



# monarch

2018 - 2019 Curriculum Catalog

Science 300

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**UNIT 1: YOU GROW AND CHANGE**


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<b>Assignment</b>	<b>Summary</b>	<b>Video Demo</b>	<b>Supplies</b>
Experiment: Breathing Patterns	In this experiment, you will measure breathing patterns and learn why the body needs oxygen.	No	<ul style="list-style-type: none"> <li>• a clock with a second hand</li> </ul>
*Experiment: Your Lungs	In this experiment, you will feel how lungs move during breathing	No	<ul style="list-style-type: none"> <li>• a sponge</li> </ul>
Experiment: Taste Test	In this experiment, you will compare how foods pass through a paper towel	No	<ul style="list-style-type: none"> <li>• cocoa</li> <li>• salt</li> <li>• teaspoon</li> <li>• a small drinking glass</li> <li>• cone shaped coffee filter or paper towel</li> <li>• a large drinking glass half full of water</li> </ul>
Experiment: Taking Your Pulse	In this experiment, you will practice taking a pulse and understand that a pulse tells how fast the heart is beating.	No	<ul style="list-style-type: none"> <li>• a timer, a stopwatch or a clock with a second hand.</li> </ul>
*Project: Bone Numbers	In this project you will compare the bones in your body to the bones in a friend's body.	No	<ul style="list-style-type: none"> <li>• a friend who will let you count the bones in their foot.</li> </ul>
*Special Project	Use this Special Project template to create your own assignment for this unit.	N/A	N/A

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## UNIT 2: PLANTS

Assignment	Summary	Video Demo	Supplies
Experiment: Root Hairs	In this experiment, you will study root hairs on a plant.	No	<ul style="list-style-type: none"> <li>• a small plant</li> <li>• a small magnifying glass</li> </ul>
*Experiment: Study a Stem	In this experiment, you will study the stem of a plant	No	<ul style="list-style-type: none"> <li>• a small jar with water</li> <li>• food coloring</li> <li>• a celery stem</li> <li>• magnify glass</li> </ul>
Experiment: Grow Some Plants	In this experiment, you will test how light affects plant growth	No	<ul style="list-style-type: none"> <li>• two small potted plants or bean seedlings</li> <li>• a box</li> <li>• a sunny window</li> </ul>
Experiment: Watch Bean Seeds Grow	In this experiment, you will understand that plants come from seeds and list the things seeds need to grow.	No	<ul style="list-style-type: none"> <li>• a jar with water</li> <li>• five paper cups</li> <li>• about fifteen (15) lima beans</li> <li>• potting soil</li> <li>• wet paper towel</li> </ul>
*Experiment: Plant a Piece of Potato	In this experiment, you will study the growth of a potato plant.	No	<ul style="list-style-type: none"> <li>• a white potato (one with eyes on it)</li> <li>• a pot of soil</li> <li>• a knife</li> <li>• some water</li> </ul>
*Experiment: Bean Plant	In this experiment, you will study the growth of a bean plant and understand that some parts of a plant grow faster than other parts.	No	<ul style="list-style-type: none"> <li>• a glass jar</li> <li>• wet paper towel</li> <li>• felt marker</li> <li>• three lima beans</li> <li>• a centimeter ruler</li> </ul>
*Special Project	Use this Special Project template to create your own assignment for this unit.	N/A	N/A

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**UNIT 3: ANIMALS: GROWTH AND CHANGE**


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<b>Assignment</b>	<b>Summary</b>	<b>Video Demo</b>	<b>Supplies</b>
Experiment: Hourly Temperature Changes	In this experiment, you will study how temperature changes with time.	No	<ul style="list-style-type: none"> <li>• a clock</li> <li>• a thermometer</li> </ul>
*Experiment: Heat Energy Comparison	In this experiment, you will compare the energy needed to heat water and soil.	No	<ul style="list-style-type: none"> <li>• two pint glass jars or bowls</li> <li>• two thermometers</li> <li>• ruler</li> <li>• soil</li> <li>• water</li> </ul>
*Project: Desert Locations	In this project you will identify deserts around the world.	No	<ul style="list-style-type: none"> <li>• encyclopedia</li> </ul>
Project: Vertebrate Chart	In this project you will practice grouping vertebrates into different groups.	No	<ul style="list-style-type: none"> <li>• paper</li> </ul>
*Project: Sort Birds by Type Of Food They Eat	In this experiment, you will practice grouping birds by what they like to eat.	No	<ul style="list-style-type: none"> <li>• pictures of birds</li> </ul>
Project: Sow Bug Environment	In this experiment, you will study the behavior of sow bugs.	No	<ul style="list-style-type: none"> <li>• a gallon jar</li> <li>• a lid with some small holes in it that will fit the gallon jar</li> <li>• moist soil</li> <li>• potato</li> <li>• three or four sow bugs</li> </ul>
*Special Project	Use this Special Project template to create your own assignment for this unit.	N/A	N/A

