Learning Standard	Ideas for Developing Investigations and Learning Experiences	Date Complete
Enduring Knowledge 1: ***Use the scientific method, scientific tools, and safe lab procedures to solve problems.***		
Standards: • **Make purposeful observations using the appropriate senses.** • **Generate questions based on observations.** • **Identify strategies for gathering information (expert in field, books, observations, investigations, videos)** • **Conduct simple investigations.** • **Construct simple charts from data and observations.** • **Share ideas through purposeful conversation.** • **Communicate and present findings of observations (illustrations, models, writing).** • **Manipulate simple tools that aid in observation and data collection.** • **Make accurate measurements with appropriate units for the measurement tool.** A. The **Scientific Method** is the way that scientists learn and study the world around them. The steps include:	**ACTIVITY:** • Create a science handbook including Scientific Method & Scientific Process Skills • Observe objects using the appropriate senses • Classify items • Make a chart with data • Have students and parents sign a Lab Safety Contract • Include lab safety rules in science handbook • Include scientific instruments and tools, and their uses, in science handbook **LAB:** • The first lab should be a step by step practice using the Scientific Method of something they know (brushing teeth) • All labs should utilize the Scientific Method and Scientific Process Skills • Review safety rules at the beginning of every lab • Review instrument and tool name and use during every lab **INTERNET/SMART BOARD:** • Video clips	

1. Observe and ask a question 2. Form a hypothesis 3. Identify the procedure (materials and steps) 4. Follow the procedure to conduct the experiment 5. Tell what was learned from the experiment (conclusion) B. Scientists use **Scientific Process Skills** to solve problems. 1. Observing 2. Classifying 3. Measuring • Length (inches, centimeters) • Mass (ounces, grams) 4. Communication 5. Interdisciplinary Skills C. Lab Safety is a set of rules that scientists practice to safely learn and study the world around them. These rules include: 1. I will follow directions 2. I will listen carefully 3. I will keep myself and others safe 4. I will clean my area after lab	**VOCABULARY: (for teacher information)** • Hypothesis: an educated guess • Procedure: the steps in an experiment • Experiment: a fair test designed to answer a question • Observations: noting and recording information • Conclusion: the result of outcome • Observing: ability to identify properties, structures, etc. through use of all senses • Classifying: ability to group, match, compare by commonality • Measuring: ability to find quantitative differences, to estimate, to calculate, etc. (standard & metric) • Communication: ability to verbally relate experiences, information and procedures with clarity • Wafting: waving a hand over a substance to draw a scent toward the nose • Scientist: a person who asks questions and tries different ways to answer them	

activities 5. I am a responsible scientist 6. Do not enter Science Lab without an adult 7. Do not eat or drink in the lab 8. Do not inhale; wafting permitted with teacher approval D. Scientific Instruments and Tools help scientists observe, describe and record the world around them. Instruments and tools include: 1. Ruler 2. Pencil 3. Balance 4. Magnifying Lens 5. Safety Goggles 6. Flashlight 7. Globe		

Learning Standard	Ideas for Developing Investigations and Learning Experiences	Date Complete
Enduring Knowledge 2: *All things on Earth can be classified as non-living or living.*		
Standards: • **Compare living and non-living things.** A. Identify differences between living and nonliving things. 1. Characteristics of all living things (organisms): • Growth and death • Produce young • Breathe • Made up of cells 2. Characteristics of all non-living things: • Not living and never having lived B. Identify examples of living and non-living things. 1. Living things: plants and animals • Frog, leaf, dead tree, wood 2. Non-living things • gold, rock, bicycle, cement	**ACTIVITY:** • Sort living and non-living things by observed characteristics of each item. • Living and non-living scavenger hunt **LAB:** • Observe samples of living and non-living things with hand lens. **INTERNET/SMART BOARD:** • video clips **VOCABULARY:** • Organism: a living thing	

