Third Grade Science Curriculum

Course Description: Third grade students will study three science domains over the course of the year; physical science, life science, and earth and space science. In the physical science unit, students will learn about the effects of balanced and unbalanced forces on the motion of an object and analyze patterns to predict future motion. Students will determine cause and effect relationships of electric or magnetic interactions between two objects. Students will define a simple design problem that can be solved by applying scientific ideas about magnets. For life science, students will study life cycles, plant and animal traits, how animals’ habitats help them to survive, and environmental changes to habitats. During earth and space science, students will study seasonal weather conditions, climates of different regions of the world, and the impact of weather-related hazards.

Scope and Sequence:

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<th>Unit</th>
<th>Timeframe</th>
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<tr>
<td>1. Physical Science</td>
<td>4 weeks</td>
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<tr>
<td>Topic 1: Objects and Motion</td>
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<td>Topic 2: Electric and Magnetic Forces</td>
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<tr>
<td>2. Life Science Part 1</td>
<td>5-6 weeks</td>
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<tr>
<td>Topic 1: Life Cycles</td>
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<td>Topic 2: Social and Group Behaviors</td>
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<td>Topic 3: Inheritance and Variation of Traits</td>
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<tr>
<td>3. Life Science Part 2</td>
<td>5 weeks</td>
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<td>Topic 1: Environmental Traits</td>
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<td>Topic 2: Adaptations</td>
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<td>Topic 3: Environmental Changes and Effects</td>
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<tr>
<td>4. Earth and Space Science</td>
<td>6 weeks</td>
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<tr>
<td>Topic 1: Weather and Climate</td>
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<tr>
<td>Topic 2: Process and Impact of Natural Hazards</td>
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Unit 1: Physical Science

Subject: Science  
Grade: 3rd  
Name of Unit: Physical Science  
Length of Unit: 4 weeks, August – Mid October (17 - 20 Days)  
Overview of Unit: This unit will cover two topics: 1) Objects and Motion, and 2) Electric and Magnetic Forces.  
Materials to prepare for the unit: Poster board for racetrack, craft magnets, recyclables for PEAT (Aluminum (soda cans) and steel cans (fruit or vegetables cans), and empty water bottles.

Topic 1: Objects and Motion

Suggested Length of Time: 7-10 Days  
Essential Questions (Student Wondering):  
● When bowling, what causes the pins to fall down?  
Enduring Understanding (Learning Objectives):  
● The student is expected to plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.  
● The student is expected to make observations and/or measurements of an object’s motion to provide evidence that a pattern can be used to predict future motion.  

Standards Addressed  

Priority:
● 3-PS2.A.1 Each force acts on one particular object and has both strength and a direction. An object at rest typically has multiple forces acting on it, but they add to give zero net force on the object. Forces that do not sum to zero can cause changes in the object’s speed or direction of motion. (Boundary: Qualitative and conceptual, but not quantitative addition of forces are used at this level.)  
● 3-PS2.A.2 The patterns of an object’s motion in various situations can be observed and measured; when that past motion exhibits a regular pattern, future motion can be predicted from it. (Boundary: Technical terms, such as magnitude, velocity, momentum, and vector quantity, are not introduced at this level, but the concept that some quantities need both size and direction to be described is developed.)  
● 3-PS2.B.1 Objects in contact exert forces on each other.  

Supporting:  
● Predictions - Patterns of change can be used to make predictions.  
● Cause and Effect - Cause and effect relationships are routinely identified, tested, and used to explain change  
● Variables - Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials is considered.  
● Phenomenon Explanations - Make observations and/or measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon or to test a design solution.
### Detailed Description/Instructions:

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<th>Standard</th>
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</table>
- Journal page - download/print  
- Tug-of-War (space required)  
- Video recording Tug-of-War  
Teacher will check for understanding, prior knowledge, and misconceptions of plant and animal life cycles. |
Motion and Balance Learning Stations | 3 Days | Materials:  
- Journal page - download/print  
- Computer stations (optional)  
- CER  
- Set up 6 stations  
Students will understand that balanced forces do not involve motion, unbalanced forces involve motion. |
| 3-PS2.A1 3-PS2.A2 3-PS2.B1 Patterns; Cause & Effect; Plan & Conduct Investigation; Represent Data | Explore: D2:PBL Pop Fly | 2 Days | Materials:  
- Entry document and Expert Role  
- Individual 21st Century Skills Rubric  
- Expert Mini-Workshop per expert/group (manually assigned)  
Student products can include a presentation.  
Students will understand how balanced and unbalanced forces cause motion. |
| 3-PS2.A1 3-PS2.A2 3-PS2.B1 | Explain Activities | 1-2 Days | Required:  
Picture Vocabulary  
STEMscopedia  
By the end of this lesson, students should be able to answer the essential questions. |
### Topic 2: Electric and Magnetic Forces

