

Using Tools to Teach the Science TEKS

TEKS Concept	Tool	Suggested Uses
(K.5) The student knows that organisms, objects, and events have properties and patterns.	hand lenses	examine objects and organisms such as seeds, shells, ladybugs, and rocks
	balances	mass and compare different objects or organisms
	cups	measure cups of sand, rice, and popcorn a specific container will hold
	bowls	sort blocks by color, shape, and size
	computers	write about, draw, or find pictures of day and night activities
(K.6) The student knows that systems have parts and are composed of organisms and objects.	hand lenses	examine parts of a sprouted seed or parts of an insect
	balances	mass and compare toys with and without parts removed
	cups	collect organisms and objects with parts
	bowls	sort animal pictures by similar body parts
	computers	write about, draw, or find pictures of organisms or objects that have parts
(K.7) The student knows that many types of change occur.	hand lenses	examine mealworms, silkworms, or plants in different life stages
	balances	mass and compare water frozen and then melted
	cups	measure cups of water into different shaped containers
	bowls	evaporate water from bowls of different sizes
	computers	record weather conditions every day for a month

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TEKS Concept	Tool	Suggested Uses
(K.8) The student knows the difference between living organisms and nonliving objects.	hand lenses	examine living organisms and nonliving objects such as rocks, soil, seedlings, and insects
	balances	mass and compare living organisms and nonliving objects
	cups	collect a cup of soil, sand, rocks, or water from the school grounds
	bowls	sort pictures of living organisms and nonliving objects
	computers	find examples of living organisms and nonliving objects
(K.9) The student knows that living organisms have basic needs.	hand lenses	examine an insect or small plant for how it eats, drinks, or breathes
	balances	mass and compare different bird nests or bird houses
	cups	measure water and food for a classroom animal or pet or measure birdseed into a feeder
	bowls	offer different food samples to a colony of ants on the schoolyard
	computers	write a story about what animals and plants need
(K.10) The student knows that the natural world includes rocks, soil, and water.	hand lenses	examine rock, soil, and water samples for likenesses and differences
	balances	mass and compare rock, soil, and water samples
	cups	transfer sand or water from one container to another on a sand or water table
	bowls	sort rocks by likenesses and find differences between fresh and salt water
	computers	find pictures of items made of rock or soil, and uses of water

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TEKS Concept	Tool	Suggested Uses
(1.5) The student knows that organisms, objects, and events have properties and patterns.	hand lenses	examine organisms or objects such as fabric for fiber, weaving, and color patterns
	clocks	time observation of melting ice in regular intervals
	computers	make a chart of the properties of living and nonliving objects
	thermometers	measure air temperature at recess every day for a week
	balances	mass and compare colored candies before and after dissolving in water for a time period
(1.6) The student knows that systems have parts and are composed of organisms and objects.	hand lenses	examine leaf veins, boiled eggs, peanuts in the shell, fruit with seeds, or a wind-up toy
	clocks	remove part of a Judy Clock® and explain why it doesn't work
	computers	create a web to show a system and its parts
	thermometers	remove a thermometer from its graduated scale to determine if it is a system
	balances	mass and compare systems with parts removed such as cars without wheels
(1.7) The student knows that many types of change occur.	hand lenses	examine and compare wilted and fresh leaves or grapes and raisins
	clocks	time melting rate of chocolate candy, ice chips, and crayon pieces in one's hand
	computers	graph and compare the average daily temperature the first week of each month
	thermometers	measure hot and cold items to see direction of movement of the liquid in the thermometer
	balances	mass and compare grapes and raisins or fresh and wilted leaves

