Science Grade 5

Adams County/Ohio Valley
Course of Study

Content Standard: Earth and Space **Benchmark A: Explain the characteristics, cycles and patterns involving Earth and its place in the solar system.** **Content Organizer: The Universe**			
Grade-level Indicator	**Instructional Activities/Strategies**	**Resources**	**Assessment**
1. Describe how night and day are caused by Earth's rotation.			

Adams County/Ohio Valley
Course of Study

Content Standard: Earth and Space
Benchmark A: Explain the characteristics, cycles and patterns involving Earth and its place in the solar system.
Content Organizer: The Universe

Grade-level Indicator	Instructional Activities/Strategies	Resources	Assessment
2. Explain that Earth is one of several planets to orbit the sun, and that the moon orbits Earth.			

Adams County/Ohio Valley
Course of Study

Content Standard: Earth and Space
Benchmark A: Explain the characteristics, cycles and patterns involving Earth and its place in the solar system.
Content Organizer: The Universe

Grade-level Indicator	Instructional Activities/Strategies	Resources	Assessment
3. Describe the characteristics of Earth and its orbit about the sun (e.g., three-fourths of Earth's surface is covered by a layer of water [some of it frozen], the entire planet surrounded by a thin blanket of air, elliptical orbit, tilted axis and spherical planet).			

Adams County/Ohio Valley
Course of Study

Content Standard: Earth and Space
Benchmark A: Explain the characteristics, cycles and patterns involving Earth and its place in the solar system.
Content Organizer: The Universe

Grade-level Indicator	Instructional Activities/Strategies	Resources	Assessment
4. Explain that stars are like the sun, some being smaller and some larger, but so far away that they look like points of light.			

Adams County/Ohio Valley
Course of Study

Content Standard: Earth and Space
Benchmark C: Describe Earth's resources including rocks, soil, water, air, animals and plants and the ways in which they can be conserved.
Content Organizer: Earth Systems

Grade-level Indicator	Instructional Activities/Strategies	Resources	Assessment
5. Explain how the supply of many non-renewable resources is limited and can be extended through reducing, reusing and recycling but cannot be extended indefinitely.			

Adams County/Ohio Valley
Course of Study

Content Standard: Earth and Space
Benchmark C: Describe Earth's resources including rocks, soil, water, air, animals and plants and the ways in which they can be conserved.
Content Organizer: Earth Systems

Grade-level Indicator	Instructional Activities/Strategies	Resources	Assessment
6. Investigate ways Earth's renewable resources (e.g., fresh water, air, wildlife and trees) can be maintained.	See the following website for complete lesson plans: http://k12science.ati.stevens-tech.edu/curriculum/drainproj/information.html		

Adams County/Ohio Valley
Course of Study

Content Standard: Life Science
Benchmark B: Analyze plant and animal structures and functions needed for survival and describe the flow of energy through a system that all organisms use to survive.
Content Organizer: Diversity and Interdependence of Life

Grade-level Indicator	Instructional Activities/Strategies	Resources	Assessment
1. Describe the role of producers in the transfer of energy entering ecosystems as sunlight to chemical energy through photosynthesis.			

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Content Organizer: Diversity and Interdependence of Life

Grade-level Indicator	Instructional Activities/Strategies	Resources	Assessment
2. Explain how almost all kinds of animals' food can be traced back to plants.			

Adams County/Ohio Valley
Course of Study

Content Standard: Life Science
Benchmark B: Analyze plant and animal structures and functions needed for survival and describe the flow of energy through a system that all organisms use to survive.
Content Organizer: Diversity and Interdependence of Life

Grade-level Indicator	Instructional Activities/Strategies	Resources	Assessment
3. Trace the organization of simple food chains and food webs (e.g., producers, herbivores, carnivores, omnivores and decomposers).			

Adams County/Ohio Valley
Course of Study

Content Standard: Life Science
Benchmark C: Compare changes in an organism's ecosystem/habitat that affect its survival.
Content Organizer: Diversity and Interdependence of Life

Grade-level Indicator	Instructional Activities/Strategies	Resources	Assessment
4. Summarize that organisms can survive only in ecosystems in which their needs can be met (e.g., food, water, shelter, air, carrying capacity and waste disposal). The world has different ecosystems and distinct ecosystems support the lives of different types of organisms.			

Adams County/Ohio Valley
Course of Study

Content Standard: Life Science
Benchmark C: Compare changes in an organism's ecosystem/habitat that affect its survival.
Content Organizer: Diversity and Interdependence of Life

Grade-level Indicator	Instructional Activities/Strategies	Resources	Assessment
5. Support how an organism's patterns of behavior are related to the nature of that organism's ecosystem, including the kinds and numbers of other organisms present, the availability of food and resources, and the changing physical characteristics of the ecosystem.			

