

STREAM Curriculum - All Grades

Kindergarten	Trimester 1	Trimester 2
	<p>Bird Nests</p>	<p>Making 3D shapes</p>
	<p>S - Students learn about birds and how they use their beaks to make the nests</p>	<p>S - Students will learn 3 Dimensions verses 2 Dimensions</p>
	<p>T - The projector is used to show the project beforehand.</p>	<p>T - The projector is used to show the students the different shapes beforehand.</p>
	<p>R - Students will write about their nest when completed.</p>	<p>R - Students will write about shapes, read about shapes and will create shapes.</p>
	<p>E - Students will use clothespins, as their beaks, to make make their bird nests. Emphasis is placed on planning the nests construction.</p>	<p>E - Students plan out how they will use toothpicks and playdough to make 3D shapes.</p>
	<p>A - Twigs, leaves, feathers, and other materials are used to make the actual bird nest.</p>	<p>A - They will use the materials to build their own 3D shapes.</p>
	<p>M - Geometry, shapes.</p>	<p>M - 3D shapes is what they are learning in their books</p>

Grade 1	Trimester 1	Trimester 2
	Pumpkin Math	Gingerbread House
	S - Students learn the life cycle of a pumpkin.	S - Students will discuss states of matter (solid, liquid, gas).
	T - Students document by taking pictures on the iPads & research information about pumpkins.	T - Students will design a gingerbread house and take pictures to upload to Seesaw.
	R - Students will read and write about the life cycle of a pumpkin.	R - Students will read "The Gingerbread Man".
	E - Students design a raft to allow the pumpkin to float.	E - Students will design and build the gingerbread house.
	A - Students design, draw and decorate a carved pumpkin.	A - Students will decorate the gingerbread house.
	M - Students will measure the pumpkin (height, weight, width, number of lines, etc.)	M - Students will count mixed coins to purchase supplies to build the gingerbread house.

Grade 2	Trimester 1	Trimester 3
	<p>Egg Drop</p> <p>S - Students will learn the scientific method, and how gravity works.</p> <p>T - Students will film the drop and take photos documenting their work.</p> <p>R - Students will read about gravity.</p> <p>E - Students will build a device to protect their eggs during the drop.</p> <p>A - Students will create colored pictures of device.</p> <p>M - Students will measure and record the height of the drop and time of the drop.</p>	<p>Geo Plant</p> <p>S - Students will learn about the parts of plants.</p> <p>T - Students will design plant shape using the ipads.</p> <p>R - Students will read about plants.</p> <p>E - Students will build a plan model.</p> <p>A - Students will draw, color , and decorate a geo plant.</p> <p>M - Students will learn and measure geometric shapes relating to plants.</p>

Grade 3	Trimester 1	Trimester 2	Trimester 3
	<p>Landform Project</p> <p>S - Students will learn about weather patterns.</p> <p>T - Students will use iPads and BrainPOP Jr.; QR code recordings to access information.</p> <p>R - Students will read World Social Studies We Are Connected Chapter 2 Lesson 3 Land and Water; Interactive Science Chapter 6 Lesson 2 Landforms Affect Climate.</p> <p>E - Students will design a blueprint.</p> <p>A - Students will create and decorate presentation posters; landform dictionaries.</p> <p>M - Students will use linear measurement; spacial awareness of runaway water.</p>	<p>Native American Unit</p> <p>S - Students will learn how the scientific method relates to key concept questions.</p> <p>T - Students will create presentation slides and trading cards.</p> <p>R - Students will read National Geographic A Historical Look at Native Americans Differentiated Instruction.</p> <p>E - Students will learn to design and construct teepees, wigwams, longhouses, or adobes.</p> <p>A - Students will create presentation posters; layered totem poles; vocabulary panels.</p> <p>M - Students will study the geometry and symmetry of 3D shapes.</p>	<p>Junkyard Wonders</p> <p>S - Students will learn about ecosystems, recycling, reuse, and reducing to save resources.</p> <p>T - Students will explore "Washed Ashore: Art to Save the Sea" on Shedd Aquarium website with iPads.</p> <p>R - Students will read "Junkyard Wonders" by Patricia Polacco.</p> <p>E - Students will draw a diagram of their invention and will then construct their invention.</p> <p>A - Students will decorate and embellish their finished product.</p> <p>M - Students will use and explore linear measurement, geometry, and 3D shapes in this project.</p>