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TEKS Concept	Tool	Suggested Uses
(1.8) The student distinguishes between living organisms and nonliving objects.	hand lenses	examine a mixture of oatmeal and mealworms for differences
	clocks	time any changes seen in the size of a puddle and the size of a person during one sunny day
	computers	search websites for information on mealworm growth
	thermometers	measure and compare temperatures of a stuffed animal and a person
	balances	mass and compare a living plant and an artificial plant of the same size
(1.9) The student knows that living organisms have basic needs.	hand lenses	examine bean seedlings that have been growing in the dark or had little water
	clocks	time the movement of colored water in a fresh celery stalk sitting in colored water
	computers	make a mind map of ways babies depend on parents or classroom pets depend on students
	thermometers	measure temperature of air in a freezer and observe the effect on a plant placed there
	balances	mass and compare healthy plants and poorly growing plants
(1.10) The student knows that the natural world includes rocks, soil, and water.	hand lenses	examine textures of rock and soil types or particle sizes of different sand samples
	clocks	time the settling process after shaking a jar filled with gravel, sand, soil, and water
	computers	write a story about the water cycle
	thermometers	measure temperatures of cups of soil, rocks, and water put in sunny and shady locations
	balances	mass equal amounts of soil, rocks, and water

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TEKS Concept	Tool	Suggested Uses
(2.5) The student knows that organisms, objects, and events have properties and patterns.	rulers	measure the size of each unshelled peanut in a package
	meter sticks	measure the shadow of an object on the school grounds at regular intervals during the day
	measuring cups	measure equal amounts of liquids or dry goods for comparing temperature or mass
	clocks	time how long soap bubbles will last before popping
	hand lenses	examine surfaces for patterns such as leaves, peanut shells, honeycomb, buttons, and rocks
	computers	record the shape of the moon every day or night for a month
	thermometers	measure temperatures of boiling and freezing water or cooked and raw rice
	balances	mass and compare weighs of equal amounts of cooked and raw rice
(2.6) The student knows that systems have parts and are composed of organisms and objects.	rulers	measure the growth of a seed above and below the surface for two weeks or longer
	meter sticks	measure and compare the size of the foot, arm, or leg to the body as a whole
	measuring cups	measure amount of food that can be picked up by a simulated animal beak (clothespin)
	clocks	time the breathing rate of a classroom animal or movements of fins or gills of a fish
	hand lenses	examine veins, guard cells, and stomata on leaves to predict their functions
	computers	create a presentation showing a simple system and all its functioning parts
	thermometers	measure temperatures of dry ingredients, dough, and cooked bread or cookies
	balances	mass and compare systems assembled and unassembled such as a flashlight

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TEKS Concept	Tool	Suggested Uses
(2.7) The student knows that many types of change occur.	rulers	measure cheese cubes or chocolate bars before melting
	meter sticks	measure distances foam balls travel when thrown from a starting line
	measuring cups	measure cornstarch and water to make "goop"
	clocks	time melting rate of chocolate candy and a marshmallow placed in a paper cup in the sun
	hand lenses	examine appearance of condensation on the outside of a container filled with ice water
	computers	graph sunrise and sunset times or daily outside temperature for a month
	thermometers	measure daily outside temperature at a designated time for a month
	balances	mass and compare equal amounts of hot and cold water or solid and melted cheese
(2.8) The student distinguishes between living organisms and nonliving objects.	rulers	measure sizes of leaves from several trees or plants
	meter sticks	measure a square meter on school grounds and identify the living and nonliving things observed
	measuring cups	measure a cup of top soil containing leaf litter and separate living from nonliving things
	clocks	time the number of heartbeats per minute of students in the class
	hand lenses	examine animal coverings and man-made fabrics
	computers	graph class heart beat data or make a Venn diagram of living and nonliving characteristics
	thermometers	measure temperatures of animals, plants, butter, soil, water, foam rubber, and sawdust
	balances	mass and compare living and nonliving things separated from a cup of soil/leaf litter

