Sci-Tech Connections

Scope and Sequence

Grade 3

Sci Tech Connections Scope and Sequence - Grade 3

Name of Module	Lesson	Name of Activity	Main Concepts	Specific Expectations	Materials Required	Pacing *
The Twins Get All Charged Up	1	Mysterious Rock	Explores and discovers what materials are attracted or not attracted by a magnet.	• work as a group, respect other people, work safely, and keep a clean work space • describe characteristics of objects that are attracted or not attracted by magnets • identify that a magnet has a magnetic force or pull • record the work and share with others • design and create a pole for the seed package	• lodestone • variety of magnets • objects made from wood, lead, aluminum, iron, nickel, brass • pieces of cardboard, aluminum foil, paper, cotton, plastic, and Styrofoam • fasteners such as paper clips, nails, staples, tacks, pins • wooden dowels, hangers, metal poles • seed packages (optional) • glue (glue gun)	1 – 40 min. period + 1 – 60 min.
The Twins Get All Charged Up	2	May the Force Go Through	Investigates which materials allow a magnetic force to flow through them.	• work as a group, respect other people, work safely, and keep a clean work space • identify materials that a magnetic force will go through • demonstrate that some materials or thicknesses of materials weaken the force • design and create a game that uses magnetic force • apply the knowledge to everyday items	• magnets • nails, paper clips, pins • pieces of aluminum foil, wood, tagboard, wax paper, plastic wrap • containers of metal, glass, plastic • various liquids (coffee, oil, water, milk)	2 – 40 min. periods

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The Twins Get All Charged Up	3	Which Pole Is Which?	Explores the polarity of magnets and makes a compass.	• work as a group, respect other people, work safely, and keep a clean work space • identify and label north and south poles on a magnet and compass • recognize what happens when like and unlike poles come together • demonstrate the meaning of polarity of a magnet • demonstrate that magnetic poles align with the compass • create a compass • use terms such as north pole, south pole, attract, and repel	• compass • magnets • tape • string • needle or pin • cork (1/4 pieces) • modeling clay • bowl • water • markers	2 – 40 min. periods
The Twins Get All Charged Up	4	Let's Decorate	Identifies materials that produce a charge when rubbed together.	• work as a group, respect other people, work safely, and keep a clean work space • explore different ways to stick the balloon to the wall and other surfaces • discuss ideas about what is making the balloon stick to the wall • investigate what happens when moisture is placed in the air near the balloon on the wall	• balloons • samples of material (fur, silk, wool, cotton, plastic bag) • chart paper • balloon pump (optional)	1 – 40 min. period
The Twins Get All Charged Up	5	Static Show	Demonstrates how charged materials push or pull materials.	• work as a group, respect other people, work safely, and keep a clean work space • investigate static electricity • identify that electrically charged materials either repel or attract similar materials • identify static electricity as a force • present static game to group • use the terms attracted, charged, and static	• plastic wrap • plastic bags • paper • scissors • comb • ping-pong balls • balloons • string • salt • other materials as requested	2 – 40 min. periods

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The Twins Get All Charged Up	6	Push Me — Pull Me	Designs and builds a system that uses magnetic force to move it in different directions.	• work as a group, respect other people, work safely, and keep a clean work space • design and create a device that uses a magnetic force to move it • identify the force that is moving the device • present the device to another group	• magnets • small boxes • cardboard • saw and miter box • wooden rods • drill • dowels • straws • wheels • glue (glue gun optional) • other materials as requested	1 – 60 min. period + 1 – 40 min. period
The Twins Get All Charged Up	7	Test It Out	An investigation that sets the stage for students to ask questions and share their learning through extending the investigation.	• work independently to solve the investigation • predict what you think and give the reason why you think that • record what you find out • ask your own questions about the investigation and find out the answers • reflect on the investigation	• magnets • nail • paper clips	1 – 40 min. period
The Twins Get Lost in Time	8	A Journey Through Time	Researches the areas of the world from which the pioneers originated. Includes similarities and differences among people, places, and environments from which these people came.	• work cooperatively in a group, respect other people, criticize constructively, and keep a clean work space • identify the routes taken by the early settlers in your area • identify the areas of early settlement • create and make a map • record and share work with others	• Know-Want-Learn chart (BLM 13) or Bubble Map Chart (BLM 9) • an old metal box with a beeswax candle, a small container of maple sugar, an aged diary, an old boat, an old map, pioneer drawings, a journal • research materials • Internet access • maps and atlases • Bristol board	4 – 30 min. periods