Grade 4	Trimester 1	Trimester 2	Trimester 3
	<p>Hold Back the Water</p> <p>S - Students investigate how water erodes a river bank, and then demonstrate how to reduce erosion and flooding. The types of plants that are used to hold soil in place will also be observed.</p> <p>T - Students will use technology to research river bank reinforcement techniques.</p> <p>R - Students will use reading techniques such as comparing and contrasting different river bank reinforcement techniques. Students will also use reading techniques such as defining vocabulary words in context and actually looking up the meaning of various vocabulary words. These meanings are necessary to the understanding of the task.</p> <p>E - Students will design a riverbank reinforcement model and will test their design to see if it will work. Testing will occur by pouring water on the models which will demonstrate whether or not they can hold back the</p>	<p>Let's Glide Away</p> <p>S - Students will build a paper glider, test it, and then modify its design for maximum flying time and distance. The forces of thrust, drag, lift, and gravity acting on the glider will be explored.</p> <p>T - Students will use technology to examine pictures of different aircraft. They list the similarities and the differences. Students use technology to examine how a glider works.</p> <p>R - Students will use reading techniques such as comparing and contrasting. Students will also learn the vocabulary needed in order to be successful in the task of creating a glider. Students will also read and understand the directions for how to make a prototype glider. They then alter that particular prototype for maximum speed and distance.</p> <p>E - Students will create a paper glider. They will then modify that design and test it for maximum speed and distance.</p> <p>A - Students will use Art to modify their</p>	<p>Home Sweet Home - Build a Terrarium</p> <p>S - Students will learn about terrariums. Students will design a terrarium and determine the correct amount of water needed, to maintain living plants.</p> <p>T - Students will use technology to research a terrarium and determine the best materials to use in order to create one. Students will also research the water cycle and explain how a terrarium will model the Earth's water cycle.</p> <p>R - Students will read about terrariums and the water cycle. They will then be able to explain how their terrarium models the Earth's water cycle. Students will have to write clearly and explain the procedure they are going to use to create their terrarium.</p> <p>E - Students will design and create a terrarium. They will choose the materials that will be the most useful in their design. They will list how to combine the materials to make the terrarium, and they will assemble their project.</p>

water thereby reducing erosion and flooding.

A - Students will use art to draw their designs and to create their models. Students will also use Art to choose the materials needed to create their models.

M - Students will use Math to measure the amount of water that is poured on the models. Students will also measure the amount of water that is collected at the end of the stream. Students will record the details of their prototype. Students will use Math to evaluate and rate their designs.

designs. These modified designs must be drawn and labeled before the building can begin. They will measure speed and distance of their original design and then modify that design to achieve greater speed and distance. Students will also use Art to choose the materials they want to include on their modified design.

M - Students will use Math to measure how many meters their glider flies and how many seconds it is in the air. They will test the glider three times and take an average time and an average distance.

A - Students will use Art to draw and label a diagram of their terrarium. They will also use their acquired knowledge to assemble the layers of the terrarium.

M - Students will use Math to measure the amount of water that they are adding to their terrarium. They will also measure the height of the plants. Students will also measure the amount of water in the bottom of their terrariums. Students will evaluate how well they think the layers in their design worked. Students will be placing all observations on a chart.

Artificial Arm

S - Students will investigate how technology can mimic the human muscular and skeletal system.

T - Students will use iPads to watch videos about prosthesis and how engineers create them. The prosthetic arm mimics the way a human arm moves.

R - Students will read about the design process in the textbook and in articles from TFK.

E - Students will follow the design process to solve a problem: Make models Use cardboard, fasteners and yarn to construct model arm and manipulate it to see how it works, and identifying parts of model that represent bones and muscles.

A - Students will design a model of an artificial arm and will use art to make the arm appealing.

M - Students will measure the length of parts of the upper and lower arm lengths using metric and standard forms.

Making Glue

S - Students will learn about glues made from different substances and test which ones work best.

T - Students will develop possible combinations of materials to create the strongest glue using flour, cornstarch, gelatin and water.

R - Students will research design and function, students will read "How does technology affect our lives?" Pages 360-362 of textbook.

E - Students will follow the design process to develop a glue that will hold the most weight by combining up to 2 spoonfuls of each mixture. Tests will be performed by using a paperclip and washers as weights.

A - The glue is placed in squirt bottle. Students will create an art project by using black construction paper and outlining the shape of a butterfly and the divisions of its wings. Once it is dry the students will use pastels to color in the butterfly. Students will insure the butterfly is symmetrical.

M - Students will measure of amounts of materials and weight that glue holds. Students will then collect information and complete a Data chart.

House of cards

S - Students will build houses from cards to determine the design that provides the strongest and most stable foundation.

T - Students will develop any possible solutions using the design process.

R - Students will read "The Nature of Science - Part 2 Design and Function" from the textbook.

E - Students will build the possible solutions as many times as necessary using an iterative approach.

