



STARBASE Louisiana Correlation to Grade 5 Louisiana Students Standards for Science, English/Language Arts, Mathematics, and Social Studies; Next Generation Science Standards; Louisiana Technology Standards, International Society in Education Standards

STARBASE Louisiana curriculum is designed to introduce and/or reinforce science, engineering, and mathematics content, disciplinary core ideas, and cross-cutting concepts, correlated to the state and national standards for Science, Mathematics, English Language Arts, Social Studies, and Technology. The missions develop critical thinking, collaboration, creativity, and communication skills, essential skills for the 21st century workplace. With a focus on the Science and Engineering and Mathematical Practices, students develop a solid foundation in science and mathematics literacy. Included with each lesson are content-area technical writing prompts and sample answers tied to each and every mission for teachers to utilize in their classrooms as a follow-up learning activity between STARBASE visits. STARBASE also provides a number of extension activities including performance tasks and grading rubrics, comprehension reading passages, and foldable reinforcement activities designed to extend students' learning, reinforce content knowledge, or expose and correct misconceptions.

Louisiana Student Standards Science and Engineering Practices

1. Asking Questions (science) and defining problems (engineering)
2. Developing and using models
3. Planning and carrying out investigations
4. Analyzing and interpreting data
5. Using mathematical and computational thinking
6. Constructing explanations (science) and designing solutions (engineering)
7. Engaging in argument from evidence
8. Obtaining, evaluating, and communicating information

