Water Conservation


Data Jam

## DESCRIPTION

Students will use the data trend they found in the previous lesson to start work on a creative project and action plan. The creative project (e.g., poem, physical model, game) represents the data trend in a fun and interesting way. The action plan proposes a solution to address a water conservation issue related to the data trend. At the end of the lesson, students receive instructions on completing their reports.

## GRADE LEVEL
**6-12**

## OBJECTIVES

Students will:

- Be introduced to creative representations of data trends and how to make a scale/ key to represent the data accurately
- Discuss action plans to help solve the water issue they identified
- Continue filling out the Student Report for the creative project and action plan
- Discuss homework to complete the Water Conservation Data Jam by the due date

## TIME
**45 MINUTES**

## MATERIALS

- Internet-connected device [1 per student or 1 per class with a projector]
- PowerPoint presentation
- For CODAP Version:
  - Student Report document
  - Water Use Dataset (asombro.org/wcdjdata)
  - Creative Project How-To Video, transcript is available here
- For PDF Version:
  - Student Report document as a slideshow or
  - Student Report Rough Draft Workbook [1 per student]
  - Water Use Dataset [1 per student; choose a county]

## PREPARATION

1. Set up a computer and projector (if applicable) and prepare to show the PowerPoint.
2. If needed, set up an assignment for homework in your virtual learning platform. Provide the Student Report document (either as a slideshow or workbook) and a link to the Water Use Dataset webpage. Here is some suggested text for the assignment.
   a. Remember, a good creative project:
      i. Should represent the data trend you identified, not all of the data.
      ii. Should not be a re-creation of your graph.
   b. To turn in your Water Conservation Data Jam Report, you must:
      i. Make your creative project with a key to explain any symbols and scale you used to represent the data.
      ii. Submit the report along with any necessary video or photos. If you are submitting a picture of your creative project, I suggest taking several pictures from multiple angles.
      iii. Write your action plan to propose a solution to address the water issue related to your data trend.

## PROCEDURES

***Introducing the Creative Project***

1. **Slide 1**: we will be discussing creative projects and action plans today. This is an example of a creative project based on the sample social media dataset. We will discuss how we made this creative project to give you some ideas on making your creative project.
2. **Slide 2**: in the last lesson, or as homework, you found a data trend.
   a. Remember the goal of a data jam – to explain a data trend to an audience unfamiliar with the topic through a report and creative

project. Then create an action plan to solve a water use issue related to your data trend.
   b. Today, we will be using the data trend you identified to make a creative project. For many students, the creative project is the most fun part of the data jam.
   c. Then we will finish by discussing the action plan and final sections of your report.
3. **Slide 3**: using the social media dataset, we found this trend: "The percentage of people who use Instagram and Snapchat decreases with age." To show this data trend creatively, we made a poem where each word represented three percent of people who use each social media platform. This was one example of a creative project.
4. **Slide 4**: play to your interests and strengths; this kangaroo rat example explains the pattern in a fun and interesting way in the form of piñatas. You can make videos, take pictures, write words, make models, cook food, or do ANYTHING!
5. **Slide 5**: an excellent creative project should represent the data trend in a new and unusual way. It should represent the data trend you selected, not all of the data. It should not just be a re-creation of your graph.
6. **Slide 6**: here is one example of a new and unusual way to represent the data using beads.
   a. The key in this example tells us that each bead represents one percent of people who use Snapchat and Instagram.
   b. Each age group is represented by its own labeled string.
   c. Notice that the longest strands are for the 13–17-year-old age group. You can easily see there is a difference between the age groups by looking at this model.
7. **Slide 7**: here is another example from a student-made video.
   a. In the video, the student bounced a basketball, and each bounce of the basketball represented one percent of people who use social media.
   b. This still from that video is showing Snapchat use for 13 – 17-year-olds. For this segment of the video, he will bounce the ball 70 times. Notice that there is a key included, so you know what he is representing.
8. **Slide 8**: this is an infographic, where each bar of the Wi-Fi symbol represents an age group, and each logo represents five percent of people in that age group who use social media. We are going to talk more about the steps used to create this infographic.

