

# **Illinois**

## **Science Goals/Standards/Benchmarks Early Elementary Goals 11, 12, 13**

### **Correlated to AIMS Activities**

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# Illinois State Goals/Standards/Benchmarks

## Science, Goals 11 - 13

### Early Elementary

**GOAL 11: Understand the processes of scientific inquiry and technological design to investigate questions, conduct experiments and solve problems.**

<b>A. Know and apply the concepts, principles and processes of scientific inquiry.</b>		
11.A.1a Describe an observed event.		
11.A.1b Develop questions on scientific topics.		
11.A.1c Collect data for investigations using measuring instruments and technologies.		
11.A.1d Record and store data using available technologies.		
11.A.1e Arrange data into logical patterns and describe the patterns.		
11.A.1f Compare observations of individual and group results.		
<b>Activity</b>	<b>Source</b>	<b>Students will:</b>
Melt a Cube, Keep a Cube	Primarily Physics	Investigate ways to keep and melt an ice cube.
Grapes to Raisins	Fall into Math and Science	Investigate the loss of water in grapes.
Spinning Ghosts	Fall into Math and Science	Predict, observe, and record the motion of paper ghost.
Heat Energy and Color	Primarily Physics	Investigate which colors absorb radiant energy faster.
The Remarkable Peanut	12.07	Observe and group peanuts.
Make a Careful Observation	12.08	Make observations of objects and make comparisons.

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### Science, Goals 11 - 13

<b>B. Know and apply the concepts, principles and processes of technological design.</b>		
11.B.1a Given a simple design problem, formulate possible solutions.		
11.B.1b Design a device that will be useful in solving the problem.		
11.B.1c Build the device using the materials and tools provided.		
11.B.1d Test the device and record results using given instruments, techniques and measurement methods.		
11.B.1e Report the design of the device, the test process and the results in solving a given problem.		
<b>Activity</b>	<b>Source</b>	<b>Students will:</b>
Plan a Pot	Under Construction	Design and plant a garden container.
Tall Walls	Under Construction	Design wall and test its strength with a tennis ball.
Designed by Me	Under Construction	Understand design through a study of the function of clothing.
Fold to Hold	Under Construction	Design and build a variety of containers.
Bag It	Under Construction	Design a bag for a particular purpose.
Exploring Bridges	Under Construction	Explore bridges with blocks and begin to construct their own knowledge of bridges.
Hold the Load	Under Construction	Build two bridges and compare and contrast their strength.
Building Bridges	Under Construction	Design bridges using index cards and discover the advantages of different designs.
Paper Cup Telephone	Primarily Physics	Use a variety of materials to create roaring sound.

# Illinois State Goals/Standards/Benchmarks

## Science, Goals 11 - 13

### Early Elementary

**GOAL 12: Understand the fundamental concepts, principles and interconnections of the life, physical and earth/space sciences.**

<b>A. Know and apply concepts that explain how living things function, adapt, and change.</b>		
12.A.1a Identify and describe the component parts of living things (e.g., birds have feathers; people have bones, blood, hair, skin) and their major functions.		
<b>Activity</b>	<b>Source</b>	<b>Students will:</b>
Under Cover	Critters	Explore the various kinds of animal coverings.
Seed Sort	Primarily Plants	Sort and classify seeds by observable characteristics.
Inside a Seed	Primarily Plants	Identify the major parts of a seed.
A Seed Grows	Primarily Plants	Grow a seed and watch how a plant begins.
It's in the Bag	Primarily Plants	Plant seeds and observe and measure the growth of roots, stems, and leaves.
The Seed Within	Primarily Plants	Compare size, shape, and color of various seeds.
Inside a Bat	Bats Incredible	Construct a model of a bat wing.
Build a Nest	15.08	Build a model of a bird's nest.
Wonderful Webbed Feet	15.07	Build a model to discover how the webbing in frog's feet help them swim.

12.A.1b Categorize living organisms using a variety of observable features (e.g., size, color, shape, backbone).		
<b>Activity</b>	<b>Source</b>	<b>Students will:</b>
Animal Antics	Critters	Sort animals into appropriate classification groups.
Wings and Webs	Critters	Investigate external differences in the bodies of insects and spiders.
Mammals on My Mind	Bats Incredible	Explore and analyze characteristics of mammals.
Just Between Bats	Bats Incredible	Complete a Venn diagram by comparing and contrasting physical characteristics of bats.
MicroBat and MegaBat	Bats Incredible	Observe and classify facial features of bats.
Bat Masks	Bats Incredible	Identify the kind of food a bat eats by its facial features.
Popping Through the Garden	Critters	Make a model of a spider and an insect and identify the body parts of each.
Pets Are Part of the Picture	5.10	Classify pictures of pets according to visible attributes.
Compare a Tree to Me	16.07	Examine a tree and find similarities between their body and a tree's structure.
Spying on Spiders	14.07	Observe real spiders in captivity.

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## Science, Goals 11 - 13

### **B. Know and apply concepts that describe how living things interact with each other and with their environment.**

12.B.1a Describe and compare characteristics of living things in relationship to their environments.

<b>Activity</b>	<b>Source</b>	<b>Students will:</b>
A Special Plot	Field Detectives	Observe a small section of the playground.
Pages 8-13	Exploring Environments	Explore a variety of environments and interactions with them.
Catch Me If You Can	Critters	Experience the relationship between predators and prey.
Classy Caves	Bats Incredible	Create cave models to better understand the structure of a cave and their role as a bat environment.
Family Sense	Bats Incredible	Simulate the way a mother bat finds her pup.
Cool Ants	15.06	Observe how ants in an ant farm react to a change in temperature.
Seed Soakers	14.10	Observe changes that occur when seeds are soaked in water.

12.B.1b Describe how living things depend on one another for survival.

<b>Activity</b>	<b>Source</b>	<b>Students will:</b>
Life in the Food Chain	Field Detectives	Locate and observe food chains and webs found around school.
Food Chain (Song)	Field Detectives	Reinforce food chain concept in song.
Save the Bats	Bats Incredible	Play a game to learn why bats are necessary in nature.
Blue Ribbon Crops	15.01	Plant crops and observe how water effects growth.

### **C. Know and apply concepts that describe properties of matter and energy and the interactions between them.**

12.C.1a Identify and compare sources of energy (e.g., batteries, the sun).

<b>Activity</b>	<b>Source</b>	<b>Students will:</b>
Light Sources	Primarily Physics	Identify sources of light energy.
Heat Energy from Friction	Primarily Physics	Produce heat energy by rubbing hands together.
Sound is Vibration	Primarily Physics	Explore various materials that vibrate to make sound.

