

Unit 2 – Data Collection & Problem Solving

ECS Unit 2 – Days 1-2





Standard 2 – Problem Solving

- Objective 1 – Students will be given opportunities to become “computational thinkers” by applying a variety of problem-solving techniques . . .
- Learning Objective – Students will be able to explain the characteristics of Data that cannot be solved by a computer



Standard 4 – Computing and Data Analysis

- Learning Objectives:
- Explain the difference between data used for making a case (Advocacy Data) and data that informs a discovery (Discovery Data).
- Describe and form good research questions.

Data Journal

During the next several days, take note of situations when you “generate data”. We’re looking for specific moments when some activity you perform can be observed, recorded and, possibly, combined with similar data from others. Ideally you will carry this paper with you and take notes over the course of your day. To start you off, think about what happens when you ride the bus or make a telephone call or browse a web site!

[illegible]



Communications Methods and Data Chart

- **Take out Data homework** that was due today.
 - Share different types of Data generated with your elbow partner
- **Journal**
 - Write down 5 ways you give off Data
 - Define Data
 - Aggregate Data – what would this tell us?



Human Data

You give off data every day.

- Your address, telephone number, email accounts all give off specific identifying data.
- These things give hints as to how you are feeling: your facial expressions, the energy/lethargy of your walk, your tone of voice.
- Your grades and citizenship give off another kind of data about you.



What is Data?

- Data is Raw Input – information BEFORE it has been processed.
- People watch you and collect data about you every day. If a mother sees a toddler acting cranky, she might process that data and come up with the idea/information that “This child needs a nap.”



Aggregate Data

- To aggregate means to combine.
- Combined, or Aggregate data, is often used for PROFILING. For instance, the FBI collects data from Facebook pages, text messages, phone calls, location and puts that data together to create a picture or profile of a person.



PARTNER WORK

- You will work with your elbow partner of this assignments. This is the breakdown:
- Computer partners
 - 1-2, 3-4, 5-6, 7-8, 9-10
 - 11-12, 13-14, 15-16, 17-18, 19-20
 - 21-22, 23-34, 25-26, 27-28, 29-30
 - 31-32, 33-34, 35-36, 37-38, 39-40



Communications Methods and Data Chart

- **Linking Data directly back to you**
 - As a class, you will discuss the possible implications of data being used to “profile” you – after you read the article assigned to you
- **Article**
 - Read assigned article about aggregate data
 - Use the Skimming and Scanning Form to read the article.
 - Work with a partner – Both of you skim your article, then write your first impressions in column 1
 - After you have discussed these, look for “Fast Facts,” and record those in the middle column
 - Discuss the article together, and then write your final thoughts in column 3
 - When called upon, you will present your ideas to the class



Collecting Data

- **Advocacy** – using data to make a case
- **Discovery** – Collecting data to document a situation and then learn from it

Record in your Journal -

- When and how would you use each of these?
 - Advocacy data – to make a case about something
 - Discovery data – to learn from something



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Solving Community Problems

- **Problem:** The PTA wants to change the school rules so that all students **MUST** wear uniforms to school. Your group is asked to collect data to see if this is a good idea.
- **Use the Handout for Research Questions to:**
Outline how you would:
 - Approach the problem (make a plan)
 - What **type** of data you would need to collect
 - **How** you would collect and analyze the data



Research Questions – answer with your partner on the handout

What research questions might you ask in each case?

- What is your research question?
- What data will you need to collect?
- Why did you choose to collect that data for this question?
- What are the limits of this data?
- What should you confidently be able to say based on your data?
- What perspectives might be left out, based on your data?