Louisiana Student Standards Mathematical Practices

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

| STARBASE Lesson | <u>Louisiana Standards:</u> LA Student Standards Science (LSSS) LA Student Standards Mathematics (LSSM) LA English/Language Arts (LSSELA) LA Technology Standards (LTS) LA Student Standards SStudies (LSST) <u>National Standards:</u> Next Generation Science Standards(NGSS) International Society for Technology in Education Standards (ISTES) | LA Student Standards for Science Performance Expectations | Science and Engineering Practices (SEP) or Mathematical Practices (MP) (Indices A, B) | Disciplinary Core Ideas | Crosscutting Concepts | NGSS Understanding the Nature of Science |
|---|--|---|--|---|--|--|
| S.T.E.M. Career Investigations <ul style="list-style-type: none">Scavenger HuntBusiness LunchesCareer VideosSTEM Base ToursSTEM Future Teller - Foldable Guided Review | LSSS – N/A NGSS – ETS1:1 ESS3-1 | ESS3-1: Generate and compare multiple solutions about ways individual communities can use science to protect the Earth's resources and environment. | SEP: 1, 3, 4, 6, 8 | UE.ESS3C.a Human activities in agriculture, industry, and everyday life have had major effects on the land, vegetation, streams, ocean, and the atmosphere. But individuals and communities are doing things to help protect Earth's resources and environments. ETS.UE.1B.a Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions. | Influence of Engineering, Technology, and Science on Society and the Natural World: Engineers improve existing technologies or develop new ones to increase their benefits, decrease known risks, and meet societal demands. | Scientific investigations use a variety of methods, tools, and techniques; Science is a way of knowing used by many people; Men and women from all backgrounds choose careers as scientists and engineers; Science affects everyday life. |
| | LSS ELA- RI-5-2; RI-5-3; RI-5-4; RI-5-7; RF-5-3a; RF-5-4a; W-5-7; L-5-3a | | | | | |
| | LTS: 3, 5, 6 - Indicators: D, E, H, I ISTES: 1d; 3c; 4c; 5c – Profiles: 4, 9 | | | | | |
| Metric Measurement <ul style="list-style-type: none">IntroductionStraw Rockets – Mass and LengthRobotic Measurement (Hangars) – Length, Volume, CapacityDensity Liquids – Liquid Volume, Mass | LSSS –5-PS1-3 NGSS – 5-PS1-3 | PS1-3: Make observations and measurements to identify materials based on their properties. | SEP: 1, 2, 3, 4, 5, 8 MP: 1, 2, 4, 5, 6, 7, 8 | UE.PS1A.c Structure and Properties of Matter: Measurements of properties can be used to identify materials. | Scale, Proportion, and Quantity: Natural objects exist from very small to immensely large; Standard units are used to measure and describe quantities such as weight, time, temperature, and volume. | Science investigations use a variety of methods, tools, and techniques; Science uses tools and technologies to make accurate measurements and observations; Science findings are limited to what can be answered with empirical evidence. |
| | LSSM – 5.OA.A.2; 5.NBT.A.1; 5.NBT.A.3a.; 5.NBT.A.4; 5.NBT.B.7; 5.MD.A.1; 5.MD.C.3a; 5.MD.C.3b; 5.MD.C.4; 5.MD.C.5a, 5.MD.C.5b; 5.MD.C.5c | | | | | |
| | LSS ELA – RI-5-4; RI-5-10; SL-5-1a; SL-5-1b; SL-5-1c; SL-5-1d; L-5-4; L-5-6 | | | | | |
| | ISTES – 6a – Profiles: 6, 8 | | | | | |
| PTC Creo - Computer-Aided Design <ul style="list-style-type: none">IntroductionLab ModuleSpace Station AssemblyMission Pack: Planetary Rover Assembly | LSSS – N/A NGSS – ETS1-1; ETS1-2; ETS1-3 | NGSS ETS1-1: Define simple design problems reflecting a need or want that includes specified criteria for success and constraints on time, materials, or cost. NGSS ETS1-2: Generate and compare multiple possible solutions to a problem based on how well each is likely to meet criteria and constraints of the problems. | SEP: 1, 2, 4, 5, 6 MP: 2, 4, 5, 6 | ETS.UE.1B.c Tests are often designed to identify failure points or difficulties, which suggest the elements of the design that need to be improved. | NGSS: Influence of Engineering, Technology, and Science on Society and the Natural World <ul style="list-style-type: none">People's needs and wants change over time, as do their demands for new and improved technologies.Engineers improve existing technologies or develop new ones to increase their benefits, decrease known risks, and meet societal demands. | Science uses tools and technologies to make accurate measurements and observations; Men and women from all backgrounds choose careers as scientists and engineers; Science affects everyday life; Creativity and imagination are important to science. |
| | LSS Math – 5.G.B.3; 5.MD.A.1 | | | | | |
| | LSS ELA – RI-5-10; L-5-6 | | | | | |
| | LTS: 1,5,6 – Indicators: B, E, G, H, I, J ISTE: 1a,b,c; 5a,b,c; 6a,b,c,d – Profiles: 2, 8, 10 | | | | | |

