p style="text-align: center;">Animal Studies RB: (pp06-08) RB: (pp16-19) TG: L03-6 (pp21-74) TG: L08 (pp87-96) TG: L13-15 (pp135-164) TG: L16.Exts (p167)</p> <p style="text-align: center;">Electric Circuits RB: (pp11-12) RB: (pp47-49)</p> <p style="text-align: center;">Land and Water TG: L14.Exts (p156)</p> <p>S:LS1:4:2.2 Identify and describe the function of the plant structures responsible for food production, water transport, support, reproduction, growth and protection.</p> <p style="text-align: center;">Land and Water TG: L14.Exts (p156)</p>

		<p>S:LS1:4:2.3 Identify and explain how the physical structures of an organism (plants or animals) allow it to survive in its habitat/environment (e.g., roots for water; nose to smell fire). [LS1(K-4)FAF-4]</p> <p>Animal Studies RB: (pp06-08) RB: (pp16-19) TG: L03-6 (pp21-74) TG: L08 (pp87-96) TG: L13-15 (pp135-164) TG: L16.Exts (p167)</p> <p>Electric Circuits RB: (pp11-12) RB: (pp47-49)</p> <p>Land and Water TG: L14.Exts (p156)</p> <hr/> <p>S:LS1:4:2.4 Identify the basic needs of plants and animals in order to stay alive (i.e., water, air, food, space). [LS1(K-4)SAE-2]</p> <p>Animal Studies RB: (pp16-19) RB: (pp58-61) TG: L01-17 (pp3-172)</p> <p>Land and Water TG: L14.Exts (p156)</p>
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Life Science		
LS1– All living organisms have identifiable structures and characteristics that allow for survival (organisms, populations, & species).		
	K-2	3-4
3. REPRODUCTION	<p>S:LS1:2:3.1 Recognize that parents and offspring of many species closely resemble one another; and describe the similarities in appearance of given plant and animal families.</p> <p>S:LS1:2:3.2 Recognize that living things have a life cycle, during which they are born, grow, and die.</p> <p style="text-align: center;">Soils TG: L16.Exts (pp164-166)</p>	<p>S:LS1:4:3.1 Distinguish between plant and animal characteristics that are inherited, such as eye color in humans and the shape of leaves in plants, and those that are affected by their environment, such as grass turning brown due to lack of water.</p> <p style="text-align: center;">Animal Studies TG: L11.Exts (p119) TG: L13.Exts (p138)</p> <p>S:LS1:4:3.2 Recognize that living organisms have life cycles, which include birth, growth and development, reproduction, and death; and explain how these life cycles vary for different organisms.</p> <p style="text-align: center;">Animal Studies RB: (pp06-08) RB: (pp12-15) RB: (pp35-39) TG: L04.Exts (pp41-42) TG: L07.Exts (pp79-80) TG: L09.Exts (pp101-102)</p> <p>S:LS1:4:3.3 Describe the reproductive process of plants, explaining some plants grow from seed, while others grow from the parts of other plants.</p> <div style="border: 2px solid black; padding: 5px;"> <p>S:LS1:4-3.4 Predict, sequence, or compare the life stages of organisms (plants and animals): e.g., put images of life stages of an organism in order, predict the next stage in sequence, and compare two organisms. [LS1(K-4)POC–3]</p> <p style="text-align: center;">Animal Studies RB: (pp06-08) RB: (pp12-15) RB: (pp35-39) TG: L04.Exts (pp41-42) TG: L07.Exts (pp79-80) TG: L09.Exts (pp101-102)</p> </div>

Life Science		
LS2– Energy flows and matter recycles through an ecosystem.		
	K-2	3-4
1. ENVIRONMENT	<p>S:LS2:2:1.1 Recognize that living things can be found almost anyplace in the world; and that specific types of environments are required to support the many different species of plant and animal life.</p> <p>S:LS2:2:1.2 Recognize that animals, including humans, interact with their surroundings using their senses; and that different senses provide different kinds of information. Solids and Liquids TG: L05.Exts (pp43-45)</p> <p>S:LS2:2:1.3 Recognize that some plants and animals go through changes in appearance when the seasons change.</p>	<p>S:LS2:4:1.1 Describe how the nature of an organism’s environment, such as the availability of a food source, the quantity and variety of other species present, and the physical characteristics of the environment affect the organism’s patterns of behavior. Animal Studies RB: (pp22-32) RB: (pp40-42) RB: (pp50-52) TG: L01-17 (pp3-172)</p> <p>S:LS2:4:1.2 Describe the interaction of living organisms with nonliving things.</p>
2. FLOW OF ENERGY	<p>S:LS2:2:2.1 Identify the resources plants and animals need for growth and energy, and describe how their habitat provides these basic needs.</p>	<p>S:LS2:4:2.1 Recognize that the transfer of energy through food is necessary for all living organisms and describe the organization of food webs.</p> <div style="border: 2px solid black; padding: 5px; margin-top: 10px;"> <p>S:LS2:4:2.2 Recognize that energy is needed for all organisms to stay alive and grow or identify where a plant or animal gets its energy. [LS2(K-4)SAE-5]</p> </div>
3. RECYCLING OF MATERIALS	<p><i>Districts may choose to work on End of Grade 8 expectations in the 5-8 grade span.</i></p>	<p>S:LS2:4:3.1 Recognize that plants and animals interact with one another in various ways besides providing food, such as seed dispersal or pollination. Animal Studies TG: L01-17 (pp3-172)</p> <div style="border: 2px solid black; padding: 5px; margin-top: 10px;"> <p>S:LS2:4:3.2 Describe ways plants and animals depend on each other (e.g., shelter, nesting, food). [LS2(K-4)SAE-6]</p> </div>

Life Science		
LS3– Groups of organisms show evidence of change over time (e.g. evolution, natural selection, structures, behaviors, and biochemistry).		
	K-2	3-4
1. CHANGE	S:LS3:2:1.1 Recognize that some living things, which lived on Earth long ago, are now extinct, such as dinosaurs, mammoths, giant tree ferns, and horsetail trees.	<p>S:LS3:4:1.1 Provide examples of how environmental changes can cause different effects on different organisms.</p> <p>S:LS3:4:1.2 Provide examples of how an organism’s inherited characteristics can adapt and change over time in response to changes in the environment.</p> <p>Animal Studies RB: (pp06-11) RB: (pp16-19) RB: (pp30-32) RB: (pp45-49) TG: L01-16 (pp3-168)</p> <div style="border: 2px solid black; padding: 5px;"> <p>S:LS3:4:1.3 Using information (data or scenario), explain how changes in the environment can cause organisms to respond (e.g., survive there and reproduce, move away, die). [LS3(K-4)SAE-7]</p> <p>Animal Studies TG: L10 (pp107-114)</p> </div>
2. EVIDENCE OF EVOLUTION	S:LS3:2:2.1 Recognize that some plants and animals, which are alive today, are similar to living things which have become extinct, such as elephants and mammoths.	S:LS3:4:2.1 Compare information about fossils to living organisms and other fossils to determine any similarities and differences.
3. NATURAL SELECTION	<p>S:LS3:2:3.1 Recognize and describe the similarities and differences in both behavior and appearance of plants and animals.</p> <p>S:LS3:2:3.2 Recognize that there are different species of living things in various places around the world.</p>	<p>S:LS3:4:3.1 Recognize that individuals of the same species differ in their characteristics; and explain that sometimes these differences give individuals an advantage in survival and reproduction.</p> <p>Animal Studies RB: (pp06-11) RB: (pp16-19) RB: (pp30-32) RB: (pp45-49) TG: L01-16 (pp3-168)</p>

