

## Woodland Ecosystem Investigation

Introductory Activity: PIT the Food Chain Game

Field Activity: Tools Explanation / Global Ecosystem Exploration, Outdoor Field Study

**Description:** Students investigate the concept of biodiversity by conducting scientific ecosystem investigations in two different environments. Data collection and measurements for each ecosystem include: date, time of day, weather conditions, wind speed, air temperature, soil temperature, water temperature, infiltration rates, soil sample, soil moisture, plant transect, and animal observations. Different methods of data collection – scientific handhelds and sensors, personal observations, and experimentation – are used throughout. Collected data is analyzed and conclusions drawn about overall biodiversity of the ecosystem.

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

- Define the terms food chain, food web, producer, consumer, decomposer, herbivore, omnivore, carnivore, ecosystem, biodiversity, and percolation/infiltration
- Construct local, native Indiana food chains and food webs in proper sequence
- Explain how energy is transferred throughout food chains and food webs
- Use scientific investigation tools and observation skills to explore a woodland ecosystem
- Compare similarities and differences between two diverse ecosystems
- Differentiate between areas of high and low biodiversity (biodiversity index rating)
- Point out the positive and negative choices humans make that may affect the biodiversity of their area

### 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, 3.2, 4.2, 4.3, 4.4, 4.6, 4.7, 6.1, 6.2, 6.3

**Fifth:** 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 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, 3.16, 4.8, 4.9, 4.10, 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, 4.6, 4.8, 4.9, 4.14, 5.4, 7.1, 7.2

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

**High School:** Env.1.1, Env.1.2, Env.1.3, Env.1.4, Env.1.6, Env.1.7, Env.1.10, Env.1.12, Env.1.14, Env.1.30, Env.1.34, Env.1.35, Env.2.2, ES.1.10, B.1.37, B.1.39, B.1.40, B.1.41, B.1.42, B.1.43, B.1.45, B.1.46

### Indiana Academic Standards for Mathematics:

**Fourth:** 1.1, 1.2, 1.3, 1.9, 5.1, 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, 5.1, 5.6, 6.3, 7.1, 7.4, 7.5, 7.6, 7.9, 7.10

**Seventh:** 2.1, 5.1, 5.2, 7.1, 7.4, 7.6, 7.7, 7.10, 7.11

**Eighth:** 2.1, 3.7, 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, E, G	Strand 1 C, D, E, G	Strand 1 C, D, E, G
Strand 2.2 C, D	Strand 2.2 A, B, C, D	Strand 2.2 A, B, C
Strand 2.4 A, B, D	Strand 2.4 A, D	Strand 2.4 A, D
Strand 3.1 C	Strand 3.1 C	Strand 3.1 C
Strand 4 D	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.