**2nd Grade Launch Unit - Science**

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| **Unit Topic: Plants and Animals**  **Estimated Time: 2 weeks** | |
| **Standards:** | |
| **S1L1. Obtain, evaluate, and communicate information about the basic needs of plants and animals.**   1. Ask questions to identify the parts of a plant—root, stem, leaf, and flower. 2. Ask questions to compare and contrast the basic needs of plants (air, water, light, & nutrients) & animal (air, water, food, & shelter). 3. Design a solution to ensure that a plant or animal has all its needs met.   [Disciplinary Core Idea: Life Science Learning Progression: Appendix A](#_Appendix_A) | |
| [**Science and Engineering Practices**](https://cobbk12org-my.sharepoint.com/:w:/g/personal/susanne_smith_cobbk12_org/EdACNDYbX_VDrJ9XSmZ2GrYB6Bvhd6y_NZsne7lSCurKnQ?e=fZowW0) **&** [**Crosscutting Concepts**](https://cobbk12org-my.sharepoint.com/:w:/g/personal/susanne_smith_cobbk12_org/EZ6252kcp7tEgkZy0BvSUPUBj7yrg_0oCHaWJ4NsyRKjAA?e=V8Y1Ja) | |
| **Teacher Background Knowledge:**  [**Plants**](https://cobbk12org-my.sharepoint.com/:w:/g/personal/susanne_smith_cobbk12_org/EWc-X-CfcepImtu5udtlUxYBjVDTGlRw4wHltzo_PVCoIg?e=LoiJ09) **&** [**Animals**](https://cobbk12org-my.sharepoint.com/:w:/g/personal/susanne_smith_cobbk12_org/ETQDFk1t3WFLiDekN3irixYBT2kMlGCqy71sF3yb2_XCSQ?e=kxR3vF) | |
| ***Misconceptions:*** | ***Proper Conceptions:*** |
| * Plants are not alive during winter months. * Plants do not depend on animals. * Plants do not need anything to survive. * All animals have the same characteristics * Plants and Animals do not depend on each other * Animals do not need shelter to survive * The needs of animals do not correlate with their appearance, growth, or motion * Reptiles are not animals * All animals are mammals * Humans are not animals | * Some plants become dormant but grow again when the weather becomes warmer. * Plants and animals need each other to survive. * Plants need four main things to survive (air, water, light, and nutrients) * Animals have different characteristics which help them adapt in different environments * Plants and animals depend on each other for survival * Animals need shelter to protect them from weather and predators * Animals’ needs directly correlate with their appearance, growth, and motion * Reptiles are animals * Animals can be classified as mammals, reptiles, birds, fish, or amphibians * Humans are a type of mammal, making them animals |
| **Big Ideas/Enduring Understandings:**   * Plants have basic needs (air, water, light, and nutrients) * Plants have 4 basic parts * Plants have a basic life cycle * Plant roots hold plants in place and absorb water * Plant seeds make new plants * Plant leaves make food for plants * Plant stems keep plants upright and transport materials up and down * All animals have the same 4 needs: air, water, food, and shelter * Animals and plants are similar and different * Animals and plants depend on each other for survival | **Essential Questions:**   * How can I identify the different parts of a plant? * How can I describe the basic needs of a plant? * How are plant needs alike and different from animal needs? * How can I design and build a solution to ensure that my plant has all its needs met? * What are an animal’s basic needs? * How can I compare the needs of animals to the needs of plants? * How can I contrast the needs of animals to the needs of plants? * How can I create a solution to ensure an animal has all its needs met? * Why can’t all animals live in the same place? * How do plants and animals depend on each other to survive? |
| **Vocabulary:**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | Seed | Plant | Root | Stem | Leaf | | Flower | Sunlight | Soil | Nutrients | Air | | Needs | Shelter | habitat |  |  | | |
| **Literature Connections:**  PebbleGo online resources (Cobb Digital Library)  *From Seed to Plant* (Gibbons)  *Seed to Plant* (Nat. Geo. Kids)  *A Tree is a Plant* (Bulla)  *I Wanna Iguana* (Orloff)  *The Tiny Seed* (Carle)  *Grow Flower, Grow* (Bruce) | **STEM Careers:**   |  |  |  | | --- | --- | --- | | Botanist | Farmer | Soil scientist | | Gardener | Landscaper | Zoologist | | Horticultural scientist | | Groomer | | Golf course superintendent | | Veterinarian | | Marine or wildlife biologist | |  | |
| **Materials & Safety Considerations:**  Lessons are designed with simplicity in mind. Use caution if going outside to explore. | |

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| **The First 10 Days** | | |
