

**LESSON 5: APPALACHIAN STREAM CONSERVATION**

**MIDDLE SCHOOL STANDARDS ADDRESSED:**

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| Pennsylvania | <p><b>4.2.6.C.: Identify natural and human- made factors that affect water quality.</b></p> <p><b>4.2.7.C.: Use appropriate tools and techniques to analyze a freshwater environment.</b></p> <ul style="list-style-type: none"><li>● Interpret physical, chemical, and biological data as a means of assessing the environmental quality of a freshwater environment.</li></ul> |
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**HIGH SCHOOL STANDARDS ADDRESSED:**

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| Pennsylvania | <p><b>4.1.10.A.: Examine the effects of limiting factors on population dynamics.</b></p> <ul style="list-style-type: none"><li>● Analyze possible causes of population fluctuations.</li><li>● Explain the concept of carrying capacity in an ecosystem.</li><li>● Describe how organisms become classified as threatened or endangered.</li><li>● Describe how limiting factors cause organisms to become extinct.</li></ul> <p><b>4.1.12.A.: Analyze the significance of biological diversity in an ecosystem.</b></p> <ul style="list-style-type: none"><li>● Explain how species adapt to limiting factors in an ecosystem.</li><li>● Analyze the differences between natural causes and human causes of extinction.</li><li>● Research wildlife management laws and their effects on biodiversity.</li></ul> <p><b>4.1.12.C: Research how humans affect energy flow within an ecosystem.</b></p> <ul style="list-style-type: none"><li>● Describe the impact of industrial, agricultural, and commercial enterprises on an ecosystem.</li></ul> <p><b>4.5.10.D: Research practices that impact biodiversity in specific ecosystems.</b></p> <ul style="list-style-type: none"><li>● Analyze the relationship between habitat changes to plant and animal population fluctuations.</li></ul> <p><b>4.5.12.D.: Analyze the effects of new and emerging technologies on biodiversity in specific ecosystems.</b></p> <ul style="list-style-type: none"><li>● Evaluate the impact of laws and regulations on reducing the number of threatened and endangered species.</li></ul> <p><b>4.1.12.E.: Research solutions addressing human impacts on ecosystems over time.</b></p> <p><b>4.2.10.A.: Examine the interactions between abiotic and biotic factors within a watershed.</b></p> |
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- Describe how topography influences the flow of water in a watershed.
- Describe how vegetation affects water runoff.
- Investigate and analyze the effects of land use on the quality of water in a watershed.

**4.2.12.A.: Examine environmental laws related to land use management and its impact on the water quality and flow within a watershed.**

**4.2.10.C.: Explain the relationship between water quality and the diversity of life in a freshwater ecosystem.**

- Explain how limiting factors affect the growth and reproduction of freshwater organisms.

**4.2.12.C.: Analyze the effects of policies and regulations at various governmental levels on water quality.**

- Assess the intended and unintended effects of public policies and regulations relating to water quality.