

## Woodland Soil Study

**Introductory Activity:** Soil Color Chart Construction

**Field Activity:** Tools Explanation / Soil Mapping, Outdoor Field Study

**Description:** Utilizing both technology interface and observation skills, students collect and analyze data to draw conclusions about the quality and type of woodland soil at their site. Soil investigations include analysis of soil texture, moisture, temperature, infiltration rates, color, pH and identification of decomposers. Students use Vernier LabQuest scientific handhelds, soil temperature, pH and moisture sensors, soil core samples, and soil texture, plant tolerance and color charts.

**Objectives:** By the end of the program, the students will be able to:

- Define the terms percolation/infiltration, decomposer, humus and erosion
- Name the basic components of soil composition
- Describe processes that lead to soil formation and degradation
- Describe the composition, texture, moisture level and color of woodland soil
- Recognize and write basic soil color name and numbers
- Construct and interpret a soil color chart
- Explain the connection between soil and decomposers
- Use scientific investigation tools, observation skills, and flow charts to collect soil quality data
- Interpret information and identify certain characteristics that all woodland soils share

### Indiana Academic Standards for Science:

**Fourth:** 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 2.1, 2.3, 2.4, 2.5, 2.7, 3.5, 3.6, 3.7, 4.2, 4.4, 4.6, 4.7, 6.1, 6.2

**Fifth:** 1.1, 1.2, 1.3, 1.4, 1.5, 2.1, 2.2, 2.4, 2.7, 2.8, 4.4, 4.5, 4.7, 5.1, 5.7, 5.8, 5.10, 6.1, 6.2

**Sixth:** 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 2.1, 2.2, 2.3, 2.8, 3.15, 3.16, 4.3, 4.8, 5.2, 7.2

**Seventh:** 1.1, 1.2, 1.3, 1.4, 1.7, 1.8, 1.9, 1.10, 2.3, 2.6, 2.8, 3.7, 3.8, 3.9, 3.10, 4.8, 4.14, 5.4, 7.1

**Eighth:** 1.1, 1.2, 1.3, 1.8, 2.2, 2.4, 2.5, 2.7, 2.8, 2.9, 3.6, 4.8, 5.1, 5.6, 5.7, 5.8, 5.9, 7.1, 7.2, 7.3, 7.7

**High School:** Env.1.4, Env.1.6, Env.1.7, Env.1.12, Env.1.14, Env.1.28, Env.1.34, Env.1.35, Env.2.2, ES.1.10, ES.1.26, ES.1.27, B.1.37, B.1.41, B.1.42, B.1.45

### Indiana Academic Standards for Mathematics:

**Fourth:** 1.1, 1.2, 1.3, 1.9, 7.1, 7.3, 7.4, 7.5, 7.6, 7.8, 7.9

**Fifth:** 1.2, 2.5, 5.6, 6.2, 7.1, 7.3, 7.4, 7.5, 7.7, 7.8

**Sixth:** 2.1, 2.2, 2.9, 5.1, 5.6, 6.3, 7.1, 7.4, 7.5, 7.6, 7.9, 7.10

**Seventh:** 2.1, 5.3, 6.3, 7.1, 7.4, 7.6, 7.7, 7.10, 7.11

**Eighth:** 2.1, 2.3, 5.2, 7.1, 7.4, 7.6, 7.7, 7.10, 7.11

### Excellence in Environmental Education – Guidelines for Learning (Pre K – 12):

Fourth Grade	Fifth – Eighth Grade	Ninth Grade
Strand 1 A, C, D, G	Strand 1 C, D, G	Strand 1 C, G
Strand 2.1 A, B	Strand 2.1 A, B	Strand 2.4 A, D
Strand 2.2 D	Strand 2.2 C	Strand 3.1 C
Strand 2.4 A, B, D	Strand 2.4 A, D	Strand 4 D
Strand 3.1 C	Strand 3.1 C	
Strand 4 D	Strand 4 D	

Please note specific learning objectives and academic standards will vary based on timeframe, location, availability of resources, and tailored content of programming.