Standards below are based on the
2018 Virginia Science Standards of Learning Curriculum Framework

TVA Science Kids—World Water Monitoring

4th Grade Corresponding Standards

Scientific and Engineering Practices

Science utilizes observation and experimentation along with existing scientific knowledge, mathematics, and engineering technologies to answer questions about the natural world. Engineering employs existing scientific knowledge, mathematics, and technology to create, design, and develop new devices, objects or technology to meet the needs of society. (students will use this process during the course of the lab)

Living Systems and Processes

4.2 Students will investigate and understand that plants and animals have structures that distinguish them from one another and play vital roles in their ability to survive. (during lab we discuss photosynthesis and environmental conditions that affect aquatic life)

4.3 The student will investigate and understand that organisms, including humans, interact with one another and with the nonliving components in the ecosystem. (during the lab we discuss prey/predator relationships, migration, and adaptation based on environmental conditions)

Earth Resources

4.8 The student will investigate and understand that Virginia has important natural resources. (during the process of the lab we discuss aquatic plants produce oxygen, watersheds, erosion, and steps to reduce water contamination)

TVA Science Kids—World Water Monitoring

5th Grade Corresponding Standards

Science and Engineering Practices

Science utilizes observation and experimentation along with existing scientific knowledge, mathematics, and engineering technologies to answer questions about the natural world. Engineering employs existing scientific knowledge, mathematics, and technology to create, design, and develop new devices, objects or technology to meet the needs of society. (students will use this process during the course of the lab)

Force, Motion, and Energy

5.4 The student will investigate and understand that electricity is transmitted and used in daily life. (during the course of the lab we discuss how TVA makes electricity and how it travels from power plants into homes, schools, and businesses: Energy (tva.com))

Earth Resources

5.9 The student will investigate and understand that the conservation of energy resources is important. (some resources are considered renewable and others are not. It is possible to conserve energy: during the course of the lab we discuss renewable resources, how TVA uses them to make electricity, and human impacts)

TVA Science Kids—World Water Monitoring

6th Grade Corresponding Standards

Our World; Our Responsibility

6.1 Science utilizes observation and experimentation along with existing scientific knowledge, mathematics, and engineering technologies to answer questions about the natural world. Engineering employs existing scientific knowledge, mathematics, and technology to create, design, and develop new devices, objects or technology to meet the needs of society. (students will use this process during the course of the lab)

6.6 The student will investigate and understand that water has unique physical properties and has a role in the natural and human-made environment. (during the course of the lab we discuss steam, liquid, and ice forms, human impacts to and distribution of water)

6.8 The student will investigate and understand that land and water have roles in watershed systems. (during the process of this lab we discuss watersheds and measure parameters of water)

6.9 The student will investigate and understand that humans impact the environment and individuals can influence public policy decisions related to energy and the environment. (Natural resource management and health and safety issues related to the use of resources should be considered in the development of public policy. During the course of this lab we discuss human impact and how we can protect/conserve water, environmental scientists who monitor and remedy potential environmental concerns, and the importance of protecting the limited freshwater resources we have available.)

Extended Resources

Monitorwater.org

- **Map -** reading the map; land features that may affect water quality
- **Lesson Plans -** designed for grades 6-8
- **Books -** ELA component: pdf versions online; could be used before or after the program; vocabulary and questions at the end
- **Video Tutorials/Kit instructions**
- **Cabinet of Curiosities -** interviews with various scientists may inspire possible future careers in STEM

In-person Logistics

- 70 minute session preferred; two 30 minute sessions also possible
- Self-contained classrooms?
- Info needed:
    - Get teacher names and email addresses
    - Dates for each school: Tuesday-Friday scheduling, prefer to do all schools at one time
    - Number of sessions needed for each school
    - Number of students in each class
    - Will send presentation and room setup info the day before the program
- Would selected body of water be recognizable to students?

Virtual Logistics

- 9 videos (5-7 minutes each); can conduct lab as class time allows
- Options for group work or individual work
- Teacher packet
    - Teacher Prep document
    - Test directions document
    - Virtual Lesson Guide
    - Water collection instructions
    - Data sheet
- Info needed:
    - Teacher names and emails
    - Number of classes/number of students
    - Internet connectivity/capabilities
- Teacher feedback form