

TAPWater & PA Academic Standards

Each activity in the TAPWater curriculum supplement has been reviewed by educators who aided the PA Department of Education with the draft forms of the state's Academic Standards for Environment & Ecology and Science & Technology. Each activity in this manual contains a list of those standards that are met by performing the activity or conducting the experiment. The following standards are covered, either completely or partially, in this manual:

Environment & Ecology

Section 4.1 Watersheds and Wetlands

4.1.4 Grade 4

- A. Identify various types of water environments.
- Identify the lotic system (e.g. creeks, rivers, streams).
 - Identify the lentic system (e.g. ponds, lakes, swamps).
- B. Explain the differences between moving and still water.
- Explain why water moves or does not move.
 - Identify types of precipitation.
- C. Identify living things found in water environments.
- Identify fish, insects and amphibians that are found in fresh water.
- D. Identify a wetland and the plants and animals found there.
- Identify different kinds of wetlands.
 - Identify plants and animals found in wetlands.
 - Explain wetlands as habitats for plants and animals.
- E. Recognize the impact of watersheds and wetlands on animals and plants.
- Explain the role of watersheds in everyday life.

- Identify the role of watersheds and wetlands for plants and animals.

4.1.7 Grade 7

A. Explain the role of the water cycle within a watershed.

- Explain the water cycle.
- Explain the water cycle as it relates to a watershed.

B. Understand the role of the watershed.

- Identify and explain what determines the boundaries of a watershed.
- Explain how water enters a watershed.
- Explain factors that affect water quality and flow through a watershed.

C. Explain the effects of water on the life of organisms in a watershed.

- Explain how water is necessary for all life.
- Explain how the physical components of aquatic systems influence the organisms that live there in terms of size, shape and physical adaptations.
- Describe the life cycle of organisms that depend on water.
- Identify organisms that have aquatic stages of life and describe those stages.

D. Explain and describe characteristics of a wetland.

- Identify specific characteristics of wetland plants and soils.
- Recognize the common types of plants and animals.
- Describe different types of wetlands.
- Describe the different functions of a wetland.

E. Describe the impact of watersheds and wetlands on people

- Explain the impact of watersheds and wetlands in flood control, wildlife habitats and pollution abatement.
- Explain the influence of flooding on wetlands.

4.1.10 Grade 10

A. Describe changes that occur from a stream's origin to its final outflow.

- Identify Pennsylvania's major watersheds and their related river systems.
- Describe changes by tracing a specific river's origin back to its headwaters including its major tributaries.

B. Explain the relationship among landforms, vegetation and the amount and speed of water.

- Analyze a stream's physical characteristics.
- Describe how topography influences streams.
- Explain the influence of mountains on precipitation.
- Explain how vegetation affects storm water runoff.
- Delineate the boundaries of a watershed.
- Describe factors that affect the quality of groundwater.
- Explain how the speed of water and vegetation cover relates to erosion.

C. Describe the physical characteristics of a stream and determine the types of organisms found in aquatic environments.

- Describe and explain the physical factors that affect a stream and the organisms living there.
- Identify terrestrial and aquatic organisms that live in a watershed.
- Categorize aquatic organisms found in a watershed continuum from headwater to mouth (e.g., shredder, predator, decomposer).
- Identify the types of organisms that would live in a stream based on the stream's physical characteristics.
- Explain the habitat needs of specific aquatic organisms.

D. Describe the multiple functions of wetlands

- Describe wetlands in terms of their effects (e.g., habitat, flood, buffer zones, prevention areas, nurseries, food production areas).

- Explain how a wetland influences water quality, wildlife and water retention.
- Analyze wetlands through their indicators (e.g. soils, plants, hydrology).