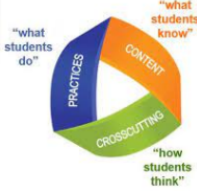


# Kindergarten Science Map

The **Science and Engineering Practices (SEPs)** are the major practices that **scientists** apply as they investigate and build models and theories about the world, and that **engineers** use as they design and build systems. This is vital, as the fields of science and engineering are related and mutually supportive through the eight SEPs that students DO. The **Crosscutting Concepts (CCCs)** represent seven themes that span across science domains (Physical, Life, Earth and Space, and Engineering, Technology, and Applications of Science) and have value to both scientists and engineers as they identify and connect universal properties and processes found in all domains. The CCCs give students an organizational framework for connecting knowledge from the various disciplines into a coherent and scientific based view of the world. **Disciplinary Core Ideas (DCIs)** are a set of four science and engineering domains for K–12 science that have broad importance across multiple science and engineering disciplines. The DCIs provide a tool for understanding or investigating more complex ideas and solving problems, relate to the interests and life experiences of students, and are learnable over multiple grades at increasing levels of depth and sophistication. Students should not memorize or learn isolated facts about the DCIs secondhand or apart from the other two dimensions.

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|  | <h2>Unit 1 - Introduction to Science &amp; Engineering Practices and Crosscutting Concepts</h2>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                                                                                    | <p>Students will begin exploring how scientists and engineers use the Science and Engineering Practices (skills scientists and engineers use) including asking questions, defining problems, developing and using models, planning and carrying out scientific investigations, analyzing and interpreting data, using mathematical and computational thinking, constructing explanations, designing solutions, engaging in argument from evidence, and obtaining/evaluating/communicating information. Students will also be introduced to the Crosscutting Concepts (ways scientists and engineers think about phenomena) including patterns, cause and effect relationships, scale/proportion/quantity, systems and system models, energy and matter, structure and function, and stability/change. Finally, students will be introduced to the engineering design process where students will define problems before developing and optimizing solutions to local, national, and global issues.</p> |

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|  | <h2>Unit 2 - Weather and Shelter</h2> <p><b>K-ESS2-1, K-ESS3-2, K-PS3-1, K-PS3-2</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                                                                                     | <p>Students will observe and identify local weather conditions to describe weather patterns over time. Examples include sunny, rainy, cloudy, warm, mornings are cooler than afternoons, and the numbers of cloudy days versus sunny days. While observing and describing weather patterns, students will ask questions to understand the importance of weather forecasting and how it allows people in a community to prepare for severe weather. They will describe this cause and effect relationship between forecasting and making plans. Students will make observations and describe the effect that the sun has on the Earth's surface. Examples of the Earth's surface include dirt, sand, soil, rocks,</p> |

grass, and water. The sun makes the Earth's surface warmer. The absence of the sun makes the Earth's surface cooler. Students will use information they learn about the effect the sun has on the Earth to design and build a structure that will reduce the warming effect of sunlight on Earth's surface. They will describe the cause and effect relationship for their design.

## Unit 3 - Moving Along

### K-PS2-1 and K-PS2-2



Students will explore how pushes and pulls can have different strengths and directions. Pushing and pulling on an object can change the speed or direction of the motion and can start or stop it. When objects touch or collide, they push on one another and change motion. A bigger push or pull makes things speed up or slow down more quickly. Students will be planning and conducting investigations with guidance to explore these disciplinary core ideas. They will need to be able to collect and analyze their data to explain the cause and effect relationship around force and motion.

## Unit 4 - Living Things & Their Needs

### K-ESS2-2, K-ESS3-3, K-ESS3-1 & K-LS1-1



Students will use models to show the needs of different plants or animals (including humans) and the places they live. These places have things the plants and animals need to survive including air, water and other resources from the land for food and shelter. Students will describe how these places are systems that have things that work together to help plants and animals survive. Students will also use observations to describe the patterns of what these plants and animals need to survive. Some examples would be that animals need to take food and plants make food, different animals need different food, all living things need water and plants require light. Humans use natural resources (water, dirt, wood, etc) for everything they do. Students will construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs. Some examples of plants and animals changing their environment would be beavers building dams, squirrels hiding food in the ground and tree roots breaking concrete while humans have developed ways to heat or cool homes and vehicles to protect themselves. Students will describe how the environment including plants, animals, and humans are a system that impacts each other. Students will also obtain and communicate information to define problems related to human impact on the local environment such as cutting trees to produce paper and ways humans can make choices like reusing and recycling materials to lessen the impact. Students will describe the cause and effect relationship of human choices on the local environment.