

SCIENCE CURRICULUM SUMMARY

The purpose of the Science Curriculum Summary is to present an overview of the Biology and Ecology of Aquatic System curriculum. Parents are the intended audience of the Science Curriculum.

Introduction to Watersheds and Water Systems
<ul style="list-style-type: none"> • Boundaries of a watershed • Stream order • Types of water systems • Watershed maps • Topographic maps

Water Quality and Quantity
<ul style="list-style-type: none"> • Chemical, physical and biological testing • Stream Flow • Precipitation and groundwater levels • Runoff and groundwater recharge • Drought scenarios

Ecology
<ul style="list-style-type: none"> • Biodiversity • Species interactions • Interdependence of ecosystems • Aquatic food webs • Energy flow and material cycles in aquatic systems • Classification and identification of aquatic organisms common to local water systems • Adaptations of aquatic organisms

Water Pollution
<ul style="list-style-type: none"> • Point and non-point source pollution • Pollution data from a source • Groundwater modeling

Land Use
<ul style="list-style-type: none"> • <i>Tragedy of the Commons</i> • Historical land uses • Historical water quality issues • The need for water management • Sustainable development – cluster vs. conventional developments

Land and Water Management Issues
<ul style="list-style-type: none"> • Spray Irrigation • Use of Sanitary Landfills • Everyday dependence on water • Drinking water treatment • Waste water treatment • Storm water management • Best management practices

Water Systems
<ul style="list-style-type: none"> • Stream systems • Lake systems • Wetlands • Estuaries

The Future of Land Use and Water Systems
<ul style="list-style-type: none"> • Decision making and water protection • Developing community education and awareness of aquatic system health and issues • Developing a green community • Global water issues

Process and Skills

- Topographic maps
- Critical thinking skills
- Collection, analysis and evaluation
- Impact of human activities on biological and ecological systems
- Impact of human activities on environmental quality
- Synthesize diagrams to describe water management processes
- Formulate and critically assess potential solutions to environmental issues
- Relate historical development, science and technology to present real world situations
- Utilize Vernier probe technology to analyze environmental health of aquatic systems
- Communicate research and ideas using multi-media technologies