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|---|--|--|---|---|--|--|
| Engineering Design Process <ul style="list-style-type: none">• Introduction – EDP Wheel• Lunar Nuclear Challenge – Applying Energy Transformations• Straw Rocket Design and Redesign• Lunar Surface Robotic Challenge | NGSS –3-5-ETS1-1; 3-5-ETS1-2; 3-5-ETS1-3 | See Lessons for Newton’s Laws, Energy Transformations, and Robotic Challenge for Science Performance Expectations | SEP: 1, 2, 3, 5, 6 MP: 1, 5, 6 | NGSS - ETS1.A: Defining and Delimiting Engineering Problems – Possible solutions to a problem are limited by available materials and resources. The success of a designed solution is determined by considering the desired features of a solution. Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account. ETS1.B: Developing possible solutions – Research on a problem should be carried out before beginning to design solution. Testing involves investigating how well it performs under a range of likely conditions. Tests are often designed to identify failure points or difficulties, which suggest the elements of the design that need to be improved. ETS1.C: Optimizing the design solution – Different solutions need to be tested in order to determine which of them best solves the problem, given the criteria and the constraints. | Cause and Effect: Cause and effect relationships are routinely identified, tested, and used to explain change. NGSS - Influence of Engineering, Technology, and Science on Society and the Natural World – Engineers improve existing technologies or develop new ones to increase their benefits, decrease known risks, and meet societal demands. | Science investigations use a variety of methods, tools, and techniques. Science is a way of knowing that is used by many people. Men and women from all cultures and backgrounds choose careers as scientists and engineers. Creativity and imagination are important to science. Science methods are determined by questions. Science explanations can change based on new evidence. |
| | LSSM – 5.NBT.B.5; 5.NBT.B.6; 5.NBT.B.7; 5.NF.A.1; 5.NF.B.a | | | | | |
| | LSS ELA – Language – Vocabulary Acquisition and Use: 6 | | | | | |
| Energy Transformations | LSSS –5-PS3-1; 5-PS2-1 | PS2-1: Support an argument that the gravitational force exerted by the Earth is directed down. PS3-1: Use models to describe that energy in animals’ food was once energy from the sun. | SEP: 1, 2, 3, 4, 56, 7, 8 | Energy in Chemical Processes and Everyday Life – The energy released from food was once energy from the sun that was captured by plants in the chemical process that forms plant matter. Types of Interactions : The gravitational force of Earth acting on an object near Earth’s surface pulls that object toward the planet’s center. | Cause and Effect: Cause and effect relationships are routinely identified, tested, and used to explain change. Energy and Matter: Energy can be transferred in various ways and between objects. | Science methods are determined by questions. Science investigations use a variety of methods, tools, and techniques. Science findings are based on recognizing patterns. Science theories are based on a body of evidence and many tests. Science explanations describe the mechanisms for natural events. Science assumes consistent patterns in natural systems. Basic laws of nature are the same everywhere in the universe. |
| | LSSM – 5.NBT.B.5; 5.NBT.B.6; 5.NBT.B.7; 5.NF.A.1; 5.NF.B.a | | | | | |
| | LSS ELA – L.5.6 | | | | | |

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| Guided Coding | LSSM: 5.G.A.1; 5.G.A.2 | NGSS: ETS1-2: Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. NGSS ETS1-3: Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved. | MP: 1,2,5 | NGSS - ETS1.A: Defining and Delimiting Engineering Problems – The success of a designed solution is determined by considering the desired features of a solution. ETS1.B: Developing Possible Solutions – Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions. | Patterns: Similarities and differences in patterns can be used to sort, classify, communicate and analyze simple rates of change for natural phenomena and designed products. | Men and women from different social, cultural, and ethnic backgrounds work as scientists and engineers; Creativity and imagination are important to science; Science investigations use a variety of methods, tools, and techniques. |
| | LSS ELA: | | | | | |
| | LTS: E; G; H; I | | | | | |
| Newton's Laws of Motion: <ul style="list-style-type: none"> Crash Test Dummies Newton Launcher Newton Pop - Ups Newton's Laws Foldable Booklet Guided Review Straw Rocket Launch and Design/Redesign | LSSS-5-PS2-1 | 5-PS2-1: Support an argument that the gravitational force created by the Earth is directed down. NGSS – 5-ETSI-3: Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved. | SEP: 1, 2, 3, 4, 5, 6, 7, 8 MP: 1, 2, 4, 5, 6 | Types of Interactions: The gravitational force of Earth acting on an object near Earth's surface pulls that object toward the planet's center. | Cause and Effect: Cause and effect relationships are routinely identified and used to explain change. | Science methods are determined by questions. Science investigations use a variety of methods, tools, and techniques. Science findings are based on recognizing patterns. Science uses tools and technologies to make accurate measurements and observations. Science theories are based on a body of evidence and many tests. Science explanations describe the mechanisms for natural events. Science affects everyday life. |
| | NGSS – 5-PS2-1; 3-5-ETSI-3 | | | | | |
| | LSSM: 5.OA.A.1; 5.OA.A.2; 5.NBT.A.3 | | | | | |
| | LSS ELA: RI-5-1; RI-5-4; FI-5-7; RI-5-8; RI-5-10; SL-5-1; SL-5-3; L-5-4; L-5-6 LTS: 2, 3, 4, 6, Indicators: A, B, D, G, J ISTE: 3. Research and Information Fluency: 3a, 3b, 3c, 3d. Critical Thinking, Problem Solving & Decision Making: 4a, 4b, 4c. Profiles – 4, 6 | | | | | |
| Little Bits of Logic: | LSSS: 5- PS1-1; 5-PS1-3 NGSS: ETS1-1; ETS1-2; ETS1-3 | 5-PS1-1: Develop a model to describe that matter is made of particles too small to be seen. 5-PS1-3: Make observations and measurements to identify materials based on their properties. | SEP: 1, 2, 3, 4, 6, 7, 8 | Structure and Properties of Matter: Matter of any type can be subdivided into particles that are too small to see, but even then the matter still exists and can be detected by other means. Measurements of a variety of properties can be used to identify materials | Cause and Effect: Cause and effect relationships are routinely identified, tested, and used to explain change. Energy and Matter: Energy can be transferred in various ways and between objects. | Science methods are determined by questions; Science investigations use a variety of methods, tools, and techniques; Science explanations can change based on new evidence; Science explanations describe the mechanisms for natural events; Basic laws of nature are the same everywhere in the universe. |
| | LSS ELA: SL5.1.c; SL5.1.d; SL.5.2; SL.5.6; L.5.4.b; L.5.6 | | | | | |
| | ITSE: Creativity and Innovation – 1c; Communication and Collaboration – 2d; Research Information Fluency – 3a, Critical Thinking, Problem Solving and Decision Making – 4b, 4c; Technology Operations and Concepts – 6a, 6b, 6c; Profiles – 4, 6, 9 LTS: 4, 6, Indicators D, E, F, G, I , J | | | | | |