**Suggested Length of Time:** 7-10 Days

**Essential Questions (Student Wondering):**
- How could I move a magnet without touching it?

**Enduring Understanding (Learning Objectives):**
- The student is expected to ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other.
- The student is expected to define a simple design problem that can be solved by applying scientific ideas about magnets.

**Standards Addressed**

**Priority:**
- 3-PS2.B.2 Electric, and magnetic forces between a pair of objects do not require that the objects be in contact. The sizes of the forces in each situation depend on the properties of the objects and their distances apart and, for forces between two magnets, on their orientation relative to each other.
- 3-PS2-3 Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other.
- 3-PS2-4 Define a simple design problem that can be solved by applying scientific ideas about magnets.

**Supporting:**
- Cause and Effect - Cause and effect relationships are routinely identified, tested, and used to explain change
- Investigate and Predict - Ask questions that can be investigated and predict reasonable outcomes based on patterns such as cause and effect relationships.
- Solving Problems with Criteria - Define a simple design problem that can be solved through the development of an object, tool, process, or system and includes several criteria for success and constraints on materials, time, or cost.

**Detailed Description/Instructions:**

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</table>
| 3-PS2.B.2 Make a Claim; Cause & Effect | Engage: Accessing Prior Knowledge | 1 Day               | Materials:  
  - Journal page - download/print  
  Activity:  
  - Hook - Floating Paper Clip  
  Teacher will check for understanding, prior knowledge, and misconceptions of plant and animal life cycles. |
| 3-PS2.B.2 Solving Problems with Criteria; Cause & Effect | Explore: Forces in Action | 1 Day | Materials:  
  - Journal page - download/print  
  - CE  
  Students explain that static electricity can only attract, not repel. Magnets are not attracted to all metals. Larger magnets don’t always have the strongest force. |
| 3-PS2.B.2 Investigate & Predict; Solving Problems with Criteria; Cause & Effect | Explore: Engineering Solutions | 2 Day | Activity - Create toy car racetrack  
  Materials:  
  - Journal page - download/print  
  - Poster board  
  - Design process 1 day; performance 1 day  
  - Student Rubric & CER Key  
  Students will explain that magnets have fields of magnetism. |
| 3-PS2.B.2 Explain: Picture Vocabulary, STEMscopedia | 2-3 Days | Pick 2 - 3 activities to extend concept; consider adding voice and choice for students  
  Computer stations (optional) |
By the end of this lesson, students should be able to answer the essential questions.

<table>
<thead>
<tr>
<th>Standard</th>
<th>Elaborate/Assess</th>
<th>Duration</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>3.PS2.2  3.PS2.3  3.PS2.4 Cause and Effect Investigate and Predict Solving Problems with Criteria 3.5.ETS.1.1</td>
<td>Elaborate:</td>
<td>1-2 Days</td>
<td>Math connections, reading science, career science, connection videos and Science Rock.</td>
</tr>
<tr>
<td>3-PS2.B.2 Cause &amp; Effect</td>
<td>Evaluate: Assess</td>
<td>1 Day</td>
<td>CER, Open-ended or Multiple Choice</td>
</tr>
<tr>
<td></td>
<td>Engaging Scenario: PEAT</td>
<td>2 Days</td>
<td>Separate recyclable materials</td>
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**Engaging Scenario**

**Engaging Scenario** (PEAT) At the conclusion of Topic 1, Objects in Motion, and Topic 2, Electric and Magnetic Forces, students will design a plan to separate recyclable materials in a Materials Recovery Facility (MRF).

