

Logging, Graphing, Publishing Data to the Web

Rationale

This is an introduction to dynamic content publication (contemporary best practice) based on the sound pedagogy of constructivism and authentic assessment. The student will administer a single-page web server that provides dynamic visual data collected over time. The student will cooperate and collaborate with students in ISM using revision control systems.

Standards

see daily plans

Objectives

The student will:

- Render collected data using a dynamic HTML technology
- Evaluate 1-wire compatible technologies for data logging
- Choose from among available technologies based on efficiency and appropriateness for task
- Coordinate and elaborate tasks with students asynchronously using revision control system

Anticipatory Sets

- Discover: 1-wire technology
- Flowcharting
- Evaluating simple databases (e.g. sqlite)
- Manipulating simple databases
- Evaluating web scripting technologies: php, python, nodejs
- Surveying and evaluating prepared (and compatible) available solutions
- Revision control and tracking

Instruction and Modeling

- scripting repetitive tasks
- scheduling execution of scripts automating repetitive tasks
- creating graphs with rrdtool
- creating dynamic content with scripts and schedules (cron)
- Using Revision Control for collaborative solutions

Collaborative Practice

- Follow steps of the design process (fundamentals of tech

curriculum) throughout

- Create flowchart (whiteboard and software (dia))
- Determine solutions to flowchart processes
- If database, then manipulate database
- manipulate graphing tool to produce graphs of varying scales
- create private web server with appropriate framework and support modules
- schedule/script (automate) the movement of necessary data to web server

Materials

- 1-wire materials: USB interface, rj11-rj45 cable, temperature sensor module (on loan)
- Raspberry Pi - administrative access; internet access
- Internet access for research
- student laptop (provided by parents): Ubuntu, dia, IDE, other software as determined by process