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TEKS Concept	Tool	Suggested Uses
(2.9) The student knows that living organisms have basic needs.	rulers	measure and compare footprint sizes of animals and leaf sizes of plants
	meter sticks	measure and outline sizes of large animals on the floor, hallway, or school grounds
	measuring cups	measure food and water for a classroom pet or water-fertilizer mixture for plants
	clocks	time the movements, sleeping, and eating patterns of a classroom pet
	hand lenses	examine characteristics of animal skin coverings and plant leaves and stems
	computers	create a presentation showing a living thing and how it obtains basic needs
	thermometers	measure temperatures of pets, humans, stuffed animals, and nonliving things
	balances	mass and compare different bird eggs or chart the weight of a classroom pet over time
(2.10) The student knows that the natural world includes rocks, soil, water, and gases of the atmosphere.	rulers	measure height, width, and depth of rock samples
	meter sticks	measure depth of shallow ponds or heights of structures made of rock or rock products
	measuring cups	measure equal amounts of soil types and water for experiments or observations
	clocks	time formation of condensation inside baggies partially full of water in a sunny window
	hand lenses	examine soil types, crystals in rocks, and air borne particles on a Vaseline®-coated surface
	computers	graph temperature changes in soil and water from experiments or observations
	thermometers	measure temperatures of equal amounts of soil and water in a sunny location over several hours
	balances	mass and compare rocks such as pumice or scoria to granite or basalt

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TEKS Concept	Tool	Suggested Uses
(3.5) The student knows that systems exist in the world.	calculators	calculate rate of growth by dividing amount of growth by days observed
	microscopes	examine root hairs on a sprouting seed
	cameras	photograph examples of systems, disassemble a disposable camera to identify its parts
	safety goggles	wear during observations or experiments with heat, glassware, motion, or chemical substances
	sound recorders	record sounds made by musical instruments with and without parts removed
	clocks	time intervals of plant growth or burning time of small candles
	computers	research the development of simple machines such as eggbeaters or pencil sharpener
	thermometers	measure the temperature of a candle flame using a temperature probe
	hand lenses	examine cotyledons in a lima bean seed soaked in water and carefully separated
	meter sticks	measure and compare the length of string on several different yo-yos
	rulers	measure the length a small candle burns at one minute intervals
	balances	mass and compare seeds before and after sprouting
	magnets	test parts of simple machines for attraction to a magnet
	compasses	determine the cardinal direction a plant is growing in response to a light source

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TEKS Concept	Tool	Suggested Uses
(3.6) The student knows that forces cause change.	calculators	average results of experiment trials or calculate speed by dividing distance by time
	microscopes	examine crushed rock particles and leaves to determine the effects of force
	cameras	photograph examples of forces causing change
	safety goggles	wear during observations or experiments with heat, glassware, motion, or chemical substances
	sound recorders	record sounds of forces for others to identify
	clocks	time the intervals of a swinging pendulum made with string and a metal washer
	computers	graph measurement data from any motion experiment
	thermometers	measure temperature of sand before and after shaking vigorously in a jar for five minutes
	hand lenses	examine surfaces for sources of friction, examine impact of shoe treads in wet sand
	meter sticks	measure the distance a stationary object moves when impacted by a moving object
	rulers	measure distance between a paper clip and a magnet before attraction moves the clip
	balances	mass toy cars or marbles for motion experiments
	magnets	test for attraction of objects and magnet strength vs. attraction ability
compasses	determine sensitivity to a magnet and other forces	

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TEKS Concept	Tool	Suggested Uses
(3.7) The student knows that matter has physical properties.	calculators	average results of experiment trials, calculate differences between °C and °F temperatures
	microscopes	observe items such as salt, cloth fibers, sand grains, or colored and black newsprint
	cameras	photograph examples of physical properties to create a visual mind map or web
	safety goggles	wear during observations or experiments with heat, glassware, motion, or chemical substances
	sound recorders	record sounds which are examples of physical properties
	clocks	time intervals of observation in an experiment
	computers	create a visual mind map or web of physical properties to share with a younger child
	thermometers	measure temperature of water in paper cups painted different colors and placed in the sun
	hand lenses	examine objects to identify properties that can or can't be seen without magnification
	meter sticks	measure a square meter in a sunny location for water temperature experimentation
	rulers	measure equal sized papers for making two identical paper creatures
	balances	mass two identical paper creatures, one whole and one cut into parts
	magnets	test for objects or materials which magnetic attraction passes through
compasses	determine if a compass will work underwater or if heated or cooled	