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**UNIT 4: YOU ARE WHAT YOU EAT**

<b>Assignment</b>	<b>Summary</b>	<b>Video Demo</b>	<b>Supplies</b>
Project: Breakfast Chart	In this project you will keep track of the foods you eat for breakfast.	No	• paper
*Project: Lunch Chart	In this project you will keep track of the foods you eat for lunch.	No	• paper
*Project: Dinner Chart	In this project you will keep track of the foods you eat for dinner.	No	• paper
*Project: Chart Totals	In this project you will look at the types of food you eat during an entire day.	No	• paper
*Special Project	Use this Special Project template to create your own assignment for this unit.	N/A	N/A

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**UNIT 5: PROPERTIES OF MATTER**


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<b>Assignment</b>	<b>Summary</b>	<b>Video Demo</b>	<b>Supplies</b>
Experiment: Be A Chemist	In this experiment, you will experiment with matter.	No	<ul style="list-style-type: none"> <li>• a pan of water</li> <li>• a cup of sand</li> <li>• a stick</li> </ul>
Experiment: Volume	In this experiment, you will find the volume of different objects.	No	<ul style="list-style-type: none"> <li>• two different sizes of books</li> <li>• metric ruler (with millimeter markings)</li> <li>• calculator</li> <li>• pencil and paper</li> </ul>
*Experiment: Think About Mass	In this experiment, you will understand that objects can have different weights and masses.	No	<ul style="list-style-type: none"> <li>• book</li> <li>• brick</li> </ul>
*Experiment: Is Air Matter?	In this experiment, you will test the mass of air.	No	<ul style="list-style-type: none"> <li>• two balloons of the same size, the larger the better</li> <li>• wire coat hanger</li> <li>• door</li> </ul>
*Project: Matter List	You have learned that matter has different properties. Not all matter is the same. In this project you think about different kinds of matter.	No	<ul style="list-style-type: none"> <li>• paper</li> </ul>
*Experiment: Is Water Matter?	In this experiment, you will test the mass of water.	No	<ul style="list-style-type: none"> <li>• small diet scale</li> <li>• cup</li> <li>• water</li> </ul>
Experiment: Mass Measurement	In this experiment, you will test compare the mass of matter in different states.	No	<ul style="list-style-type: none"> <li>• food scale that reads in grams</li> <li>• baby-food jar</li> <li>• ice cube</li> </ul>
*Experiment: Melting Ice Cubes	In this experiment, you will study how temperature affects ice cubes.	No	<ul style="list-style-type: none"> <li>• 5 paper cups</li> <li>• 5 ice cubes</li> <li>• Refrigerator</li> <li>• cool water</li> <li>• hot water</li> <li>• clock or watch</li> </ul>
*Special Project	Use this Special Project template to create your own assignment for this unit.	N/A	N/A

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**UNIT 6: SOUNDS AND YOU**


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<b>Assignment</b>	<b>Summary</b>	<b>Video Demo</b>	<b>Supplies</b>
Experiment: Vibrations	In this experiment, you will experiment with sound vibrations from a drum.	Online Lab	<ul style="list-style-type: none"> <li>• pencil</li> </ul>
Experiment: Sound Patterns	In this experiment, you will experiment with sound vibrations from a drum.	No	<ul style="list-style-type: none"> <li>• a partner</li> <li>• ruler</li> <li>• water in a large glass</li> <li>• stones</li> </ul>
Report: Read and Write About Sound	You have learned how sounds are made and how they travel. In this report you will use books to learn more about sound.	No	<ul style="list-style-type: none"> <li>• a book about sound.</li> </ul>
Experiment: High and Low Sounds	In this experiment, you will study how vibration speed affects sound.	No	<ul style="list-style-type: none"> <li>• strong box, open on one side</li> <li>• rubber bands of different sizes</li> </ul>
*Experiment: Loud or Soft?	In this experiment, you will experiment with sound vibrations from a coffee can.	No	<ul style="list-style-type: none"> <li>• coffee can with plastic lid</li> <li>• dry cereal</li> </ul>
Experiment: Think About Hearing	In this experiment, you will compare how well sounds are heard.	No	<ul style="list-style-type: none"> <li>• a clock that ticks</li> <li>• yardstick</li> <li>• a large sheet of paper</li> </ul>
*Report: How Animals Hear	In this report you will learn how animal ears hear sound.	No	<ul style="list-style-type: none"> <li>• research materials</li> </ul>
*Special Project	Use this Special Project template to create your own assignment for this unit.	N/A	N/A

