

Crest Memorial School Curriculum and Pacing Guide

Grade: 3rd--5th enrichment

Subject: STEM/STEAM enrichment

Adoption Date:

Revision Date: 7/29/21

	MP1	MP2	MP3	MP4
Scope and Sequence/Essential Questions	<p>What is the role of an engineer, scientist and mathematician?</p> <p>What questions do scientists ask and answer?</p> <p>What steps do we need to take to properly do a STEM project?</p> <p>What is a Growth Mindset and why do we need to have one to be successful?</p>	<p>How can STEM help us improve our everyday lives?</p> <p>What are some STEM jobs that are in our community?</p> <p>How can technology teach or help us in our daily lives?</p>	<p>How can we use STEM to help improve where we live?</p> <p>How is our community unique?</p> <p>Why is taking care of our environment important?</p>	<p>What can STEM do for us in the future?</p> <p>How can we help our environment?</p> <p>How can we use what we learned this year to reach our goals and help others?</p>

Instructional Materials	<ul style="list-style-type: none"> --Interest survey --Children's books with STEM related themes --craft supplies for STEM projects --Laptops --4-H guidebooks 	<ul style="list-style-type: none"> --Children's books with STEM related themes --craft supplies for STEM projects --Laptops --4-H guidebooks 	<ul style="list-style-type: none"> --Children's books with STEM related themes --craft supplies for STEM projects --Laptops --4-H guidebooks 	<ul style="list-style-type: none"> --Children's books with STEM related themes --craft supplies for STEM projects --Laptops --4-H guidebooks
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	<p>Online Sources: Mystery Science, TrueFlix, ScholasticGo, Google Applications, PhET simulations</p>	<p>Online Sources: Mystery Science, TrueFlix, ScholasticGo, Google Applications, PhET simulations</p>	<p>Online Sources: Mystery Science, TrueFlix, ScholasticGo, Google Applications, PhET simulations, Longwood Gardens resources, NASA education resources</p>	<p>Online Sources: Mystery Science, TrueFlix, ScholasticGo, Google Applications, PhET simulations</p>
Standards	<p>3rd: M-ESS1, MS-ESS2, M-ESS3, MS-ETS1, MS-LS1, MS-LS2, MS-PS1, 3-5-ETS1-1, 3-ESS3 and 3-LS4</p> <p>4th: M-ESS1, MS-ESS2, M-ESS3, MS-ETS1, MS-LS1, MS-LS2, MS-PS1, 3-5-ETS1-1, 4-PS3 and 4-LS1, 4-ESS3</p> <p>5th: 3-5-ETS1-1, 5-ESS1,</p>	<p>3rd: M-ESS1, MS-ESS2, M-ESS3, MS-ETS1, MS-LS1, MS-LS2, MS-PS1, 3-5-ETS1-1, 3-ESS3 and 3-LS4</p> <p>4th: M-ESS1, MS-ESS2, M-ESS3, MS-ETS1, MS-LS1, MS-LS2, MS-PS1, 3-5-ETS1-1, 4-PS3 and 4-LS1, 4-ESS3</p>	<p>3rd: M-ESS1, MS-ESS2, M-ESS3, MS-ETS1, MS-LS1, MS-LS2, MS-PS1, 3-5-ETS1-1, 3-ESS3 and 3-LS4</p> <p>4th: M-ESS1, MS-ESS2, M-ESS3, MS-ETS1, MS-LS1, MS-LS2, MS-PS1, 3-5-ETS1-1, 4-PS3 and 4-LS1, 4-ESS3</p> <p>5th: 3-5-ETS1-1, 5-ESS1,</p>	<p>3rd: M-ESS1, MS-ESS2, M-ESS3, MS-ETS1, MS-LS1, MS-LS2, MS-PS1, 3-5-ETS1-1, 3-ESS3 and 3-LS4</p> <p>4th: M-ESS1, MS-ESS2, M-ESS3, MS-ETS1, MS-LS1, MS-LS2, MS-PS1, 3-5-ETS1-1, 4-PS3 and 4-LS1, 4-ESS3</p> <p>5th: 3-5-ETS1-1, 5-ESS1,</p>

