preK-2nd Appendix

NGSS and Common Core Alignment

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| **Engage Lesson Group** |
| **Lessons** | **Science Practices** | **Cross Cutting Concepts** | **Core & Component Ideaswith 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 InformationAsking Questions and Defining ProblemsEngaging in Argument from EvidenceDeveloping and Using Models (optional) Planning and Carrying Out Investigations | Cause and Effect Influence of Science, Engineering, and Technology on Society and the Natural WorldStability and ChangePatternsScience Addresses Questions About the Natural and Material WorldScience Knowledge is Based on Empirical Evidence | ESS2.D: Weather and ClimateK-ESS2-1: Use and share observations of local weather conditions to describe patterns over timeESS3.A: Natural ResourcesK-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 environmentLS1: From Molecules to Organisms:  Structures and ProcessesLS1.B: Growth and Development of  OrganismsLS1.C: Organization for Matter and  Energy Flow in OrganismK-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 survivePS4.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 TraitsLS3.B: Variation of TraitsLS2: Ecosystems: Interactions,  Energy, and DynamicsLS2.A: Interdependent Relationships  in Ecosystems LS4.D: Biodiversity and HumansELA/Literacy:W.K.2, W.1.8 , W.2.8Math: 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 Ideaswith 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 InformationAsking Questions and Defining ProblemsEngaging in Argument from EvidenceDeveloping and Using Models Planning and Carrying Out InvestigationsAnalyzing and Interpreting DataUsing Mathematics and Computational ThinkingConstructing Explanations and Designing Solutions | Cause and Effect Influence of Science, Engineering, and Technology on Society and the Natural WorldStability and ChangePatternsScience Addresses Questions About the Natural and Material WorldScale, Proportion, and QuantitySystems and System ModelsEnergy and MatterStructure and Function | LS4.D: Biodiversity and HumansLS1.C: Organization for Matter and Energy Flow in OrganismsLS1.A: Structure and FunctionK-LS1: From Molecules to Organisms: Structures and ProcessesK-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 SystemsLS3.B: Variation of TraitsLS2.A: Interdependent Relationships in Ecosystems2-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.2.5Math: 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 Ideaswith 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 ModelsAnalyzing and Interpreting DataUsing Mathematics and Computational ThinkingConstructing Explanations and Designing SolutionsObtaining, Evaluating, and Communicating InformationAsking Questions and Defining Problems | Connections to Engineering, Technology, and Applications of ScienceStructure and FunctionCause and Effect Influence of Science, Engineering, and Technology on Society and the Natural WorldSystems and System ModelsEnergy and MatterPatterns | ETS1.B: Developing Possible SolutionsLS1.C: Organization for Matter and Energy Flow in OrganismsK-LS1-1: Use observations to describe patterns of what plants and animals (including humans) need to surviveLS1.A: Structure and Function2-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 ProcessingLS2.A: Interdependent Relationships in EcosystemsK-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 OrganismsLS2-A: Interdependent Relationships in EcosystemsK-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, R1.2.1Math: 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 Ideaswith 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 InformationAsking Questions and Defining ProblemsEngaging in Argument from EvidenceAnalyzing and Interpreting DataUsing Mathematics and Computational ThinkingConstructing explanations and designing solutions | Cause and Effect PatternsScience Addresses Questions About the Natural and Material WorldScale, Proportion, and QuantityStructure and FunctionScientific Investigations use a Variety of MethodsStability and ChangeScientific Knowledge is Based on Empirical Evidence | LS4: Biological Evolution:  Unity and DiversityLS4.A: Evidence of Common Ancestry  and DiversityLS4.D: Biodiversity and Humans1-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 ActivityK-ESS2: Earth’s SystemsETS1.B: Developing Possible SolutionsLS1: From Molecules to Organisms:  Structures and ProcessesK-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 timeMath: 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.2ELA/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 Ideaswith 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 InformationAsking Questions and Defining ProblemsEngaging in Argument from EvidenceDeveloping and Using Models Planning and Carrying Out InvestigationsAnalyzing and Interpreting DataUsing Mathematics and Computational ThinkingConstructing 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 WorldStability and ChangePatternsScience Addresses Questions About the Natural and Material WorldScale, Proportion, and QuantitySystems and System ModelsEnergy and MatterStructure and FunctionStability and Change | *Some or all of the following, depending on students’ choice of projects:* ESS3: Earth and Human ActivityESS3.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 ProcessesK-LS1-1: Use observations to describe patterns of what plants and animals (including humans) need to surviveLS1.C: Organization for Matter and Energy Flow in OrganismsK-2-EST1: Engineering DesignK-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 SolutionsLS2-A: Interdependent Relationships in EcosystemsLS4.D: Biodiversity and Humans2-LS4: Biological Evolution: Unity and Diversity2-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.10Literacy: 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 |