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|---|--|--|---|--|--|--|
| Robotics: <ul style="list-style-type: none"> Introduction Robotics Programming Surveillance Challenge | LSSS: N/A NGSS: 3-5 ETS1-3 | NGSS – ETS1-3: Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved. | SEP: 1, 2, 3, 4, 5, 8 MP: 2, 5, 6 | NGSS - ETS1.A: Defining and Delimiting Engineering Problems – The success of a designed solution is determined by considering the desired features of a solution. ETS1.B: Developing Possible Solutions – Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions. | NGSS - Influence of Engineering, Technology, and Science on Society and the Natural World: Engineers improve existing technologies or develop new ones to increase their benefits, decrease known risks, and meet societal demands. | Science is a Human Endeavor – Creativity and imagination are important to science. Scientific Knowledge is Based on Empirical Evidence – Science uses tools and technologies to make accurate measurements and observation. |
| | LSSM: 5.MD.A.1; 5.NBT.A1; 5.NBT.A | | | | | |
| | LSST: G-5.4.2 | | | | | |
| | ITSE: Creativity and Innovation – 1c; Communication and Collaboration – 2d; Research Information Fluency – 3a, Critical Thinking, Problem Solving and Decision Making – 4b, 4c; Technology Operations and Concepts – 6a, 6b, 6c; Profiles – 4, 6, 9 LTS: 4, 6, Indicators D, E, F, G, I, J | | | | | |
| What's the Matter? Molecular Models | LSSS: 5-PS1-1 NGSS: 5-PS1-1 | PS1-1: Develop a model to describe that matter is made of particles too small to be seen. | SEP: 1, 2, 4, 5, 7, 8 | Structure and Properties of Matter: Matter of any type can be subdivided into particles that are too small to see, but even then, matter stills exists and can be detected by other means. | Cause and Effect; Scale, Proportion, Quantity. Natural objects exist from very small to immensely large. | Scientific knowledge assures consistent patterns in natural systems. Basic laws of nature are the same everywhere in the universe. Scientific findings are based on recognized patterns. Science models, laws, mechanisms, and theories explain natural phenomena. |
| | LSS ELA : RI-5-4; RI-5-9; RI-5-10; SL-5-1; SL-5-2; SL-5-3; L-5-6 | | | | | |
| | LTS: 2, 3, 4, 6 Indicators D, F ISTE: Research and Information Fluency, 3b; Digital Citizenship – 5a, 5b; Technology Operation and Concepts – 6a, 6B; Profiles: 1, 3, 6 | | | | | |
| Fluid Properties - Ocean of Air/Properties of Air: <ul style="list-style-type: none"> Lab activities Pyramid Foldable Guided Review | LSSS: 5-PS1-1; 5-PS1-3; 5-ESS2-2 NGSS: 5-PS1-1; 5-PS1-3; 5-PS2-1; 5-ESS2-2 | 5-PS1-1: Develop a model to describe that matter is made of particles too small to be seen. 5-PS1-3: Make observations and measurements to identify materials and their properties. 5-ESS2-2: Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth. | SEP: 1, 2, 3, 4, 5, 6, 7, 8 MP: 3, 4, 5, 6 | Structure and Property of Matter – Matter of any type can be subdivided into particles that are too small to see, but even then the matter still exists and can be detected by other means. A model shows that gases are made from matter particles that are too small to see and are moving freely around in space and can explain many observations. Measurements of a variety of properties can be used to identify materials. Earth Materials and Systems – Earth's major systems are the geosphere, hydrosphere, and the atmosphere. Liquid water can become the gas form of water and liquid water can become a solid as ice. | Scale, Properties, and Quantity: Natural objects exist from the very small to immensely large. Standard units are used to measure and describe physical quantities such as weight, time, temperature, and volume. Systems and System Models: A system can be described in terms of its components and their interactions. | Science assumes consistent patterns in natural systems. Basic laws of nature are the same everywhere in the universe. Science findings are limited to what can be answered with empirical evidence. Science methods are determined by questions. Science investigations use a variety of methods, tools and techniques. Science uses tools and technologies to make accurate measurements and observations. Science explanations describe the mechanisms for natural events. |
| | LSSM: 5.OA.A1-2; 5.NBT.A.1-1; 5.NBT.A.1-2; 5.NIF.B.3; 5.MD.C.3 | | | | | |
| | LSS ELA: RI-5-4; RI-5-10; SL-5-1; SL-5-6; L-5-4a | | | | | |
| | LTS: 3, 4 Indicators: H ISTE: Communication and Collaboration 2d; Research and Information Fluency – 3a, 3c, 3d; Critical Thinking, Problem Solving, and Decision Making – 4b, 4c; Profiles – 4, 6 | | | | | |

