



Early Childhood STEM Education: Ecology: STEM and Bloom

There is no STEM topic that could be more fascinating than the growth of living things around them. Gardening is the ultimate interdisciplinary experience. It brings together art and science, math and literature, bounty and beauty. Plants blossom because of water, wind, and weather, and because of the care of gardeners young and old. Get ready to grow with Ecology - STEM and Bloom!

- **Activity 1: Just the Right Space** - Investigate how much space a living thing needs.
- **Activity 2: Drop by Drop** - Discover the properties of water and learn how water supports the growth of plants.
- **Activity 3: Sunny Daze** - Explore sun and shade, build a sundial, and determine a good place for a garden
- **Activity 4: Color Counts** - Explore color in nature, collect flowers, and observe which insects like various colors.
- **Activity 5: Dirty Work** - Explore soil, experiment with erosion, and look for organisms
- **Activity 6: Engineering a Garden - from Pumpkins to Pizza** - Design and plant a garden.
- **Activity 7: Seeding New Spaces** - Explore diversity in seeds and learn how they disperse.

Cross-Curricular Connections

English Language Arts (Fiction and Nonfiction): Key Ideas and Textual Support, Structural Elements and Organization, Connection of Ideas, Vocabulary in Literature and Nonfiction Texts

Book Selections: *A Place to Start a Family, Poetrees, My Shadow, Raindrops Roll, I Get Wet, Dark as a Shadow, My Shadow, Living Sunlight, Buzzing with Questions, Dirt: The Scoop on Soil, My Schoolyard Garden, Next Time You See a Maple Seed*

Math: Counting, Measurement, Time, Geometric shapes, Data analysis, Graphing

Social Studies: Physical Systems, Environment and Society, Economics

Art: Making a sun clock, Drawing flowers and insects, Designing a pizza garden

Indiana Early Learning Development Framework Science

SC2.1 Recognize the characteristics of Earth and sky

C3.1 Demonstrate awareness of life

SC4.1 Demonstrate engineering design skills

SC5.1 Demonstrate scientific curiosity

Grades K - 2 Science Content and Engineering Standards

K.LS.3 Use observations to describe patterns of what plants and animals (including humans) need to survive. (Activities 1-7)

K.ESS.1 Make observations to determine the effect of sunlight on Earth's surface and use tools and materials to design and build a structure to reduce the warming effect on Earth's surface. (Activity 3)

K.ESS.2 Describe and compare objects seen in the night and day sky, observing that the sun and moon move across the sky. (Activity 3)

1.PS.4 Make observations to collect evidence and explain that objects can be seen only when illuminated. (Activity 4)

1.LS.3 Make observations of plants and animals to compare the diversity of life in different habitats. (Activities 1, 2, 4, 5, 6, 7)

2.LS.2 Compare and contrast details of body plans and structures within the life cycles of plants and animals.(Activity 7)

2.LS.3 Classify living organisms according to variations in specific physical features (i.e. body coverings, appendages) and describe how those features may provide an advantage for survival in different environments. (Activity 4,7)

1.ESS.1 Use observations of the sun, moon, and stars to describe patterns that can be predicted. (Activity 3)

2.ESS.4 Obtain information to identify where water is found on Earth and that it can be solid or liquid. (Activity 2)

K-2.E.1 Pose questions, make observations, and obtain information about a situation people want to change. Use this data to define a simple problem that can be solved through the construction of a new or improved object or tool. (Activities 3,5)

K-2.E.2 Develop a simple sketch, drawing, or physical model to illustrate and investigate how the shape of an object helps it function as needed to solve an identified problem.(Activities 5,6,7)

K-2.E.3 Analyze data from the investigation of two objects constructed to solve the same problem to compare the strengths and weaknesses of how each performs. (Activity 7)