Adams County/Ohio Valley
Course of Study

Content Standard: Life Science
Benchmark C: Compare changes in an organism's ecosystem/habitat that affect its survival.
Content Organizer: Diversity and Interdependence of Life

Grade-level Indicator	Instructional Activities/Strategies	Resources	Assessment
6. Analyze how all organisms, including humans, cause changes in their ecosystems and how these changes can be beneficial, neutral or detrimental (e.g., beaver ponds, earthworm burrows, grasshoppers eating plants, people planting and cutting trees and people introducing a new species).			

Adams County/Ohio Valley
Course of Study

Content Standard: Physical Sciences
Benchmark D: Summarize the way changes in temperature can be produced and thermal energy transferred.
Content Organizer: Nature of Energy

Grade-level Indicator	Instructional Activities/Strategies	Resources	Assessment
1. Define temperature as the measure of thermal energy and describe the way it is measured.			

Adams County/Ohio Valley
Course of Study

Content Standard: Physical Sciences
Benchmark D: Summarize the way changes in temperature can be produced and thermal energy transferred.
Content Organizer: Nature of Energy

Grade-level Indicator	Instructional Activities/Strategies	Resources	Assessment
2. Trace how thermal energy can transfer from one object to another by conduction.			

Adams County/Ohio Valley
Course of Study

Content Standard: Physical Sciences
Benchmark E: Trace how electrical energy flows through a simple electrical circuit and describe how the electrical energy can produce thermal energy, light, sound and magnetic forces.
Content Organizer: Nature of Energy

Grade-level Indicator	Instructional Activities/Strategies	Resources	Assessment
3. Describe that electrical current in a circuit can produce thermal energy, light, sound and/or magnetic forces.			

Adams County/Ohio Valley
Course of Study

Content Standard: Physical Sciences
Benchmark E: Trace how electrical energy flows through a simple electrical circuit and describe how the electrical energy can produce thermal energy, light, sound and magnetic forces.
Content Organizer: Nature of Energy

Grade-level Indicator	Instructional Activities/Strategies	Resources	Assessment
4. Trace how electrical current travels by creating a simple electric circuit that will light a bulb.			

Adams County/Ohio Valley
Course of Study

Content Standard: Physical Sciences
Benchmark F: Describe the properties of light and sound energy.
Content Organizer: Nature of Energy

Grade-level Indicator	Instructional Activities/Strategies	Resources	Assessment
5. Explore and summarize observations of the transmission, bending (refraction) and reflection of light.			

Adams County/Ohio Valley
Course of Study

Content Standard: Physical Sciences
Benchmark F: Describe the properties of light and sound energy.
Content Organizer: Nature of Energy

Grade-level Indicator	Instructional Activities/Strategies	Resources	Assessment
6. Describe and summarize observations of the transmission, reflection, and absorption of sound.			

Adams County/Ohio Valley
Course of Study

Content Standard: Physical Sciences
Benchmark F: Describe the properties of light and sound energy.
Content Organizer: Nature of Energy

Grade-level Indicator	Instructional Activities/Strategies	Resources	Assessment
7. Describe that changing the rate of vibration can vary the pitch of a sound.			

Adams County/Ohio Valley
Course of Study

Content Standard: Science and Technology
Benchmark A: Describe how technology affects human life.
Content Organizer: Understanding Technology

Grade-level Indicator	Instructional Activities/Strategies	Resources	Assessment
1. Investigate positive and negative impacts of human activity and technology on the environment.			

Adams County/Ohio Valley
Course of Study

Content Standard: Science and Technology **Benchmark B: Describe and illustrate the design process.** **Content Organizer: Abilities To Do Technological Design**			
Grade-level Indicator	**Instructional Activities/Strategies**	**Resources**	**Assessment**
2. Revise an existing design used to solve a problem based on peer review.			

Adams County/Ohio Valley
Course of Study

Content Standard: Science and Technology
Benchmark B: Describe and illustrate the design process.
Content Organizer: Abilities To Do Technological Design

Grade-level Indicator	Instructional Activities/Strategies	Resources	Assessment
3. Explain how the solution to one problem may create other problems.			

Adams County/Ohio Valley
Course of Study

Content Standard: Scientific Inquiry
Benchmark A: Use appropriate instruments safely to observe, measure and collect data when conducting a scientific investigation.
Content Organizer: Doing Scientific Inquiry

Grade-level Indicator	Instructional Activities/Strategies	Resources	Assessment
1. Select and safely use the appropriate tools to collect data when conducting investigations and communicating findings to others (e.g., thermometers, timers, balances, spring scales, magnifiers, microscopes and other appropriate tools).			