| **Day 1** | **Opening** | **Topic 1:** Ask questions to identify the parts of a plant—root, stem, leaf, and flower.  **Phenomenon:** Most plants have similar parts. Each part has an important job to ensure the plant gets what it needs to survive.  **ENGAGE:**   1. Read *The Tiny Seed* (Carle) 2. Share various plant pictures. Ask students how the pictures are alike and different. (If necessary, explain that they are all plants.) |
| **Work Session** | Ask each student to draw any kind of plant. Have students label all the parts that they know.  \*Use this information to guide instruction. [Plant picture cards](https://cobbk12org-my.sharepoint.com/:b:/g/personal/susanne_smith_cobbk12_org/ETzWrRmKjOhDjRonkj6GDGYB-Ys88EloTouq4iryxYMrCw?e=eGWQAk) |
| **Closing** | Allow students to share their pictures and what they know about plant parts. |
| **Day 2** | **Opening** | Explain to students how you will be assigning them one part of a plant to research. Other people in the class will have the same part. Show them how to complete their work session. |
| **Work Session** | **EXPLORE:**  Each student will be assigned a plant part. Using PebbleGo and other plant books available, students will research their plant part. The focus of the research is to find out what the plant part does and what it needs to carry out this job. |
| **Closing** | **EXPLAIN:**  Call out a plant part and ask students who researched that part to share what they have learned. The challenge for students is to not repeat information! |
| **Day 3** | **Opening** | Share an example of a 2D and 3D plant model that you have created from things you can find around your house. Tell them each part of the plant. Share the work session assignment with students. |
| **Work Session** | **EXPAND:**  Students will locate a variety of materials in their home: recycled, Play-doh, Lego, paint. Each student should create a 2D or 3D model of a plant. The model should include the 4 main parts. |
| **Closing** | Using SeeSaw or other video sharing options, students will record an explanation of their model. They will share the plant parts and the jobs of each part. |
| **Day 4** | **Opening** | **Topic 2**: Ask questions to compare and contrast the basic needs of plants (air, water, light, & nutrients) & animal (air, water, food, & shelter).  **Phenomenon:** Plants and animals are living things. All living things have similar needs. How are these needs met? Are the needs the same? How are they different?  **ENGAGE:**   1. Read *Grow Flower, Grow* (Bruce) Discuss (the girl in the story tries to feed her flower things she likes to eat, only when she puts the flower outside does it grow). 2. As a class create a Venn diagram to show what plants and animals need. Chart student questions. |
| **Work Session** | **EXPLORE:**  Students should be familiar with basic needs of plants. Since animals are living things are their needs the same? Using PebbleGo and other available books have students research the needs of various animals. Are they the same needs that plants have? [Needs of Living Things](http://eschooltoday.com/science/needs-of-living-organisms/five-things-living-things-need-to-survive.html) (website) |
| **Closing** | Students will share what they have found with the class. |
| **Day 5** | **Opening** | **EXPLAIN – Share the following songs with students**   1. [The Needs of a Plant Song](https://www.youtube.com/watch?v=dUBIQ1fTRzI) 2. [The Needs of an Animal Song](https://www.youtube.com/watch?v=k4UDf3tF_O4) |
| **Work Session** | 1. Using pictures and words have students create a Venn diagram comparing the needs of plants and animals. |
| **Closing** | Create a class Venn diagram using what students came up with during their work time. Sing the songs one more time! |
| **Day 6** | **Opening** | Introduce the assignment and share a 2D and 3D example. |
| **Work Session** | Assign students a specific habitat (desert, ocean, woods, rainforest, arctic, grassland). What plants and animals would you find in this habitat? How are the needs of the plants and animals being met? Build a model. |
| **Closing** | Using SeeSaw or other video sharing options, students will record a video of their design including the animals found in the habitat and the parts of the habitat that meet the animals needs. |
| **Day 7** | **Opening** | **Topic 3:** Design a solution to ensure that a plant or animal has all its needs met.  **Phenomenon:** How do living things in the wild survive? How is caring for a pet different?  **ENGAGE:**  Read *I Wanna Iguana* (Orloff). When having a pet, what do you need to consider for meeting the needs of the pet? |