		<p>S:LS3:4:3.2 Recognize that for any particular environment, some kinds of animals and plants survive well, some less well, and some cannot survive at all.</p> <p>Animal Studies RB: (pp06-11) RB: (pp16-19) RB: (pp30-32) RB: (pp40-42) RB: (pp45-49) TG: L11.Exts (p119) TG: L13.Exts (p138) TG: L14.Exts (p145) TG: L16.Exts (p167)</p> <p>Electric Circuits RB: (pp47-49)</p>
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Life Science		
LS4– Humans are similar to other species in many ways, and yet are unique among Earth’s life forms.		
	K-2	3-4
1. BEHAVIOR	<p>S:LS4:2:1.1 Recognize and describe how living things respond when exposed to helpful and harmful situations.</p> <p>S:LS4:2:1.2 Recognize that humans learn from each other in many different ways, such as listening and speaking, watching and imitating.</p> <p>S:LS4:2:1.3 Recognize that humans can gather different kinds of information about an object by adjusting their proximity to it.</p> <p style="text-align: center;">Rocks and Minerals TG: L01-16 (pp3-126)</p> <p style="text-align: center;">Soils TG: L01-16 (pp3-168)</p> <p style="text-align: center;">Solids and Liquids TG: L01-16 (pp3-136)</p> <p>S:LS4:2:1.4 Recognize that some of the things humans can do, such as playing games, reading, and writing, must be learned.</p>	<p>S:LS4:4:1.1 Recognize that an individual organism’s behavior is affected by internal cues, such as hunger and thirst; and describe how an organism uses its senses to understand and respond to these cues.</p> <p style="text-align: center;">Animal Studies RB: (pp16-19) RB: (pp53-61) TG: L10.Exts (p110)</p> <p>S:LS4:4:1.2 Recognize that an individual organism’s behavior is influenced by external cues, such as seasonal change; and describe how an organism might react, such as migrating or hibernating.</p> <p style="text-align: center;">Animal Studies RB: (pp16-19) RB: (pp22-25) RB: (pp40-42) RB: (pp53-61) TG: L10.Exts (p110)</p> <p>S:LS4:4:1.3 Recognize behaviors that may be unsafe or unhealthy for themselves and others.</p> <p style="text-align: center;">Electric Circuits RB: (pp07-10)</p> <p style="text-align: center;">Land and Water RB: (pp47-49)</p>
2. DISEASE	<p>S:LS4:2:2.1 Recognize that proper nutrition, exercise and rest are all important factors in maintaining good health.</p> <p>S:LS4:2:2.2 Recognize that humans can spread germs that cause disease.</p> <p>S:LS4:2:2.3 Identify and describe the basic personal hygiene habits for maintaining good health, such as washing one’s hands with soap and water and brushing one’s teeth.</p> <p>S:LS4:2:2.4 Recognize symptoms, such as fever, rashes, coughing and congestion for common illnesses.</p>	<p>S:LS4:4:2.1 Explain how the amount of rest and the types of food, exercise and recreation humans choose can influence and affect their well-being.</p> <p>S:LS4:4:2.2 Recognize that vitamins and minerals are needed in small amounts and are essential to maintain proper health.</p> <p style="text-align: center;">Animal Studies TG: L05.Exts (p58)</p> <p>S:LS4:4:2.3 Explain how proper food preparation and appropriate food handling practices can maintain the safety and quality of food.</p>

Life Science		
LS4– Humans are similar to other species in many ways, and yet are unique among Earth’s life forms.		
	K-2	3-4
<p>3. HUMAN IDENTITY</p>	<p>S:LS4:2:3.1 Recognize similarities and individual differences among people, and that children closely resemble their parents.</p> <p>S:LS4:2:3.2 Identify the sense organs, including eyes, ears, nose mouth, and skin; and describe how each can warn an individual about danger. Solids and Liquids TG: L05.Exts (pp43-45)</p> <p>S:LS4:2:3.3 Recognize that two parents, both a father and mother, are required for human reproduction.</p> <p>S:LS4:2:3.4 Recognize and describe the human life cycle from birth to old age.</p> <p>S:LS4:2:3.5 Recognize that humans need food, water, air, waste removal and a particular range of temperatures in their environment, just as other animals do.</p>	<div style="border: 2px solid black; padding: 5px; margin-bottom: 10px;"> <p>S:LS4:4:3.1 Identify what the physical structures of humans do (e.g., sense organs– eyes, ears, skin, etc.) or compare physical structures of humans to similar structures of animals. [LS4(K-4)FAF-8] Animal Studies TG: L13 (pp135-142)</p> </div> <div style="border: 2px solid black; padding: 5px; margin-bottom: 10px;"> <p>S:LS4:4:3.2 Distinguish between characteristics of humans that are inherited from parents (i.e., hair color, height, skin color, eye color) and others that are learned (e.g., riding a bike, singing a song, playing a game, reading). [LS4(K-4)POC-9]</p> </div> <p>S:LS4:4:3.3 Recognize the nutritional value of different foods and distinguish between healthy and unhealthy food choices using data gathered from food labels and dietary guidelines, such as the food pyramid. Animal Studies TG: L05.Exts (p58)</p>

Life Science		
LS5– The growth of scientific knowledge in Life Science has been advanced through the development of technology and is used (alone or in combination with other sciences) to identify, understand and solve local and global issues.		
	K-2	3-4
1. DESIGN TECHNOLOGY	S:LS5:2:1.1 Recognize that new products can be made out of natural materials, such as paper from trees and cloth from various plants and animals.	S:LS5:4:1.1 Recognize that man uses various mechanical devices to record and describe living organisms. Animal Studies RB: (pp09-15) RB: (pp45-52)
2. TOOLS	S:LS5:2:2.1 Recognize that some tools, such as magnifiers, balances and thermometers, have special uses and can help gather information and extend the senses.	S:LS5:4:2.1 Demonstrate the use of appropriate tools and simple equipment, such as thermometers, magnifiers and microscopes to gather data and extend the senses. Land and Water TG: L05-6 (pp51-74) S:LS5:4:2.2 Identify and describe the purpose of tools used by health care professionals, such as X-rays and stethoscopes.
3. SOCIAL ISSUES (LOCAL AND GLOBAL) MEDICAL TECHNOLOGY BIOTECHNOLOGY	S:LS5:2:3.1 Recognize that technology is used in medicine to prevent and cure diseases through vaccinations and medications. S:LS5:2:3.2 Provide examples from personal experience that illustrate how medicine helps humans recover from illness.	S:LS5:4:3.1 Recognize that medical technology provides information about a body’s condition, such as determining blood pressure, and recognizing the need to repair, replace and support the affected body parts. S:LS5:4:3.2 Recognize that biotechnology refers to the different ways humans modify the living environment to meet their needs, including growing food, genetic engineering and using living organisms such as yeast to prepare foods.
4. CAREER TECHNICAL EDUCATION CONNECTIONS	S:LS5:2:4.1 Recognize that some jobs/careers require knowledge and use of life science content and/or skills.	S:LS5:4:4.1 Identify some jobs/careers that require knowledge and use of life science content and/or skills. Electric Circuits RB: (pp50-52)

Life Science		
LS1– All living organisms have identifiable structures and characteristics that allow for survival (organisms, populations, & species).		
	5-6	7-8
1. CLASSIFICATION	<p>S:LS1:6:1.1 Identify ways in which living things can be grouped and organized, such as taxonomic groups of plants, animals and fungi.</p> <p style="text-align: center;">Experiments With Plants</p> <p style="text-align: center;">RB: (pp07-10) RB: (pp54-56)</p> <p>S:LS1:6:1.2 Categorize organisms into kingdoms that are currently recognized, according to shared characteristics.</p> <p style="text-align: center;">Experiments With Plants</p> <p style="text-align: center;">RB: (pp07-10) RB: (pp54-56)</p>	<p>S:LS1:8:1.1 Recognize that similarities among organisms are found in anatomical features and patterns of development; and explain how these can be used to infer the degree of relatedness among organisms.</p> <p style="text-align: center;">Organisms-From Macro to Micro</p> <p style="text-align: center;">SG: L01 (pp2-11) SG: L06 (pp64-81) SG: L11 (pp132-145) SG: L20 (pp236-243) TG: L01 (pp3-14) TG: L06 (pp73-104) TG: L11 (pp185-200) TG: L20 (pp331-350)</p> <div style="border: 2px solid black; padding: 5px;"> <p>S:LS1:8:1.2 Describe or compare how different organisms have mechanisms that work in a coordinated way to obtain energy, grow, move, respond, provide defense, enable reproduction, or maintain internal balance (e.g., cells, tissues, organs and systems). [LS1(5-8)SAE+FAF-2]</p> <p style="text-align: center;">Earth in Space</p> <p style="text-align: center;">TG: L07.Exts (pp92-93)</p> <p style="text-align: center;">Organisms-From Macro to Micro</p> <p style="text-align: center;">SG: L01 (pp2-11) SG: L03 (pp28-37) SG: L05-6 (pp46-81) SG: L09-11 (pp106-145) L13-14 (pp158-179) SG: L16-18 (pp188-215) TG: L01 (pp3-14) TG: L02.Exts (p25) TG: L03 (pp33-48) TG: L05 (pp57-72) TG: L06 (pp73-104) TG: L09-11 (pp151-200) TG: L13-14 (pp219-252) TG: L16-18 (pp267-302)</p> </div>