A - Students will draw the possible towers and design the options.

M - Students will measure and calculate the height of the towers

The Beat Goes On

S - Students will calculate heart rate and graph it.

T - Students work with timers to calculate their pulse rate to determine how hard they are working.

R - Students read about their heart rate and how the muscle works.

E - Students will determine which activities caused the heart to work harder and if the use of a robot or machine would help the heart rate.

A - Students will create a pleasing graph to display data.

M - Students will collect data by completing different exercises and graph the results (counts) of the student's pulse rate changes on a graph.

Design a prototype and test a water purification system

S - Students learn how water filters work, and use the scientific method do design a prototype

T - Students will use processes and products to solve the problem of how to clean dirty water so it is suitable for drinking.

R - Students have read about how there is a need for purification systems all over the world and will research authentic information on the internet.

E - Students will identify the problem of dirty water and the need to purify it. Students use a funnel and select different types of materials to clean the dirt out of water. They have 3 opportunities to repeat the process, changing up the materials to improve the system.

A - Students draw the models of the purification systems and the results

M - Students carefully measure the materials used to create the most efficient water purification system

Grade 6	Trimester 1	Trimester 2
	<p>Milo the Robot</p> <p>S - Students learn about different types of robots, humanoid, non humanoid, specialty and industrial robots.</p> <p>T - Students build a robot with Lego WeDo robotics kit including motion sensors.</p> <p>R - Students read an artificial intelligence article and write a summary.</p> <p>E - Students build a second robot of their own design using Lego WeDo Kits.</p> <p>A - Students create a promotional video for their robot, or a poster, or slideshow, applying artistic design.</p> <p>M - Program robots to go through a course, length measurements and angles are used in the algorithms.</p>	<p>Earthquake Safe Structures</p> <p>S - Students will design, build, and test a model that simulates an earthquake and its effect on topographical features and building structures, and evaluate the effectiveness of the design.</p> <p>T - Students watch videos of prior earthquakes and use iPads to investigate types of buildings that are better at withstanding large catastrophic events. They will take pictures and record a video presentation of building and performance.</p> <p>R - Students will use Interactive Science text to study forces on Earth's crust, seismic waves, how to monitor and be safe in earthquake prone areas.</p> <p>E - Students will communicate a problem, design, and/or solution to earthquake safe structures.</p> <p>A - Students will select materials for an engineering task based on their properties.</p> <p>M - Students will follow specific criteria as to the dimensions of the prototype - length, width, and height of structures, as well as the method to simulate motion for testing purposes, record results, and prepare a data table to display information about the duration and type of movement.</p>

Egypt

S - Students will participate in a science lab testing various powders to determine which is better at preserving orange slices by experimenting, gathering data, recording results, evaluating, and writing a conclusion explaining what the Egyptians needed to do to preserve their dead.

T - Students will use their iPads to research various aspects of Egyptian life/practices using Keynote and/or Google Slides, take pictures using their iPads to record changes in orange slices, and play “The Mummification” game using a link in Google Classroom.

R - Students will read *The Egypt Game* by Zilpha Keatley Snyder in reading class and study Egypt in their social studies text. Students also study the role of Moses and Egypt in the Old Testament in Religion class.

E - Students will design and build a board game with “How To” instructions in reading class and listen to a guest speaker who will lead a discussion about the building of the pyramids in social studies.

A - Students will create and decorate individual sarcophagi.

M - Students use a triple-beam balance to investigate changes in mass on orange slices, incorporate triple line graphs to include with their lab conclusion, and participate in an activity with Egyptian math.

Space Exploration Project

S - Students will design a vehicle that will be able to investigate a chosen planet or moon, taking into consideration the terrain, atmosphere, and temperature of their choice.

T - Students will use their iPads to investigate the NASA site (solarsystem.nasa.gov) to find out important up-to-date information about their chosen planet or satellite.

R - Students will use their Interactive Science text to support their findings and analysis.

E - Students will design their own space vehicle using important information tied to the terrain, atmosphere, and temperature.

A - Students will draw their designs from their own perspective, including outside and inside views, including supplies and space gear, if desired.

M - Students will use rulers, protractors, and compasses to design their vehicles.