Adams County/Ohio Valley
Course of Study

Content Standard: Scientific Inquiry
Benchmark B: Organize and evaluate observations, measurements and other data to formulate inferences and conclusions.
Content Organizer: Doing Scientific Inquiry

Grade-level Indicator	Instructional Activities/Strategies	Resources	Assessment
2. Evaluate observations and measurements made by other people and identify reasons for any discrepancies.			

Adams County/Ohio Valley
Course of Study

Content Standard: Scientific Inquiry
Benchmark B: Organize and evaluate observations, measurements and other data to formulate inferences and conclusions.
Content Organizer: Doing Scientific Inquiry

Grade-level Indicator	Instructional Activities/Strategies	Resources	Assessment
3. Use evidence and observations to explain and communicate the results of investigations.			

Adams County/Ohio Valley
Course of Study

Content Standard: Scientific Inquiry
Benchmark C: Develop, design and safely conduct scientific investigations and communicate the results.
Content Organizer: Doing Scientific Inquiry

Grade-level Indicator	Instructional Activities/Strategies	Resources	Assessment
4. Identify one or two variables in a simple experiment.			

Adams County/Ohio Valley
Course of Study

Content Standard: Scientific Inquiry
Benchmark C: Develop, design and safely conduct scientific investigations and communicate the results.
Content Organizer: Doing Scientific Inquiry

Grade-level Indicator	Instructional Activities/Strategies	Resources	Assessment
5. Identify potential hazards and/or precautions involved in an investigation.			

Adams County/Ohio Valley
Course of Study

Content Standard: Scientific Inquiry
Benchmark C: Develop, design and safely conduct scientific investigations and communicate the results.
Content Organizer: Doing Scientific Inquiry

Grade-level Indicator	Instructional Activities/Strategies	Resources	Assessment
6. Explain why results of an experiment are sometimes different (e.g., because of unexpected differences in what is being investigated, unrealized differences in the methods used or in the circumstances in which the investigation was carried out, and because of errors in observations).			

Adams County/Ohio Valley
Course of Study

Content Standard: Scientific Ways of Knowing
Benchmark A: Distinguish between fact and opinion and explain how ideas and conclusions change as new knowledge is gained.
Content Organizer: Nature of Science

Grade-level Indicator	Instructional Activities/Strategies	Resources	Assessment
1. Summarize how conclusions and ideas change as new knowledge is gained.			

Adams County/Ohio Valley
Course of Study

Content Standard: Scientific Ways of Knowing
Benchmark B: Describe different types of investigations and use results and data from investigations to provide the evidence to support explanations and conclusions.
Content Organizer: Nature of Science

Grade-level Indicator	Instructional Activities/Strategies	Resources	Assessment
2. Develop descriptions, explanations and models using evidence to defend/support findings.			

Adams County/Ohio Valley
Course of Study

Content Standard: Scientific Ways of Knowing
Benchmark B: Describe different types of investigations and use results and data from investigations to provide the evidence to support explanations and conclusions.
Content Organizer: Nature of Science

Grade-level Indicator	Instructional Activities/Strategies	Resources	Assessment
3. Explain why an experiment must be repeated by different people or at different times or places and yield consistent results before the results are accepted.			

Adams County/Ohio Valley
Course of Study

Content Standard: Scientific Ways of Knowing
Benchmark B: Describe different types of investigations and use results and data from investigations to provide the evidence to support explanations and conclusions.
Content Organizer: Nature of Science

Grade-level Indicator	Instructional Activities/Strategies	Resources	Assessment
4. Identify how scientists use different kinds of ongoing investigations depending on the questions they are trying to answer (e.g., observations of things or events in nature, data collection and controlled experiments).			

Adams County/Ohio Valley
Course of Study

Content Standard: Scientific Ways of Knowing
Benchmark C: Explain the importance of keeping records of observations and investigations that are accurate and understandable.
Content Organizer: Ethical Practices

Grade-level Indicator	Instructional Activities/Strategies	Resources	Assessment
5. Keep records of investigations and observations that are understandable weeks or months later.			

Adams County/Ohio Valley
Course of Study

Content Standard: Scientific Ways of Knowing
Benchmark D: Explain that men and women of diverse countries and cultures participate in careers in all fields of science.
Content Organizer: Science and Society

Grade-level Indicator	Instructional Activities/Strategies	Resources	Assessment
6. Identify a variety of scientific and technological work that people of all ages, backgrounds and groups perform.			