| **Work Session** | Show pictures of possible class pets. Which pet do they think the class should have? [Pet Cards](https://cobbk12org-my.sharepoint.com/:b:/g/personal/susanne_smith_cobbk12_org/ET2kkViMuJRDjWRqSeX9N2cBDsCfOrnejpSwBxE8aW6fIQ?e=eDxGRL)  Have students write 3 reasons for their choice and draw a picture of their pet in a classroom. |
| **Closing** | Allow students to share their work with one another and practice responding to each other’s ideas with, “I like…” “I noticed…” and “I wonder…” |
| **Day 8** | **Opening** | Talk to students about the responsibility it takes to care for a class pet. Help them understand that the choice to get a pet should always include an understanding of what that animal needs. Explain that today we are going to explore the needs of the class pets they chose yesterday. |
| **Work Session** | **EXPLAIN**  Give each student a set of the needs cards (not all cards are needs, some will just make the pet happy 😊, some cards are blank). All items can be purchased at a pet store. Students should decide one at a time which items their pet needs, and be able to explain why they need this item. Then ask, is there anything else your pet needs that we cannot buy? Draw/write on the blank card what that is. [Pet Need cards](https://cobbk12org-my.sharepoint.com/:b:/g/personal/susanne_smith_cobbk12_org/EfQYnNK38qFGgFXAcCEX1dMBWm1Zc8sw3vKhc-zocfk5dQ?e=sxITlG) |
| **Closing** | Allow each student to share what they would purchase for their pet. Explain why they chose each. |
| **Day 9** | **Opening** | **EXPLORE**  Discuss the story *Grow Flower, Grow* (Bruce). What did the girl have to do so the plant had what it needed? |
| **Work Session** | Does your school or home need a new garden? Where would the perfect spot be? Find a place to start a garden, be sure to consider the needs of plants. How will those needs be met? (Go outside if possible and walk around to check out various locations) Students will create a drawing of their yard noting where they would put a garden. \*\*Remind students not to go outside without an adult or adults permission\*\* |
| **Closing** | Students will share their drawings and explain why they chose that spot for their gardens. |
| **Day 10** | **Opening** | **EXPAND**  Explain the following mini STEM challenge to students:  Zoo Atlanta wants to add a new outdoor exhibit and they have asked your class to decide what the exhibit should be. |
| **Work Session** | Design the space for an animal that you choose making sure the basic needs are being met. Build a model. |
| **Closing** | Allow students to share their models with the class. Encourage them to respond to one another using the starters, “I like…” “I noticed…” and “I wonder…” |

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| **HMH Resources** | |
| **HMH Dimensions**  **S1L1b. Basic needs of animals**  **Grade K (all online)**  Unit 3 Lesson 2 (pp. 90-105)  **S1L1c. Meeting animals’ needs**  Unit 3 Lesson 3 Take it Further- *A Trip to the Zoo* (pp. 118-119) | **HMH GA Science Resources (online)**  **S1L1.b Basic needs of animals**  Unit 6, Lesson 4 (pp. 207A-218)  Digital Lesson: *What Do Animals Need?*  Flip Chart p. 27- *Meet the Mealworm*  **S1L1.c Meeting animals’ needs**  Unit 6 People in Science (pp. 219A-220) Flip Chart page 25 |
| **Differentiation:**   * Vary reading level according to student needs * Provide word banks and pictures when necessary * Partner students according to student needs * Expand plant parts to include seed and fruit | |
| **Evaluate (Closing):** *What type of assessment will you give to evaluate students? (Note: the assessment may be your “elaborate” activity)*  HMH Dimensions:  Lesson Check (Circle Question) p. 103  HMH Georgia Science:  p. 218 “Apply Concepts”  p. 226 #13 | |

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### Appendix A

**Disciplinary Core Idea: Life Science Learning Progression**

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| **K & 1st** | **2nd** | **5th** | **7th** | **High School** |
