

|  |  |
| --- | --- |
|  | 2017-2018  Elementary Science  Quick Guide  Grade Kindergarten |

<http://elementary.dmschools.org>

<http://grading.dmschools.org>

<http://dmschools.org>

Grade K: Year at a Glance

|  |  |  |  |
| --- | --- | --- | --- |
| Topic Scales | **Trees and Weather Foss kit**  **Q1-2** | **Materials and Motion Foss Kit**  **Q2-3** | **Animals Two by Two Foss Kit**  **Q4** |
| *Suggested Pacing* | *Oct-Nov* | *Nov-Jan* | *Apr-May* |
| **Forces and Motion** |  | Investigation 4 |  |
| **Earth and Humans** |  | Investigations 1 and 2 |  |
| **The Sun’s Energy** | Investigation 3 | Investigation 3 |  |
| **Weather** | Investigations 3 and 4 |  |  |
| **The Needs of Living Things** | Investigation 4 |  | Investigations 1, 2, 3, 4 |

# KINDERGARTEN Science

|  |  |
| --- | --- |
| The Sun’s Energy  SEP-Plan and Carry Out Investigations, Construct Explanations DCI- Energy CCC- Cause and Effect | |
| 4 | The student demonstrates in-depth inferences and applications that go beyond the goal. |
| 3  Learning Goal | Students will:   1. Make observations to determine the effect of sunlight on Earth’s surface. ([K-PS3-1](https://www.nextgenscience.org/sites/default/files/evidence_statement/black_white/K-PS3-1%20Evidence%20Statements%20June%202015%20asterisks.pdf)) 2. Use tools and materials provided to design and build a structure that will reduce the warming effect of sunlight on Earth’s surface.\* ([K-PS3-2](https://www.nextgenscience.org/sites/default/files/evidence_statement/black_white/K-PS3-2%20Evidence%20Statements%20June%202015%20asterisks.pdf), [K-2-ETS1-2](https://www.nextgenscience.org/sites/default/files/evidence_statement/black_white/K-2-ETS1-2%20Evidence%20Statements%20June%202015%20asterisks.pdf)) |
| 2 | Students will:   1. 1. Describe the effect of Sunlight on Earth’s surface (e.g., dirt, sand, rock, water, grass)   2. Collect and record data to compare the warmth of Earth materials placed in the sunlight and the same materials placed in the shade.  3. Describe (with guidance) purpose or parts of an investigation.  4. Identify patterns of relative warmth of materials in sunlight and in shade.   1. 1. Use tools and materials to solve a specific (Sun/energy) problem.   2. Describe how a device can reduce a warming effect.  3. Describe if a design met expectations in “cause (block sunlight) effect (less warmth)” terms.  *Students will recognize or recall specific vocabulary, such as:*  Energy, Sunlight, Effect, Design, Temperature |
| 1 | Student's performance reflects beginning-to-learn foundational skills and knowledge. |

|  |  |
| --- | --- |
| Weather  SEP-Analyze Data, Ask Questions, DCI- Earth Systems, Earth and Human Activity CCC- Patterns, Cause and Effect | |
| 4 | The student demonstrates in-depth inferences and applications that go beyond the goal. | |
| 3  Learning Goal | Students will:   1. Use and share observations of local weather conditions to describe patterns over time. ([K-ESS2-1](https://www.nextgenscience.org/sites/default/files/evidence_statement/black_white/K-ESS2-1%20Evidence%20Statements%20June%202015%20asterisks.pdf)). 2. Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather.\*([K-ESS3-2](https://www.nextgenscience.org/sites/default/files/evidence_statement/black_white/K-ESS3-2%20Evidence%20Statements%20June%202015%20asterisks.pdf), [K-2-ETS1-1](https://www.nextgenscience.org/sites/default/files/evidence_statement/black_white/K-2-ETS1-1%20Evidence%20Statements%20June%202015%20asterisks.pdf)) | |
| 2 | Students will:   1. 1. Make observations of weather (the number of sunny, cloudy, rainy, windy, cool, or warm days)(relative temperature at various times of the day).   2. Determine patterns in kinds of weather and relative temperature from day to day and month to month.  3. Use a thermometer to measure air temperature.  4. Use a tool (windsock)to show wind pattern relationships.   1. 1. Ask weather related questions based on observations.   2. Use patterns to state likelihood of severe weather in an area.  3. Knows appropriate response for area weather hazards based on forecast or adult directions.  4. Collect weather information from questions.  Students will recognize or recall specific vocabulary, such as:  Air, Blowing, Cloud, Cold, Cool, Direction, Freezing, Hot, Model, Monitor, Overcast, Partly Cloudy, Pattern, Raining, Severe, Snowy, Sunny, Temperature, Thermometer, Warm, Weather, Wind | |
| 1 | Student's performance reflects beginning-to-learn foundational skills and knowledge. | |

