Mystery at Taiga River asks students to take on the task of saving a national park in which the population of a unique fish has been declining. They will use an understanding of scientific inquiry as well as systems thinking to tackle this problem, which is compounded by the agendas of several groups of people who use and/or depend upon the river in some capacity.

In an attempt to find solutions to the problem, Ranger Bartle has requested that a water quality expert be sent to look into the problem. Players are tasked by the Remixers to take on this role, and soon find themselves gathering data, performing virtual experiments to analyze the quality of the water in various sites, and, ultimately, proposing solutions to the problem.

This unit is designed to teach students a systems-thinking approach to problem solving, the importance of careful scientific inquiry, and how to balance human needs with the needs of an ecosystem at risk.

Disciplinary Focus

Life & Earth Sciences
- Interdependent relationships in ecosystems
- Human impacts on earth systems

Language Arts
- Reading in science & technology
- Crafting arguments based on discipline-specific content

Big Ideas
- Inquiry involves identifying the problem, gathering data, generating hypotheses, recognizing perspectives, analyzing data and proposing solutions.
- People often have conflicting opinions about the same problem.
- Various organisms and chemical factors indicate the health of an ecosystem, including temperature, turbidity, pH, and other water-quality indicators.
- Human actions and natural systems are interconnected and can affect an ecosystem.
- Systems thinking can help us solve complex problems.

Time Management
- 7–10 Computer sessions
- 5–8 Classroom support activities
Learning Pathway

- Learn about a problem of water quality and use a virtual fish tank to test one hypothesis.
- Interview the stakeholders involved in the controversy.
- Conduct a series of virtual science experiments based on other factors of water quality.
- Build a scientific model by matching claims to evidence.
- Construct a possible solution to the problem.
- Use a simulator to test the solution, explore the consequences, and make adjustments.
- Craft a report, describing and defending the final solution.

Things to know before you start

This unit will provide opportunities for students to make decisions based on balancing opinions versus facts and interpreting complex water-quality indicators such as pH, turbidity, and eutrophication. Students should have experience writing paragraphs and be able to read and write at a 5th grade level or above. They should have the skills to read and interpret data and detailed descriptions.

Critical Moments

- Students will gain virtual hands-on experience in how to manipulate and understand water-quality factors when they work with the Remixer Virtual Fish Tank.
- Students will understand the nature of systems thinking as they grapple with the conflicting agendas of the stakeholders in Taiga National Park.
- Students will understand the fragile nature of ecological systems and that many are interconnected, recognizing that one change impacts the entire system, after using a simulator to “see” the impact of their recommendations in a virtual future.