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TEKS Concept	Tool	Suggested Uses
(3.8) The student knows that living organisms need food, water, light, air, a way to dispose of waste, and an environment in which to live.	calculators	average results of experiment trials
	microscopes	examine leaves of plants grown without enough light or water
	cameras	photograph helpful and harmful environmental changes in a neighborhood or community
	safety goggles	wear during observations or experiments with heat, glassware, motion, or chemical substances
	sound recorders	record sounds of rain, wind, and thunderstorms
	clocks	time heartbeats before, during, and after holding the breath
	computers	research the effects of daylight hours on flowering plants
	thermometers	measure the temperature of a water ecosystem daily for several weeks
	hand lenses	examine organisms such as snails, tadpoles, pill bugs, worms, and plants in a mini-ecosystem
	meter sticks	measure how far birds travel from their nests to the nearest water source
	rulers	measure equal sized strips of construction paper for a paper nest design challenge
	balances	mass the number of candy eggs or golf balls a paper nest will support
	magnets	test the response of animals and plants to a magnet placed in their ecosystem
compasses	determine the direction of sounds made by living things during a listening walk outside	

TEKS Concept	Tool	Suggested Uses
(3.9) The student knows that species have different adaptations that help them survive and reproduce in their environment.	calculators	average results of experiment trials
	microscopes	examine animal coverings such as raw wool, scales, fur, and feathers for adaptive features
	cameras	photograph animals and plants camouflaged in their natural habitats
	safety goggles	wear during observations or experiments with heat, glassware, motion, or chemical substances
	sound recorders	record animal noises that indicate defensive behavior
	clocks	time the ability to keep a hand in ice water inside a baggie filled with shortening
	computers	research and produce a presentation on an organism and its unique adaptations
	thermometers	measure temperature of various insulating materials during immersion in ice water
	hand lenses	examine seeds for dispersal adaptations and specialized leaves such as cactus needles
	meter sticks	measure distance of seed dispersal using a variety of seeds and a fan or blow dryer
	rulers	measure quill and down feathers
	balances	mass and compare wet and dry sponges to simulate water storage in plants and animals
	magnets	test plants for reaction to magnetism
compasses	determine the direction a pet's eyes are pointing toward when reclining or sleeping	

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TEKS Concept	Tool	Suggested Uses
(3.10) The student knows that many likenesses between offspring and parents are inherited from the parents.	calculators	average results of experiment trials
	microscopes	examine and compare preserved queen bees to worker bees
	cameras	photograph parents and offspring for a visual product such as a family tree
	safety goggles	wear during observations or experiments with heat, glassware, motion, or chemical substances
	sound recorders	record parent and offspring voices in the same family for similarities and differences
	clocks	time observation or experiment data
	computers	create a visual product that requires matching parents and their offspring for a younger child
	thermometers	measure temperature of freezer or oven where seeds can be treated before planting
	hand lenses	examine a cup of pinto beans to determine if there are any "identical twins"
	meter sticks	measure and outline sizes of newborns and adults in several animals
	rulers	measure growth of small plants such as herbs over several weeks
	balances	mass and compare seeds to adult plants
	magnets	N/A
compasses	determine direction of plant growth toward or away from a horizontal light source	

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TEKS Concept	Tool	Suggested Uses
(3.11) The student knows that the natural world includes earth materials and objects in the sky.	calculators	average results of experiment trials
	microscopes	examine water from local sources for microorganisms and algae
	cameras	photograph local water sources and classify as renewable, nonrenewable, or inexhaustible
	safety goggles	wear during observations or experiments with heat, glassware, motion, or chemical substances
	sound recorders	record a student written song or rap about gases in the atmosphere
	clocks	time the passage of water through soil samples
	computers	graph results of observations or experiments
	thermometers	measure temperature of water in a local pond over several weeks
	hand lenses	examine and compare particle sizes in soils or sands
	meter sticks	measure and mark a scale model of the sun and planets on the school grounds
	rulers	measure particle sizes of gravel, soil, and coarse sand
	balances	mass equal amounts of several soil types for porosity tests
	magnets	test soil, gravel, and sand samples for magnetic attraction
compasses	determine the direction from your school to local water sources	

