preK-2nd Appendix

NGSS and Common Core Alignment

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| **Engage Lesson Group** | | | |
| **Lessons** | **Science Practices** | **Cross Cutting Concepts** | **Core & Component Ideas with Performance Expectations** |
| 1. *EyeSpots - Seeing & Feeling*: Students experience, observe, write and draw about their own special outdoor area.  2. *Daily Data:* Students observe and graph daily weather and plant and animal happenings to begin to see patterns in the seasons and related biological events.  **NOTE**: **This is an ideal time to start one or more Biodiversity PEEK STEAM Projects!**  3. *EyeSpots -  Hearing & Touching:* Students observe and record the different sounds and textures they can find outdoors.  4. *EyeSpots -  Smelling & Tasting:* Students experience and record the different scents they find outdoors as well as the various tastes of edible plants.  5. *Charcoal Shadow Drawings:* Students discover a scientific property of light using charcoal to draw the shadows cast by different objects. | Obtaining, Evaluating, and Communicating Information  Asking Questions and Defining Problems  Engaging in Argument from Evidence  Developing and Using Models  (optional)  Planning and Carrying Out Investigations | Cause and Effect  Influence of Science, Engineering, and Technology on Society and the Natural World  Stability and Change  Patterns  Science Addresses Questions About the Natural and Material World  Science Knowledge is Based on Empirical Evidence | ESS2.D: Weather and Climate  K-ESS2-1: Use and share observations of local weather conditions to describe patterns over time  ESS3.A: Natural Resources  K-ESS3-1: Use observations to describe patterns of what plants and animals (including humans) need to survive.   K-ESS3-2: Ask questions to obtain information about the purpose of weather forecasting   K-ESS3-3: Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment  LS1: From Molecules to Organisms:   Structures and Processes  LS1.B: Growth and Development of   Organisms  LS1.C: Organization for Matter and   Energy Flow in Organism  K-LS1-1: Use observations to describe patterns of what plants and animals (including humans) need to survive.  1-LS1-2:  Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive  PS4.B: Electromagnetic Radiation  1-PS4-3: Plan and conduct investigations to determine the effect of placing objects made with different materials in the path of a beam of light  LS3.A: Inheritance of Traits  LS3.B: Variation of Traits  LS2: Ecosystems: Interactions,   Energy, and Dynamics  LS2.A: Interdependent Relationships   in Ecosystems  LS4.D: Biodiversity and Humans  ELA/Literacy:  W.K.2, W.1.8 , W.2.8  Math: MP.5, 1.NBT.B.3, 2.MD.D.10 |
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| **Engage & Explore Lesson Group** | | | |
| **Lessons** | **Science Practices** | **Cross Cutting Concepts** | **Core & Component Ideas with Performance Expectations** |
| 6. *Finding Dead Stuff - Teachable Moments:* Students will be in awe as they observe and consider, up close, an organism that is elusive while alive and kicking.  7. *Forest Surprise:* Students read about a true student-citizen-science story and learn about one way some animals get food to survive and recognize the importance of sharing information/data.  8. *Bean Babies:* Students DO science as they grow bean plants from seeds. They measure and record changes while they investigate what plants need to live and grow.  9. *Nut-Nut-Squirrel:* Students play this active game any time as a fun way to review and explore the myriad ways plants and animals get food and as an informal introduction to food webs in different ecosystems. | Obtaining, Evaluating, and Communicating Information  Asking Questions and Defining Problems  Engaging in Argument from Evidence  Developing and Using Models  Planning and Carrying Out Investigations  Analyzing and Interpreting Data  Using Mathematics and  Computational Thinking  Constructing Explanations and Designing Solutions | Cause and Effect  Influence of Science, Engineering, and Technology on Society and the Natural World  Stability and Change  Patterns  Science Addresses Questions About the Natural and Material World  Scale, Proportion, and Quantity  Systems and System Models  Energy and Matter  Structure and Function | LS4.D: Biodiversity and Humans  LS1.C: Organization for Matter and Energy Flow in Organisms  LS1.A: Structure and Function  K-LS1: From Molecules to Organisms: Structures and Processes  K-LS1-1: Use observations to describe patterns of what plants and animals (including humans) need to survive.  