<p>2. LIVING THINGS AND ORGANIZATION</p>	<p>S:LS1:6:2.1 Recognize that all living things are composed of cells, and explain that while many organisms are single celled, such as yeast, others, including humans, are multicellular.</p> <p>S:LS1:6:2.2 Explain that the way in which cells function is similar in all organisms.</p> <p>S:LS1:6:2.3 Recognize that cells use energy obtain from food, to conduct the functions necessary to sustain life, such as cell growth.</p> <p>S:LS1:6:2.4 Recognize and describe the hierarchical organization of living systems, including cells, tissues, organs, organ systems, whole organisms, and ecosystems.</p> <p>S:LS1:6:2.5 Explain that multicellular organisms have specialized cells, tissues, organs and organ systems that perform certain necessary functions, including digestion, respiration, reproduction, circulation, excretion, movement, control and coordination and protection from disease.</p> <p>S:LS1:6:2.6 Recognize that the human cells found in tissues and organs are similar to those of other animals, but somewhat different from cells found in plants.</p>	<p>S:LS1:8:2.1 Identify the functions of the human body’s systems, including digestion, respiration, reproduction, circulation, excretion, movement, control and coordination and protection from disease; and describe how they interact with one another.</p> <p>Organisms-From Macro to Micro TG: L02.Exts (p25) TG: L07.Exts (pp118-119)</p> <p>S:LS1:8:2.2 Define a population and describe the factors that can affect it.</p> <p>Catastrophic Events TG: L09.Exts (p132)</p> <p>Earth in Space SG: L17 (pp268-289) TG: L17 (pp269-276)</p> <p>Organisms-From Macro to Micro SG: L06 (pp64-81) SG: L17 (pp194-203) TG: L01.Exts (p12) TG: L05.Exts (pp69-70) TG: L10.Exts (pp175-176) TG: L12.Exts (p207)</p> <p>S:LS1:8:2.3 Explain why it is beneficial for an organism to be able to regulate its internal environment while living in a constantly changing external environment.</p> <div style="border: 2px solid black; padding: 5px;"> <p>S:LS1:8:2.4 Explain relationships between or among the structure and function of the cells, tissues, organs, and organ systems in an organism. [LS1(5-8)FAF-4]</p> <p>Organisms-From Macro to Micro SG: L07-8 (pp82-105) TG: L07-8 (pp105-150)</p> </div>
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		<p>S:LS1:8:2.5 Using data and observations about the biodiversity of an ecosystem, make predictions or draw conclusions about how the diversity contributes to the stability of the ecosystem. [LS1(5-8)INQ+SAE-1]</p> <p>Organisms-From Macro to Micro SG: L02 (pp12-27) SG: L04 (pp38-45) SG: L12 (pp146-155) TG: L12 (pp201-218)</p>
Life Science		
LS1– All living organisms have identifiable structures and characteristics that allow for survival (organisms, populations, & species).		
	5-6	7-8
<p>3. REPRODUCTION</p>	<p>S:LS1:6:3.1 Explain that cells repeatedly divide to make more cells for growth and repair.</p> <p>S:LS1:6:3.2 Explain that the same genetic information is copied in each cell of a new organism.</p> <p>S:LS1:6:3.3 Explain that all living things reproduce in order to continue their species.</p> <p>Experiments With Plants RB: (pp36-40) RB: (pp44-46) RB: (pp54-56) RB: (pp62)</p>	<p>S:LS1:8:3.1 Differentiate between asexual and sexual reproduction, and explain that in some kinds of organisms, all the genes come from one parent, while in organisms requiring two sexes to reproduce, typically half the genes come from each parent.</p> <p>Organisms-From Macro to Micro SG: L03 (pp28-37) SG: L09 (pp106-119) SG: L12 (pp146-155) SG: L14 (pp172-179) SG: L17 (pp194-203) SG: L18 (pp204-215) TG: L03 (pp33-48) TG: L09 (pp151-166) TG: L12 (pp201-218) TG: L14 (pp237-252) TG: L17 (pp281-292)</p> <p>S:LS1:8:3.2 Explain that a species of sexually reproducing organisms is comprised of all the organisms that can mate to produce fertile offspring.</p> <p>S:LS1:8:3.3 Explain that in sexual reproduction, a single specialized cell from a female merges with a specialized cell from a male in a process called fertilization.</p> <p>S:LS1:8:3.4 Explain that the fertilized egg cell, carrying genetic information from each parent, multiplies to form the complete</p>

		<p>organism.</p> <p>Organisms-From Macro to Micro SG: L09 (pp106-119) SG: L14 (pp172-179) TG: L09 (pp151-166) TG: L14 (pp237-252)</p> <p>S:LS1:8:3.5 Explain how the basic tissues of an embryo form.</p> <div style="border: 2px solid black; padding: 5px;"> <p>S:LS1:8:3.6 Compare and contrast sexual reproduction with asexual reproduction. [LS1(5-8)POC-3]</p> <p>Organisms-From Macro to Micro SG: L03 (pp28-37) SG: L09 (pp106-119) SG: L12 (pp146-155) SG: L14 (pp172-179) SG: L17-18 (pp194-215) TG: L03 (pp33-48) TG: L09 (pp151-166) TG: L12 (pp201-218) TG: L14 (pp237-252) TG: L17 (pp281-292)</p> </div> <div style="border: 2px solid black; padding: 5px; margin-top: 10px;"> <p>S:LS1:8:3.7 Using data provided, select evidence that supports the concept that genetic information is passed on from both parents to offspring. [LS4(5-8)INQ+POC-11]</p> <p>Organisms-From Macro to Micro SG: L18-19 (pp204-235) TG: L02.Exts (p25) TG: L18-19 (pp293-330)</p> </div>
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Life Science		
LS2– Energy flows and matter recycles through an ecosystem.		
	5-6	7-8
1. ENVIRONMENT	<p>S:LS2:6:1.1 Identify and describe the factors that influence the number and kinds of organisms an ecosystem can support, including the resources that are available, the differences in temperature, the composition of the soil, any disease, the threat of predators, and competition from other organisms.</p> <p>S:LS2:6:1.2 Explain that most microorganisms do not cause disease and that many are beneficial to the environment.</p> <p>Ecosystems TG: L05.Exts (p57) TG: L06.Exts (pp64-65)</p>	<p>S:LS2:8:1.1 Explain how changes in environmental conditions can affect the survival of individual organisms and an entire species.</p> <p>Organisms-From Macro to Micro SG: L06 (pp64-81) TG: L01.Exts (p12) TG: L05.Exts (pp69-70) TG: L10.Exts (pp175-176)</p> <p>S:LS2:8:1.2 Explain that in all environments, organisms with similar needs may compete with one another for resources, including food, space, water, air, and shelter, and that in any particular environment the growth and survival of organisms depend on the physical conditions.</p> <p>Earth in Space TG: L10.Exts (p152)</p> <p>Organisms-From Macro to Micro SG: L06 (pp64-81) SG: L08 (pp96-105) SG: L13-14 (pp158-179) SG: L17 (pp194-203) TG: L01.Exts (p12) TG: L04.Exts (pp53-54) TG: L05.Exts (pp69-70) TG: L10.Exts (pp175-176) TG: L13-14 (pp219-252)</p> <p>Properties of Matter SG: L04 (pp30-37)</p> <div style="border: 2px solid black; padding: 5px;"> <p>S:LS2:8:1.3 Using data and observations, predict outcomes when abiotic/biotic factors are changed in an ecosystem. [LS2(5-8)INQ+SAE-5]</p> <p>Catastrophic Events SG: L24 (pp264-273) TG: L24 (pp329-346)</p> <p>Organisms-From Macro to Micro SG: L12-13 (pp146-171)</p> </div>

		<p>TG: L12-13 (pp201-236)</p>
<p>2. FLOW OF ENERGY</p>	<p>S:LS2:6:2.1 Describe how energy is transferred in an ecosystem through food webs; and explain the roles and relationships between producers, consumers and decomposers. Ecosystems RB: (pp14-16) RB: (pp17-19) TG: L03-4 (pp25-52) TG: L07 (pp75-82) TG: L12 (pp117-124)</p> <p>S:LS2:6:2.2 Recognize that one of the most general distinctions among organisms is between plants, which use sunlight to make their own food, and animals, which consume energy-rich foods. Ecosystems RB: (pp14-16) RB: (pp17-19) TG: L03-4 (pp25-52) TG: L07 (pp75-82) TG: L12 (pp117-124)</p> <p>S:LS2:6:2.3 Describe the process of photosynthesis and explain that plants can use the food they make immediately or store it for later use. Experiments With Plants RB: (pp07-10)</p> <p>S:LS2:6:2.4 Recognize that energy, in the form of heat, is usually a byproduct when one form of energy is converted to another, such as when living organisms transform stored energy to motion. Ecosystems TG: L01 (pp3-12)</p>	<p>S:LS2:8:2.1 Explain how food provides energy and materials for growth and repair of body parts. Organisms-From Macro to Micro SG: L15 (pp180-187) TG: L15 (pp253-266)</p> <div style="border: 2px solid black; padding: 5px;"> <p>S:LS2:8:2.2 Given a scenario, trace the flow of energy through an ecosystem, beginning with the sun, through organisms in the food web, and into the environment (includes photosynthesis and respiration). [LS2(5-8)SAE-6] Organisms-From Macro to Micro SG: L07 (pp82-93) SG: L10 (pp120-131) TG: L07 (pp105-130) TG: L10 (pp167-184)</p> </div>