Learning Standard	Ideas for Developing Investigations and Learning Experiences	Date Complete
Enduring Knowledge 3: *Living things change over time; some changes are fast and some are slow.*		
Standards: • **Describe some changes in plants that are slow (growth/ seasonal change) and fast (blooming flower).** • **Describe some changes in animals that are slow (growth/seasonal change) and fast (hatching egg).**	**ACTIVITY:** • Observe pictures of plants in different stages of growth and seasons. • Observe pictures of animals in different stages of growth and seasons. • Discuss changes and how to measure them. • Describe the differences between a young plant/animal and an adult plant/animal. • Show differences through a drawing, graph and/or written description. **LAB:** • Use tools to observe and measure samples of plants and animals at different stages to show change • Go on a nature walk and make observations of their environment and compare to other times of the year. **INTERNET/SMART BOARD:** • video clips **VOCABULARY:** • change • growth	

Learning Standard	Ideas for Developing Investigations and Learning Experiences	Date Complete
Enduring Knowledge 4: *Pathogens (germs) are living things (cells).*		
Standards: • **Recognize that pathogens are living things.** • **Demonstrate how pathogens are transmitted (touching, sneezing, coughing)** • **Describe and demonstrate how to properly cough and sneeze (into elbow or tissue) to prevent spreading pathogens.** • **Demonstrate and describe how to properly wash hands to prevent spreading pathogens.**	**ACTIVITY:** • View photos of pathogens. • Practice proper coughing and sneezing technique. • Practice hand washing. **LAB:** • Birdseed in balloon demonstration to model how pathogens are spread by coughing and sneezing. • Glitter and lotion hand washing activity to practice proper hand washing. **INTERNET/SMART BOARD:** • Video clips **VOCABULARY:** • Cells • Pathogens	

Learning Standard	Ideas for Developing Investigations and Learning Experiences	Date Complete
Enduring Knowledge 5: *Humans and animals use the five senses and related body parts to observe.*		
Standards: • **Identify and differentiate between the five senses: sight, smell, sound, taste, touch.** • **Identify and differentiate between the related body parts for each sense: eyes, nose, ears, mouth, hands/skin.**	**ACTIVITY:** • Read books about each of the five senses. • Make observations about the classroom using each of the five senses. • Use the five senses to identify similarities and differences between objects. • Matching game: body parts to senses **LAB:** • Station activities for each of the senses -Sight: matching shapes -Smell: waft (smell) samples while blindfolded and match picture -Sound: tuning fork in water, rubber band on fingers, hand on vocal chords -Taste: match food types to taste areas on the tongue -Touch: guess the objects in the bag while blindfolded • Investigate how different animals use their senses: -snakes use tongues to 'smell' -bats use ears to 'see' (echolocation) **INTERNET/SMART BOARD:**	

	• WatchKnowLearn.org • video clips **VOCABULARY:** • Senses • Sight • Smell • Sound • Taste • Touch	

Learning Standard	Ideas for Developing Investigations and Learning Experiences	Date Complete
Enduring Knowledge 6: *Earth's materials have different properties.*		
Standards: • **Recognize that big rocks break down into small rocks: boulders, rocks, pebbles, and sand.** • **Identify observable characteristics of these materials.** • **Sort, group and classify Earth materials: hard, smooth, rough, shiny, flat.**	**ACTIVITY:** • Discuss where you might find various rocks. • Discuss different properties. • Create a word and picture chart that shows examples of different properties **LAB:** • Simulate a rock breaking activity utilizing materials such as hard candy and graham crackers; utilize different tools. • Teacher demonstrates breaking a rock with a larger rock; use rocks of various hardness (granite, sandstone, mica) • Observe rocks, pebbles, sand with a hand lens and record characteristics. • Collect samples of Earth materials (sand, soil, rocks) and sort according to various properties. **INTERNET/SMART BOARD:** • Video clips **VOCABULARY:** • Properties	

Learning Standard	Ideas for Developing Investigations and Learning Experiences	Date Complete
Enduring Knowledge 7: *Water and wind can change the Earth's surface.*		
Standards: • **Demonstrate how water can move earth materials.** • **Identify how wind can change Earth's surface.**	**ACTIVITY:** • Show pictures of different landscapes (Goblin Valley, Arches, natural bridges). **LAB:** • Have students build a sand structure. • Have them hypothesis which direction water will travel when poured on their structure. • Have them experiment applying wind (blowing) and water on their structure; record results. **INTERNET/SMART BOARD:** • WatchKnowLearn.org • video clips **VOCABULARY:** • Wind • Rivers • Soil • Change	