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12.C.1b Compare large-scale physical properties of matter (e.g., size, shape, color, texture, odor).		
Activity	Source	Students will:
Rock Groups	Primarily Earth	Carefully observe and describe properties of their rocks.
Rocks and More Rocks Groups	Primarily Earth	Sort and classify groups of rocks.
Sherlock Combs the Yard	Overhead & Underfoot	Make collections of matter and sort by their attributes.
Making Sense of Solids	16.01	Explore and describe characteristics of solid objects in station activities.
Looking at Liquids	16.02	Explore and describe characteristics of liquids.

#### **D. Know and apply concepts that describe force and motion and the principles that explain them.**

12.D.1a Identify examples of motion (e.g., moving in a straight line, vibrating, rotating).

Activity	Source	Students will:
Swinging Bears I	Popping with Power	Discover the relationship between pendulum length and frequency.
If It's Up It Must Come Down	14.08	Discover the effects of gravity on various objects.

12.D.1b Identify observable forces in nature (e.g., pushes, pulls, gravity, magnetism).

Activity	Source	Students will:
Feather Relays	13.04	Explore force and motion with feathers.
What Goes Up Must Come Down	14.01	Discover the effects of gravity on various objects.
Stick to It	Mostly Magnets	Classify objects in the classroom by magnetic and non-magnetic properties.
Face to Face	Mostly Magnets	Discover how like and unlike poles react to one another.
What Will a Magnet Attract	Mostly Magnets	Predict and test objects for magnetic attraction.
Slip, Sliding Sleds	16.06	Use a variety of materials to build and race a model sled.
Paper Gliders	16.04	Make a glider and observe its flight.
A Circus of Machines	15.05	Explore simple machines in station activities.

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### **E. Know and apply concepts that describe the features and processes of the Earth and its resources.**

12.E.1a Identify components and describe diverse features of the Earth's land, water and atmospheric systems.

<b>Activity</b>	<b>Source</b>	<b>Students will:</b>
A Close Look at Air	Primarily Earth	Investigate air and observe its characteristics.
What Makes Rain?	Primarily Earth	Observe the water cycle.
The Earth's Features	Primarily Earth	Observe and compare physical features of the earth.
Where Is Water?	Primarily Earth	Identify where water is found.

12.E.1b Identify and describe patterns of weather and seasonal change.

<b>Activity</b>	<b>Source</b>	<b>Students will:</b>
Watching the Weather	Primarily Earth	Observe and record weather conditions over time.

12.E.1c Identify renewable and nonrenewable natural resources.

<b>Activity</b>	<b>Source</b>	<b>Students will:</b>
Earth Has What We Need	Primarily Earth	Identify rock and mineral materials in and around the classroom.

### **F. Know and apply concepts that explain the composition and structure of the universe and Earth's place in it.**

12.F.1a Identify and describe characteristics of the sun, Earth and moon as familiar objects in the solar system.

<b>Activity</b>	<b>Source</b>	<b>Students will:</b>
Sunshine	6.01	Observe and record amount of sunshine over a period of time.
Look at the Moon	Cycles of Knowing and Growing	Observe and describe changes in the moon.

12.F.1b Identify daily, seasonal and annual patterns related to the Earth's rotation and revolution

<b>Activity</b>	<b>Source</b>	<b>Students will:</b>
Sky Watchers	Cycles of Knowing and Growing	Observe the sky and its changes.
Season-O	Cycles of Knowing and Growing	Observe a tree and its surroundings throughout the seasons.
A Timely Rap (Song)	8.03	Sing about the rotation of the earth.
Mr. Groundhog, Mr. Groundhog	Cycles of Knowing and Growing	Observe, trace, and discuss the shadow of a groundhog throughout the day.
A Snap of Time	Cycles of Knowing and Growing	Adopt a tree for the school year and observe seasonal changes.

# Illinois State Goals/Standards/Benchmarks

## Science, Goals 11 - 13

### Early Elementary

**GOAL 13: Understand the relationships among science, technology and society in historical and contemporary contexts.**

<b>A. Know and apply the accepted practices of science.</b>		
13.A.1a Use basic safety practices (e.g., Not tasting materials without permission, “stop/drop/roll”)		
<b>Activity</b>	<b>Source</b>	<b>Students will:</b>
Agent Erosion	Primarily Earth	Wear safety glasses to conduct erosion activities.

13.A.1b Explain why similar results are expected when procedures are done the same way.		
<b>Activity</b>	<b>Source</b>	<b>Students will:</b>
Teddy Bears & Oranges	Primarily Bears	Use a balance to determine the mass of an orange including its skin and edible parts.

13.A.1c Explain how knowledge can be gained by careful observation.		
<b>Activity</b>	<b>Source</b>	<b>Students will:</b>
Making a Careful Observation	12.08	Develop observation skills and learn about pinecones.
Touch Tells Much	11.08	Develop observation skill and learn about shells.
Walk, Stop, & Listen	Senseable Science	Use their senses to make observations.
My Mealworm	Critters	Observe mealworms and become familiar with their life cycle.
Just Passing Through	Primarily Physics	Use a flashlight to observe which materials are transparent, translucent, or opaque.
Light Rays Slow Down	Primarily Physics	Observe properties of light as they travel through different transparent materials.
Cool Colors	16.03	Observe and measure temperature of objects placed in sunlight and explain the relationship between color and temperature.

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<b>B. Know and apply concepts that describe the interaction between science, technology, and society.</b>		
13.B.1a Explain the uses of common scientific instruments (e.g., ruler, thermometer, balance, probe, computer).		
<b>Activity</b>	<b>Source</b>	<b>Students will:</b>
What is the Temperature	Primarily Physics	Learn how to read a thermometer
Two-Colored Metric Tape	12.06	Make and use a metric tape.
Student-Made Measuring Tools	5.01	Be able to make and use a variety of measuring tools in this teacher article.
Wrap Around Ruler	11.10	Make and use a ruler to determine if an object is longer than, shorter than, or the same as another object.
Getting the Hang of It	11.02	Make and use a balance to tell if an object is heavier than, lighter than, or the same as another object.
13.B.1b Explain how using measuring tools improves the accuracy of estimates.		
<b>Activity</b>	<b>Source</b>	<b>Students will:</b>
Queen's Bed	13.06	Develop their understanding of the need for a standardized measurement system by making a bed.
Let Me Count the Ways	Primarily Bears	Explore estimation and mass measurement.
13.B.1c Describe contributions men and women have made to science and technology.		
<b>Activity</b>	<b>Source</b>	<b>Students will:</b>
George Washington Carver: The Remarkable Peanut	12.07	Learn about George Washington Carver and use their senses to learn about peanuts in eight station activities.
13.B.1d Identify and describe ways that science and technology affect people's everyday lives (e.g., transportation, medicine, agriculture, sanitation, communication occupations).		
<b>Activity</b>	<b>Source</b>	<b>Students will:</b>
Time for Tools	Under Construction	Design tools.
Tools of the Trade	Under Construction	Solve problems with tools.
Tool Tales	Under Construction	Identify tools used in nursery rhymes.
13.B.1e Demonstrate ways to reduce, reuse, and recycle materials.		
<b>Activity</b>	<b>Source</b>	<b>Students will:</b>
Paper-A Pressing Issue	Cycles of Knowing and Growing	Recycle paper to make paper.
Made by Nature Made by Me	Under Construction	Use nature materials by making something.
The Earth Has What We Need!	Primarily Earth	Identify materials from the Earth and how they are used.

