

**Course Title: Grade 9 Science - Environment and Ecology Board Approval Date: July, 2018  
Credit (Secondary): 1**

**Grade Level / Course Summary with Big Ideas:**

Grade 9 Environment and Ecology is a laboratory course that investigates geology, mapping and modeling, scientific method, water cycle, weather and climate, and a strong emphasis on natural resources and ecology. The course is aligned with the PA Standards for Environment and Ecology and the Standards for Science-Technology-Engineering, and the emerging NGSS. Students will use a variety of skills to explore answers to questions about their surroundings. Students will continually relate what they learn to economic and social impacts of environmental decisions.

**Grade Level Modules (Units):**

**Suggested Timeline  
# of Weeks or # of Class Periods/Lessons**

1. Scientific Method & Inquiry a. STEM Balloon Powered Cart	6 days
2. Watersheds: water quality, GPS, map skills a. STEM GPS / Orienteering / Geometry b. STEM Water Conservation Video c. STEM Susquehanna Watershed Project d. STEM Erosion / Riparian Buffers Inquiry	25 days
3. Biomes: weather, climate	10 days
4. Ecological Organization a. STEM Brine Shrimp Population Lab	8 days
5. Ecological Interactions	10 days
6. Biogeochemical cycles: water, carbon, oxygen, nitrogen	10 days
7. Natural Resources: Minerals, energy sources a. STEM Windmill Challenge	15 days

**Learning Activities/Modes of Formative and Summative Assessment:**

Large group instruction	Formative and Summative assessments
Laboratory experiments	Rubric, lab report, teacher observation
Cooperative group work	Rubric, checklist
Web based projects	Rubric, checklist
Computer simulations	Lab write-ups
Presentations	Rubric, checklist

**Primary Instructional Resources:**

Lab activities / class supplementary materials
<i>Modern Earth Science</i> (Holt, 2002)
Acceptable Internet websites and apps