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|--|--|---|---|---|---|---|
| Physical and Chemical Changes | LSSS: 5-PS1-3; 5-PS1-4 NGSS: 5-PS1-3; 5-PS1-4 | 5-PS1-3: Make observations and measurements to identify materials based on their properties. 5-PS1-4: conduct an investigation to determine whether the mixing of two or more substances results in new substances. | SEP: 1, 2, 3, 4, 7, 8 MP: 5, 6 | Chemical Reactions – When two or more different substances are mixed a new substance with different properties may be formed. No matter what reaction or change in properties occurs the total weight of the substance does not change. Structure and Properties of Matter: Measurements of a variety of properties can be used to identify materials. | Cause and effect relationships are routinely identified, tested, and used to explain change. Scale, Proportion, and Quantity: Standard units are used to measure and describe physical quantities such as mass, time, temperature, and volume. | Science investigations use a variety of methods, tools, and techniques. Science uses tools and technologies to make accurate measurements and observations. Science explanations describe the mechanisms for natural events. Science affects everyday life. Science findings are limited to what can be answered with empirical evidence. |
| | LSSM: 5.MD.B.2 | | | | | |
| | LSS ELA: Reading Standard for Informational Text: Craft and Structure – 4, Integration of Knowledge and Ideas – 7, Range of Reading and Level of Text Complexity – 10; Speaking and Listening: Comprehensions and Collaboration – 1a, 1c; Language: Vocabulary Acquisition and Use – 4a, 4b, 6. | | | | | |
| | ISTE: Research and Information Fluency – 3c; Critical Thinking Problem Solving, Decision Making, 4c; Profiles 4, 6 LTS: 3, 4, Indicators: D, F | | | | | |
| What's the Solution? <ul style="list-style-type: none"> Mass, Weight, Density of Liquids Finding the Percentage of a Solute Mystery Fluids | LSSS: 5-PS1-2; 5-PS1-3 NGSS: 5-PS1-2; 5-PS1-3; | 5-PS1-2: Measure and graph quantities to provide evidence that regardless of the type of charge that occurs when heating, cooling, or mixing substances, the total amount of matter is conserved. 5-PS1-3: Make observations and measurements to identify materials based on their properties. | SEP: 3, 4, 6, 7 MP: 3, 4 | Structure and Properties of Matter – Measurements of a variety of properties can be used to identify materials. | Scale, Proportion, Quantity – Standards units are used to measure and describe physical quantities such as weight, time, temperature, and volume. | Tools and instruments are used to answer scientific questions, while scientific discoveries lead to the development of new technologies. Science explanations describe the mechanisms for natural events. Science findings are limited to what can be answered with empirical evidence. |
| | LSSM: 5. NBT.A.2; 5.NBT.A.3a | | | | | |
| | LSS ELA: RI-5-4; LS-5-1; L-5-6 | | | | | |
| Robot Recharge: Determining Surface Area | NGSS: 5-ETSI-2 | NGSS – ETS1-2: Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. | MP: 1, 2, 3, 4, 5, 6, 7, 8 | NGSS – Defining and Delimiting Engineering Problems: Possible solutions to a problem are limited by available materials and resources. NGSS – Optimizing the Design solution: Different solutions need to be tested in order to determine which of them best solves the problem, given the criteria and the constraint. | NGSS- Influence of Science, Engineering and Technology on society and the Natural World: Engineers improve existing technologies or develop new ones to increase their benefits, decrease known risks, and meet societal demands. | Science and technology support each other. Tools and instruments are used to answer scientific questions, while scientific discoveries lead to the development of new technologies. |
| | LSSM: 5.OA.A.1; 5.OA.A.2; 5.NF.B.4b | | | | | |
| | LSS ELA: SL-5-1; L-5-4; L-5-6 | | | | | |