- Refer to the items listed in the materials to prepare for the unit.
Unit 2: Life Science Part 1

Subject: Science  
Grade: 3rd  
Name of Unit: Life Science  
Length of Unit: 5 – 6 weeks, October – December (24-33 days)  
Overview of Unit: This unit will cover 3 topics: 1) Life Cycles, and 2) Social and Group Behaviors, 3) Inheritance and Variation of Traits  
Materials to prepare for the unit: Mealworms need to be ordered prior to this unit beginning, oatmeal, potatoes to feed mealworms, container to house mealworms

Topic 1: Life Cycles

Suggested Length of Time: 10-15 days  
Essential Questions (Student Wondering):  
- If everything eventually dies, how do we still have plants and animals?  
Enduring Understanding (Learning Objectives)  
- The student is expected to develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.

Standards Addressed  
Priority:  
- 3. LS1.B.1 Reproduction is essential to the continued existence of every kind of organism. Plants and animals have unique and diverse life cycles.  
- 3-LS1-1 Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.  
Supporting:  
- Predictions - Patterns of change can be used to make predictions.  
- Predict Phenomena - Develop and/or use models to describe and/or predict phenomena.

Detailed Description/Instructions:

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</table>
  - Inner and Outer Circles  
  - Plants and Seeds-T-Chart  
  Teacher will check for understanding, prior knowledge, and misconceptions of plant and animal life cycles. |
  - Student Journal-download/print  
  - CER |
| Predict Phenomena | Students plant seeds<br>Soak lima beans overnight<br><strong>Students will be able to identify parts of a seed. They will also understand what seeds/plants need to live, grow, and reproduce.</strong> | 3.LS1.B1 | Explore: D2: Activity<br>Butterfly/Mealworm Life Cycle<br>Materials:<br>• Student Journal - download/print<br>• Butterfly/Mealworms<br>• Butterfly habitat/Plastic container<br>• Hand lens and plastic spoon<br>• Sugar water and leaves/Oatmeal<br><strong>Students will be able to identify the four stages in a mealworm life cycle.</strong> | 1 Day - ongoing | 3.LS1.B1 Predictions | Explore<br>D3: Engineering Solutions<br>Materials:<br>• Student Journal-download/print<br>Students will be making a 3-D model of a life cycle<br><strong>Students will be able to understand that all animals and plants have a repeating life cycle.</strong> | 2-3 Days | 3.LS1.B1 | Explore:<br>D4: Research-Cycle Hunt<br>Materials:<br>• Make 1 set of Question Posters<br>• Student Journal (Cycle Hunt) download/print<br>• Computers needed for information<br>• Collect life cycle books<br><strong>Students will be able to understand the pattern of growth, development, and reproduction of a life cycle.</strong> | 1 Day | 3.LS1.B1 Predictions | Explore:<br>STEMscoped Picture Vocabulary<br>Pick 2-3 activities to extend concept, consider adding voice and choice for students<br><strong>By the end of this lesson, students should be able to answer the essential questions.</strong> | 2-3 Days | 3.LS1.B.1 3.LS1.1 Predict | E: Elaborate<br>Math connections, reading science, career science, connection videos and Science Rock. | 1-2 Days |
### Predict Phenomena

<table>
<thead>
<tr>
<th>3.LS1.B1 Predictions</th>
<th>E: Evaluate</th>
<th>1 Day</th>
<th>CER, Constructed Response, and Multiple Choice</th>
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<tbody>
<tr>
<td>Predict Phenomena</td>
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<td></td>
<td><em>Performance Expectation Assessment Task requires both Life Cycles and Social and Group Behavior Scopes</em></td>
</tr>
</tbody>
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### Topic 2: Social and Group Behaviors

**Suggested Length of Time:** 9 - 12 days

**Essential Questions (Student Wondering):**
- Why do some animals live alone while others live together?

**Enduring Understanding (Learning Objectives):**
- The student is expected to construct an argument that some animals form groups that help members survive.

**Standards Addressed**

**Priority:**
- 3-LS2.D.1 Social Interactions and Group Behavior: Being part of a group helps animals obtain food, defend themselves, and cope with changes. Groups may serve different functions and vary dramatically in size (Note: Moved from K–2).
- 3-LS2-1 Construct an argument that some animals form groups that help members survive.

**Supporting:**
- Cause and Effect - Cause and effect relationships are routinely identified, tested, and used to explain change
- Construct and Support - Construct and/or support an argument with evidence, data, and/or a model.

