

Earth Systems - Unit 11 Study Guide

es2u11SG (Stream Studies II)

Unit Goal: Design and complete a scientific experiment using scientific methods by determining a testable question, making a hypothesis, designing a scientific investigation with appropriate controls, analyzing data, making conclusions based on evidence and comparing conclusions to the original hypothesis and prior knowledge.

Objectives

- Ask scientific questions,
- Design an investigation to look into one of these questions,
- Conduct an experiment - including collecting, analyzing, and interpreting data
- Draw conclusions based on the evidence you have collected,
- Present your work and get feedback from other students, teachers, and possibly interested community groups

Vocabulary

biotic indicators biochemical oxygen demand (BOD) dissolved oxygen (DO) run impairment
pool riffle species richness stream flow riparian zone species diversity remote sensing
biotic integrity riprap substrate turbidity watershed pH nitrate conservation
gradient point-source pollution

Assignments

Pre-Test

Notebook: 10pts

- _____Activity 1: Watershed Field Survey Using Remote Sensing
- _____Activity 2: Delineating a Watershed
- _____Activity 3: Analyzing Stream Integrity using WHEBIP
- _____Activity 4: Index of Biotic Integrity
- _____Activity 5: IBI Index of Biotic Integrity
- _____Activity 6: Measuring Stream Discharge
- _____Activity 7: Aquatic Chemistry
- **Read: "Introduction to Watershed Dynamics"**
- **Knowledge Quizzes 15pts**
- **Invertebrate Practical Test 10pts**

Megaloptera Isopoda Odonata Trichoptera Plecoptera Coleoptera Ephemeroptera
Amphipoda Gastropoda Diptera Hirudinea Oligochaeta Decapoda

- **Wiki - Presentation Content 10pts; Presentation Quality 10pts (20pts total)**

Post-Test

Field Day

The Esko Earth Systems class will be participating in a Field Study on **Wednesday, May 5**. Students will be taking a bus to Northridge Park on the Midway and Boy Scout Landing in Gary-New Duluth from **9:10am - 2:15pm**. It is an expectation of the course that all participate in this event. The class collects data on water quality and the invertebrates that live in the water for analysis. Schools and communities participate in this same event at different sites around the country on their local streams. Students are to dress appropriately for the weather and activity. We will be stopping for lunch in West Duluth so students should plan on bringing money or a bag lunch. If you have any questions or concerns, please give me a call at the school. To help defray travel costs, students are **asked to contribute \$5.00** by Friday, April 30.