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| Engineering/Straw Rocket Launch <ul style="list-style-type: none">Engineering and Rocket DesignAnalyzing VariablesLaunch AnalysisStraw Rocket Design and RedesignSee Newton’s Laws | LSSS: N/A NGSS: 3-5-ETS-1; 3-5-ETSI-1; 3-5-ETS-3 | See Lessons for Newton’s Laws, Energy Transformations, and Robotic Challenge for Science Performance Expectations | SEP: 1,3,4,5,6,7,8 MP: 3, 4, 5, 6 | NGSS: Defining and Delimiting Problems – The success of a design solution is determined by considering the desired feature of a solution. ETSI.B – Developing Possible Solutions – Testing a solution involves investigating how well it performs under a range of likely conditions. Tests are often designed to indentify failure points or difficulties, which suggests the element of the design that need to be improved. | Cause and effect – Cause and effect relationships are routinely identified and used to explain change. | Science methods are determined by questions. Science investigations use a variety of methods, tools, and techniques. Science uses tools and technologies to make accurate measurements and observation. Science explanations describe the mechanisms for natural events. Basic laws of nature are the same everywhere in the universe. Most scientists and engineers work in a team. Science affects everyday life. Science findings are limited to what can be answered with the empirical evidence. |
| | LSSM: 5.OA.A.1; 5.OA.A.2; 5.MD.A.1; 5-MD.B.2 | | | | | |
| | LSS ELA: RI-5-4; RI-5-10; LS-5-1; L-5-4; L-5-6 | | | | | |
| Data Analysis and Graphing <ul style="list-style-type: none">Intro to Data AnalysisCommunicating Your ResultsSpreadsheet GraphingThree types of Graphs Foldable Guided Review Activity | LSSS: 5-PS1-1; 5-ESS2-2 NGSS: 3-5-ETSI.2, 3-5-ETSI-3 | 5-PS1-1: Develop a model to describe that matter is made of particles too small to be seen. 5-ESS2-2: Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth. | SEP: 4, 5, 8 MP: 2, 3, 4, 6 | The Roles of Water in Earth’s Surface Processe: Liquid water can become the gas form of water (water vapor) and liquid water and become a solid as ice. NGSS: Developing Possible Solution - Research on a problems should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions. | Scale, Proportion, and Quantity: Standard units are used to measure and describe physical quantities such as mass, time, temperature, and volume. NGSS: Science and Technology in Society - Science and technology support each other. Tools and instruments are used to answer scientific questions, while scientific discoveries lead to the development of new technologies. | Science findings are limited to what can be answered with empirical evidence. Science investigations use a variety of methods, tools, and techniques. |
| | LSSM: 5.NBT.A.1; 5. NBT.A.3; 5.NBT.A.4; 5.MD.B.2 | | | | | |
| | LSS ELA: SL-5-5; L-5-2; L-5-4; L-5-6 | | | | | |
| | ISTE : Creativity and Innovation – 1a, 1b, 1d; Communication and Collaboration – 2a, 2b, 2d; Research and Fluency – 31, 3b, 3d; Critical Thinking, Problem Solving, and Decision Making – 4c; Digital Citizenship – 5a, 5b; Technology Operations and Concepts – 6b; Profiles – 4, 6 LTS: 2, 3, 4, 6; Indicators: D | | | | | |