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The Twins Get Lost in Time	9	Home Sweet Home	Researches about the pioneer home and then designs and builds a model of one.	• work cooperatively as a group, respect other people, work safely and keep a clean work space • describe the lifestyles of male and female pioneers • describe the various roles of individuals in a pioneer settlement • describe the components of a pioneer homestead • compare and contrast the lives of pioneer children with your own	• writing and drawing materials • modeling materials • building materials • tools • books • encyclopedias • Internet access • videos	1 – 30 min. period + 2 – 40 min. periods
The Twins Get Lost in Time	10	School Days	Researches the school, the schoolteacher, and the subjects taught in a pioneer school. Prepares a lesson that would have been taught at the time and presents it to the class.	• work cooperatively as a group, respect other people, work safely, and keep a clean work space • describe the school as a major component of a pioneer village • describe the lifestyles of pioneer children and a schoolteacher of that time period • compare and contrast the lives of pioneer children with your own	• writing and drawing materials • modeling materials • building materials • tools • videos on pioneer school days • books • encyclopedias • Internet access	2 – 40 min. periods
The Twins Get Lost in Time	11	Pioneer Planting	Investigates the types of plants that the pioneers grew. Researches the techniques used to preserve food at this time. Explores the types of plants and planting techniques the Native American people in the area introduced to the pioneers. Investigates the methods of planting the pioneers established. Prepares a pioneer meal with the class, and then, in pioneer costumes, presents the meal to members of the school or the community.	• work cooperatively as a group, respect other people, work safely, and keep a clean work space • identify natural resources and describe how pioneers used them • identify the Native American people in your area before the settlers arrived • describe how the Native American people contributed to the pioneer settlement through planting methods • describe the planting processes that the pioneers used • compare the tools used in pioneer times to the tools used today • compare the pioneer diet to your own • identify past and present techniques of processing products • record and share work products with others	• writing and drawing materials • building materials • tools • research materials	3 – 40 min. periods

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The Twins Get Lost in Time	12	Pioneer Village	Prepares a map of the pioneer village. Includes the stores and homes that would have been included in the village. Researches the roles of the men, women, and children in the village. Builds a model of the village, including all the structures, such as the blacksmith's shop.	• work cooperatively as a group, respect other people, criticize constructively, and keep a clean work space • identify and describe the components of a typical pioneer village • describe the lifestyles of male and female pioneers • describe the various roles of individuals in a pioneer settlement • interview people in their schools or neighborhoods • record and share work products with others	• Pioneer Village chart (page 64) • building materials • tools • research materials • books • videos • Internet access	4 – 40 min. periods
The Twins Get Lost in Time	13	Winter Wonderland	Researches the life during the winter months, and the crafts and toys that the pioneer children would have brought with them or a toy that could have been made for them in their new home.	• work cooperatively in a group, respect other people, criticize constructively, and keep a clean work space • identify and describe the tasks each family member must carry out that were necessary to pioneer survival during the winter • create journal entries that describe the preparations and the necessity of planning for the winter months through all the seasons • identify and describe winter celebrations in which the pioneers and Native American people participated	• research materials • art and writing materials	2 – 30 min. periods + 1 – 60 min. period
The Twins Get Lost in Time	14	Time Capsule	Examines the contents of the metal box found in the garden. Explores the concept of the time capsule. Develops own capsule for someone to find and open in 100 years.	• work in pairs or individually, respect other people, criticize constructively, and keep a clean work space • identify and describe the components of a time capsule • create a time capsule to depict your lives, your contributions to society, and a brief history of the time in which you live	• shoeboxes • aluminum foil • writing and drawing materials	2 – 40 min. periods