# Illinois State Goals/Standards/Benchmarks

## Science, Goals 11 - 13

### Late Elementary

**GOAL 11: Understand the processes of scientific inquiry and technological design to investigate questions, conduct experiments and solve problems.**

<b>A. Know and apply the concepts, principles and processes of scientific inquiry</b>		
11.A.2a Formulate questions on a specific science topic and choose the steps needed to answer the questions.		
11.A.2b Collect data for investigations using scientific process skills including observing, estimating and measuring.		
11.A.2c Construct charts and visualizations to display data.		
11.A.2d Use data to produce reasonable explanations.		
11.A.2e Report and display the results of individual and group investigations.		
Activity	Source	Students will:
Reaction Countdown	5.08	Determine their reaction time by catching a falling metric ruler.
By Golly By Gum	Jaw Breakers and Heart Thumpers	Investigate how the mass of gum is affected by chewing.
By Golly By Gum By Time	Jaw Breakers and Heart Thumpers	Investigate how the mass of gum is affected by the amount of time it is chewed.
Crazy Colloid Formerly Goo Yuck	6.01	Investigate the properties of a colloid.
A Disappearing Act	Primarily Earth	Investigate the relationship between surface area and evaporation.
Rain Away	5.07	Observe process of evaporation in containers of different surface areas.
Washers and Dryers	8.02	Investigate water loss in apples.
Water In Apples	4.1; Jaw Breakers and Heart Thumpers	Investigate water loss in apples.
M&M Candies® Count and Crunch	Math + Science A Solution	Determine the numerical frequency of the six colors of M&M Candies®.
M&M Candies® What's in the Bag?	Math + Science A Solution	Explore samples of bags of candies and determine a consistency in packaging.
Cat Scan	7.07	Gain experience in the construction and use of bar graphs, circle graphs, binary tree diagrams and Venn diagrams.
Big Banana Peel	Math + Science A Solution	Determine what percentage of the banana is edible.
Tints and Temps	Popping With Power; 10.01	Investigate how car color affects the inside temperature of the car.
Golden House	Cycles of Knowing and Growing	Observe changes in a pumpkin over time.
Paper Gliders	16.04	Use scientific inquiry skills to explore various types of paper to find the one, which results in the longest glider flight.
A Feast For Yeast	15.01	Observe changes in yeast and gather data to construct reasonable explanations.
Catch a Case of Mold	15.06	Observe how mold grows and the effectiveness of preservatives in preventing the growth of mold.

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## Science, Goals 11 - 13

<b>B. Know and apply the concepts, principles and processes of technological design.</b>		
11.B.2a Identify a design problem and propose possible solutions.		
11.B.2b Develop a plan, design a procedure to address the problem identifying constraints (e.g., time, materials, technology).		
11.B.2c Build a prototype of the design using available tools and materials.		
11.B.2d Test the prototype using suitable instruments, techniques, and quantitative measurements to record data.		
11.B.2e Assess test results and the effectiveness of the design using given criteria and noting possible sources of error.		
11.B.2f Report test design, test process and test results.		
<b>Activity</b>	<b>Source</b>	<b>Students will:</b>
Let It Fall	3.02	Observe effects of air resistance and lift on falling objects.
A Pair of Chutes	4.10	Construct parachutes and determine the effects of canopy size on the rate of descent.
Puff Mobiles	Popping with Power	Construct, test, and modify a car to achieve maximum distance.
Bird's Eye View	Finding Your Bearings	Design a new school to scale.
Lighten Up	Finding Your Bearings	Design an energy saving lighting system for their home.
New Plant Discovery	Budding Botanist	Design and make a plant model adapted to a certain environment.
Hot Rods or Cool Tubes	15.02	Explore the amount of mass that can be supported by tubes and rods made of the same material.

# Illinois State Goals/Standards/Benchmarks

## Science, Goals 11 - 13

### Late Elementary

**GOAL 12: Understand the fundamental concepts, principles and interconnections of the life, physical and earth/space science.**

<b>A. Know and apply concepts that explain how living things function, adapt and change.</b>		
12.A.2a Describe simple life cycles of plants and animals and the similarities and differences in their offspring.		
<b>Activity</b>	<b>Source</b>	<b>Students will:</b>
My Mealworm	Critters	Observe and identify stages in the life cycle of mealworms.
A Time of Their Own	Cycles of Knowing and Growing	Observe and compare the metamorphoses of butterflies and moths.
Butterfly Cycle Song	Cycles of Knowing and Growing	Sing the song of the life cycle of a butterfly.
Silkworms	Cycles of Knowing and Growing	Observe growth and life cycles of and insect's life cycle.
Exploring Germination	Budding Botanist	Plant a mini-garden and observe and compare germination of mixed seeds.
Look At Me Now!	Cycles of Knowing and Growing	Will investigate changes in their growth.
Grab Bag Garbage	7.07	Observe the changes in various materials over time.
What a Corny Life	Cycles of Knowing and Growing	Observe and compare the visual attributes of Indian corn and the changes.
Observing Bulbs	Cycles of Knowing and Growing	Observe and describe the physical characteristics of a bulb.
Growing Bulbs	Cycles of Knowing and Growing	Observe life cycle of a bulb.
Just a Little Sprout	Cycles of Knowing and Growing	Plant pumpkin seeds and observe the cycle of growth.
Dissect a Seed	Budding Botanist	Dissect and compare a dicot and monocot.
A Snap of Time	Cycles of Knowing and Growing	Observe and compare change of a tree over time.

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12.A.2b Categorize features as either inherited or learned (e.g., flower color or eye color is inherited; language is learned).		
Activity	Source	Students will:
Unique U	Math+Science: A Solution	Classify and observe similar and different attributes of everyone in the class.
Teddy Bears Come in Pairs	2.05	Conduct an investigation, which simulates Mendel's experiments with plants.
Dealing with Data	Math+Science: A Solution	Collect, graph, and analyze a variety of data.
Trait Combos	6.10	Test combinations of possible outcomes.
Picturing a Dichotomy	9.08	Compare and contrast data about dominant and recessive traits.