	5-ESS2, 5-LS2, 5-PS2, M-ESS1, MS-ESS2, M-ESS3, MS-ETS1, MS-LS1, MS-LS2, MS-PS1	5th: 3-5-ETS1-1, 5-ESS1, 5-ESS2, 5-LS2, 5-PS2, M-ESS1, MS-ESS2, M-ESS3, MS-ETS1, MS-LS1, MS-LS2, MS-PS1	5-ESS2, 5-LS2, 5-PS2, M-ESS1, MS-ESS2, M-ESS3, MS-ETS1, MS-LS1, MS-LS2, MS-PS1	5-ESS2, 5-LS2, 5-PS2, M-ESS1, MS-ESS2, M-ESS3, MS-ETS1, MS-LS1, MS-LS2, MS-PS1
Activities	<p>3rd, 4th and 5th grade intro unit: --For the first few weeks of classes, we will use craft materials and sources relating to the basics of STEM and engineering to help students understand the proper steps to carrying out a STEM or engineering project.</p> <p>**We will focus lessons on "Growth Mindset" and working as a team for our labs and lessons.</p> <p>Unit Topics by grade level:</p> <p>3rd: Life on Earth 4th: Energy on Earth 5th: Earth and Space</p>	<p>3rd: Animal facts and care and animal-related careers (service animals) and related hands-on labs</p> <p>4th: energy, electricity, engineering, technology jobs and related hands-on labs, physics of sports. Lab ideas include: building and testing spaghetti and marshmallow "towers", building and testing Rube Goldberg machines.</p> <p>5: aerospace and space science and related jobs and related hands-on labs: students will design and build a model rocket using craft materials, Bernoulli's principle mini lessons and labs, job in aviation/aerospace, design and build a model space rover,</p>	<p>3rd: Plant and Insect lessons: Butterfly science and migration, partner with The Wetlands Institute and 4-H for presentations, Free Longwood Gardens Virtual field trip lessons.</p> <p>4th: electricity and physics labs and related jobs, create "Quiz cards" using circuits to write and decipher "codes". Lab ideas will include the creation of the electric quiz cards using index cards, tin foil, tape, and simple circuit materials (wires and batteries). Students will work individually on the cards and then have the opportunity to test out each other's cards.</p> <p>5th: Continue aerospace/space science unit and begin Mars Rover project in conjunction with 4-H presenter and NASA resources https://www.nasa.gov/stem</p>	<p>3rd: Continue with 3rd Marking Period presentations of ecology lessons from 4-H curriculum, students will discover and design a project to help our school or locate community. Labs: "Science Discovery Series" from 4-H--"Don't Trash the Planet" and "Good to the Last Drop (Water)"</p> <p>4th: Natural Energy and the connection to Earth's health. Students will learn about and create models of several different natural resources such as a windmill, pizza solar box, water pump and relate these to how natural energy can help Earth's health.</p> <p>5th: Mars Rover launch and NASA connection. Students will work together to create a Mars rover. Students will learn to work as a team during hands-on Space simulations and</p>

		final lab--design, build, test model airplanes with craft materials to decide which design worked best		games orchestrated by the 4-H Mission to Mars curriculum.
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21st Century Themes and Skills/Engineering and Design	3-5-ETS1-1, 4-PS3, 3-LS4, 4-LS1, 5-ESS1, 5-ESS2, 5-LS2, 5-PS2, M-ESS1, MS-ESS2, M-ESS3, MS-ETS1, MS-LS1, MS-LS2, MS-PS1	3-5-ETS1-1, 4-PS3, 3-LS4, 4-LS1, 5-ESS1, 5-ESS2, 5-LS2, 5-PS2, M-ESS1, MS-ESS2, M-ESS3, MS-ETS1, MS-LS1, MS-LS2, MS-PS1	3-5-ETS1-1, 4-PS3, 3-LS4, 4-LS1, 5-ESS1, 5-ESS2, 5-LS2, 5-PS2, M-ESS1, MS-ESS2, M-ESS3, MS-ETS1, MS-LS1, MS-LS2, MS-PS1	3-5-ETS1-1, 4-PS3, 3-LS4, 4-LS1, 5-ESS1, 5-ESS2, 5-LS2, 5-PS2, M-ESS1, MS-ESS2, M-ESS3, MS-ETS1, MS-LS1, MS-LS2, MS-PS1
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