| **SKL1. Obtain, evaluate, and communicate information about how organisms (alive and not alive) and non-living objects are grouped.**  a. Construct an explanation based on observations to recognize the differences between organisms and nonliving objects.  b. Develop a model to represent how a set of organisms and nonliving objects are sorted into groups based on their attributes.  **SKL2. Obtain, evaluate, and communicate information to compare the similarities and differences in groups of organisms.**  a. Construct an argument supported by evidence for how animals can be grouped according to their features.  b. Construct an argument supported by evidence for how plants can be grouped according to their features.  c. Ask questions and make observations to identify the similarities and differences of offspring to their parents and to other members of the same species.  **First Grade:**  **S1L1. Obtain, evaluate, and communicate information about the basic needs of plants and animals.**  a. Develop models to identify the parts of a plant—root, stem, leaf, and flower.  b. Ask questions to compare and contrast the basic needs of plants (air, water, light, and nutrients) and animals (air, water, food, and shelter).  c. Design a solution to ensure that a plant or animal has all of its needs met. | **S2L1. Obtain, evaluate, and communicate information about the life cycles of different living organisms.**  a. Ask questions to determine the sequence of the life cycle of common animals in your area: a mammal such as a cat, dog or classroom pet, a bird such as a chicken, an amphibian such as a frog, and an insect such as a butterfly.  b. Plan and carry out an investigation of the life cycle of a plant by growing a plant from a seed and by recording changes over a period of time.  c. Construct an explanation of an animal’s role in dispersing seeds or in the pollination of plants.  d. Develop models to illustrate the unique and diverse life cycles of organisms other than humans. | **S5L1. Obtain, evaluate, and communicate information to group organisms using scientific classification procedures.**  a. Develop a model that illustrates how animals are sorted into groups (vertebrate and invertebrate) and how vertebrates are sorted into groups (fish, amphibian, reptile, bird, and mammal) using data from multiple sources.  b. Develop a model that illustrates how plants are sorted into groups (seed producers, non-seed producers) using data from multiple sources. | **S7L1. Obtain, evaluate, and communicate information to investigate the diversity of living organisms and how they can be compared scientifically.**  a. Develop and defend a model that categorizes organisms based on common characteristics.  b. Evaluate historical models of how organisms were classified based on physical characteristics and how that led to the six kingdom system (currently archaea, bacteria, protists, fungi, plants, and animals).  *(Clarification statement: This includes common examples and characteristics such as, but not limited to, prokaryotic, eukaryotic, unicellular, multicellular, asexual reproduction, sexual reproduction, autotroph, heterotroph, and unique cell structures. Modern classification will be addressed in high school.)* | **SB4. Obtain, evaluate, and communicate information to illustrate the organization of interacting systems within single-celled and multi-celled organisms.**  a. Construct an argument supported by scientific information to explain patterns in structures and function among clades of organisms, including the origin of eukaryotes by endosymbiosis. Clades should include:   * archaea * bacteria * eukaryotes * fungi * plants * animals   *(Clarification statement: This is reflective of 21st century classification schemes and nested hierarchy of clades and is intended to develop a foundation for comparing major groups of organisms. The term 'protists' is useful in describing those eukaryotes that are not within the animal, fungal or plant clades but the term does not describe a well-defined clade or a natural taxonomic group.)*  b. Analyze and interpret data to develop models (i.e., cladograms and phylogenetic trees) based on patterns of common ancestry and the theory of evolution to determine relationships among major groups of organisms.  c. Construct an argument using valid and reliable sources to support the claim that evidence from comparative morphology (analogous vs. homologous structures), embryology, biochemistry (protein sequence) and genetics support the theory that all living organisms are related by way of common descent.  d. Develop and use mathematical models to support explanations of how undirected genetic changes in natural selection and genetic drift have led to changes in populations of organisms.  *(Clarification statement: Element is intended to focus on basic statistical and graphic analysis. Hardy Weinberg would be an optional application to address this element.)*  e. Develop a model to explain the role natural selection plays in causing biological resistance (e.g., pesticides, antibiotic resistance, and influenza vaccines). |