| STARBASE Lesson | <u>Louisiana Standards:</u> LA Student Standards Science (LSSS) LA Student Standards Mathematics (LSSM) LA English/Language Arts (LSSELA) LA Technology Standards (LTS) LA Student Standards SStudies (LSST) <u>National Standards:</u> Next Generation Science Standards(NGSS) International Society for Technology in Education Standards (ISTES) | LA Student Standards for Science Performance Expectations | Science and Engineering Practices (SEP) or Mathematical Practices (MP) (Indices A, B) | Disciplinary Core Ideas | Crosscutting Concepts | NGSS Understanding the Nature of Science |
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| Chromatography | <div>LSSS: 5-PS1-3; 5-PS1-4</div> <div>NGSS:5-PS1-3; 5-PS1-4;3-5-ETS1-2</div> | <div>5-PS1-3: Make observations and measurements to identify materials based on their properties.</div> <div>5-PS1-4: Conduct an investigation to determine whether mixing of two or more substances results in new substances.</div> | <div>SEP: 1, 3, 4, 5,6, 7, 8</div> | <div>Structure and Properties of Matter: Matter of any type can be subdivided into particles that are too small to see, but even then the matter still exists and can be detected by other means. Measurements of a variety of properties can be used to identify materials.</div> <div>NGSS: Defining and Delimiting Engineering Problems - Possible solutions to a problem are limited by available materials and resources.</div> | <div>Cause and effect: relationships are routinely identified, tested and used to explain change.</div> | Science is a way of knowing that is used by many people. Science assumes consistent patterns in natural systems. Science affects everyday life. Science findings are limited to what can be answered with empirical evidence. Science methods are determined by questions. Science investigations use a variety of methods, tools, and techniques. Science findings are based on recognized patterns. Science explanations describe the mechanisms for natural events. |
| Mission Logs Group Discussions Pair Sharing Daily Review Sheets Guided Review Activities (Foldables) Content Writing Prompts Performance Assessment Tasks and Rubrics | <div>LSS ELA: RI-5-3; RI-5-4; RI-5-7; RI-5-10; W-5-1; W-5-2; W-5-4; W-5-7; W-5-8 W-5-10; L-5-1; L-5-3; L-5-4; L-5-6</div> | | <div>SEP: 1, 2, 5, 6, 7, 8</div> <div>MP: 2, 3, 4</div> | | | |