Learning Standard	Ideas for Developing Investigations and Learning Experiences	Date Complete
Enduring Knowledge 8: *Changes occur in day and night.*		
Standards: • **Compare and contrast light and dark in a day-night cycle.** • **Identify the changes in a day-night cycle as a pattern.** • **Recognize and explain that the sun provides heat and light to Earth.** • **Explain what happens when you block the sun's light.** • **Describe shadows and temperature change.**	**ACTIVITY:** • Read Goodnight Moon. • Day and night sorting game with pictures of activities that can be done easier in the light than dark. Compare results. • Create pattern activities. • Draw pictures of day and night. **LAB:** • Investigate how the Earth blocks the sun's light using a flashlight and globe (may also use small balls if globe is not available). • Explore shadows moving as the light source moves/shadows at different times of day. Make sundials. • Experiment with ice cubes, placing one in the sun and one in the shade/shadow. Investigate the difference in melting times. **INTERNET/SMART BOARD:** • WatchKnowLearn.org • video clips **VOCABULARY:** • Pattern	

	• Change • Heat • Light • Temperature • Shadow	

Learning Standard	Ideas for Developing Investigations and Learning Experiences	Date Complete
Enduring Knowledge 9: *Changes in weather occur over time.*		
Standards: • **Observe and record daily weather conditions and changes.** • **Observe and record seasonal weather patterns.** • **Identify ways weather can affect people.** • **Identify how seasonal weather changes affects the environment: adaptation, migration, hibernation**	**ACTIVITY:** • Keep a record of daily weather in the classroom, using journal, chart or graph. **LAB:** • Create stations where students can pretend to be animals in various seasons, experiencing adaptation, migration and hibernation. -Adaptation: Snowshoe hare -Migration: Canadian geese -Hibernation: bears **INTERNET/SMART BOARD:** • WatchKnowLearn.org • video clips **VOCABULARY:** • Weather • Sunny • Cloudy • Seasons • Fall/Autumn	

	• Winter • Spring • Summer • Adaptation • Migration • Hibernation	

Learning Standard	Ideas for Developing Investigations and Learning Experiences	Date Complete
Enduring Knowledge 10: *Non-living things (objects) move.*		
Standards: • **Identify and record how objects move in different ways (zigzag/round and round, up and down/straight line/back and forth, slide/roll/bounce, spin, swing, glide).** • **Describe the speed of an object (fast or slow).** • **Describe the position of an object (above, below, in front of, behind, on) in relation to other objects around it.** • **Describe the direction of a moving object (away from or closer to, left or right) from different observers' views.**	**ACTIVITY:** • Brainstorm words for how things move. • Create a "Ways Things Move" chart. • Have students sort motion words into three groups: speed, position and direction. • Have students identify objects that move in each way. • Play Simon Says to practice movements with an object. (towards them, away from them, right, left) • Play Simon Says with object position (in front of, behind you, above you, below you, on you, under you, away from you, close to you, between your hands, on top of your feet). **LAB:** • Have students manipulate different objects and have them demonstrate different types of movement. (balls, top, slinky, yoyo, plastic bottle, pencil, car, etc.) **INTERNET/SMART BOARD:** • video clips **VOCABULARY:** • Movement • Fast	

	• Slow • Zigzag • Up • Down • Straight line • Back and forth • Slide • Roll • Bounce • Spin • Swing • Glide • Above • Below • In front • Behind • On • Away from • Closer to • Left • Right	