**Detailed Description/Instructions:**

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</table>
| 3-LS2 Construct & support | Engage: Accessing Prior Knowledge & Hook | 1 Day               | 2 Activities
  - Student journal
  - Migration challenge
  *Teacher checks for understanding, prior knowledge, and misconceptions of social and group behavior.* |
| 3-LS2.D.1 | Explore: D1: Hunting Activity | 1 Day | Materials:  
- Student Journal - download/print  
- CER  
**Students will understand how living in a group benefits animals.** |
|---|---|---|---|
| 3-LS2.D.2 | Explore: D2: PBL Activity  
Strength in Numbers | 2-3 Days | Role play predator vs. prey  
**Students will understand the advantages and disadvantages of hunting in a group versus hunting alone.** |
| 3-LS2 | Explain: STEMscopedia  
Picture Vocabulary | 1-2 Days | Pick 2-3 activities to extend concept, consider adding voice and choice for students.  
**By the end of this lesson, students should be able to answer the essential questions.** |
| 3-LS2 | Evaluate | 1 Day | Materials:  
- Student Journal-Download/Print  
- CER |
| | PEAT: Engaging Scenario | 2 Days | Develop a life cycle and write a story. |

**Topic 3: Inheritance and Variation of Traits**

**Suggested Length of Time:** 5-6 Days  
**Essential Questions (Student Wondering):**  
- If they all have the same parents, why don’t the puppies in a litter look exactly alike?  
**Enduring Understanding (Learning Objectives)**
• The student is expected to analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms.

**Standards Addressed**

**Priority:**
- 3-LS3.A.1 Inheritance of Traits: Many characteristics of organisms are inherited from their parents.
- 3-LS3.B.1 Variation of Traits: Different organisms vary in how they look and function because they have different inherited information.
- 3-LS3.1 Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms.

**Supporting:**
- Similarities and Differences - Similarities and differences in patterns can be used to sort, classify, communicate, and analyze simple rates of change for natural phenomena and designed products.
- Analyze and Interpret Data - Analyze and interpret data to make sense of phenomena, using logical reasoning, mathematics, and/or computation.

**Detailed Description/Instructions:**

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<tbody>
<tr>
<td>3-LS3.A Analyze and Interpret Data</td>
<td>Engage: Accessing Prior Knowledge &amp; Hook</td>
<td>1 Day</td>
<td>Journal page, match parent to offspring Teacher checks for understanding, prior knowledge, and misconceptions about inherited traits of plants and animals.</td>
</tr>
<tr>
<td>3-LS3.A.1 Similarities and differences</td>
<td>Explore: D1 Activity</td>
<td>1 Day</td>
<td>Materials: Print combination headings, amaryllis cards, traits guide, student journal page, and CER. Students will understand that each offspring can inherit different combinations of traits from their parents.</td>
</tr>
<tr>
<td>3-LS3.A Analyze and Interpret Data Similarities and differences</td>
<td>Explore: D2: Activity</td>
<td>1 Day</td>
<td>Materials: 1 set of dog pictures Student journal Print pictures of dog breeds or use projector to show.</td>
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Students will understand that the characteristics of the offspring depends on the traits of the parents.

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<tr>
<td>3.LS3.A Evaluate</td>
<td>1 Day</td>
<td>CER, Constructed Response, and Multiple Choice</td>
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<tr>
<td>Similarities and differences Analyze and interpret data</td>
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Engaging Scenario

**Engaging Scenario (PEAT)** At the conclusion of, Life Cycles and Social and Group Behaviors, students will develop a life cycle and write a story for a chosen animal.

**Rubric for Engaging Scenario:** Print Rubric
# Unit 3: Life Science Part 2

**Subject:** Science  
**Grade:** 3rd  
**Name of Unit:** Life Science, Part 2  
**Length of Unit:** 5 weeks, January – March (22-31 days)  
**Overview of Unit:** This unit will cover 3 topics: 1) Environmental Traits, 2) Adaptations, and 3) Environmental Changes and Effect

## Topic 1: Environmental Traits

**Suggested Length of Time:** 8-11 Days  
**Essential Questions (Student Wondering):**  
- Could an animal that lives in a zoo move back to the wild and survive?  

**Enduring Understanding (Learning Objectives)**  
- The student is expected to use evidence to support the explanation that traits can be influenced by the environment.

**Standards Addressed**  
**Priority:**  
- 3-LS3.A.2 Inheritance of Traits: Other characteristics result from individuals’ interactions with the environment, which can range from diet to learning. Many characteristics involve both inheritance and environment.  
- 3-LS3.B.2 Variation of Traits: The environment also affects the traits that an organism develops.  
- 3-LS3-2 Use evidence to support the explanation that traits can be influenced by the environment.