<b>B. Know and apply concepts that describe how living things interact with each other and with their environment.</b>		
12.B.2a Describe relationships among various organisms in their environments (e.g., predator/prey, parasite/host, food chains and food webs).		
Activity	Source	Students will:
Life in the Food Chain	Field Detectives	Describe food chains and webs found on the playground and around school.
Pizza Parts and Web Wheels	Field Detectives	Make a small pizza and identify from what parts of the food web the ingredients came from.
Pyramid Pile-Up	Field Detectives	Use a three-dimensional model to show the structure of a food pyramid.
Food Chain of the Pond	8.05	Sing a song about the food chain in a pond.
Catch Me If You Can	Critters	Role-play to experience the relationships between predators and prey in a food chain.
Color Me Safe	Overhead Underfoot	Discover the importance of animal coloring in relation to survival.

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12.B.2b Identify physical features of plants and animals that help them live in different environments (e.g., specialized teeth for eating certain foods, thorns for protection, insulation for cold temperature).		
Activity	Source	Students will:
Table Manners	Critters	Simulate food gathering with four different types of insects.
Hide 'n Seek	Critters	Create a critter and observe the effects of camouflage.
Food Chains and Webs	9.09	Explore the variety of ways transfer of food energy can occur.
Pages 14-33	Exploring Environments	Explore organisms and identify characteristics of interdependence.
Noses for Nectar	Bats Incredible	Simulate a megabat feeding process to understand bats' roles in pollination.
Missing Moths	Critters	Observe an environment to see the effects of camouflage.
New Plant Discovery	Budding Botanist	Design and make a plant model that is adapted to a certain type of environment.
Where in the World Is Cotton?	15.09	Research and locate on a map where cotton grows and discover a pattern in latitude.
Beat the Heat	16.01	Collect data on various adaptations used by organisms to keep from drying out.
Here's Looking At You	16.04	Use angle measurements to compare their vision with that of an owl's.
Oh Snail Can You See?	16.05	Investigate how a snail/slug uses vision and other senses to get around.

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## Science, Goals 11 - 13

<b>C. Know and apply concepts that describe properties of matter and energy and the interactions between them.</b>		
12.C.2a Describe and compare types of energy including light, heat, sound, electrical and mechanical.		
<b>Activity</b>	<b>Source</b>	<b>Students will:</b>
Musical Instruments	Primarily Physics	Create instruments to observe how sound is created by striking, plucking or blowing.
Sound Is Vibration	Primarily Physics	Explore with a variety of objects to observe that sound is vibration.
Traveling Sounds	Primarily Physics	Experiment with different materials to observe how sound travels.
Paper Cup Telephone	Primarily Physics	Demonstrate that sound travels through solids.
Sound of Voices	Primarily Physics	Demonstrate that sound is produced by vocal cords.
Light Sources	Primarily Physics	Investigate sources that produce light energy.
Mirrors Reflect	Primarily Physics	Explore the path of light energy.
Light Rays Slow Down	Primarily Physics	Observe properties of light energy.
What Is Hot/What Is Cold?	Primarily Physics	Explore concepts of hot and cold.
Heat Energy From Friction	Primarily Physics	Realize that rubbing two surfaces together produces heat energy.
Heat Energy and Color	Primarily Physics	Observe that dark colors absorb radiant energy faster than light colors.
Heat Energy Travels	Primarily Physics	Learn that metal can be a good conductor of energy.
Hot Chocolate	13.10	Explore the transfer of heat by conduction.
Polar Brrrs	15.04	Design ways to prevent an ice cube from melting.
Focus Pocus	16.01	Determine the focal lengths of different lenses, the relationship of area and thickness of a lens and its focal length, and how double convex and plano-convex lenses differ.
Inquiring About Lenses	16.02	Create a convex lens and discover its properties.
Cool Colors	16.03	Measure and record temperatures of objects placed in sunlight and explain the relationship between color and temperature.

<b>12.C.2b Describe and explain the properties of solids, liquids and gases.</b>		
<b>Activity</b>	<b>Source</b>	<b>Students will:</b>
The Melting Ice Cube	Off the Wall Science	Observe the change a solid state of matter to a liquid state.
Ice Water in a Tin Can	Off the Wall Science	Observe how cooling affects condensation.
Water Olympics	Water Precious Water	Explore properties of water.

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A Crazy Colloid	6.01	Observe states of matter.
Messing with Mixtures	12.07	Test different mixtures for separation, evaporation, and distillation
Oh Dear What Can This Matter Be?	16.04	Classify objects according to their physical properties, identify the 3 phases of matter, and use a Venn Diagram.

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## Science, Goals 11 - 13

<b>D. Know and apply concepts that describe force and motion and the principles that explain them.</b>		
12.D.2a Explain constant, variable and periodic motions.		
<b>Activity</b>	<b>Source</b>	<b>Students will:</b>
How a Skydiver Flies	Gravity Rules	Duplicate many of the motions of a real skydiver in freefall.
Look At the Moon	Cycles of Knowing and Growing	Describe the changes they see in the moon.
Swinging Bears Part II	Popping With Power	Determine how the length of the pendulum effects the frequency.
Rally Round the Room	Pieces and Patterns	Explore concepts of friction, kinetic energy and distance traveled with an inclined plane.
Tug Teams	11.7	Explore Newton's First Law.

12.D.2b Demonstrate and explain ways that forces cause actions and reactions (e.g., magnets attracting and repelling; objects falling, rolling and bouncing).		
<b>Activity</b>	<b>Source</b>	<b>Students will:</b>
Spheres on a Roll	13.07	Measure and record the direction and distance a variety of spheres roll when given an equal push.
Have a Ball	Popping With Power	Explore physical characteristics of balls and determine which one most influences the height of bounce.
On the Rebound	Popping With Power	Discover a pattern relating the height from which a ball is dropped to the height of its bounce.
From the Ground Up	Popping With Power	Explore how different surfaces effect the height of a bouncing ball.
Ball on a Roll	Popping With Power	Observe how slope affects the distance a ball will roll.
It's Simply Marbleous	Math+Science: A Solution	Describe relationship between slope of an inclined plane and the distance an object will roll.
What Will a Magnet Attract?	Mostly Magnets	Predict and test objects for their magnetic interaction.
Magnetic Tug of War	Mostly Magnets	Quantify magnetic interaction between two ring magnets to determine relationship between attraction and repulsion.
Magnets Apart	Mostly Magnets	Study the changes in magnetic attraction as magnets are separated by cardstock.
What's the Attraction?	Mostly Magnets	Determine the average force of magnetic interaction.
How Close Can You Get?	Mostly Magnets	Quantify the level of observable magnetic interaction between magnets and paperclips and quantify increases when a second or third magnet is added.
Plod and Plot	15.04	Use a compass and metric measuring tape to plot pictures.
Electromagnetic Explorations	15.10	Build a simple electromagnet; use a directional compass to determine orientation of its poles and then reverse the flow of current.