K-ESS2-1: Scientists look for patterns and order when making observations about the world.  K-ESS2-2: Systems in the natural world have parts that work together.  K-ESS3-1: Use a model to represent relationships in the natural world.  ESS3.C: Human Impacts on Earth Systems  LS3.B: Variation of Traits  LS2.A: Interdependent Relationships in Ecosystems  2-LS2-1: Plan and conduct an investigation to determine if plants need sunlight and water to grow.  2-LS4-1: Make observations of plants and animals to compare the diversity of life in different habitats.  ELA/Literacy:  RI.K.1, W.K.2, SL.K.3, SL.K.5, W.1.8, SL.1.1, RI.1.1, W.2.8, W.2.7, SL.2.5  Math: K.MD.A.2, MP.2, K.CC.A, K.MD.A.1, MP.4, K.CC, MP.5, (may use) 1.MD.A.2, W.1.8, K.MD.A.1, 1.MD.A.1 |
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| **Explore Lesson Group** | | | |
| **Lessons** | **Science Practices** | **Cross Cutting Concepts** | **Core & Component Ideas with Performance Expectations** |
| 10. *Design a Bean House:* Students consider the structure and function of different plant parts and design a model for a building that functions like a plant.  11. *What’s That For?* Students use a journal activity to explore how physical traits help plants and animals live in their *EyeSpots*.  12. Ghaa! GroundGhouls! Students read and discuss a true story about a PEEK student and a misunderstood creature as an introduction to the concept that plants and animals DO things that change and benefit their environment and that help them to live there.  13. *Why Does It Do That?* Students use a writing and drawing journal activity to explore what organisms **DO** in their environment that help them live there. They wonder and develop one question to research. | Developing and Using Models  Analyzing and Interpreting Data  Using Mathematics and  Computational Thinking  Constructing Explanations and Designing Solutions  Obtaining, Evaluating, and Communicating Information  Asking Questions and Defining Problems | Connections to Engineering, Technology, and Applications of Science  Structure and Function  Cause and Effect  Influence of Science, Engineering, and Technology on Society and the Natural World  Systems and System Models  Energy and Matter  Patterns | ETS1.B: Developing Possible Solutions  LS1.C: Organization for Matter and Energy Flow in Organisms  K-LS1-1: Use observations to describe patterns of what plants and animals (including humans) need to survive  LS1.A: Structure and Function  2-LS2-2: The shape and stability of structures of natural and designed objects are related to their function(s).  K-2-ETS1-2: Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.  2-LS4-1: There are many different kinds of living things in any area, and they exist in different places on land and in water.  1-LS1-1: Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.  LS1.D: Information Processing  LS2.A: Interdependent Relationships in Ecosystems  K-ESS2-2: Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.  K-ESS3-1: Use a model to represent the relationship between the needs of different plants and animals (including humans) and the places they live.  LS1-B: Growth and Development of Organisms  LS2-A: Interdependent Relationships in Ecosystems  K-ESS3-3: Science investigations begin with a question.  ELA/Literacy:  K-ESS2-2, W.K.2, SL.K.3, SL.K.5, W.1.2, W.1.8, RI.1.10, W.2.7, W.2.8, RI.K.1, SL.1.1, R.1.1, R.1.2, R1.2.1  Math: K.CC, K.MD.A.2, K.MD.A.1, K.CC.A, MP.2, MP.5, 1.MD.A.1 |
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| **Explore & Elaborate Lesson Group** | | | |
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| **Lessons** | **Science Practices** | **Cross Cutting Concepts** | **Core & Component Ideas with Performance Expectations** |
| 14. *Frottage:  Ancient Data Collecting & Art:* Students use the ancient craft of relief printing from textured surfaces. This fun, simple, mess-free, printmaking lesson not only creates art but helps your kids use math and measuring to assess the biodiversity of plant species at your site!    15. *Mystery of the Dead Birds*: Students apply research, reasoning and compassion to solve a real life PEEK mystery. They also see the value of their own citizen-science actions and get inspired to start their own Biodiversity *Class Challenge* projects.    