Life Science		
LS2– Energy flows and matter recycles through an ecosystem.		
	5-6	7-8
<p>3. RECYCLING OF MATERIALS</p>	<p>S:LS2:6:3.1 Define a population as all individuals of a species that exist together at a given place and time; and explain that all populations living together in a community, along with the physical factors with which they interact, compose an ecosystem.</p> <p style="text-align: center;">Experiments With Plants</p> <p>RB: (pp24-25)</p> <p style="text-align: center;">Ecosystems</p> <p>RB: (pp07-23)</p> <p>RB: (pp26-37)</p> <p>RB: (pp40-51)</p> <p>RB: (pp54-61)</p> <p>TG: L01-2 (pp3-24)</p> <p>TG: L04-15 (pp39-164)</p> <p>TG: L17 (pp169-171)</p> <p>S:LS2:6:3.2 Using food webs, identify and describe the ways in which organisms interact and depend on one another in an ecosystem.</p> <p style="text-align: center;">Ecosystems</p> <p>RB: (pp14-16)</p> <p>TG: L07 (pp75-82)</p> <p>S:LS2:6:3.3 Explain how insects and various other organisms depend on dead plant and animal matter for food; and describe how this process contributes to the system.</p> <p style="text-align: center;">Ecosystems</p> <p>RB: (pp17-19)</p> <p>RB: (pp45-48)</p> <p>TG: L07 (pp75-82)</p>	<p>S:LS2:8:3.1 Identify autotrophs as producers who may use photosynthesis, and describe this as the basis of the food web.</p> <p>S:LS2:8:3.2 Explain the process of respiration and differentiate between it and photosynthesis.</p> <p style="text-align: center;">Organisms-From Macro to Micro</p> <p>SG: L07 (pp82-93)</p> <p>SG: L10 (pp120-131)</p> <p>TG: L07 (pp105-130)</p> <p>TG: L10 (pp167-184)</p> <p>S:LS2:8:3.3 Know that all organisms, including humans, are part of, and depend on, two main interconnected global food webs: one which includes microscopic ocean plants, and the other which includes land plants.</p> <p style="text-align: center;">Earth in Space</p> <p>TG: L07.Exts (pp92-93)</p> <p>S:LS2:8:3.4 Describe how matter is recycled within ecosystems and explain that the total amount of matter remains the same, though its form and location change.</p> <p style="text-align: center;">Organisms-From Macro to Micro</p> <p>SG: L14 (pp172-179)</p> <p>TG: L14 (pp237-252)</p> <p>S:LS2:8:3.5 Identify carbon, hydrogen, oxygen, nitrogen and phosphorus as common elements of living matter.</p> <p style="text-align: center;">Organisms-From Macro to Micro</p> <p>SG: L01 (pp2-11)</p> <p>SG: L07 (pp82-93)</p> <p>TG: L01 (pp3-14)</p> <div style="border: 2px solid black; padding: 5px;"> <p>TG: L07 (pp105-130) S:LS2:8:3.6 Given an ecosystem, trace how matter cycles among and between organisms and the physical environment (includes water, oxygen, food web, decomposition and recycling, but not carbon cycle nor nitrogen cycle). [LS2(5-8)SAE-7]</p> <p style="text-align: center;">Organisms-From Macro to Micro</p> <p>SG: L10 (pp120-131)</p> <p>SG: L14 (pp172-179)</p> <p>TG: L14 (pp237-252)</p> </div>

Life Science		
LS3– Groups of organisms show evidence of change over time (e.g. evolution, natural selection, structures, behaviors, and biochemistry).		
	5-6	7-8
1. CHANGE	<p>S:LS3:6:1.1 Provide examples of how all organisms, including humans, impact their environment; and explain how some changes can be detrimental to other organisms.</p> <p style="text-align: center;">Ecosystems RB: (pp40-42) RB: (pp60-61) TG: L08-16 (pp83-168)</p> <p>S:LS3:6:1.2 Explain how changes in environmental conditions can affect the survival of individual organisms and the entire species.</p> <p style="text-align: center;">Ecosystems RB: (pp11-13) RB: (pp20-23) RB: (pp40-42) RB: (pp60-61) TG: L08 (pp83-94) TG: L09-16 (pp95-168)</p> <p style="text-align: center;">Floating and Sinking RB: (pp48-50)</p>	<p>S:LS3:8:1.1 Describe the type of impact certain environmental changes, including deforestation, invasive species, increased erosion, and pollution containing toxic substances, could have on local environments.</p> <p style="text-align: center;">Catastrophic Events SG: L23-24 (pp252-273) TG: L23-24 (pp217-346)</p> <p style="text-align: center;">Organisms-From Macro to Micro SG: L06 (pp64-81) SG: L12-13 (pp146-171) SG: L17 (pp194-203) TG: L04.Exts (pp53-54) TG: L12 (pp201-218)</p>
2. EVIDENCE OF EVOLUTION	<p>S:LS3:6:2.1 Describe the fundamental concepts related to biological evolution, such as biological adaptations and the diversity of species.</p>	<p>S:LS3:8:2.1 Describe how the fossil record provides geologic evidence verifying the existence of now extinct life forms, and explains how this evidence provides documented proof of their appearance, diversification and extinction.</p> <p style="text-align: center;">Earth in Space SG: L18 (pp290-311) TG: L18 (pp277-286)</p> <p>S:LS3:8:2.2 Explain the concept of extinction and describes its importance in biological evolution.</p> <p style="text-align: center;">Organisms-From Macro to Micro SG: L13 (pp158-171) TG: L13 (pp219-236)</p> <div style="border: 2px solid black; padding: 5px;"> <p>S:LS3:8:2.3 Use a model, classification system, or dichotomous key to illustrate, compare, or interpret possible relationships among groups of organisms (e.g., internal and external structures, anatomical features). [LS3(5-8)MAS+FAF-8]</p> </div>

Life Science		
LS3– Groups of organisms show evidence of change over time (e.g. evolution, natural selection, structures, behaviors, and biochemistry).		
	5-6	7-8
3. NATURAL SELECTION	<p>S:LS3:6:3.1 Recognize that there are genetic variations among individuals in groups of organisms and provide examples of how these variations affect the survival of an organism.</p> <p>S:LS3:6:3.2 Recognize that only organisms that are able to reproduce can pass on their genetic information to the next generation.</p>	<p>S:LS3:8:3.1 Recognize that hereditary information is contained in genes, which are located in the chromosomes of each cell; and explain that inherited traits can be determined by either one or many genes, and that a single gene can influence more than one trait, such as eye and hair color.</p> <p style="text-align: center;">Organisms-From Macro to Micro SG: L19 (pp216-235) TG: L19 (pp303-330)</p> <p>S:LS3:8:3.2 Recognize that in any given environment the growth and survival of organisms depend on the physical conditions that exist; and explain that in all environments, organisms with similar needs may compete with one another for resources, including food, space, water, air, and shelter.</p> <p style="text-align: center;">Earth in Space TG: L10.Exts (p152)</p> <p style="text-align: center;">Organisms-From Macro to Micro SG: L06 (pp64-81) SG: L08 (pp96-105) SG: L13-14 (pp158-179) SG: L17 (pp194-203) TG: L01.Exts (p12) TG: L04.Exts (pp53-54) TG: L05.Exts (pp69-70) TG: L10.Exts (pp175-176) TG: L13-14 (pp219-252)</p> <p style="text-align: center;">Properties of Matter SG: L04 (pp30-37)</p> <p>S:LS3:8:3.3 Explain how individual organisms with certain traits are more likely than others to survive and have offspring.</p> <p style="text-align: center;">Organisms-From Macro to Micro SG: L13 (pp158-171) TG: L13 (pp219-236)</p> <p>S:LS3:8:3.4 Recognize that humans are able to control some characteristics of plants and animals through selective breeding; and explain how this results in small differences between the parents and offspring, which can accumulate in</p>