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<b>E. Know and apply concepts that describe the features and processes of the Earth and its resources.</b>		
12.E.2a Identify and explain natural cycles of the Earth's land, water and atmospheric systems (e.g., rock cycle, water cycle, weather patterns).		
<b>Activity</b>	<b>Source</b>	<b>Students will:</b>
Weather Watch	10.02	Gather hourly weather data from radio, TV or computer and observe weather patterns in a variety of locations.
Moving Raindrops in the Water Cycle	Water Precious Water	Construct a visual aid, which depicts the water cycle.
The Mini Water Cycle	Water Precious Water	Understand the processes of evaporation and condensation.
Ice Breakers	Primarily Earth	Investigate the effects of the freezing of water in simulated model rocks.
It's a Breeze	13.05	Use a ribbon to find wind direction, make observations, and create a wind scale.
Wash-N-Wear Caves	Bats Incredible	Construct a model to simulate the formation of a rock cave by erosive forces.
A Drip on a String	Bats Incredible	Construct model caves and grow stalagmites and stalactites.
Sky Watch	15.08	Observe 3 basic types of clouds and their relationship to certain kinds of weather.
Decimal Downpour	15.09	Use the internet to gather monthly precipitation data and then graph and interpret the data.
An Olympic Latitude	16.06	Locate and plot countries that won most medals in summer and winter games; look for patterns and suggest reasons why latitude may influence the outcome.

<b>12.E.2b Describe and explain short-term and long-term interactions of the Earth's components (e.g., earthquakes, types of erosion).</b>		
<b>Activity</b>	<b>Source</b>	<b>Students will:</b>
Quaking Earth	Primarily Earth	Do two investigations to explore what happens to the surface of Earth and buildings when it quakes.
Agent Erosion	10.3; Primarily Earth	Use models to observe that rocks weather into sand and soil.
Trickle Down Theory	9.03	Observe the infiltration of water through particles with different porosity.
Rain Away	Water Precious Water	Observe the effects of erosion caused by rain on a bare hillside.
Don't Rain Away	Water Precious Water	Observe how vegetation helps control erosion caused by rain.

<b>12.E.2c Identify and classify recyclable materials.</b>		
<b>Activity</b>	<b>Source</b>	<b>Students will:</b>
Let's Recycle	Overhead and Underfoot	Use a recycling project to reinforce concepts concerning collection of data.
Earth Has What We Need	Primarily Earth	Identify renewable and non-renewable resources.

# Illinois State Goals/Standards/Benchmarks

## Science, Goals 11 - 13

**F. Know and apply concepts that explain the composition and structure of the universe and Earth's place in it.**

12.F.2.a Identify and explain natural cycles and patterns in the solar system (e.g., order of the planets; moon phases; seasons as related to Earth's tilt, one's latitude, and where Earth is in its yearly orbit around the sun).

Activity	Source	Students will:
Facing Up to the Moon	10.08	Observe changing moon phases.
Sun Watchers	Pieces & Patterns	Use the angle of the shadow of a meter stick to learn about the time and construct a sundial watch.
Pasta Parallels	9.06	Discover the relationship between the tilt of the Earth and distribution of sun's rays relating to seasons.
Sunshine	6.01	Investigate, observe, and record number of hours of daylight.
Look at the Moon	Cycles of Knowing & Growing	Will describe the changes in the moon.
Spacing Out the Solar System	Out of This World	Determine the relative distance of planets in order to construct a model solar system.
Weather Watch	10.02	Gather hourly weather information and observe weather patterns over time.

12.F.2.b Explain the apparent motion of the sun and stars.

Activity	Source	Students will:
The Moon Shines Bright	Out of This World	Chart the apparent movement of the moon around the earth.
A Handy Time Piece	9.04	Use shadow cast by their hand to determine the approximate time.
The Sun's Autograph	9.03	Keep track of the sun's apparent movement throughout the year.

12.F.2.c Identify easily recognizable star patterns (e.g., the big Dipper, constellations).

Activity	Source	Students will:
It All Depends on Your Point of View	Out of This World	Discover star patterns in constellations.

# Illinois State Goals/Standards/Benchmarks

## Science, Goals 11 - 13

### Late Elementary

**GOAL 13: Understand the relationships among science, technology and society in historical and contemporary contexts.**

<b>A. Know and apply the accepted practices of science.</b>		
13.A.2a Demonstrate ways to avoid injury when conducting science activities (e.g., wearing goggles, fire extinguisher use).		
<b>Activity</b>	<b>Source</b>	<b>Students will:</b>
None applicable		

13.A.2b Explain why similar investigations may not produce similar results.		
<b>Activity</b>	<b>Source</b>	<b>Students will:</b>
Water in Apples	Jaw Breakers & Heart Thumpers	Explore variations in loss of moisture in differently prepared apples.

13.A.2c Explain why keeping accurate and detailed records are important.		
<b>Activity</b>	<b>Source</b>	<b>Students will:</b>
Water in Apples	Jaw Breakers & Heart Thumpers	Explore variations in loss of moisture in differently prepared apples.

<b>B. Know and apply concepts that describe the interaction between science, technology and society.</b>		
13.B.2a Explain how technology is used in science for a variety of purposes (e.g., sample collection, storage and treatment; measurement; data collection, storage and retrieval; communication of information).		
<b>Activity</b>	<b>Source</b>	<b>Students will:</b>
The Enormous “e”	Magnificent Micro-World Adventures	Measure the field of their microscope at its various powers of magnification.
A Focus on Scopes	Magnificent Micro-World Adventures	Learn the parts, function, and care of a compound microscope.
Trees As a Crop	Our Wonderful World	Be introduced to forestry and learn how trees are measured.
Make Your Own Measuring Cup	Water Precious Water	Calibrate a cup to make their own measuring cup.
Big Banana Peel	Math + Science A Solution; 1.04	Determine what percentage of a banana is edible.
Peddle the Metal	Hardhatting in a Geo-World	Make pasta jewelry and determine the selling price by measuring the number of grams of each piece.
As Light As A Feather	15.04	Make and adjust an equal-arm balance to determine items in their environment that are as light as a feather.

## Illinois State Goals/Standards/Benchmarks

### Science, Goals 11 - 13

13.B.2b Describe the effects on society of scientific and technological innovations (e.g., antibiotics, steam engine, and digital computer).		
Activity	Source	Students will:
Let's Recycle	Overhead and Underfoot	Use a recycling project to reinforce concepts concerning collection data.
When I Was Ten	Electrical Connections	Investigate how electrical innovations have impacted human lives.