Grade 7	Trimester 1	Trimester 2
	<p>Filtration for Separating Mixtures</p> <p>S - Students will separate the salt from a mixture of gravel, iron filings & sand to demonstrate Conservation of Mass.</p> <p>T - Students will use a metric scale, weigh the materials before and after the experiment to demonstrate Conservation of Mass.</p> <p>R - Students will read Physical Science Grade 7 text Chapter 1, Lesson 1, Google article about trillions of dollars to be made from extracting fine gold particles from sea water and desalination of salt from ocean water (current progress).</p> <p>E - Students will build a prototype filtration system using a given set of supplies off the shelf.</p> <p>A - Students will draw a flow chart with diagrams of the filtration process.</p> <p>M - Students will weigh and measure each item from mixture before and after the experiment in grams to prove Conservation of Mass.</p>	<p>Solubility of Salt</p> <p>S - Students will test the solubility of salt in water as a solvent.</p> <p>T - Students will create a graph on iPad to record solubility results at four different temperatures.</p> <p>R - students will read "Physical Science Chapter 5 Lesson 2 Concentration and Solubility" in the textbook.</p> <p>E - Students will design the flow of the experiment with various vessels of water at different temperatures.</p> <p>A - Students will draw a flow chart with illustrations of equipment for procedure using the four temperature teams.</p> <p>M - Students will Convert Celsius to Fahrenheit using formulas for "x" axis. Design appropriate "y" axis/line graph for anticipated data. Calculate percent of increase/decrease between 20, 40, 60 and 80 Celsius results.</p>
		<p>Mindstorm Robot</p> <p>S - Students learn about recent advances in robotics.</p> <p>T - Students build their own robot with EV3 Mindstorm kits</p> <p>R - Students read a current article on robot development.</p> <p>E - Students modify their Robot to sense walls.</p> <p>A - Students create a promotional video or presentation for their robot applying artistic design principles.</p> <p>M - Measurements and angles will be used and adjusted to successfully program their robot to navigate the course</p>

Grade 7 | **Trimester 3**

Cereal Box Geometry

S - Students will research nutritional information and provide a write-up.

T - Students will create a short commercial persuading buyers to purchase their cereal.

R - Students will read articles online to find out why breakfast is essential.

E - Students will create a small model of their cereal box using a scale.

A - Students will decorate / color their cereal boxes.

M - Students will use Area of Composite Figures, Surface Area, Volume.

Grade 8	Trimester 1	Trimester 2
	<p>Plant Cell vs. Human Cell</p> <p>S - Students will compare the similarities and differences of plant cells and human cells.</p> <p>T - Students will show a plant cell vs. human cell magnified with latest high powered microscope technology via a Powerpoint presentation</p> <p>R - Students will read Life Science, Chapter 2, Lesson 2 "Looking Inside Cells"</p> <p>E - Students will build 6 inch models of plant and human cells out of clay using colors as on page 58/59 of the Life Science text.</p> <p>A - Students will use neon index cards/toothpicks to label the cell parts.</p> <p>M - Students will share statistics on the average number of red vs. white cells in an adolescent body, how often they regenerate, and other information.</p>	<p>Presentations of Genetically Modified Foods/Animals</p> <p>S - Students choose a genetically modified animal or food to research.</p> <p>T - Students put together a 5 min. Slideshow presentation in a team of three.</p> <p>R - Students read about the history of genetic modification and compare the possible benefits and risks.</p> <p>E - Students make a clay model of basic steps of how modification is done w/ cell manipulation.</p> <p>A - Students make a poster touting the benefits of the modified food/animal</p> <p>M - Students share statistics on crop improvement before and after modifications for last two years, focusing on percent of increase/decrease calculations.</p>

What Causes Back Pain

S - Students will research and explore the relationship between the skeletal system and back pain.

T - Students will develop videos on the proper way to sit at a computer, lift heavy objects, impact of certain shoes, sleeping and walking postures

R - Students will read Life Science Chapter 9 Lesson 4 The Skeletal System and Enrich Activity Page 393F in Teacher Manual. Students will look at OSHA information and medical sites from Orthopedic Societies. Controversial information on back surgery vs. physical therapy/exercise for back pain.

E - Students will investigate the latest development trends with standing desks.

A - Students will make posters and clay models on the proper ways to protect your back (sleeping, sitting at a computer, lifting heavy boxes)

M - Students will share statistics on the top 3 reasons for back injuries over the last 15 years in the U.S. Calculate the rate of growth in injuries in the baby boomer generation and predict rate for next five years. Plot on chart.

Simple Prototype - create something that does something

S - Students will learn about electricity, magnetism, servos, switches and other scientific topics relating to their prototypes. They will also learn many inventions are improvements on existing items.

T - Students will use little bits, cardboard, and other materials to make their prototype do something.

R - Students will read the information sheets for the little bits they explore using.

E - Students design and create a simple invention prototype using little bits, cardboard, duct tape and items they bring from home.

A - Students will decorate their prototypes making them attractive.

M - Students will design their prototype with a story board or CAD program. Students will build the prototype as close to scale as possible.