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TEKS Concept	Tool	Suggested Uses
(4.5) The student knows that complex systems may not work if some parts are removed.	calculators	average results of experiment trials, calculate ranges or percentages
	safety goggles	wear during observations or experiments with heat, glassware, motion, or chemical substances
	microscopes	examine and compare <i>Elodea</i> cells before and after adding salt water
	cameras	photograph examples of erosion in soil plots with no plants
	sound recorders	record interviews with another student who assumes the role of body part
	computers	graph results of investigations, research a complex system and create a mind map
	hand lenses	examine arthropods missing one antennae or leg for effect on movement
	rulers	measure plant growth over time
	thermometers	measure body temperature before and after eating, exercise, or exposure to heat or cold
	meter sticks	measure plots on the school grounds for plant beds with and without plants
	timing devices	time heartbeat rate before and after holding breaths or exercise
	balances	mass salt to produce different concentrations for plant cell observations
	compasses	determine direction of movement in a disabled arthropod

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TEKS Concept	Tool	Suggested Uses
(4.6) The student knows that change can create recognizable patterns.	calculators	average results of experiment trials, calculate ranges or percentages
	safety goggles	wear during observations or experiments with heat, glassware, motion, or chemical substances
	microscopes	examine patterns of crystallization when water evaporates from a saturated solution
	cameras	photograph stages of development while observing mealworms, butterflies, or tadpoles
	sound recorders	record a song using bottles filled with different amounts of water
	computers	graph weather data or growth data, create a presentation on moon phases
	hand lenses	examine patterns in snowflakes, use a mirror to test for symmetry
	rulers	mark lines of reflection from a light source shining on a mirror
	thermometers	measure daily temperature or water temperature of a school pond over time
	meter sticks	measure distances from a light source to model movements of the earth, sun, and moon
	timing devices	time stages of development during metamorphosis of an insect
	balances	mass and compare stages of development during metamorphosis of an insect
	compasses	determine direction of seasonal constellations in the sky

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TEKS Concept	Tool	Suggested Uses
(4.7) The student knows that matter has physical properties.	calculators	average results of experiment trials, calculate ranges or percentages
	safety goggles	wear during observations or experiments with heat, glassware, motion, or chemical substances
	microscopes	examine and compare drops of liquids with different densities
	cameras	photograph matter in all states or changes caused by the addition or reduction of heat
	sound recorders	record and compare a sound made above and below water
	computers	produce an ABC book about physical properties or states of matter for a younger child
	hand lenses	examine the changes in a sugar cube when heated or frozen
	rulers	measure and compare the level of water displaced by a toy boat when masses are added
	thermometers	measure temperatures of equal amounts of various liquids heated the same amount of time
	meter sticks	measure distance traveled by a film canister rocket using Alka-Seltzer® in water as fuel
	timing devices	time the settling rate of oil and water shaken in a container
	balances	mass and compare equal amounts of hot and cold liquids
compasses	determine direction of film canister rockets from launch site to landing	

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TEKS Concept	Tool	Suggested Uses
(4.8) The student knows that adaptations may increase the survival of members of a species.	calculators	calculate average results of experiment trials, calculate ranges or percentages
	safety goggles	wear during observations or experiments with heat, glassware, motion, or chemical substances
	microscopes	examine butterfly wings for color patterns or camouflage
	cameras	photograph ways people have adapted to increase their survival rates
	sound recorders	record interviews of older people to learn how they adapted to changes during their lifetimes
	computers	research plant/animal adaptations, graph cycles of populations from a simulation game
	hand lenses	examine coloration, pollen, and petal arrangement of flowers for insect attraction
	rulers	measure the size of a spider egg sack compared to the size of the spider
	thermometers	measure temperature of incubator daily during incubation of chicken eggs
	meter sticks	measure dimensions of a large spider web to estimate meters of silk used in making the web
	timing devices	time trials in collecting model food using various simulated bird beaks
	balances	mass amounts of model food collected with various simulated bird beaks
	compasses	determine direction of migrating bird species during fall and spring