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How Does Your Garden Grow?	15	Soil Sleuth	Investigates soil samples in order to identify the components of soil	• work cooperatively as a group, respect other people, work safely, and keep a clean work space • observe and describe the components within a sample of soil • identify living things found in the soil • compare and describe soil samples from different locations • describe how soil can be separated into its different components • record information gathered to share with others	• newspaper or newsprint • magnifying glass, microscope, or magnifying lenses • magnet • gardening gloves • containers • four soil samples from various areas • jars with lids • scoop • jug or bottle of water • resource books • Internet access • Soil Composition Chart (page 21)	3 – 40 min. periods
How Does Your Garden Grow?	16	This Is the Way We Make …	Explores different earth materials that make up soil.	• work cooperatively as a group, respect other people, work safely, and keep a clean work space • describe the various materials within a sample of soil • describe how soil is made • write a recipe for soil and share learning with others	• leaves • sand • seeds • twigs • pebbles • rotting wood • bits of dead plants • other natural materials • plastic bags or old sock • soil samples from various areas • measuring cups, spoons, or scoops • gardening gloves	3 – 30 min. periods
How Does Your Garden Grow?	17	Holding Water	Investigates what happens when water drops are placed on piles of soil.	• work cooperatively as a group, respect other people, work safely, and keep a clean work space • explore and compare how much water the soil samples absorb • record and share your work with others	• Styrofoam or paper cups • samples of soil (sand, humus, potting soil, and backyard soil) • jug or bottle of water • measuring container • basins or trays • Design a Fair Investigation (BLM 4) • eyedropper • ruler	2 – 40 min. periods

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How Does Your Garden Grow?	18	Composting	Investigates what happens when organic materials decompose in soil.	• work cooperatively as a group, respect other people, work safely, and keep a clean work space • create an investigation to find out under what conditions materials decompose in soil • demonstrate awareness of the importance of recycling organic materials in soils • design and create a lunch-sized composter • present his/her composter to the class	• plastic containers with lids • soil samples • decaying leaves • apple peelings • spoon or small trowel • Design a Fair Investigation (BLM 4) • gardening gloves • resource books • Internet access	1 – 40 min.-period 10 – 15 min. over time
How Does Your Garden Grow?	19	How Do Your Seeds Grow?	Investigates the life cycle of a seed.	• work cooperatively as a group, respect other people, work safely, and keep a clean work space • identify and describe the conditions seeds need to start to grow • describe the changes that seeds undergo in a complete life cycle • explain how the features of seeds help them to survive • design and conduct a hands-on inquiry into seed germination	• clear plastic container • cotton balls or paper towel • seeds (peas, beans, radish, or lettuce) • small containers like yogurt containers • soil samples (sand, peat moss, clay, topsoil) • water • resource books • Internet access • How Does Your Garden Grow? chart (page 49 or 50)	1 – 40 min. period 10 – 15 min. over time
How Does Your Garden Grow?	20	Getting to the Root of It	Explores the conditions bulbs need to grow.	• work cooperatively as a group, respect other people, work safely, and keep a clean work space • describe the changes that plants undergo in a complete life cycle • compare the life cycles of different kinds of plants • describe how the growth of plants is affected by changes in environmental conditions • explain how different features of plants help them survive	• Bubble Map Chart (BLM 9) • Research Sheet (BLM 14) • resource books • Internet access • onions • carrots • potatoes • containers such as jars or glasses • pie plates • water • Getting to the Root of It sheet (page 55)	4 – 30 min. periods

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How Does Your Garden Grow?	21	The Soil Movers	Investigates wind and water erosion through a simulation.	• work cooperatively as a group, respect other people, work safely, and keep a clean work space • compare the absorption of water by different earth materials • describe the effects of wind and moving water on soil	• shallow pans, like baking pans • sand • pebbles • soil samples • measuring container • crayons • straws • Popsicle sticks • water • watering can • resource books • Internet access • Erosion Chart (page 66)	1 – 60 min. period + 1 – 30 min. period
How Does Your Garden Grow?	22	Taking a Closer Look	Identifies the parts of a flower.	• work cooperatively with your group, respect other people, work safely, and keep a clean work space • observe a flower and take it apart carefully • identify the different parts of the flower and their functions • design and create a model of a flower • record your work and communicate with your group	• flowers from a florist • magnifying glass • scissors • pipe cleaners • glue • tweezers • toothpick • tissue paper • wire • cotton swabs • colored markers • modeling clay	2 – 40 min. periods
How Does Your Garden Grow?	23	Botanists at Work	Investigates what happens to plants during changes in environmental conditions.	• work cooperatively as a group, respect other people, work safely, and keep a clean work space • design an investigation to identify a plant need • describe how the growth of plants is affected by changes in environmental conditions • explain how the different features of plants help them to survive • demonstrate awareness of ways of caring for plants properly • present investigation to others through a symposium	• resource books, encyclopedias, and Internet access • containers, such as clear plastic glasses, yogurt containers • soil, humus, sand, clay • water, watering can • plants (use the plants the students have grown from seeds) • fertilizer/bought or composted organic material	2 – 30 min. periods + 7 – 10 min. overtime

