

OSP Interactive Educational Programming

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Lesson Title: What's in the water?	Grade Level: 5th
Teacher: Kathi Murray	Duration: 50 minutes
Essential Question(s)/Objective(s): What are microorganisms? How can we see microorganisms? What are macroorganisms? How can we see macroorganisms? What is an invertebrate? How do we group/classify invertebrates? How do we group photosynthetic organisms?	
Science Georgia standards of Excellence S5L1. Obtain, evaluate, and communicate information to group organisms using scientific classification procedures. a. Develop a model that illustrates how animals are sorted into groups (vertebrate, and invertebrate) and how vertebrates are sorted into groups (fish, amphibian, reptile, bird, and mammal) using data from multiple sources.	
Key Vocabulary	Microorganisms, invertebrate, vertebrate, classification, photosynthetic, Dissecting scope, microscope, bacteria, protists, crustaceans,
Teacher Materials	Samples of various water, may be swamp, pond, ditch (A, B, C) Dissecting and microscopes, slides, droppers, lab sheet
Student Materials	pencil
Teaching Strategy/Procedures	Inquiry – have students move from station to station and observe each water sample (A, B, C) and document observations Have students look at samples from each sample and draw organisms found in the samples – are they invertebrates, vertebrates, worms, crustaceans, fish, amphibians, etc. Identify organisms with guides and I.D. books
Differentiation	Have students analyze 1 set of samples at a time, all A's, then all B's, then all C's, then compare data

Summarizing Strategy	Teacher will explain the minnows are vertebrates with an internal skeleton and backbone. The worms and crustaceans are invertebrates, the worms having a cuticle for protection and daphnia/crayfish are crustaceans with an exoskeleton.
Assignment(s)	Group the different organisms found into invertebrates and vertebrates.
Assessment For and/or Of Learning	Explain why tadpoles are invertebrates that become vertebrates.