13.B.2c Identify and explain ways that science and technology influence the lives and careers of people.		
Activity	Source	Students will:
Archimedes: A Teeter-Totter Discovery	Historical Connections in Mathematics Vol. I	Develop an understanding of the law of the lever.
Galileo: Galileo Drops the Ball	Historical Connections in Mathematics Vol. I	Understand the law of falling bodies.
Trees As A Crop	Our Wonderful World	Be introduced to forestry and learn how trees are measured.
Magniviewer	9.10	Construct and use a microscope made with a hand lens.

13.B.2d Compare the relative effectiveness of reducing, reusing and recycling in actual situations.		
Activity	Source	Students will:
Rain Away	Water Precious Water	Observe the effects of erosion caused by rain on a bare hillside.
Don't Rain Away	Water Precious Water	Observe how vegetation helps control erosion caused by rain.
Bitter Litter	Overhead & Underfoot	Investigate how the environment effects different types of litter.

13.B.2e Identify and explain ways that technology changes ecosystems (e.g., dams, highways, buildings, communication networks, power plants).		
Activity	Source	Students will:
Teddy Bears Fight Pollution	2.03	Study the effect of the increasing amount of pollution on animal life through a simulation.
A Warrant for Water	Field Detectives	Test percolation and retention of water for different surface areas.

13.B.2f Analyze how specific personal and societal choices that humans make affect local, regional and global ecosystems (e.g., lawn and garden care, mass transit).		
Activity	Source	Students will:
Teddy Bears Fight Pollution	2.03	Study the effect of the increasing amount of pollution on animal life through a simulation.
Compacted Playground	Field Detectives	Study the effect of compacted soil on plant life.
A Warrant for Water	Field Detectives	Test percolation and retention of water for different surface areas.

# Illinois State Goals/Standards/Benchmarks

## Science, Goals 11 - 13

### Middle School/Junior High

**GOAL 11: Understand the processes of scientific inquiry and technological design to investigate questions, conduct experiments and solve problems.**

<b>A. Know and apply the concepts, principles and processes of scientific inquiry.</b>		
11.A.3a Formulate hypotheses that can be tested by collecting data.		
11.A.3b Conduct scientific experiments that control all but one variable.		
11.A.3c Collect and record data accurately using consistent measuring and recording techniques and media.		
11.A.3d Explain the existence of unexpected results in a data set.		
11.A.3e Use data manipulation tools and quantitative (e.g., mean, mode, simple equations) and representational methods (e.g., simulations, image processing) to analyze measurements.		
11.A.3f Interpret and represent results of analysis to produce findings.		
11.A.3g Report and display the process and results of a scientific investigation.		
<b>Activity</b>	<b>Source</b>	<b>Students will:</b>
Pencil Ponderings	5.03	Brainstorm questions about pencils, pick one question and devise and carry out a plan to find the answer.
Drops on a Penny Revisited	12.05	Gather data, draw conclusions. (Includes central tendency and dispersion of data)
Color Sample	12.08	Gather data, make graphic displays, and determine measures of central tendency for samples.
Mini Metric Olympics	Math + Science A Solution	Predict, perform, measure and record scores in six metric events.
Rubber Band Shoot!	Math + Science A Solution	Explore a cause and effect relationship between stretch and flight. (Includes data graphing and formula development)
Graph = Feet - EE	Math + Science A Solution	Predict, measure, graph and interpret results dealing with foot length.
M&M Count and Crunch	Math + Science A Solution	Predict, count, record and design bar graphs using bags of M&Ms.
What's in the Bag?	Math + Science A Solution	Look for central tendencies, compute percentages and the mean for each sample of M&Ms.
Popcorn Comparison #1	Fun With Foods	Experiment with different brands to determine which yields of greater volume.
Popcorn Comparison #2	Fun With Foods	Control variables to determine effect on yield.
Popcorn Comparison #3	Fun With Foods	Make choices applying scientific principles to develop a formula for estimating the amount of popcorn needed to fill various volumes.
Juicy Fruit	Fun With Foods	Predict, test, record and graph percentage of water in various fruits.
Tri to Analyze Soil	16.04	Collect soil samples and derive the percentage of clay, sand, and silt; read a Soil Texture Chart.

## Illinois State Goals/Standards/Benchmarks Science, Goals 11 - 13

Activity	Source	Students will:
Density Dealings	Spills and Ripples	Measure mass and volume of three liquids to determine relative densities; analyze and generalize a variety of patterns from charts and graphs.
A Penny for Your Drops	Spills and Ripples	Explore surface tension; identify and control the variables in this experiment; explore the effect of soap on surface tension.
Measuring Drops on a Penny	Spills and Ripples	Determine the average number of drops that will fit on a penny.
Soda Can Dunk	Spills and Ripples	Observe and measure the buoyant force described in Archimedes principle.

### **B. Know and apply the concepts, principles and processes of technological design.**

11.B.3a Identify an actual design problem and establish criteria for determining the success of a solution.

11.B.3b Sketch, propose and compare design solutions to the problem considering available materials, tools, cost effectiveness and safety.

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11.B.3d Test the prototype using available materials, instruments and technology and record the data.

11.B.3e Evaluate the test results based on established criteria, note sources of error and recommend improvements.

11.B.3f Using available technology, report the relative success of the design based on the test results and criteria.

Activity	Source	Students will:
Clay Boats	Floaters & Sinkers	Design boat with standard unit of clay to hold the most weight.
Ship Shape	Floaters & Sinkers	Design a foil boat to hold maximum amount of cargo.
Deep Sea Diver Relays	Floaters & Sinkers	Design a Cartesian Diver to perform in the fastest time.
Unbelievable Flying Objects	The Sky's the Limit	Design various geometric figures using rulers, compasses, and protractors to explore flight properties.
But Will It Fly?	The Sky's the Limit	Construct polygons with popsicle sticks to explore flight.
The Whole Kite and Kaboodle	The Sky's the Limit	Construct simple kite to explore flight.
On Your Mark-Accuracy	The Sky's the Limit	Design and construct paper airplanes that improve accuracy.
Get Wet!	16.01	Collect and record data, compute weight difference, and write an equation representing the relationship between weight in air, water, and displacement.

# Illinois State Goals/Standards/Benchmarks

## Science, Goals 11 - 13

### Middle School/Junior High

**GOAL 12: Understand the fundamental concepts, principles and interconnections of the life, physical and earth/space science.**

<b>A. Know and apply concepts that explain how living things function, adapt and change.</b>		
12.A.3a Explain how cells function as “building blocks” of organisms and describe the requirements for cells to live.		
Activity	Source	Students will:
The Cell As A Factory	Magnificent Microworld Adventures	Build a model of a cell to explain how cells function as “building blocks”.
A Complete Package	Magnificent Microworld Adventures	Observe the upper and lower epidermis of a plant leaf and note how they carry out specific functions.