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**UNIT 7: TIME AND SEASONS**


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<b>Assignment</b>	<b>Summary</b>	<b>Video Demo</b>	<b>Supplies</b>
Experiment: The Earth	In this experiment, you will understand that it cannot be light all over the earth at once.	No	<ul style="list-style-type: none"> <li>• bright flashlight</li> <li>• paper towel tube</li> <li>• globe</li> <li>• tape</li> </ul>
Experiment: Night	In this experiment, you will understand that when one side of the earth is light the other side is dark.	No	<ul style="list-style-type: none"> <li>• lamp</li> </ul>
*Experiment: The Earth's Rotation	In this experiment you will use a model to learn more about the earth's axis.	No	<ul style="list-style-type: none"> <li>• clay</li> <li>• pencil</li> <li>• two pins</li> </ul>
Experiment: Different Times	In this experiment, you will understand that it is day during different times around the world	No	<ul style="list-style-type: none"> <li>• flashlight</li> <li>• globe</li> </ul>
*Report: Months	In this report you will learn more about months of the year.	No	<ul style="list-style-type: none"> <li>• research materials</li> </ul>
*Special Project	Use this Special Project template to create your own assignment for this unit.	N/A	N/A

**UNIT 8: ROCKS AND THEIR CHANGE**


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<b>Assignment</b>	<b>Summary</b>	<b>Video Demo</b>	<b>Supplies</b>
Experiment: Bubbling Grains of Rock	In this experiment, you will watch how vinegar reacts with limestone	No	<ul style="list-style-type: none"> <li>• a piece of limestone</li> <li>• a pocket knife</li> <li>• some vinegar</li> <li>• an eye dropper</li> </ul>
Report: Mount Rushmore	In this report you will learn about the rocks of Mount Rushmore.	No	<ul style="list-style-type: none"> <li>• research materials</li> </ul>
*Special Project	Use this Special Project template to create your own assignment for this unit.	N/A	N/A

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**UNIT 9: HEAT ENERGY**


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<b>Assignment</b>	<b>Summary</b>	<b>Video Demo</b>	<b>Supplies</b>
Experiment: Feeling Friction	In this experiment, you will use friction to create heat.	No	<ul style="list-style-type: none"> <li>• Wood</li> <li>• Sandpaper</li> <li>• a nail</li> <li>• a hammer</li> </ul>
Experiment: Oxygen and Fire	In this experiment, you will understand that fire needs oxygen to burn.	No	<ul style="list-style-type: none"> <li>• 3 candles in holders</li> <li>• 1-quart jar</li> <li>• 1-pint jar</li> <li>• matches</li> <li>• clock or timer</li> </ul>
*Experiment: Static Electricity	In this experiment, you will create static electricity.	No	<ul style="list-style-type: none"> <li>• a small flat box</li> <li>• plastic food wrap</li> <li>• small bits of paper (tissue) or small bits of lint</li> </ul>
Experiment: Water Molecules	In this experiment, you will understand that water molecules move faster in hot water.	No	<ul style="list-style-type: none"> <li>• two clear glasses</li> <li>• food coloring</li> <li>• hot water</li> <li>• dropper</li> <li>• cold water</li> <li>• clock or timer</li> </ul>
Experiment: Changing Liquid to Gas	In this experiment, you will understand that heat can change liquid into gas.	No	<ul style="list-style-type: none"> <li>• an adult to help you use the stove</li> <li>• a one cup measure</li> <li>• water</li> <li>• a pan or kettle</li> <li>• clock or timer</li> <li>• pot holder</li> </ul>
*Special Project	Use this Special Project template to create your own assignment for this unit.	N/A	N/A

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**UNIT 10: REVIEW**


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<b>Assignment</b>	<b>Summary</b>	<b>Video Demo</b>	<b>Supplies</b>
Project: Rock Collection	In this project, you will write about rocks.	No	<ul style="list-style-type: none"> <li>• 5 different rocks</li> </ul>
Experiment: How Sound Travels	In this experiment, you will understand that sound can travel through objects.	No	<ul style="list-style-type: none"> <li>• string</li> <li>• chair</li> <li>• coat hanger</li> </ul>
Experiment: Temperature Comparisons	In this experiment, you will study how color affects temperature.	No	<ul style="list-style-type: none"> <li>• 2 small cardboard boxes (same size)</li> <li>• black paper</li> <li>• white paper</li> <li>• 2 thermometers</li> <li>• glue</li> </ul>
*Special Project	Use this Special Project template to create your own assignment for this unit.	N/A	N/A

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\* indicates an alternative assignment