Lesson Day 1-3: Days 1-3: Room data project, set up final project

Overview

This lesson provides a review of how data can be used for making a case or as a vehicle for discovery. Students explore the pitfalls and challenges of putting together and managing large sets of data. An overview of the final project is provided.

Lesson Summary

- *Final project overview--handout sample topics: School safety and bullying, Teen exercise and health, Teens, social media and online behavior, Teens, video games and civic engagement OR topic of their choice*
- *Use 'stolen' assessment (see assessments) to make sure students know what data is, how to collect, weed out, process and discover uses for data collected*
- *Journal Entry--found on page 195 of Curriculum*
- *What is the difference between data used for making a case and making a discovery--what type was the assessment data? Give examples of each.*
- *Assign data collection project--page 198 of the curriculum; give students a start date and end date to collect data. Point out that the data includes text, it is spatial, qualitative and quantitative*
- *When data collection is completed, introduce and discuss ways to merge diverse data sets about the same subject--not every person in each group will have recorded data the same way. Each group should determine the best way to merge their individual sets into one. This requires that group members come to a consensus on how to represent the data--standards. Groups should make a poster on how they decided to merge the individual sets. Gallery walk to see how other groups handled merging.*
- *Each group should make one or two questions to ask that the merged data should answer--What is the happiest room in the school? Least happy? What is the least busy time of the day? Is there any day/time that people are happiest? Least happy?*
- *Whole room discussion on how ALL data sets could be merged into one big set. Discuss problems/pitfalls that could occur and ways to solve, manage or eliminate them.*
- *Whole class discuss and determine the best way to merge group data sets (each group has already merged member sets into one) so there is one ginormous class set.*
- *For each data type (there are four) the entire class must agree*

Objectives

Students will be able to:

- Explain the possible themes for the final project
- Explain the difference between data used for making a case and data that informs discovery
- Identify and discuss the considerations that must be made in order for a large data set to be useful
- Consider how various types of data (numbers, text, dates, etc.) lend themselves to processing
- Collaborate with others to create, manage and maintain a large set of data

Materials and Prep

- Basic Statistics/types of visual representations of data

Resources

- ECS—Unit 5: Computing and Data Analysis pages 194-200
- Data Collection Project Handout Page 198
- Sample Final Project Topics with web sources Pages 199-200--web links
- Groups

Assessments

- ***Stolen from Karen Hardy*** Hands on way of defining, collecting and organizing data; determining if data is useful; merging sets of data; determining what students knew before/after activity; how to visually represent findings.

on appropriate formats and parameters that will help in processing the data into usable information and will make merging individual data sets easy-peasy

● Students modify their previously collected data to fit the new standards/parameters

CS Content

Discovery Learning--what is data, how is it processed/grouped, is it relevant, etc.-- with Real world applications.
Collaboration.
Problem solving.

Notes: Directions for assessment

Write random numbers on several pieces of paper (the more the merrier!). Be sure to decide lowest and highest numbers before you start. You can have duplicates, negatives whatever floats your boat. Throw in a couple of non-numbers (random words/colors etc.)--these will be part of the non-useful data. Cut up the paper in blocks--one number (non-number) per block. Put all the blocks in a large container or envelope (include some blank blocks/squares).

Take your container/envelope and scatter the squares of paper all over the room with some of them landing on student tables.

Start asking questions about data--what is it? What do we do with it? How do we get it? -collect it. At this point have students start collecting the data around the room. Once all paper squares have been picked up observe and see what students do with it. Most will start organizing it in some way. If not, guide them toward organizing; determining if all data is useful; determining what they knew before after collecting and organizing; ideas on how to merge all data and representing it in some useful format...have fun with it.