



Next Generation Science Standards

Dam Engineers

Middle School Grades

MS-LS-2.4 Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.

MS-ESS3.3 Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment

MS-LS2.5 Evaluate competing design solutions for maintaining biodiversity and ecosystem services.

MS-ETS1.1 Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relative scientific principles and potential impacts on people and the natural environment that may limit possible solutions.

MS-ETS1.2 Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.



Students will learn about the lives of migratory fish by participating in The Great Spawning Challenge. They will then discover the effects of dams on fish populations before working in small groups to design an engineering solution to allow fish to swim upstream despite a dam.



Science/Engineering Practice:	Disciplinary Core Idea:	Cross Cutting Concept:
<p>Engaging in Argument from Evidence</p> <p>Asking Questions and Defining Problems</p> <p>Developing and Using Models</p> <p>Analyzing and Interpreting Data</p>	<p>Ecosystem Dynamics, Functioning, and Resilience</p> <p>Human Impacts on Earth Systems Biodiversity and Humans</p> <p>Developing Possible Solutions</p> <p>Defining and Delimiting Engineering Problems</p>	<p>Stability and Change Cause and Effect</p> <p>Influence of Science, Engineering, and Technology on Society and the Natural World</p> <p>Science Addresses Questions About the Natural and Material World.</p>