

## 5<sup>th</sup> Grade– Science

### **CONTENT: Earth and Space Sciences**

| <b>Skills Based on Academic Content Standards</b>   |
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| Describe how night and day are caused by Earth's rotation.  |
| Explain that Earth is one of several planets to orbit the sun, and that the moon orbits Earth.  |
| 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). |
| Explain that stars are like the sun, some being smaller and some larger, but so far away that they look like points of light.   |
| 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.  |
| Investigate ways Earth's renewable resources (e.g., fresh water, air, wildlife and trees) can be maintained.  |

### **CONTENT: Life Sciences**

| <b>Skills Based on Academic Content Standards</b>   |
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| Describe the role of producers in the transfer of energy entering ecosystems as sunlight to chemical energy through photosynthesis.   |
| Explain how almost all kinds of animals' food can be traced back to plants.   |
| Trace the organization of simple food chains and food webs (e.g., producers, herbivores, carnivores, omnivores and decomposers).  |
| 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.              |
| 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.                      |
| 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). |

### **CONTENT: Physical Sciences**

| <b>Skills Based on Academic Content Standards</b>  |
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| Define temperature as the measure of thermal energy and describe the way it is measured.                       |
| Trace how thermal energy can transfer from one object to another by conduction.                                |
| Describe that electrical current in a circuit can produce thermal energy, light, sound and/or magnetic forces. |
| Trace how electrical current travels by creating a simple electric circuit that will light a bulb.             |
| Explore and summarize observations of the transmission, bending (refraction) and reflection of light.          |
| Describe and summarize observations of the transmission, reflection, and absorption of sound.                  |
| Describe that changing the rate of vibration can vary the pitch of a sound.                                    |

## **CONTENT: Science and Technology**

| <b>Skills Based on Academic Content Standards</b>  |
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| Investigate positive and negative impacts of human activity and technology on the environment. |
| Revise an existing design used to solve a problem based on peer review.                        |
| Explain how the solution to one problem may create other problems.                             |

## **CONTENT: Scientific Inquiry**

| <b>Skills Based on Academic Content Standards</b>   |
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| 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).   |
| Evaluate observations and measurements made by other people and identify reasons for any discrepancies.   |
| Use evidence and observations to explain and communicate the results of investigations.   |
| Identify one or two variables in a simple experiment.   |
| Identify potential hazards and/or precautions involved in an investigation.   |
| 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). |

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**CONTENT: Scientific Ways of Knowing**

| <b>Skills Based on Academic Content Standards</b>  |
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| Summarize how conclusions and ideas change as new knowledge is gained.   |
| Develop descriptions, explanations and models using evidence to defend/support findings.   |
| 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.   |
| 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). |
| Keep records of investigations and observations that are understandable weeks or months later.   |
| Identify a variety of scientific and technological work that people of all ages, backgrounds and groups perform.   |