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TEKS Concept	Tool	Suggested Uses
(4.9) The student knows that many likenesses between offspring and parents are inherited or learned.	calculators	calculate the range of heights and weights represented by members of the same family
	safety goggles	wear during observations or experiments with heat, glassware, motion, or chemical substances
	microscopes	examine cheek cells from both parents and students
	cameras	photograph family members to compare inherited traits such as widows peak, eye color
	sound recorders	record family members reading a sentence to compare voice traits
	computers	produce a family tree showing traits inherited
	hand lenses	examine and compare leaves or seeds from a mature plant and the second generation
	rulers	measure sizes of full grown plants in two generations grown with the same conditions
	thermometers	measure and compare temperatures of classroom animals and their offspring
	meter sticks	measure and compare heights of family members
	timing devices	time family members' response times in a reaction test or learning task
	balances	mass and compare weights of classroom animals and their offspring
	compasses	determine family members' abilities to determine direction when blindfolded

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TEKS Concept	Tool	Suggested Uses
(4.10) The student knows that certain past events affect present and future events.	calculators	calculate speed of a flowing stream or rain gutter by dividing distance by time
	safety goggles	wear during observations or experiments with heat, glassware, motion, or chemical substances
	microscopes	examine particles found in moving water
	cameras	photograph effects of weathering around the school or neighborhood
	sound recorders	record sounds of weathering or flow
	computers	research events of the past for a timeline
	hand lenses	examine shoes, wooden fences, and outside painted surfaces for effects of weathering
	rulers	measure and sequence sizes of particles carried and dropped by moving water
	thermometers	measure temperature of rocks after being heating on a hot plate or placed in a freezer
	meter sticks	produce a scaled timeline of geologic eras showing plant and animal changes over time
	timing devices	time the speed of a floating object between two points in a flowing stream or rain gutter
	balances	measure the mass of sediment particles that have been moved in an erosion simulation
	compasses	determine direction of a flowing stream or rain gutter noting obstacles and effects on flow

TEKS Concept	Tool	Suggested Uses
(4.11) The student knows that the natural world includes earth materials and objects in the sky.	calculators	calculate average growth for plant samples and results from experiment trials
	safety goggles	wear during observations or experiments with heat, glassware, motion, or chemical substances
	microscopes	examine soil and sand grains for texture differences
	cameras	photograph growth of plants in the sun—some covered with large paper bags to limit sunlight
	sound recorders	record an original song about the water cycle that can be used with younger children
	computers	research effects of erosion on Texas coastlines
	hand lenses	examine growing grass after leaving a rock or water hose laying on it for several days
	rulers	measure hole depth made by an auger in different soils to test porosity
	thermometers	measure and compare air temperatures at ground level and at higher elevations
	meter sticks	measure distances above ground for air temperature data
	timing devices	time water moving through different soil types
	balances	mass and compare soil before and after water is added in porosity experiments
compasses	determine the direction of shadows during different seasons of the year	

TEKS Concept	Tool	Suggested Uses
(5.5) The student knows that a system is a collection of cycles, structures, and processes that interact.	calculators	average results from experiment trials
	microscopes	examine algae and microorganisms from pond ecosystems
	cameras	photograph development of an aquarium or eco-column over time
	sound recorders	record telegraph messages for another class to decipher
	computers	graph data of plant and animal populations in an aquarium or eco-column over time
	hand lenses	examine filtered water and filters for particles remaining after filtration
	rulers	measure decreases in water level and sizes of water plants in an aquarium or eco-column
	thermometers	measure temperature of water in an aquarium or eco-column over time
	compasses	determine the polarity of an electromagnet
	balances	mass amounts of soil, sand, gravel, charcoal, etc. to be layered in a filtration system
	hot plates	evaporate water from filtered water to examine sediments left behind
	meter sticks	measure depth of water in an existing pond ecosystem
	timing devices	time filtration experiments to collect porosity data
	magnets	test electromagnet strength using variables in type of core, type of wire, or number of coils
collecting nets	collect small fish, aquatic plants, and snails for an aquarium or eco-column	
safety goggles	wear during observations or experiments with heat, glassware, motion, or chemical substances	

