

Tree Monitoring

Introductory Activity: Tree Vaders

Field Activity: Tools Explanation / GPS Tree Marking, Outdoor Field Activity

Description: Students map and mark tree locations, collect scientific data and monitor changes in local woodland trees. With tree monitoring tools used by researchers, students measure a tree's height and diameter, map its location, and use personal observation skills to note changes in the surrounding environment – shade to sunlight ratio, height and location of understory vegetation, evidence of animals, etc. Information is collected annually or biannually and compiled. Changes to trees are monitored and conclusions drawn about overall ecosystem health.

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

- Define the terms understory, stadia rod, caliper, and GPS
- Recognize the value and benefits of trees to humans and the environment
- Recognize the importance of monitoring trees
- Describe environmental stressors trees encounter during survival
- Explain the concept of limiting factors
- Apply the use of GPS units in locating and marking waypoints of different trees
- Use tree identification guides and forestry research instruments to monitor woodland trees
- Collect accurate scientific data, make personal observations, and draw conclusions
- Analyze compiled tree data, examine ecosystem health, and point out ways to increase ecosystem health

Indiana Academic Standards for Science:

Fourth: 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 2.1, 2.4, 2.5, 2.7, 4.3, 4.5, 4.6, 4.7, 5.4, 6.1, 6.2, 6.3

Fifth: 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 2.4, 2.7, 2.8, 4.4, 4.5, 4.7, 5.1, 5.7, 5.8, 5.9, 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, 2.4, 2.5, 2.6, 2.8, 3.9, 3.16, 4.1, 4.6, 4.8, 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, 4.2, 4.7, 4.8, 4.9, 4.14, 5.4, 7.1, 7.2

Eighth: 1.1, 1.2, 1.3, 1.8, 2.1, 2.2, 2.4, 2.5, 2.7, 2.9, 3.6, 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.1.8, Env.1.9, Env.1.10, Env.1.12, Env.1.14, Env.1.21, Env.1.30, Env.1.34, Env.1.35, Env.2.2, ES.1.10, ES.1.12, B.1.37, B.1.39, B.1.40, B.1.41, B.1.44, 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, 6.2, 7.1, 7.3, 7.4, 7.5, 7.7, 7.8

Sixth: 5.1, 5.6, 6.1, 6.2, 6.3, 6.5, 7.1, 7.4, 7.5, 7.6, 7.9, 7.10

Seventh: 5.1, 5.2, 6.1, 6.2, 6.3, 7.1, 7.4, 7.6, 7.7, 7.10, 7.11

Eighth: 6.3, 6.4, 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, E, G
Strand 2.2 A, C	Strand 2.2 A, C, D	Strand 2.2 A, C
Strand 2.4 A, C, D	Strand 2.4 A, D	Strand 2.4 A, C, 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.