12.A.3b Compare characteristics of organisms produced from a single parent with those of organisms produced by two parents.		
Activity	Source	Students will:
Picturing a Dichotomy	9.08	Compare and contrast data about dominant and recessive traits.
Teddy Bears Come in Pairs	2.05	Investigate Mendelian Laws of heredity.
Trait Combos	6.10	Collect and analyze data about human traits.

12.A.3c Compare and contrast how different forms and structures reflect different functions (e.g., similarities and differences among animals that fly, walk or swim; structures of plant cells and animal cells).		
Activity	Source	Students will:
Spinning the Tale	Magnificent Microworld Adventures	Make flipbooks and zoetropes to compare and contrast protista movement.
Onion Rings	Magnificent Microworld Adventures	Make a wet mount slide of onion cells and observe the cell wall.
Cheek to Cheek	Magnificent Microworld Adventures	Make a wet mount slide of cheek cells and observe that animal cells are different from plant cells.
The Green Machine	Magnificent Microworld Adventures	Observe the chloroplasts within Elodea plant cells and state their functions.
Moving in on Protozoa	Magnificent Microworld Adventures	Observe the ciliate, pseudopodal and the flagellate motions of protoists.
Nature’s Food Factories	Our Wonderful World	Collect, sort, and classify different leaves and relate their structure to their function.
Sea Stars	Magnificent Microworld Adventures	Identify and observe external structures of a sea star.
Bear Feet	11.05	Observe the difference in bear feet and how they adapt to the environment.

## Illinois State Goals/Standards/Benchmarks

### Science, Goals 11 - 13

#### **B. Know and apply concepts that describe how living things interact with each other and with the environment.**

12.B.3a Identify and classify biotic and abiotic factors in an environment that affect population density, habitat and placement of organisms in an energy pyramid.

Activity	Source	Students will:
Global Gains	11.02	Make predictions on population trends.
Habitat Comparisons	Our Wonderful World	Observe habitats and state similarities and differences.
Transpiration: Why Are Plants So Thirsty?	Our Wonderful World	Test and record plants affect on the environment.
On Living Pond	Our Wonderful World	Observe types of organisms that would be found in a freshwater pond.

12.B.3b Compare and assess features of organisms for their adaptive, competitive and survival potential (e.g., appendages, reproductive rates, camouflage, defensive structures).

Activity	Source	Students will:
Predator vs. Prey	Our Wonderful World	Participate in a simulation of natural selection.
Fly by Heat	Our Wonderful World	Observe and record temperature on insect behavior.
Now You See It, Now You Don't	Our Wonderful World	Investigate natural selection and camouflage.

#### **C. Know and apply concepts that describe properties of matter and energy and the interactions between them.**

12.C.3a Explain interactions of energy with matter including changes of state and conservation of mass and energy.

Activity	Source	Students will:
Corny Balloons	12.03	Observe the effects on a balloon as liquid changes into gas.
Evap-O-Weight	Down to Earth	Test variables that effect evaporation.
Betwixt and Between	Spills and Ripples	Observe interfaces between various combinations of solids, liquids, and gases.

12.C.3b Model and describe the chemical and physical characteristics of matter (e.g., atoms, molecules, elements, compounds, and mixtures).

Activity	Source	Students will:
Molecules on the Move	Magnificent Microworld	Observe and measure osmosis.
Salty Change	Down to Earth	Test the effect of salt on boiling and freezing temperature of water.
Super Sleuth	Math + Science A Solution	Test unknown substances using chemical change.
I Scream	Fun with Foods	Weigh, test, and observe the physical change of liquid to solid while making ice cream.

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Flags of the Elements on Parade	13.10	Determine either volume or density of various elements when one of the values are known.
Messing with Mixtures	12.07	Investigate with different mixtures for separation, evaporation, and distillation.
Look Out Below!	Spills and Ripples	Learn basic techniques of controlling Rayleigh-Taylor Instability using various barriers.
Trickle Triathlon	Spills and Ripples	Explore limitations of controlling Rayleigh-Taylor Instability.
Flow Fingers	Spills and Ripples	Observe both simplicity and complexity of flow patterns.
Liquid Rope	Spills and Ripples	Observe the flow patterns of mixing liquids.
Soapy Spills	Spills and Ripples	Explore the effects of lessening surface tension.
Brackish Water	Spills and Ripples	Measure mixing of fresh and salt water and relate results to the mixing of river and ocean water.
Hippo Hydrometer	Spills and Ripples	Make a simple hydrometer, calibrate it to water and compare its floating heights in various liquids.
Delicate Diver	Spills and Ripples	Make a Cartesian Diver and observe how the interplay between pressure and density affects buoyancy.

### D. Know and apply concepts that describe force and motion and the principles that explain them.

12.D.3a Explain and demonstrate how forces affect motion (e.g., action/reaction, equilibrium conditions, free-falling objects).

Activity	Source	Students will:
Seeing is Believing	The Sky's the Limit	Use a series of discrepant events, students will explore aerodynamics.
Skydiver	Gravity Rules	Design a paper skydiver and determine how forces affect motion.
The Race	Gravity Rules	Collect, record, and graph distance/time data from a race between a tortoise and a hare.
A Swing in Time	11.04	Investigate variables affecting the motion of a pendulum.
Threads of Time	11.04	Design, test, and record data of pendulums and develop a formula that addresses the relationship between length of pendulum to its period.
Water Rockets	The Sky's the Limit	Use toy rockets to explore the effects of variables on thrust.

12.D.3b Explain the factors that affect the gravitational forces on objects (e.g., changes in mass, distance).

Activity	Source	Students will:
How High Can You Throw?	The Sky's the Limit	Determine the height of a thrown object using time and the laws of gravity as the tools for measurement.

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### Science, Goals 11 - 13

Activity	Source	Students will:
Be a Rotor Promoter	The Sky's the Limit	Design and test paper helicopters and analyze gravity's pull.
It's A Real Corker	The Sky's the Limit	Make a helicopter using feathers and corks. Test feather's angles on helicopters rate of fall.
Weight in Space	Out of This World	Predict, graph, calculate their weight on the planets using the correct gravity factors.
Galactic Games	Out of This World	Compute gravity factors to determine how far and how high they could jump and throw on other planets.

#### E. Know and apply concepts that describe the features and processes of the Earth and its resources.

12.E.3a Analyze and explain large-scale dynamic forces, events and processes that affect the Earth's land, water and atmospheric systems (e.g., jet stream, hurricanes, plate tectonics).