|  |  |
| --- | --- |
| The Needs of Living Things  SEP-Analyze Data, Use Models, Engage in Argument from Evidence DCI- Molecules to Organisms, Earth and Human Activity CCC- Patterns, System Models, | |
| 4 | The student demonstrates in-depth inferences and applications that go beyond the goal. |
| 3  Learning Goal | Students will:   1. Use observations to describe patterns of what plants and animals (including humans) need to survive. ([K-LS1-1](https://www.nextgenscience.org/sites/default/files/evidence_statement/black_white/K-LS1-1%20Evidence%20Statements%20June%202015%20asterisks.pdf)) 2. Use a model to represent the relationship between the needs of different plants and animals (including humans) and the places they live ([K-ESS 3-1](https://www.nextgenscience.org/sites/default/files/evidence_statement/black_white/K-ESS3-1%20Evidence%20Statements%20June%202015%20asterisks.pdf)). 3. Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs. ([K-ESS2-2](https://www.nextgenscience.org/sites/default/files/evidence_statement/black_white/K-ESS2-2%20Evidence%20Statements%20June%202015%20asterisks.pdf)) |
| 2 | Students will:   1. 1. Use observations to recognize and identify patterns   2. Describe what plants need to grow.  3. Describe what animals need to live and grow.   1. 1. Describe the relationship between specific plants and animals and where they live.   2. Identify components relevant to the model (plants and animals, places where things live, things needed by living things).  3. Describe how plants, animals, and natural resources are a part of a system that allows living things to meet their needs.   1. 1. Make a claim supported by evidence for how plants and animals can change their environment.   2. Describe examples that do or do not support claim.  3. Make a claim in context of how the action supports plant and animal needs.  Students will recognize or recall specific vocabulary, such as:  Patterns, Plants, Animals, Living Things, Survive, Claim, Evidence, Season, Spring, System, Winter |
| 1 | Student's performance reflects beginning-to-learn foundational skills and knowledge. |

|  |  |
| --- | --- |
| Forces and Motion  SEP- Plan and Conduct/Analyze Data DCI- Motion and Stability CCC- Cause and Effect | |
| 4 | The student demonstrates in-depth inferences and applications that go beyond the goal. |
| 3  Learning Goal | Students will:   * 1. Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.([K PS2-1](https://www.nextgenscience.org/sites/default/files/evidence_statement/black_white/K-PS2-1%20Evidence%20Statements%20June%202015%20asterisks.pdf))   2. Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull.\* ([K PS2-2](https://www.nextgenscience.org/sites/default/files/evidence_statement/black_white/K-PS2-2%20Evidence%20Statements%20June%202015%20asterisks.pdf), [K-S-ETS1-3](https://www.nextgenscience.org/sites/default/files/evidence_statement/black_white/K-2-ETS1-3%20Evidence%20Statements%20June%202015%20asterisks.pdf)) |
| 2 | Students will:   1. 1. Describe how pushes and pulls can cause things to move.   2. With guidance identify the purpose and key elements of an investigation on the effects of pushes and pulls.  3. Identify the effect caused by the strength of different pushes and pulls.   1. 1. Describe the goal of a design solution that involves a push or a pull.   2. Describe the relative speed and direction of an object before and after a force is applied.  3. Determine whether the push or pull from the design solution causes the intended change in speed or direction of motion of the object.  *Students will recognize or recall specific vocabulary, such as:*  Cause, Collide, Direction, Distance, Effect, Fast, Gentle, Gravity, Motion, Move, Pull, Push, Roll, Ramp, Slope, Slowly, Speed, Strength, Stop |
| 1 | Student's performance reflects beginning-to-learn foundational skills and knowledge. |

|  |  |
| --- | --- |
| Earth and Humans  SEP-Obtaining Evaluating and Communicating Information DCI- Earth and Human Activity CCC- Cause and Effect | |
| 4 | The student demonstrates in-depth inferences and applications that go beyond the goal. |
| 3  Learning Goal | Students will:   1. Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.\* ([K-ESS3-3](https://www.nextgenscience.org/sites/default/files/evidence_statement/black_white/K-ESS3-3%20Evidence%20Statements%20June%202015%20asterisks.pdf), [K-2-ETS1-1](https://www.nextgenscience.org/sites/default/files/evidence_statement/black_white/K-2-ETS1-1%20Evidence%20Statements%20June%202015%20asterisks.pdf)) |
| 2 | Students will:   1. 1. Describe how people affect the land, water, air, and/or other living things in positive and negatives ways.   2. Describe a solution that reduces the negative effects of humans on the local environment  3. Communicate information about solutions with others in oral and/or written form (includes using models and or drawings).  *Students will recognize or recall specific vocabulary, such as:*  Reduce, Impact, Land, Recycle, Environment, Conserve, Reuse |
| 1 | Student's performance reflects beginning-to-learn foundational skills and knowledge. |