		<p>successive generations so that decedents are very different from their ancestors.</p> <p>Organisms-From Macro to Micro SG: L05 (pp46-63) TG: L19.Exts (pp317-318)</p> <div style="border: 2px solid black; padding: 5px;"><p>S:LS3:8:3.5 Cite examples supporting the concept that certain traits of organisms may provide a survival advantage in a specific environment and therefore, an increased likelihood to produce offspring. [LS3(5-8)POC-9]</p><p>Organisms-From Macro to Micro SG: L13 (pp158-171) TG: L13 (pp219-236)</p></div>
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Life Science		
LS4– Humans are similar to other species in many ways, and yet are unique among Earth’s life forms.		
	5-6	7-8
1. BEHAVIOR	<p>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.</p> <p style="text-align: center;">Experiments With Plants RB: (pp26-33)</p> <p>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.</p> <p>S:LS4:6:1.3 Provide examples of how humans make judgments about new situations based on memories of past experiences.</p>	<p>S:LS4:8:1.1 Recognize that unlike human beings, behavior in insects and many other species is determined almost entirely by biological inheritance.</p> <p style="text-align: center;">Organisms-From Macro to Micro TG: L02.Exts (p25) TG: L06.Exts (pp89-91) TG: L16.Exts (p273) TG: L17.Exts (pp287-288)</p> <p>S:LS4:8:1.2 Explain that organism’s behavioral response is a reaction to internal or and environmental stimuli, and that these responses may be determined by heredity or from past experience.</p> <p style="text-align: center;">Organisms-From Macro to Micro SG: L17 (pp194-203) TG: L02.Exts (p25) TG: L06.Exts (pp89-91) TG: L16.Exts (p273) TG: L17 (pp281-292)</p> <p>S:LS4:8:1.3 Explain how all behavior is affected by both inheritance and experience.</p>
2. DISEASE	<p>S:LS4:6:2.1 Explain that the human body has ways to defend itself against disease-causing organisms and describe how defenders, including tears, saliva, the skin, some blood cells and stomach secretions support the defense process.</p> <p>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.</p> <p>S:LS4:6:2.3 Explain how vaccines induce the body to build immunity to a disease without actually causing the disease itself.</p> <p>S:LS4:6:2.4 Recognize a healthy body cannot fight all germs that invade it; and explain how some germs interfere with the body’s defenses.</p>	<p>S:LS4:8:2.1 Recognize that disease in organisms can be caused by intrinsic failures of the system or infection from other organisms.</p> <p style="text-align: center;">Organisms-From Macro to Micro SG: L11 (pp132-145) SG: L15 (pp180-187) TG: L15 (pp253-266)</p> <p>S:LS4:8:2.2 Describe how viruses, bacteria, fungi, and parasites may affect the human body and provide examples of how they can interfere with normal body function.</p> <p style="text-align: center;">Organisms-From Macro to Micro SG: L11 (pp132-145)</p> <p>S:LS4:8:2.3 Describe the function of white blood cells and explain how they support the body’s defense system.</p>

		<p>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). [LS4(5-8)INQ-10]</p>
Life Science		
LS4– Humans are similar to other species in many ways, and yet are unique among Earth’s life forms.		
	5-6	7-8
<p>3. HUMAN IDENTITY</p>	<p>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.</p>	<p>S:LS4:8:3.1 Compare patterns of human development with those of other vertebrates. Organisms-From Macro to Micro SG: L03 (pp28-37)</p> <p>S:LS4:8:3.2 Recognize that an organism can be described in terms of a combination of traits; and differentiate between inherited traits and those that result from interactions with the environment. Organisms-From Macro to Micro SG: L19 (pp216-235) TG: L19 (pp303-330)</p> <p>S:LS4:8:3.3 Describe the major changes that occur over time in human development from single cell through embryonic development to new born (i.e., group of cells during the first trimester, organs form during the second, organs mature during the third). [LS4(5-8)POC-12]</p> <p>S:LS4:8:3.4 Using data provided, select evidence that supports the concept that genetic information is passed on from both parents to offspring. [LS4(5-8)INQ+POC-11] Organisms-From Macro to Micro SG: L18-19 (pp204-235) TG: L02.Exts (p25) TG: L18-19 (pp293-330)</p>

Life Science		
LS5– The growth of scientific knowledge in Life Science has been advanced through the development of technology and is used (alone or in combination with other sciences) to identify, understand and solve local and global issues.		
	5-6	7-8
1. DESIGN TECHNOLOGY	<p>S:LS5:6:1.1 Recognize that an agricultural system is designed to maximize the use of all the elements in the system, including using plants for food, oxygen, for the filtration of air and water, and for making compost.</p> <p>Experiments With Plants RB: (pp11-17) RB: (pp41-56) RB: (pp62)</p> <p>Ecosystems RB: (pp45-48)</p>	<p>S:LS5:8:1.1 Explain how technology has influenced the course of history, and provide examples such as those that relate to agriculture, sanitation and medicine.</p> <p>Earth in Space SG: L20-21 (pp324-339) TG: L20-21 (pp293-310)</p> <p>Organisms-From Macro to Micro SG: L05 (pp46-63) TG: L09.Exts (p160) TG: L19.Exts (pp317-318)</p> <p>Properties of Matter TG: L17.Exts (p185) TG: L21.Exts (p251)</p> <p>S:LS5:8:1.2 Provide examples of ways technology is used to protect the environment, such as using bacteria to clean water.</p> <p>Organisms-From Macro to Micro TG: L09.Exts (p160)</p> <p>Properties of Matter TG: L17.Exts (p185)</p>
2. TOOLS	<p>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.</p> <p>Experiments With Plants TG: L06 (pp57-64) TG: L12 (pp91-100)</p> <p>Ecosystems TG: L02 (pp13-24) TG: L06.Exts (pp64-65)</p>	<p>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.</p> <p>Catastrophic Events SG: L14 (pp164-169) SG: L21 (pp232-239) TG: L14 (pp187-196) TG: L21 (pp293-302)</p> <p>Earth in Space SG: L10 (pp130-145) SG: L20-21 (pp324-339) TG: L04 (pp37-52) TG: L10 (pp147-158) TG: L20-21 (pp293-310)</p> <p>Organisms-From Macro to Micro SG: L19 (pp216-235)</p>

		<p>TG: L09.Exts (p160) Properties of Matter SG: L09 (pp78-83) SG: L11 (pp98-105) SG: L15 (pp122-129) SG: L19 (pp162-167) SG: L21-23 (pp186-217) SG: L25 (pp224-229) TG: L17.Exts (p185)</p>
<p>3. SOCIAL ISSUES (LOCAL AND GLOBAL)</p> <p>MEDICAL TECHNOLOGY</p> <p>BIOTECHNOLOGY</p>	<p>S:LS5:6:3.1 Provide examples of early health care technology that helped to extend the life expectancy of humans, such as the discovery of penicillin and sterilization of surgical instruments. Experiments With Plants RB: (pp62)</p> <p>S:LS5:6:3.2 Differentiate between vaccines, which help prevent diseases from developing and spreading, and medicines, which relieve symptoms or cure diseases.</p> <p>S:LS5:6:3.3 Recognize that the quality of personal health can be influenced by society and technology. Experiments With Plants RB: (pp62)</p> <p>S:LS5:6:3.4 Identify and describe some of the processes and systems used to grow food in New Hampshire, including irrigation, pest control and harvesting. Experiments With Plants RB: (pp11-17) RB: (pp41-56) RB: (pp62) Ecosystems RB: (pp45-48) RB: (pp60-61)</p>	<p>S:LS5:8:3.1 Explain the necessity of and purpose for the proper disposal of medical products. Organisms-From Macro to Micro TG: L14.Exts (p247) Properties of Matter TG: L15.Exts (p166)</p> <p>S:LS5:8:3.2 Give examples of how increased understanding of biology has led to improvements in biotechnology, such as scientific methods for increasing the yield or the pest-resistance of important food crops. Organisms-From Macro to Micro TG: L09.Exts (p160) Properties of Matter TG: L17.Exts (p185)</p> <p>S:LS5:8:3.3 Describes ways biotechnology helps humans, including improved health and medicine. Organisms-From Macro to Micro TG: L09.Exts (p160) Properties of Matter TG: L17.Exts (p185)</p>
<p>4. CAREER TECHNICAL EDUCATION CONNECTIONS</p>	<p>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. Floating and Sinking RB: (pp41-42)</p>	

Physical Science		
PS1– All living and nonliving things are composed of matter having characteristic properties that distinguish one substance from another (independent of size/amount of substance).		
	K-2	3-4
1. COMPOSITION	<p>S:PS1:2:1.1 Recognize that objects can be composed of different types of materials, such as wood, metal, and paper. Solids and Liquids TG: L02-17 (pp11-140)</p> <p>S:PS1:2:1.2 Recognize that objects can be made of one or more materials.</p>	<p>S:PS1:4:1.1 Explain that materials may be composed of parts that are too small to be seen without magnification.</p> <div style="border: 2px solid black; padding: 5px;"> <p>S:PS1:4:1.2 Use measures of weight (data) to demonstrate that the whole equals the sum of its parts. [PS1(K-4)SAE-3]</p> </div>
2. PROPERTIES	<p>S:PS1:2:2.1 Identify the observable properties of different objects, such as color, size, shape, weight and texture. Rocks and Minerals TG: L01-2 (pp3-18) Soils TG: L01 (pp3-16) TG: L03-8 (pp27-86) Solids and Liquids TG: L01-17 (pp3-140)</p>	<p>S:PS1:4:2.1 Recognize that substances can be classified by observable properties.</p> <p>S:PS1:4:2.2 Explain that some materials can exist in different states; and describe the distinct physical properties of each state of matter.</p> <p>S:PS1:4:2.3 Explain how some materials, such as water, can change from one state to another by heating or cooling. Land and Water TG: L02.Exts (p19)</p> <div style="border: 2px solid black; padding: 5px;"> <p>S:PS1:4:2.4 Make a prediction about what might happen to the state of common materials when heated or cooled; or categorize materials as solid, liquid, or gas. [PS1(K-4)POC-2] Land and Water TG: L02.Exts (p19)</p> </div> <p>S:PS1:4:2.5 Collect and organize data about physical properties in order to classify objects or draw conclusions about objects and their characteristic properties (e.g., temperature, color, size, shape, weight, texture, flexibility). [PS1(K-4)INQ-1]</p>