TEKS Concept	Tool	Suggested Uses
(5.6) The student knows that some change occurs in cycles.	calculators	average the degree of angle change in a shadow per minute
	microscopes	examine frog or insect eggs floating in pond water
	cameras	photograph components of the carbon, nitrogen, and water cycle in the environment
	sound recorders	record sounds in nature associated with each seasonal change
	computers	produce a presentation showing the carbon cycle, nitrogen cycle, or phases of the moon
	hand lenses	examine seeds and insect larvae
	rulers	measure growth of plants and development of insect larvae
	thermometers	measure air temperature every day for a year
	compasses	determine direction of a shadow each hour in the same location
	balances	mass changes in plant and animal growth from seed/egg to adult
	hot plates	use to create a working model of the water cycle
	meter sticks	measure changes in shadow length during a school day
	timing devices	time shadow length and direction observations at regular intervals during a school day
	magnets	model the effect of the moon on the earth's tides
	collecting nets	collect insects and spiders for study of their life cycles
safety goggles	wear during observations or experiments with heat, glassware, motion, or chemical substances	

TEKS Concept	Tool	Suggested Uses
(5.7) The student knows that matter has physical properties.	calculators	average results from experiment trials, calculate ranges and percentages
	microscopes	examine saltwater and sugar water for evidence of particles
	cameras	photograph examples of mixtures and solutions, some retaining their properties
	sound recorders	record sounds which are physical properties such as ringing of crystal when tapped
	computers	research scientists who developed temperature measuring systems used today
	hand lenses	examine ingredients in a mixture such as sawdust, iron filings, sand, and sugar combined
	rulers	measure depth of liquid in same sized containers for experiments with temperature
	thermometers	measure change in temperature as liquids reach boiling points and melting points
	compasses	test electromagnets for polarity
	balances	mass amount of drink powder or instant tea to create varying concentrations of a mixture
	hot plates	heat corn syrup, milk, butter, or antifreeze solution to determine their boiling points
	meter sticks	measure connecting wires for telegraph communication with another class
	timing devices	time equal amounts of various liquids to reach their boiling points
	magnets	test objects for attraction and ability to close a circuit
	collecting nets	separate particles that float from a mixture of sawdust, iron filings, sand, and sugar
safety goggles	wear during observations or experiments with heat, glassware, motion, or chemical substances	

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TEKS Concept	Tool	Suggested Uses
(5.8) The student knows that energy occurs in many forms.	calculators	average results of experiment trials, calculate ranges or percentages
	microscopes	examine microscope lenses and test for diffraction with a light source
	cameras	examine lenses from a disposable camera and test for refraction with a light source
	sound recorders	record sounds of vibrating objects such as rubber bands, guitar strings, and tuning forks
	computers	research solar energy and its use as an inexhaustible energy resource
	hand lenses	focus light rays from a window through a hand lens to produce an image on paper
	rulers	measure water depth in cups to test tuning fork vibrations
	thermometers	measure temperature of heat produced in wires conducting electricity
	compasses	test an electrical circuit for the presence of a magnetic field
	balances	mass and compare dry cells before and after using
	hot plates	heat an inexpensive magnet to determine the effect of heat on magnetism
	meter sticks	measure the effect of heat and light at various distances from a radiometer
	timing devices	time number of rotations of the radiometer blades in a time period
	magnets	test if heat or light energy is affected by a magnetic field
	collecting nets	collect insects that make sounds by vibrating their wings or giving off light
safety goggles	wear during observations or experiments with heat, glassware, motion, or chemical substances	

Using Tools to Teach the Science TEKS

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TEKS Concept	Tool	Suggested Uses
(5.9) The student knows that adaptations may increase the survival of members of a species.	calculators	average results of experiment trials, calculate ranges or percentages
	microscopes	examine coloration patterns in moths and butterflies related to camouflage
	cameras	photograph plant and animal adaptations for a photo journal
	sound recorders	record sounds camouflaged in background noise to see if others can identify them
	computers	graph results of experimental trials, research animal/plant adaptations in each Texas biome
	hand lenses	examine tree barks and infer how the trees benefit from the bark's characteristics
	rulers	measure size of food particles in beak adaptation simulation experiments
	thermometers	measure temperature of a pond for increases/decreases during seasonal changes
	compasses	identify direction in migration patterns in North American flyways
	balances	mass and compare food collected during beak adaptation simulation experiments
	hot plates	determine the response of earthworms to heat source such as hot summers in Texas
	meter sticks	measure and outline the wingspan of large native Texas birds compared to their body size
	timing devices	time the collection of food items during beak adaptation simulation experiments
	magnets	N/A
collecting nets	collect insects or larvae and identify adaptations seen	
safety goggles	wear during observations or experiments with heat, glassware, motion, or chemical substances	