Learning Standard	Ideas for Developing Investigations and Learning Experiences	Date Complete
Enduring Knowledge 11: *Physical properties can affect the movement of objects.*		
Standards: • **Identify physical properties of objects (hard, soft, feathered, round, square, cone, geometric shapes).** • **Compare and contrast how physical properties of objects affect movement.** • **Observe how shape and mass of an object can affect motion.**	**ACTIVITY:** • List physical properties of an object in class and have students guess the item. • Manipulate, observe, compare, describe and group objects found in the classroom. • Predict by observing an object or simple tool what actions it might be used for (letter opener, pliers, etc.). **LAB:** • Have students build a ramp, placing various items on it to observe the movement of the objects as they move down it. • Use different shaped items (marbles, geometric shapes, cars, etc.). • Have students predict the movement of the objects. • Have students describe the movement of the objects. • Have students investigate which object moves faster. Graph or chart results. **INTERNET/SMART BOARD:** • video clips **VOCABULARY:** • Hard	

	• Soft • Feathered • Round • Square • Cone • Geometric shapes	

Learning Standard	Ideas for Developing Investigations and Learning Experiences	Date Complete
Enduring Knowledge 12: *Most objects are made of parts.*		
Standards: • **Identify and describe how parts are used to build things.** • **Identify how things can be taken apart.** • **Explain why things may not work the same way if some parts are missing.**	**ACTIVITY:** • Describe and draw the items that are in two different spaces (classroom and bedroom). • Discuss how and why the two rooms are different. • List objects that are made of parts. **LAB:** • Have student teams build a structure (Legos, simple machines or puzzle) using all the pieces. Have them predict if the structure would look the same if a part was missing. Explain. • Have student teams take apart a structure. Discuss how knowing the parts of an object can help take it apart. • Have students put together sensory bottles using corn syrup, water and oil. • Have students separate a mixture of rocks, sand and shells. **INTERNET/SMART BOARD:** • video clips **VOCABULARY:** • Part • Whole	

Learning Standard	Ideas for Developing Investigations and Learning Experiences	Date Complete
Enduring Knowledge 13: *Earth pulls down on objects with a force called gravity.*		
Standards: • **Observe how objects fall toward Earth.**	**ACTIVITY:** • Show students various objects (pencil, book, etc.) and have them predict what will happen if you let them go while holding it in the air. • Have students describe what they observe. • Sit the same objects on a desk; compare and contrast which objects were gravity in motion. • Discuss why objects can move without a push or a pull. • Have students draw picture to show the force of gravity. **LAB:** • Design and construct a marble run using rulers, cardboard tubes, tape and marbles. • Draw a picture of the design and explain the direction of movement and the force that caused the marble to move. **INTERNET/SMART BOARD:** • video clips **VOCABULARY:** • Gravity	

Learning Standard	Ideas for Developing Investigations and Learning Experiences	Date Complete
Enduring Knowledge 14: *A force is either a push or a pull and it can change the motion of an object.*		
Standards: • **Demonstrate the use of a force (push or pull) to move objects from one place to another.** • **Observe that objects initially at rest will move in the direction of a push or pull.** • **Observe how pushes and pulls can change the speed or direction of a moving object.**	**ACTIVITY:** • Scavenger hunt walk with kids and create a "T" chart list the objects in the school that require a push, pull or both (window, door, swings, light switch, etc.) • Push and pull picture sort game; students sort cards according to action. **LAB:** • Have students practice pushing the items and then have them pull them. Discuss their observations. • Repeat using various surfaces. • Have students experiment with cars, using push, pull; have students add weights and discuss changes in motion. • Have students do straw paintings. - Use droppers to suck up (pull) paint. - Drop the paint on paper. - Use the straw to blow (push) the paint to move it. • Have students paly with dominoes. **INTERNET/SMART BOARD:** • video clips **VOCABULARY:**	

	• Force • Push • Pull	

Learning Standard	Ideas for Developing Investigations and Learning Experiences	Date Complete
Enduring Knowledge 15: *Objects can be classified by the ability to sink or float.*		
Standards: • **Describe the observable property of sink or float.** • **Predict and identify objects that will sink or float in water.** • **Test and record data.**	**ACTIVITY:** • Read a book on Sink and Float concepts. • Make predictions about which items sink and which float. Graph results. **LAB:** • Have students place various items (rocks, sponges, pumice, straws, etc.) in water to determine if they sink or float. Record and graph results. **INTERNET/SMART BOARD:** • video clips **VOCABULARY:** • Sink • Float	