Physical Science		
PS2– Energy is necessary for change to occur in matter. Energy can be stored, transferred and transformed, but cannot be destroyed.		
	K-2	3-4
1. CHANGE	<p>S:PS2:2:1.1 Describe how the properties of certain materials can change when specific actions are applied to them, such as freezing, mixing, heating, cutting, dissolving and bending.</p> <p>S:PS2:2:1.2 Recognize that not all materials react the same way when an action is applied to them.</p> <p style="text-align: center;">Solids and Liquids TG: L02-17 (pp11-140)</p>	<p>S:PS2:4:1.1 Recognize that energy has the ability to create change.</p> <p style="text-align: center;">Electric Circuits RB: (pp24-28) RB: (pp36-38) Land and Water TG: L02.Exts (p19)</p>
2. CONSERVATION	<i>None at this grade span.</i>	<i>None at this grade span.</i>

Physical Science		
PS2– Energy is necessary for change to occur in matter. Energy can be stored, transferred and transformed, but cannot be destroyed.		
	K-2	3-4
3. ENERGY	<p>S:PS2:2:3.1 Recognize that sound is produced by vibrating objects and that the pitch of the sound can be varied by changing the rate of vibration.</p> <p>S:PS2:2:3.2 Explain that the Sun provides the Earth with heat and light.</p> <p>S:PS2:2:3.3 Describe that heat can be produced in a variety of ways, such as burning, rubbing, and mixing substances together.</p> <p>S:PS2:2:3.4 Recognize that energy comes from different sources, such as electricity and water, and is utilized in many common objects.</p>	<p>S:PS2:4:3.1 Identify the various forms of energy, such as electrical, light, heat, sound. Electric Circuits RB: (pp07-21) RB: (pp24-44) RB: (pp47-61) TG: L01-17 (pp3-86)</p> <p>S:PS2:4:3.2 Recognize that electricity in circuits can produce light, heat, sound, and magnetic effects.</p> <p>S:PS2:4:3.3 Identify and describe the organization of a simple circuit. Electric Circuits TG: L11.Exts (p63) TG: L13 (pp69-72) TG: L16 (pp81-84)</p> <p>S:PS2:4:3.4 Differentiate between objects and materials that conduct electricity and those that are insulators of electricity.</p> <p>S:PS2:4:3.5 Explain that light travels in a straight line until it strikes an object; and describe how it can be reflected by a mirror, bent by a lens, or absorbed by the object.</p> <div style="border: 2px solid black; padding: 5px;"> <p>S:PS2:4:3.6 Given a specific example or illustration (e.g., simple closed circuit, rubbing hands together) predict the observable effects of energy (i.e., the bulb lights, a bell rings, hands warm up). A test item may ask, “What will happen when...?” [PS2(K-4)SAE-4] Electric Circuits RB: (pp13-21) RB: (pp24-28) RB: (pp32-33) RB: (pp36-38)</p> </div>

		<p>S:PS2:4:3.7 Use observations of light in relation to other objects/substances to describe the properties of light (i.e., can be reflected, refracted, or absorbed). [PS2(K-4)SAE-5]</p> <p>S:PS2:4:3.8 Experiment, observe, or predict how heat might move from one object to another. [PS2(K-4) INQ+SAE-6]</p>
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Physical Science		
PS3– The motion of an object is affected by force.		
	K-2	3-4
1. FORCES	<p>S:PS3:2:1.1 Describe the properties of magnetism and demonstrate how magnets can be used to move some things without touching them.</p> <p>Rocks and Minerals TG: L11.Exts (p80)</p> <p>Solids and Liquids TG: L07 (pp55-62)</p> <p>S:PS3:2:1.2 Describe and demonstrate that things close to the Earth drop to the ground unless something supports them.</p>	<p>S:PS3:4:1.1 Recognize that magnets attract certain kinds of other materials; and classify objects by those magnets will attract and those they will not.</p> <p>S:PS3:4:1.2 Recognize that magnets attract and repel each other.</p> <p>S:PS3:4:1.3 Explain that electrically charged material pulls on all other materials and can attract or repel other charged materials.</p> <p>S:PS3:4:1.4 Recognize that the Earth’s gravitational force pulls any object toward it.</p> <p>S:PS3:4:1.5 Use observations of magnets in relation to other objects to describe the properties of magnetism (i.e., attract or repel certain objects or has no effect). [PS3(K-4)INQ+SAE-8]</p>
2. MOTION	<p>S:PS3:2:2.1 Describe the many different ways things can move, such as in a straight line, zigzag or circular motion, back and forth, and fast and slow.</p> <p>Solids and Liquids TG: L03-4 (pp19-40) TG: L05.Exts (pp43-45) TG: L06.Exts (pp51-52) TG: L09 (pp69-80)</p> <p>S:PS3:2:2.2 Describe and demonstrate how the position and motion of an object can be changed by applying force, such as pushing and pulling; and explain that the greater the force, the greater the change.</p> <p>S:PS3:2:2.3 Describe the position of an object by referencing its location in relation to another object or background.</p>	<p>S:PS3:4:2.1 Use data to predict how a change in force (greater/less) might affect the position, direction of motion, or speed of an object (e.g., ramps and balls). [PS3(K-4)INQ+SAE-7]</p>

Physical Science		
PS4– The growth of scientific knowledge in Physical Science has been advanced through the development of technology and is used (alone or in combination with other sciences) to identify, understand and solve local and global issues.		
	K-2	3-4
1. DESIGN TECHNOLOGY	S:PS4:2:1.1 Recognize that new objects can be made out of physical materials, such as cloth and paper.	S:PS4:4:1.1 Understand that materials are used in certain products based on their properties, such as strength and flexibility. S:PS4:4:1.2 Recognize that products are made using a combination of technologies, such as how an escalator uses both a pulley system and an electrical motor.
2. TOOLS	S:PS4:2:2.1 Identify tools and simple machines, such as a wheel, and explain how they work. S:PS4:2:2.2 Demonstrate how to use tools, such as rulers, scales, balances, magnifiers and thermometers to measure properties of objects, such as size, weight, temperature.	S:PS4:4:2.1 Demonstrate how to use tools, such as magnifiers, scales, balances, rulers, and thermometers to gather data and extend the senses. Electric Circuits TG: L01-17 (pp3-86) S:PS4:4:2.2 Describe how some tools can be used to modify natural materials by processes such as separating, shaping, and joining, to produce new materials.
3. SOCIAL ISSUES (LOCAL AND GLOBAL) ENERGY, POWER, AND TRANSPORTATION MANUFACTURING	S:PS4:2:3.1 Provide examples of how man uses energy in everyday life, such as providing light, warmth in winter, cooling in summer, TVs, computers, telephones, transportation, factories. S:PS4:2:3.2 Provide examples of items that are manufactured or produced.	S:PS4:4:3.1 Give examples of transportation systems used in New Hampshire, such as buses, trains, cars, and bicycles; and describe the sources of energy they use. Electric Circuits TG: L01.Exts (p5) S:PS4:4:3.2 Explain that manufactured products are designed to solve a problem or meet a need. Electric Circuits RB: (pp17-21) S:PS4:4:3.3 Provide an example to illustrate that manufacturing involves changing natural materials into finished products; and explain that this results in the production of a large number of objects that look almost identical.
4. CAREER TECHNICAL EDUCATION CONNECTIONS	S:PS4:2:4.1 Recognize that some jobs/careers require knowledge and use of physical science content and/or skills.	S:PS4:4:4.1 Identify some jobs/careers that require knowledge and use of physical science content and/or skills. Electric Circuits RB: (pp42-44) TG: L16.Exts (p83)