Activity	Source	Students will:
Water Island	Water Precious Water	Use higher level thinking to solve water distribution problems.
Evap-o-Weight	Down To Earth	Study the variables that affect evaporation rates of several environmental areas.
When Polar Ice Caps Meet	Down to Earth	Investigate the effect of ice melting at sea level.
Sea Salt	13.06	Investigate the salinity of the ocean.
Sun Tracks I	13.06	Measure the sun's angle and relate it to the seasons.
Hurricane!	13.02	Discover how central pressure and wind speed are related in a hurricane.

12.E.3b Describe interactions between solid earth, oceans, atmosphere and organisms that have resulted in ongoing changes of Earth (e.g., erosion, El Niño).

Activity	Source	Students will:
Rain Away	Water Precious Water	Investigate the effects of erosion caused by rain.
The Water Works	Down to Earth	Test, record, and interpret the interrelationship of the slope of a stream and the volume of water flowing.
Quick Sand	Down to Earth	Investigate the effects of a stream's slope and rate of flow on its rate of erosion.
Topping Off Mount Saint Helen's	8.08	Construct models using topographical maps that show the before and after effect of a volcano.

#### D. Know and apply concepts that explain the composition and structure of the universe and Earth's place in it.

12.F.3a Simulate, analyze and explain the effects of gravitational force in the solar system (e.g., orbital shape and speed, tides, spherical shape of the planets and moons).

Activity	Source	Students will:
Round and Round	Out of This World	Construct the shape of planets' orbits by drawing ellipses.

## Illinois State Goals/Standards/Benchmarks

### Science, Goals 11 - 13

Activity	Source	Students will:
The Moon Shines Bright	Out of This World	Chart apparent movement of the moon, interpret, and predict future movements.

12.F.3b Describe the organization and physical characteristics of the solar system (e.g., sun, planets, satellites, asteroids, comets).

Activity	Source	Students will:
Can You Planet?	Out of This World	Describe various aspects of the planets and their relationships using a variety of representations.
Spacing Out the Solar System	Out of This World	Construct a model solar system by determining the relative distance of the planets.
Pasta Parallels	9.06	Construct a model of earth's revolution showing the relationship between seasons and the tilt of the axis.
Size It Up	Out of This World	Determine the relative sizes of the planets in order to construct a model solar system.
Planetary Scavenger Hunt	Out of This World	Use a marble to represent the size of earth and find other spheres with relative sizes to represent the rest of the planets.
It Depends on Your Point of View	Out of This World	Investigate star patterns in constellations, construct constellation models and compare star locations from different points of views.

12.F.3c Compare and contrast the sun as a star with other objects in the Milky Way Galaxy (e.g., nebulae, dust clouds, stars, black holes).

Activity	Source	Students will:
Stars in the Milky Way Galaxy	Out of This World	Estimate the number of stars in the Milky Way Galaxy.
Sun Dance	Through the Eyes of the Explorers	Track sun shadows over a period of time and recognize the cycle.

# Illinois State Goals/Standards/Benchmarks

## Science, Goals 11 - 13

### Middle School/Junior High

**GOAL 13: Understand the relationships among science, technology and society in historical and contemporary contexts.**

<b>C. Know and apply the accepted practices of science.</b>		
13.A.3a Identify and reduce potential hazards in science activities (e.g., ventilation, handling chemicals).		
<b>Activity</b>	<b>Source</b>	<b>Students will:</b>
None Applicable		

13.A.3b Analyze historical and contemporary cases in which the work of science has been affected by both valid and biased scientific practices.		
<b>Activity</b>	<b>Source</b>	<b>Students will:</b>
Galileo	Historical Connections I	Read about Galileo's life and discuss his banishment.
Antony van Leeuwenhoek	Magnificent Microworld Adventures	Read about the invention of the microscope.
Robert Hooke	Magnificent Microworld Adventures	Read about Hooke's contribution to the cell theory.

13.A.3c Explain what is similar and different about observational and experimental investigations.		
<b>Activity</b>	<b>Source</b>	<b>Students will:</b>
How Can We Agree?	Water Precious Water	Compare the accuracy of estimations and measurements for volume.
Can You Believe It	2.08	Predict and compare relationship between circumference and height of various cans.

<b>D. Know and apply concepts that describe the interaction between science, technology and society.</b>		
13.B.3a Identify and explain ways that scientific knowledge and economics drive technological development.		
<b>Activity</b>	<b>Source</b>	<b>Students will:</b>
Snack Attack	Fun with Foods	Analyze which costs less, prepackaged or homemade.
Economically Speaking	Through the Eyes of the Explorers	Infer and draw conclusions about the relationship between technology and economics of land use.
Trees as a Crop	Our Wonderful World	Learn how foresters manage and maintain the forest as a crop.

## Illinois State Goals/Standards/Benchmarks

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13.B.3b Identify important contributions to science and technology that have been made by individuals and groups from various cultures.		
Activity	Source	Students will:
Antony van Leeuwenhoek	Magnificent Microworld Adventures	Read and discuss the scientists contribution to microbiology.
Cell Theory & Cells: The Basis of Life	Magnificent Microworld Adventures	Learn contributions of Matthias Schleiden and Theodor Schwann to cell theory.
Galileo	Historical Connections I	Read about Galileo's life and work and discuss his banishment.
Biography-Robert Hooke	Magnificent Microworld Adventures	Read and discuss Hooke's role in naming cells.
Biographies	Electrical Connections	Research and discuss scientists contributions.

13.B.3c Describe how occupations use scientific and technological knowledge and skills.		
Activity	Source	Students will:
Forecast for Today	Through the Eyes of the Explorers	Use weather reports to predict patterns.
Fire on the Mountain	Finding Your Bearings	Participate in a forest ranger simulation.
Trees as a Crop	Our Wonderful World	Learn how foresters use scientific knowledge to improve their industry.
Economically Speaking	Finding Your Bearings	Infer and draw conclusions about economy of a country based on land features.

13.B.3d Analyze the interaction of resource acquisition, technological development and ecosystem impact (e.g., diamond, coal or gold mining; deforestation).		
Activity	Source	Students will:
Prospector's	Down to Earth	Determine the cost effectiveness of a mining operation.

13.B.3e Identify advantages and disadvantages of natural resource conservation and management programs.		
Activity	Source	Students will:
What on Earth Can We Do?	Down to Earth	Determine the effect of "developed" land on the natural environment.

13.B.3f Apply classroom-developed criteria to determine the effects of policies on local science and technology issues (e.g., energy consumption, landfills, water quality).		
Activity	Source	Students will:
Water Island	Water Precious Water	Design an efficient water system.