16. *Weather Patterns*:  Students analyze and interpret patterns in their collected *Daily Data,* reaching conclusionsabout how weather affects local plants and animals. | Obtaining, Evaluating, and Communicating Information  Asking Questions and Defining Problems  Engaging in Argument from Evidence  Analyzing and Interpreting Data  Using Mathematics and  Computational Thinking  Constructing explanations and designing solutions | Cause and Effect  Patterns  Science Addresses Questions About the Natural and Material World  Scale, Proportion, and Quantity  Structure and Function  Scientific Investigations use a Variety of Methods  Stability and Change  Scientific Knowledge is Based on Empirical Evidence | LS4: Biological Evolution:   Unity and Diversity  LS4.A: Evidence of Common Ancestry   and Diversity  LS4.D: Biodiversity and Humans 1-LS3: Heredity and Variation of Traits   (possible application)  ESS3.C: Human Impacts on Earth Systems  -Things that people do to live can affect the world around them, but they can make choices that reduce their impact on . . . other living things.  K-ESS3: Earth and Human Activity K-ESS2: Earth’s Systems  ETS1.B: Developing Possible Solutions  LS1: From Molecules to Organisms:   Structures and Processes  K-LS1-1: Use observations to describe patterns of what plants and animals (including humans) need to survive.  K-ESS2-1: Scientists look for patterns and order when making observations about the world.  K-ESS2-2: Systems in the natural world have parts that work together.  K-ESS2-1: Use and share observations of local weather conditions to describe patterns over time  Math: K.MD.A.2, MP.2, K.CC.A, K.MD.A.1, K.MD.B.3, K.CC, MP.4, MP.5, 1.MD.A.2, 1.MD.A.1, 1.NBT.B.3, 2.MD.D.10, K.CC.A, 1.MD.A.2  ELA/Literacy: W.K.2, SL.K.3, SL.K.5, W.1.8, SL.1.1, RI.1.10, W.2.8, RI.K.1, R1.1.1 W.2.8, W.2.7, SL.2.5 |
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| **Elaborate & Evaluate Lesson Group** | | | |
| **Lessons** | **Science Practices** | **Cross Cutting Concepts** | **Core & Component Ideas with Performance Expectations** |
| 17. *Let’s Get SmART!* Students re-purpose and sort non-biodegradable “trash” for use as up-cycled sculptural materials for the next lesson. Yep, creative dumpster diving!  18. *Patterns & Trash: From Nature to Art:* Students discover patterns in nature and then use them in their own mosaic made of  re-purposed materials. They creatively design and problem solve using an open-ended process with endless solutions.  **\*Any of the *Biodiversity PEEK STEAM Projects* also align with these standards plus more depending on how far and in what directions you and the students take the project(s).** | *Some or all of the following, depending on students’ choice of projects:*  Obtaining, Evaluating, and Communicating Information  Asking Questions and Defining Problems  Engaging in Argument from Evidence  Developing and Using Models  Planning and Carrying Out Investigations  Analyzing and Interpreting Data  Using Mathematics and  Computational Thinking  Constructing Explanations and Designing Solutions | *Some or all of the following, depending on students’ choice of projects:*  Cause and Effect  Influence of Science, Engineering, and Technology on Society and the Natural World  Stability and Change  Patterns  Science Addresses Questions About the Natural and Material World  Scale, Proportion, and Quantity  Systems and System Models  Energy and Matter  Structure and Function  Stability and Change | *Some or all of the following, depending on students’ choice of projects:*  ESS3: Earth and Human Activity  ESS3.C: Human Impacts on Earth Systems  -Things that people do to live can affect the world around them, but they can make choices that reduce their impact on . . . other living things.  K-ESS3-3: Communicate solutions that will reduce the impact of humans on ... other living things.  LS1: From Molecules to Organisms:   Structures and Processes  K-LS1-1: Use observations to describe patterns of what plants and animals (including humans) need to survive  LS1.C: Organization for Matter and Energy Flow in Organisms  K-2-EST1: Engineering Design  K-2-EST1-1: Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.  ETS1.B: Developing Possible Solutions  LS2-A: Interdependent Relationships in Ecosystems  LS4.D: Biodiversity and Humans  2-LS4: Biological Evolution: Unity and Diversity  2-LS4-1: Make observations of plants and animals to compare the diversity of life in different habitats.  Math: K.MD.A.2, MP.2, K.CC.A, K.MD.A.1, K.MD.B.3, K.CC, MP.4, MP.5, 1.MD.A.2, 1.MD.A.1, 1.NBT.B.3, 2.MD.D.10  Literacy: W.K.2, SL.K.3, SL.K.5, SL.1.1, RI.1.10, RI.K.1, R1.1.1, W.K.7, W.1.7, W.1.8, W.2.7, W.2.8, SL.2.5 |