Physical Science		
PS1– All living and nonliving things are composed of matter having characteristic properties that distinguish one substance from another (independent of size/amount of substance).		
	5-6	7-8
1. COMPOSITION	<p>S:PS1:6:1.1 Recognize that all matter is composed of minute particles called atoms; and explain that all substances are composed of atoms, each arranged into different groupings.</p> <p>S:PS1:6:1.2 Identify elements as substances that contain only one kind of atom; and explain that elements do not break down by normal laboratory reactions, such as heating, exposure to electric current, and reaction to acid.</p> <p>S:PS1:6:1.3 Recognize that over one hundred elements exist, and identify the periodic table as a tool for organizing the information about them.</p>	<p>S:PS1:8:1.1 Explain that atoms often combine to form a molecule or formula unit (crystal).</p> <p>S:PS1:8:1.2 Recognize that elements can combine in a variety of ways to form compounds. Properties of Matter SG: L20-22 (pp170-207) TG: L20-22 (pp227-274) TG: L23.Exts (p284)</p> <p>S:PS1:8:1.3 Differentiate between an atom and an molecule. Properties of Matter TG: L21.Exts (p251)</p> <p>S:PS1:8:1.4 Differentiate between a mixture and a pure substance. Properties of Matter SG: L01 (pp2-13) SG: L11-12 (pp98-111) SG: L14-15 (pp116-129) SG: L17-22 (pp140-207) TG: L01 (pp3-14) TG: L11-12 (pp125-142) TG: L14-15 (pp153-168) TG: L16.Exts (p178) TG: L17-22 (pp179-274)</p> <p>S:PS1:8:1.5 Identify methods used to separate mixtures, such as boiling, filtering, chromatography and screening. Properties of Matter SG: L15 (pp122-129) SG: L17 (pp140-149) TG: L15 (pp161-168) TG: L17 (pp179-192)</p>

		<p>S:PS1:8:1.6 Collect data or use data provided to infer or predict that the total amount of mass in a closed system stays the same, regardless of how substances interact (conservation of matter). [PS1(5-8)INQ+SAE-3]</p> <p>Properties of Matter SG: L25 (pp224-229) TG: L25 (pp303-312)</p> <p>S:PS1:8:1.7 Given graphic or written information, classify matter as atom/molecule or element/compound (not the structure of an atom). [PS1(5-8)MAS-5]</p> <p>Properties of Matter SG: L06-7 (pp56-73) SG: L10-11 (pp86-105) SG: L13 (pp112-115) SG: L15 (pp122-129) SG: L25 (pp224-229) TG: L06-7 (pp65-90) TG: L10-11 (pp113-134) TG: L13 (pp143-152) TG: L15 (pp161-168) TG: L25 (pp303-312)</p>
Physical Science		
PS1– All living and nonliving things are composed of matter having characteristic properties that distinguish one substance from another (independent of size/amount of substance).		
	5-6	7-8
2. PROPERTIES	<p>S:PS1:6:2.1 Identify elements according to their common properties, such as highly reactive metals, less reactive metals, highly reactive non-metals and almost non-reactive gases.</p> <p>S:PS1:6:2.2 Identify substances by their physical and chemical properties, such as magnetism, conductivity, density, solubility, boiling and melting points. Floating and Sinking RB: (pp07-10) RB: (pp15-17)</p>	<p>S:PS1:8:2.1 Differentiate between volume and mass and define density.</p> <p>Catastrophic Events SG: L04 (pp42-53) TG: L04 (pp45-56) Earth in Space SG: L15 (pp216-243) TG: L15 (pp221-244) Properties of Matter SG: L01-5 (pp2-55)</p>

	<p>RB: (pp36-42) RB: (pp48-50) RB: (pp60-61) TG: L02 (pp13-20) TG: L10 (pp79-86) TG: L13-15 (pp103-128)</p> <p>S:PS1:6:2.3 Differentiate between weight and mass.</p> <p>S:PS1:6:2.4 Identify energy as a property of many substances.</p>	<p>SG: L08-9 (pp74-83) SG: L14 (pp116-121) SG: L19 (pp162-167) SG: L25-26 (pp224-235) TG: L01-5 (pp3-64) TG: L08-9 (pp91-112) TG: L14.Exts (p157) TG: L19 (pp209-226) TG: L25 (pp303-312) TG: L26 (pp313-332)</p> <p>S:PS1:8:2.2 Explain how different substances of equal volume usually have different weights.</p> <p>Catastrophic Events SG: L04 (pp42-53) TG: L04 (pp45-56)</p> <p>Properties of Matter SG: L01-3 (pp2-29) SG: L05 (pp38-55) SG: L09 (pp78-83) SG: L19 (pp162-167) SG: L26 (pp230-235) TG: L01-3 (pp3-38) TG: L04.Exts (p45) TG: L05 (pp49-64) TG: L09 (pp101-112) TG: L19 (pp209-226) TG: L26 (pp313-332)</p> <p>S:PS1:8:2.3 Identify a molecule as the smallest part of a substance that retains its properties.</p> <div style="border: 2px solid black; padding: 5px;"> <p>S:PS1:8:2.4 Investigate the relationships among mass, volume and density. [PS1(5-8)INQ-1]</p> <p>Catastrophic Events SG: L04 (pp42-53) TG: L04 (pp45-56)</p> <p>Earth in Space SG: L15 (pp216-243) TG: L15 (pp221-244)</p> <p>Properties of Matter</p> </div>
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		<p>SG: L01-5 (pp2-55) SG: L08-9 (pp74-83) SG: L14 (pp116-121) SG: L19 (pp162-167) SG: L25-26 (pp224-235) TG: L01-5 (pp3-64) TG: L08-9 (pp91-112) TG: L14 (pp153-160) TG: L19 (pp209-226) TG: L25-26 (pp303-332)</p> <p>S:PS1:8:2.5 Given data about characteristic properties of matter (e.g., melting and boiling points, density, solubility), identify, compare, or classify different substances. [PS1(5-8)INQ+POC-2]</p> <p>Catastrophic Events SG: L04 (pp42-53) TG: L04 (pp45-56) EMM - SG: L02 (pp12-19) EMM - SG: L03 (pp20-25) EMM - TG: L02 (pp23-30) EMM - TG: L03 (pp31-36) HBS - TG: L03.Exts (p24) HBS - TG: L07.Exts (pp74-75)</p> <p>Properties of Matter SG: L01-3 (pp2-29) SG: L05 (pp38-55) SG: L09 (pp78-83) SG: L12-13 (pp106-115) SG: L15-19(pp122-167) SG: L21 (pp186-197) SG: L26 (pp230-235) TG: L01-5 (pp3-64) TG: L09 (pp101-112) TG: L12-13 (pp135-152) TG: L15-19 (pp161-226) TG: L21 (pp241-260) TG: L26 (pp212-222)</p>
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		<p>S:PS1:8:2.6 Represent or explain the relationship between or among energy, molecular motion, temperature, and states of matter. [PS1(5-8)SAE+MAS-4]</p> <p>Catastrophic Events SG: L04 (pp42-53) TG: L04 (pp45-56)</p> <p>Properties of Matter SG: L06-8 (pp56-77) SG: L25 (pp224-229) TG: L02.Exts (p21) TG: L06-8 (pp65-100) TG: L12.Exts (p140) TG: L14.Exts (p157) TG: L15.Exts (p166) TG: L25 (pp303-312)</p>
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Physical Science		
PS2– Energy is necessary for change to occur in matter. Energy can be stored, transferred and transformed, but cannot be destroyed.		
	5-6	7-8
1. CHANGE	<p>S:PS2:6:1.1 Differentiate between a physical change, such as melting, and a chemical change, such as rusting.</p> <p>Ecosystems TG: L13.Exts (p127)</p> <p>Floating and Sinking TG: L06 (pp49-54)</p>	<p>S:PS2:8:1.1 Explain how substances react chemically with other substances to form new substances, known as compounds, and that in such recombinations, the properties of the new substances may be very different from those of the old.</p> <p>Properties of Matter SG: L06 (pp56-63) SG: L18 (pp150-161) SG: L20-24 (pp170-223) TG: L06 (pp65-78) TG: L18 (pp193-208) TG: L20-244 (pp227-302)</p> <p>S:PS2:8:1.2 Identify factors that affect reaction rates, such as temperature, concentration and surface area; and explain that dissolving substances in liquids often accelerates reaction rates.</p> <p>Catastrophic Events SG: L22 (pp240-251) TG: L22 (pp303-316)</p> <p>Properties of Matter SG: L23 (pp208-217) TG: L23 (pp275-294)</p> <p>S:PS2:8:1.3 Explain that oxidation involves combining oxygen with another substance, as in burning or rusting.</p> <p>Catastrophic Events SG: L23 (pp252-263) TG: L23 (pp217-328)</p> <p>Properties of Matter TG: L24.Exts (p301)</p> <p>S:PS2:8:1.4 Explain that states of matter depend on the arrangement of the molecules and their motion.</p> <p style="border: 1px solid black; padding: 2px;">S:PS2:8:1.5 Given a real-world example, show that within</p>

