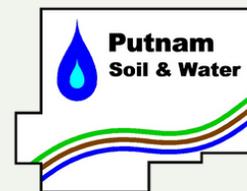




Education Programs



Ohio Standards

6.ESS.4:

Soil is unconsolidated material that contains organic matter and weathered rock. Soil sampling and testing should be used to investigate soil.

6.LS.4:

Living systems at all levels of organization demonstrate the complementary nature of structure and function. Organisms have diverse body plans, symmetry and internal structures that contribute to their being able to survive in their environments. Properties of soil that are useful in soil identification include texture, color, composition, permeability and porosity. Uses of soils depend upon their properties. Soil sample testing methodology and equipment are included within this content statement.

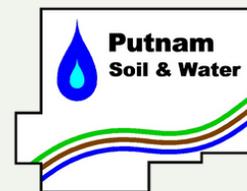
Pond vs. Worm Bin Organisms

Students utilize 30x magnifiers and microscopes (school would need to provide microscopes) to find, identify and draw organisms for each environment. They will then compare body types, symmetry, and external structures. In cold months when organisms cannot be collected we will observe worm bin organisms and identify body types and structures. 5x's and 100x's magnifiers can be utilized to make it more of a tech learning experience.

Each program is designed to be about 40 minutes long and can be geared toward any education level. All programming is FREE. Contact Bonnie Brooks at bonnie.brooks@putnamcountyohio.gov or 419-523-5159 to schedule.



Education Programs



For the following programs students can bring in their own soil samples or the office can supply them. Information in each can be mixed based on the teacher's request.

Soils 1- The Basics

Students learn how much soil is on the Earth and how long it takes to make it as well as the three types of soil particles. They will take part in a sand/clay demonstration and learn how to identify soil type by using a ribboning technique soil scientists perform in the field.

Soils 2 – Shakes, Origins and Horizons

Students will examine results from the previous day's demonstration on clay and sand. They will examine a soil shake and measure how much sand, silt and clay are in the jar and calculate the percentage of each type. They will utilize a soil triangle to determine soil type based on their calculations. Discussion on how soil is made, soil horizons and how soils form from different types of rock. Different rocks will be passed around to see how rocks effect the soil that is made. Students will look at 3 types of soils with 30X magnifiers and compare particle sizes, color, inorganic and organic matter in each.

Soils Tests

Students will take part in a slake test demonstration with soil they bring into class. They will then utilize test kits that determine the pH and amounts of nitrogen, potassium and phosphorus, in their sample. We will debrief why each nutrient is important and what each does for the plant.

Soils – The Web Survey

A short demo will be done showing how the web soil survey works. Students will then follow directions to get onto the site and find out what type of soil they have at their own home. They will then choose their own perimeters to find out specifics about the particular soils types there and download a copy for their own use.

Each program is designed to be about 40 minutes long and can be geared toward any education level. All programming is FREE. Contact Bonnie Brooks at bonnie.brooks@putnamcountyohio.gov or 419-523-5159 to schedule.