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The Twins Get Down to Business	24	It's Time to Sell	Explores ways to improve the strength and stability of a frame structure that is used to make a sign to advertise their country stall.	• work as a group, respect other people, work safely, and keep a clean work space • describe ways to improve the strength and stability of different structures • determine how different balance points affect the stability of a structure • design and create a sign prototype that is stable against the wind from a fan on low speed • record the work and share with others	• paper • tagboard • heavy cardboard • pieces of wood • Popsicle sticks • wooden rods 18 in x 1/2 in x 1/2 in (40 cm x 1 cm x 1 cm) • wooden pieces • cardboard gussets (cardboard corners) • saw and miter box • safety goggles or glasses • measuring tape or ruler • fasteners, such as tack pins, glue gun, wood glue	1 – 90 min. period + 1 – 30 min. period
The Twins Get Down to Business	25	Levers for Puppets	Explores and identifies how simple levers increase or reduce movement and applies this information to creating puppets.	• work as a group, respect other people, work safely, and keep a clean work space • explore and investigate different lever combinations • describe the effects of different forces on specific structures and mechanisms • identify a number of common levers and describe how they make work easier • create a puppet using the information about levers • present puppet(s) to the class	• sturdy cardboard strips • hole puncher • paper fasteners • tongue depressors with holes found in arts and crafts supply stores (optional) • string or thread • scissors • glue • construction paper • dowels • string • socks, pantyhose • wooden rods • saw and miter box • safety goggles • drill • toilet paper rolls • fabric	1 – 60 min. period + 1 – 40 min. period

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The Twins Get Down to Business	26	Load Lifter	Investigates the movement of a fulcrum on a simple machine — the lever — and how the load is effected.	• work as a group, respect other people, work safely, and keep a clean work space • describe how different forces need to be applied, depending on the load • investigate and describe how moving the fulcrum changes the amount of work to be done • record the work and share with others • design and create a lifter	• yard (meter) sticks • small triangular prism block • masses (lbs and oz, Kg and g) • objects to lift (block, board eraser, box of erasers, film canister full of sand, can of soda) • Load Lifter Sheet (page 29)	1 – 40 min. period + 1 – 60 min. period
The Twins Get Down to Business	27	Hit the Bull's-Eye	Explores the energy from an elastic band and designs and builds a bull's-eye game for the country stall.	• work as a group, respect other people, work safely, and keep a clean work space • investigate different materials to create an elastic powered device that propels a piece of sponge • test the strength and stability of the device you make • use the vocabulary force, distance, load, speed, and pull • make and record your observations and measurements for the distance the elastic band travels	• pieces of sponge • cardboard • variety of elastic bands • paper or card to make target • small pieces of wood • wooden rods • miter box and saw • safety goggles • popsicle sticks • knife to notch the board • wooden clothes pegs • glue gun • measuring tape	2 – 40 min. periods
The Twins Get Down to Business	28	Gift Boxes	Explores and investigates the structure for holding plants on display and for building gift boxes for the merchandise.	• work as a group, respect other people, work safely, and keep a clean work space • investigate a variety of ways to make the structure carry the weight of the potted plant • explore and investigate ways to make cardboard • design and build a gift box for a plant • present ideas and models to the class	• paper • cardboard • tagboard • tape • glue • plant or book • paint • triangular cardboard gussets • glue gun • paintbrushes	3 – 40 min. periods

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The Twins Get Down to Business	29	Coming Together at Our Country Stall	Plans and sets up the country stall for friends and family to visit.	• work as a class to set up the country stall • celebrate by inviting other classes or parents and families to participate	• markers • chart paper	2 – 40 min. periods

* Timing will vary based on student's new inquiries from original investigation and how many activities from Connecting the Curriculum are introduced. Remember Language Arts activities are integrated into each investigation.