**Supporting:**  
- Cause and Effect - Cause and effect relationships are routinely identified, tested, and used to explain change  
- Use Evidence - Use evidence (e.g., measurements, observations, patterns) to construct or support an explanation or design a solution to a problem.

**Detailed Description/Instructions:**

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</table>
| 3-LS3.A.2 | Engage: Accessing Prior Knowledge & Hook | 1 Day | Student Journal page  
Teacher checks for understanding, prior knowledge, and misconceptions of inherited vs. environmental traits. |
| 3-LS3.B.2 | | | |
| 3-LS3.A.2 | Explore: D1: Activity, classify the traits | 1 Day | Student journal
Copy of story, *Have a Great Day!*
*Students will understand and identify the differences between inherited and environmental traits.* |
|---|---|---|---|
| 3-LS3.A.2 | Explore: D2: Activity, Matching activity | 1 Day | Student journal page
Memory cards
*Students will understand and identify the differences between inherited and environmental traits.* |
| 3-LS3.A.2 | Explore: D3: Activity, Design an object to help find food | 2-3 Days | Review engineering design process
Consumable materials required (see list)
*Students will understand how animals use inherited and environmental traits to survive.* |
| 3-LS3.A.2 | Explain: STEMscopedia Picture Vocabulary | 1-2 Days | Pick 2-3 activities to extend concept, consider adding voice and choice for students.
*By the end of this lesson, students should be able to answer the essential questions.* |
| 3-LS3.A.2 | Elaborate | 1-2 Days | Math connections, reading science, career science, connection videos and Science Rock. |
| 3-LS3.A.2 | Evaluate | 1 Day | CER, Constructed Response, and Multiple Choice |
Topic 2: Adaptations

Suggested Length of Time: 7-9 Days

Essential Questions (Student Wondering):
- How can a lantern fish survive in the depths of the ocean, but other fish cannot?

Enduring Understanding (Learning Objectives)
- The student is expected to construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.

Standards Addressed

Priority:
- 3. LS4.C.1 Adaptation: For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all.
- 3-LS4-3 Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.

Supporting:
- Cause and Effect - Cause and effect relationships are routinely identified, tested, and used to explain change.
- Construct and Support - Construct and/or support an argument with evidence, data, and/or a model.

Detailed Description/Instructions:

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<tbody>
<tr>
<td>3.LS4.C.1 Science and Engineering Cause and Effect</td>
<td>Engage: Accessing Prior Knowledge &amp; Hook</td>
<td>1 Day</td>
<td>Student Journal Select a few animals to guide through adaptations, needs and survival. Teacher checks for understanding, prior knowledge, and misconceptions of animal adaptations.</td>
</tr>
<tr>
<td>3.LS4.C.1 Science and Engineering</td>
<td>Explore:D1:Activity Match animal to an environment for best survival.</td>
<td>1 Day</td>
<td>Student journal CER Environmental cards Living things cards Consumables Students will understand that animals adapt to survive in their environment.</td>
</tr>
<tr>
<td>3.LS4.C.1</td>
<td>Explore: D2: Activity</td>
<td>2 Days</td>
<td>Student journal</td>
</tr>
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</table>
Science and Engineering Cause and Effect

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<thead>
<tr>
<th>Build a habitat for a lizard</th>
<th>Computers Consumables Students will understand that animals’ adaptations are affected by environment.</th>
</tr>
</thead>
</table>

3.LS4.C.1 Science and Engineering Cause and Effect

<table>
<thead>
<tr>
<th>Explain: STEMscopedia Picture Vocabulary</th>
<th>1-2 Days</th>
<th>Pick 2-3 activities to extend concept, consider adding voice and choice for students. By the end of this lesson, students should be able to answer the essential questions.</th>
</tr>
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3.LS4.C.1 3.LS4.C.3 Cause and Effect Construct and Support 3.5.ETS.1.1

<table>
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<tr>
<th>Elaborate</th>
<th>1-2 Days</th>
<th>Math connections, reading science, career science, connection videos and Science Rock.</th>
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3.LS4.C.1 Science and Engineering Cause and Effect

<table>
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<tr>
<th>Evaluate</th>
<th>1 Day</th>
<th>CER, Constructed Response, and Multiple Choice</th>
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### Topic 3: Environmental Changes and Effects

**Suggested Length of Time:** 7-11 days

**Essential Questions (Student Wondering):**
- If a forest fire burns the forest, what would happen to the animals and humans that live in or near the forest?