		a system, energy transforms from one form to another (i.e., chemical, heat, electrical, gravitational, light, sound, mechanical). [PS2(5-8)SAE+POC-6]
2. CONSERVATION	S:PS2:6:2.1 Describe how mass remains constant in a closed system and provide examples relating to both physical and chemical change.	S:PS2:8:2.1 Explain the law of conservation of energy. S:PS2:8:2.2 Collect data or use data provided to infer or predict that the total amount of mass in a closed system stays the same, regardless of how substances interact (conservation of matter). [PS1(5-8)INQ+SAE-3] Properties of Matter SG: L25 (pp224-229) TG: L25 (pp303-312)
Physical Science		
PS2– Energy is necessary for change to occur in matter. Energy can be stored, transferred and transformed, but cannot be destroyed.		
	5-6	7-8
3. ENERGY	S:PS2:6:3.1 Explain that the pitch of a sound is dependent on the frequency of the vibration producing it. S:PS2:6:3.2 Explain that sound vibrations move at different speeds, have different wavelengths; and establish wave-like disturbances that emanate from the source. S:PS2:6:3.3 Recognize that energy, in the form of heat, is usually a by-product when one form of energy is changed to another, such as when machines convert stored energy to motion. Motion and Design TG: L06-7 (pp57-72) TG: L12 (pp109-116) TG: L15 (pp139-144) S:PS2:6:3.4 Explain that heat energy moves from warmer materials or regions to cooler ones through conduction, convection, and radiation. S:PS2:6:3.5 Explain how electrical circuits can be used to	S:PS2:8:3.1 Differentiate between kinetic energy, which is the energy of motion and potential energy, which depends on relative position. S:PS2:8:3.2 Recognize the Sun is a major energy source for the Earth, and describes how it affects the planet’s surface. Catastrophic Events SG: L03 (pp26-41) SG: L05 (pp54-67) SG: L13 (pp154-163) TG: L03 (pp27-44) TG: L05.Exts (p62) TG: L05 (pp57-68) TG: L13 (pp177-186) Earth in Space SG: L07-9 (pp88-127) TG: L07-9 (pp83-146) S:PS2:8:3.3 Describe ways light can interact with matter, such as transmission (which includes refraction), absorption, and scattering (which includes reflection).

	<p>transfer energy in order to produce heat, light, sound, and chemical changes.</p>	<p>Earth in Space SG: L07 (pp88-101) TG: L07 (pp83-96)</p> <p>S:PS2:8:3.4 Explain that the human eye can only detect wavelengths of electromagnetic radiation within a narrow range; and explain that the differences of wavelength within that range of visible light are perceived as differences in color.</p> <p>S:PS2:8:3.5 Recognize that most chemical and nuclear reactions involve a transfer of energy.</p> <p>Catastrophic Events TG: L19.Exts (pp274-275)</p> <p>Properties of Matter TG: L22.Exts (p270)</p> <div style="border: 2px solid black; padding: 5px;"> <p>S:PS2:8:3.6 Use data to draw conclusions about how heat can be transferred (convection, conduction, radiation). [PS2(5-8)INQ+SAE+POC-7]</p> <p>Catastrophic Events SG: L03-4 (pp26-53) TG: L03-4 (pp27-56)</p> </div>
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Physical Science		
PS3– The motion of an object is affected by force.		
	5-6	7-8
1. FORCES	<p>S:PS3:6:1.1 Recognize that just as electric currents can produce magnetic forces, magnets can cause electric currents.</p> <p>S:PS3:6:1.2 Explain that when a force is applied to an object, it reacts in one of three ways: the object either speeds up, slows down, or goes in a different direction.</p> <p style="text-align: center;">Floating and Sinking TG: L09 (pp69-78)</p> <p style="text-align: center;">Motion and Design TG: L03-5 (pp25-56) TG: L07.Exts (pp68-69) TG: L08-13 (pp73-124) TG: L15 (pp139-144) TG: L17 (pp153-156)</p> <p>S:PS3:6:1.3 Describe the relationship between the strength of a force on an object and the resulting effect, such as the greater the force, the greater the change in motion.</p> <p style="text-align: center;">Motion and Design TG: L04-5 (pp35-56)</p>	<p>S:PS3:8:1.1 Explain that the force of gravity gets stronger the closer one gets to an object and decreases the further away one gets from it.</p> <p>S:PS3:8:1.2 Recognize the general concepts related to gravitational force.</p> <div style="border: 2px solid black; padding: 5px;"> <p>S:PS3:8:1.3 Use data to determine or predict the overall (net) effect of multiple forces (e.g., friction, gravitational, magnetic) on the position, speed, and direction of motion of objects. [PS3(5-8)INQ+POC-8]</p> <p style="text-align: center;">Earth in Space TG: L16 (pp245-268)</p> </div>
2. MOTION	<p>S:PS3:6:2.1 Explain the how balanced and unbalanced forces are related to an object’s motion.</p> <p>S:PS3:6:2.2 Explain that an object’s motion can be tracked and measured over time and that the data can be used to describe its position.</p>	<p>S:PS3:8:2.1 Explain that an object in motion that is unaffected by a force will continue to move at a constant speed and in a straight line.</p> <p style="text-align: center;">Catastrophic Events SG: L12 (pp134-153) TG: L12 (pp163-176)</p> <p style="text-align: center;">Earth in Space SG: L15 (pp216-243) TG: L15 (pp221-244)</p> <p>S:PS3:8:2.2 Explain how the motion of an object can be described by its position, direction of motion, and speed; and illustrate how that motion can be measured and represented graphically.</p>

Physical Science

The growth of scientific knowledge in Physical Science has been advanced through the development of technology and is used (alone or in combination with other sciences) to identify, understand and solve local and global issues.

	5-6	7-8
DESIGN TECHNOLOGY	S:PS4:6:1.1 Understand that scientific principles are used in the design of technology.	S:PS4:8:1.1 Understand that design features, such as size, shape, weight, and function, must be considered when designing new technology. Catastrophic Events SG: L11 (pp120-133) TG: L06.Exts (pp77-78) TG: L11 (pp149-162) Earth in Space SG: L20-21 (pp324-339) TG: L20-21 (pp293-310) Properties of Matter SG: L10 (pp86-97) TG: L10 (pp113-124)
TOOLS	S:PS4:6:2.1 Recognize that manufacturing processes use a variety of tools and machines to separate, form, combine and condition natural and synthetic materials.	S:PS4:8:2.1 Demonstrate appropriate use of tools, such as rulers, calculators, balances, and graduated cylinders to measure and calculate volume and mass. Properties of Matter SG: L04 (pp30-37) SG: L08-9 (pp74-83) SG: L14 (pp116-121) SG: L26 (pp230-235) TG: L08-9 (pp91-112) TG: L14 (pp153-160) TG: L26 (pp313-332)
SOCIAL ISSUES (LOCAL AND GLOBAL) ENERGY, POWER, AND TRANSPORTATION MANUFACTURING	S:PS4:6:3.1 Explain how a battery changes chemical energy into electrical energy. Motion and Design TG: L06-7 (pp57-72) TG: L12 (pp109-116) TG: L15 (pp139-144) S:PS4:6:3.2 Demonstrate how to produce a magnetic force with an electric current, such as an electromagnet, and how to produce an electric current with a magnet, such as a generator.	S:PS4:8:3.1 Explain how humans use natural resources, such as flowing water and burning of coal, oil, or natural gas to generate electrical energy in power plants. Catastrophic Events SG: L03-4 (pp26-53) SG: L06-7 (pp68-95) TG: L03-4 (pp27-56) TG: L06-7 (pp69-102) Earth in Space SG: L07-9 (pp88-127)

	<p>S:PS4:6:3.3 Provide an example to show that manufacturing processes involve changing natural materials into finished products through a series of processes that involve physical and/or chemical changes.</p>	<p>TG: L07-9 (pp83-146) Properties of Matter SG: L07 (pp64-73)</p> <p>S:PS4:8:3.2 Describe how natural resources, such as coal, and natural gas are tapped for use in power plants, and how alternative sources, such as solar, wind, water, nuclear are tapped for power; and compare the advantages and disadvantages of each source.</p> <p>Catastrophic Events SG: L03-4 (pp26-53) SG: L06-7 (pp68-95) TG: L03-4 (pp27-56) TG: L06-7 (pp69-102)</p> <p>Earth in Space SG: L07-9 (pp88-127) TG: L07-9 (pp83-146)</p> <p>Properties of Matter SG: L07 (pp64-73)</p> <p>S:PS4:8:3.3 Differentiate between durable goods, which are designed to operate for a long period of time, and non-durable goods, which are only intended to operate for a short period of time.</p> <p>Properties of Matter SG: L10 (pp86-97) SG: L16 (pp130-139) TG: L10 (pp113-124) TG: L16 (pp169-178)</p>
<p>CAREER TECHNICAL EDUCATION CONNECTIONS</p>	<p>S:PS4:6:4.1 Understand that some form of science is used in most jobs/careers and that some jobs/careers specifically require knowledge of physical science.</p> <p>Motion and Design TG: L14 (pp125-138)</p>	<p>S:PS4:8:4.1 Understand that some scientific jobs/careers involve the application of physical science content knowledge and experience in specific ways that meet the goals of the job.</p>