



## Watershed Education Program (WEP)

Simulating a NH River Ecosystem (warm water fish tank)  
 Trout in the Classroom (TIC) (cold water fish tank)



Alignment with Next Generation Science Standards  
 Performance Expectations for **Middle School**

Developed by: **Judy Tumosa, Watershed Education Specialist, NHF&G June 2020**

NGSS	Performance Expectation	Simulating a NH River/TIC match
MS-LS1-3	Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.	Study fish anatomy.
MS-LS1-4	Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively.	Study how fish behavior increases the likelihood of their offspring's survival, including trout seeking cold water spawning grounds to lay their eggs and how climate change may impact their choices.
MS-LS1-8	Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.	Study how fish respond to stimuli in the tank, how fish use their eyes, nares, lateral line to respond to their environment.
MS-LS2-2	Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.	Study how fish behave in the stream and in the tank, including habitat preferences for warm and cold water fish species and how climate change may impact cold water species; i.e. why cold water fish cannot live in a warm water tank and why trout egg tank need to use chillers.
MS-LS4-4	Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment.	Study the variation of trout embryos in the tank. Study the differences between hatchery and wild trout. Study the differences in the warm water fish shape and color and how that connects to their habitat choice and varies from how they would look and behave in the wild.
MS-LS4-6	Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time.	Compare the survival of the wild trout eggs to the survival in the hatchery.