**Enduring Understanding (Learning Objectives)**
- The student is expected to make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.

**Standards Addressed**

*Priority:*
- 3-LS4.D.1 Biodiversity and Humans: Populations live in a variety of habitats, and change in those habitats affects the organisms living there.
• 3-LS4-4 make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.
• 3-LS2.C.1 When the environment changes in ways that affect a place's physical characteristics, temperature, or availability of resources, some organisms survive and reproduce, others move to new locations, yet others move into the transformed environment, and some die.

Supporting:
• System Description - A system can be described in terms of its components and their interactions.
• Solutions - Make a claim about the merit of a solution to a problem by citing relevant evidence about how it meets the criteria and constraints of the problem.

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<tr>
<td>3-LS4.D.1 3-LS2.C.1</td>
<td>Engage: Accessing Prior Knowledge &amp; Hook</td>
<td>1 Day</td>
<td>Student journal Posters Brainstorm local events where environmental changes have occurred. Teacher checks for understanding, prior knowledge, and misconceptions of environmental changes and effects.</td>
</tr>
<tr>
<td>3-LS2.C.1 3-LS4.D.1</td>
<td>Explore: D1:Activity, Role playing game</td>
<td>1 Day</td>
<td>Student journal CER Game boundary guidelines Reusables Students will discover and understand how environmental changes affect the animals that live in a certain habitat.</td>
</tr>
<tr>
<td>3-LS2.C.1 3-LS4.D.1</td>
<td>Explore: D2: Activity PBL: Build My Habitat</td>
<td>2-3 Days</td>
<td>Entry document Expert mini-workshop Rubric Consumables Students will design a way to prevent a negative impact on a water ecosystem.</td>
</tr>
<tr>
<td>3-LS2.C.1 3-LS4.D.1</td>
<td>Explain: STEMscopedia Picture Vocabulary</td>
<td>1-2 Days</td>
<td>Pick 2-3 activities to extend concept, consider adding voice and choice for students. By the end of this lesson, students</td>
</tr>
<tr>
<td>Engineering Systems</td>
<td>should be able to answer the essential questions.</td>
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**Performance Expectation Assessment**
Task requires Inheritance and Variation of Traits, Environmental Traits, Adaptations, and Environmental Changes and Effects.

Rubric

### Engaging Scenario

**Engaging Scenario** (PEAT)
Students decide on an action plan for the conservation of a bird species in Yellowstone National Park.

**Rubric for Engaging Scenario:** Print Effects on Organisms of Changing Environments Rubric
Unit 4: Earth and Space Science

Subject: Science
Grade: 3rd
Name of Unit: Earth and Space Science
Length of Unit: 5 weeks, April – May (18-25 days)
Overview of Unit: This unit will cover two topics: 1) Weather and Climate, and 2) Processes and Impacts of Natural Hazards.

Topic 1: Weather and Climate

Suggested Length of Time: 10-13 Days
Essential Questions (Student Wondering):
- If weather changes from day to day, how do we know what to expect?

Enduring Understanding (Learning Objectives):
- The student is expected to represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.
- The student is expected to obtain and combine information to describe climates in different regions of the world.

Standards Addressed
Priority:
- 3-ESS2.D.1 Scientists record patterns of the weather across different times and areas so that they can make predictions about what kind of weather might happen next.
- 3-ESS2.D.2 Climate describes a range of an area's typical weather conditions and the extent to which those conditions vary over years.

Supporting:
- 3-ESS2-1 Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.
- 3-ESS2-2 Obtain and combine information to describe climates in different regions of the world.
- Predictions - Patterns of change can be used to make predictions.
- Represent Data - Represent data in tables and/or various graphical displays (bar graphs, pictographs, and/or pie charts) to reveal patterns that indicate relationships.
- Phenomena and Solutions - Obtain and combine information from books and/or other reliable media to explain phenomena or solutions to a design problem.
### Detailed Description/Instructions:

<table>
<thead>
<tr>
<th>Standard</th>
<th>5 E Model</th>
<th>Suggested # of Days</th>
<th>Notes</th>
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<tbody>
<tr>
<td>3-ESS2.D.1</td>
<td>Engage: Accessing Prior Knowledge Hook</td>
<td>1 Day</td>
<td>Student Journal&lt;br&gt;Recording of Previous Day’s weather report&lt;br&gt;Teacher will check for understanding, prior knowledge, and misconceptions of weather and climate.</td>
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<tr>
<td>3-ESS2.D.1</td>
<td>Explore: D1: Activity: Graphing Conditions in US Cities</td>
<td>2 Day</td>
<td>Student Journal&lt;br&gt;Student Handout (color copy)&lt;br&gt;Seasonal Data Handout (color copy)&lt;br&gt;Blank Map of the US&lt;br&gt;The student will understand that weather conditions vary from region to region within the United States.</td>
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<tr>
<td>3-ESS2.D.1</td>
<td>Explore: D2 PBL: Vacation Presentation</td>
<td>3 Days</td>
<td>Entry Document&lt;br&gt;Computer&lt;br&gt;Chart Paper&lt;br&gt;Craft Supplies&lt;br&gt;Vacation Locations on slips of paper&lt;br&gt;The student will understand how weather and climate affects cities throughout the world.</td>
</tr>
<tr>
<td>3-ESS2.D.1</td>
<td>Explain: STEMscopedia Picture Vocabulary</td>
<td>1-2 Days</td>
<td>Pick 2 - 3 activities to extend concept, consider adding voice and choice for students.&lt;br&gt;By the end of this lesson, students should be able to answer the essential questions.</td>
</tr>
<tr>
<td>3-ESS2.D.1</td>
<td>Elaborate</td>
<td>1-2 Days</td>
<td>Math connections, reading science, career science, connection videos and Science Rock.</td>
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</table>
| 3-ESS2.D.1        | Evaluate                                            | 2-3 Days            | CER, Multiple Choice, Open-Ended Assessment and an Active Assessment }
Topic 2: Processes and Impacts of Natural Hazards

Suggested Length of Time: 8-12 Days

Essential Questions (Student Wondering):
- How can we protect ourselves if we can’t prevent natural disasters?

Enduring Understanding (Learning Objectives):
- The student is expected to make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard.

Standards Addressed

Priority:
- 3-ESS3.B.1 A variety of natural hazards result from natural processes. Humans cannot eliminate natural hazards but can take steps to reduce their impacts.
- 3-ESS3-1 Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard.

Supporting:
- Cause and Effect - Cause and effect relationships are routinely identified, tested, and used to explain change.
- Solutions - Make a claim about the merit of a solution to a problem by citing relevant evidence about how it meets the criteria and constraints of the problem.

Detailed Description/Instructions:

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<tbody>
<tr>
<td>3-ESS3.B.1 Cause/Effect</td>
<td>Engage: Accessing Prior Knowledge Hook</td>
<td>1 Day</td>
<td>Student journal page or project on board Three Little Pigs book or find an e-version Teacher will check for understanding, prior knowledge and misconceptions of processes and impacts of natural hazards</td>
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<tr>
<td>3-ESS3.B.1 Cause/Effect Solutions</td>
<td>Explore: D1: Activity: Tale of Two Houses CER Activity</td>
<td>1 Day</td>
<td>Student Journal House Articles The student will understand the effects of natural disasters on structures.</td>
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The student will understand that there are ways to reduce the impact of natural disasters |
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<tr>
<td>3-ESSS3.B.1 Cause/Effect</td>
<td>Explain: STEMscopedia Picture Vocabulary</td>
<td>1-2 Days</td>
<td>Pick 2 - 3 activities to extend concept, consider adding voice and choice for students. By the end of this lesson, students should be able to answer the essential questions.</td>
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<td>3-ESSS3.B.1 Cause/Effect</td>
<td>Elaborate</td>
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</table>
| 3-ESS3.B.1 Cause/Effect Solutions | Evaluate                                              | 2-3 Days | CER, Multiple Choice, Open-Ended Assessment and an Active Assessment
Performance Expectation Assessment Task requires both the Weather and Climate and Processes and Impacts of Natural Hazards Scopes |

### Engaging Scenario

PEAT (A Performance Expectation Assessment Task is designed to assess student mastery of the Performance Expectations associated with the modules: *Weather and Climate and Processes and Impacts of Natural Hazards*)

In this task, students select a roof material to decrease the effects of extreme heat in India.

**Rubric for Engaging Scenario:** Print copy of PEAT Rubric