Using Tools to Teach the Science TEKS

TEKS Concept	Tool	Suggested Uses
(5.10) The student knows that likenesses between offspring and parents can be inherited or learned.	calculators	average results of experiment trials, calculate ranges or percentages
	microscopes	examine hair samples from family members for likenesses and differences
	cameras	photograph class members for traits such as widow peak, earlobe attachment, tongue rolling
	sound recorders	record interviews of three generations of a family for likenesses and differences
	computers	research organisms with learned behavior resulting from an environmental influence
	hand lenses	examine and compare first and second generation plants or animals
	rulers	measure size of animals or insects
	thermometers	N/A
	compasses	determine ability to sense cardinal directions while blindfolded or in an unfamiliar location
	balances	mass small animals or insects for maze navigation experiments
	hot plates	N/A
	meter sticks	measure and construct a maze for small animal or insect navigation experiments
	timing devices	time small animal or insect navigation through a maze toward a food source
	magnets	N/A
	collecting nets	collect insects for maze navigation experiments
safety goggles	wear during observations or experiments with heat, glassware, motion, or chemical substances	

TEKS Concept	Tool	Suggested Uses
(5.11) The student knows that certain past events affect present and future events.	calculators	average results of experiment trials, calculate ranges or percentages
	microscopes	examine particles of coal, wood and drops of oil (fossil fuels)
	cameras	photograph examples of growth, erosion, weathering, and flow
	sound recorders	record a radio advertisement about natural resources to use over the P.A. system
	computers	research renewable, non-renewable, and inexhaustible resources
	hand lenses	examine outdoor structures for evidence of weathering
	rulers	measure distances between growth rings in a tree section to infer drought or wet conditions
	thermometers	measure temperature of a surface under pressure and relate to metamorphosis of rock
	compasses	determine direction of flow from recent rains in dry bed gullies caused by erosion
	balances	mass a sugar cube mountain before starting a drip system to simulate erosion
	hot plates	simulate a volcanic eruption using an inverted funnel in a beaker of water heated to boiling
	meter sticks	measure plots on the school grounds for erosion and flow experiments
	timing devices	time simulated magma with various viscosities flowing down an incline
	magnets	test attraction of iron filings sprinkled on the surface of wet plaster
collecting nets	N/A	
safety goggles	wear during observations or experiments with heat, glassware, motion, or chemical substances	

TEKS Concept	Tool	Suggested Uses
(5.12) The student knows that the natural world includes earth materials and objects in the sky.	calculators	average results of experiment trials, calculate ranges or percentages
	microscopes	examine fine sediment samples
	cameras	photograph sedimentation occurring in a jar or tube of mixed sediments and water
	sound recorders	record a student written news story about how fossil fuels were formed
	computers	view simulations of planets orbiting the sun or the moon orbiting the earth
	hand lenses	examine mineral crystals in igneous, sedimentary, and metamorphic rocks
	rulers	measure to create scale models of earth and moon
	thermometers	measure temperature of water to which alum, salt, or sugar has been added
	compasses	demonstrate the presence of the earth's magnetic field
	balances	mass sugar, salt, alum, and Epsom salt to prepare saturated solutions
	hot plates	heat water to dissolve sugar, salt, alum, and Epsom salt for crystal forming solutions
	meter sticks	measure a plot of wet sand for crater impact experiments
	timing devices	time the settling of each sediment layer in a jar or tube of mixed sediments and water
	magnets	test mineral and rock samples for magnetic properties
collecting nets	collect fine sediment samples from the bottom of a pond or shallow area of a lake	
safety goggles	wear during observations or experiments with heat, glassware, motion, or chemical substances	