***How to Make a Key and Choose a Scale***

1. **Slide 9**: using a scale means you can use different numbers or sizes of symbols to represent your data. Scaling helps you represent the data accurately in your creative project.
   a. The data table tells us that 72% of the 13–17-year-old age group use Instagram. We could represent this number with 72 Instagram logos. The key shows that one logo represents 1% of people in that age group.
   b. However, 72 Instagram logos do not fit in the space we have on the Wi-Fi infographic. This is why a scale can be helpful.
2. **Slide 10**: we will look at the 30 to 49-year-old age group and try to find a scale that works for our project.
   a. To use a scale where one logo equals 1% of people, we would have to include 40 Instagram logos and 26 Snapchat logos. When we do this, we can easily see that this age group uses Instagram more than Snapchat. However, this scale does not work because we do not have enough room for all these logos.
   b. [Click to show.] We can scale the data by making each logo represent 5% of the people in that age group. To create this scale, we divide all of the percentages from the data table by 5. If we divide 40 by 5, we get 8, which means we need 8 Instagram logos to represent the 40% of people in this age group who use Instagram. Notice that we include a key indicating that each logo now represents 5% of people in that age group.
   c. [Click to show.] To accurately show the data, we must divide all the numbers in the data table by the same number. For example, dividing 26 by five and rounding tells us that we need five Snapchat logos.
   d. Even with our scaled data, we can still see that this age group uses Instagram more than Snapchat, and we can use fewer logos to represent the same data.
3. **Slide 11**: since we chose a scale of one logo representing 5% of people, we now divide every other number in the data table by five.
   a. Notice that the key shows that each logo represents five percent of people in that age group who use the social media platform.
   b. Notice that the logos all now fit onto the Wi-Fi symbol we are using for our creative project.
4. **Slide 12**: you can also use the size of something to show your scale.
   a. In this example, different-sized logos are used to represent the data.
   b. This key shows that 1 cm of logo height represents 10% of people in that age group. To get the heights, we would divide each number in the data table by 10. Note that we do not have to round the answers this time because we can accurately measure 2.6 cm.
   c. Remember, we would need to divide every number in this data table by 10.
5. **Slide 13**: here are some tips for creating a scale:
   a. Decide on an idea: For example, imagine I will make

a model house for which the height of the model from the tip of the roof point to the bottom of the house represents the number of acre-feet of residential water use (height of model house = number of acre-feet).
   b. Start with a reasonable guess for the scale (one acre-foot = one inch)
   c. Do the math for the largest and smallest numbers you need to represent to show your data trend (42,087 acre-feet = 42,087 inches and 36,750 acre-feet = 36,750 inches)
   d. Does this make sense for your project? If not, edit the scale. Since 42,087 inches is approximately two-thirds of a mile, this is clearly not a good scale for my project. How can I adjust the scale so I am making a model that is several inches tall instead?
   e. [Click to show the division problem to the screen.] The number of acre-feet divided by 10,000 will equal a reasonable size for my model.
   f. [Click to show the full set of numbers.] When doing math like this, remember to apply it to all the numbers in your dataset for your data trend. Also, remember that it is okay to round your numbers.
6. **Slide 14**: once you have decided on a scale, you must create a key that explains your scale. A key should include all the symbols used and give a specific number for what each symbol represents.
7. **Slide 15**: creative projects can also be written items, such as poems, stories, and comics. These do not need to have a scale if they refer to the specific data in the written piece directly like in this sample. This is an example of a song that explains the data. Unlike the sample poem we created, this one mentions the data directly in writing, so a key is not needed.

***Work Time and the Action Plan***

1. **Slide 16**: depending on the amount of class time remaining, give students 10 minutes or more to brainstorm their creative projects and develop an appropriate scale and key.
2. **Slide 17**: you also need to make an action plan, a proposed solution to the water-use issue you identified in your data trend and showed in your creative project.
   a. This is a sample action plan that corresponds with the sample dataset on social media use. Read or summarize the action plan for students. Note that it includes three main components:
      i. <u>The data trend</u>: Instagram and Snapchat use decreases with age.
      ii. <u>The audience</u>: 30 to 49-year-olds. Businesses that use these social media platforms for advertising are less likely to interact with people in this age group because they are less active on social media.
      iii. <u>The plan</u>: Put advertisements in places where 30 to 49-year-olds will see them, like on tv or in the newspaper. These ads will encourage people to follow businesses on Instagram and Snapchat for special deals.
   b. Note that there is an optional "dessert" assignment called <u>Turning a Plan into Action</u>. If you have more time and would like students to take action on their plans, use this assignment.

***Wrap-Up – Next Steps to Complete Your "Report" Presentation***

1. **Slide 18**: there are two final parts of your Water Conservation Data Jam Report. The first one is a title, and I recommend you think of a descriptive and fun title after you create your creative project and action plan. [Click to have titles appear.]
   a. Which do you think would be the best title for the sample project we have done together?
      i. Water Conservation Data Jam Project
      ii. Oh, Snap! Social Media Use by Different Age Groups
      iii. Use of Social Media by Different Age Groups
   b. Have students vote for their favorite.
   c. [Click to highlight Option 2.] I like Option 2 best because it is witty and descriptive. Option 3 is acceptable. Option 1 is not descriptive.
2. **Slide 19**: the final part of your report is a brief reflection. In this section, you reflect on your experience with the Water Conservation Data Jam. You will not be scored on <u>what</u> you write in this section. Include a brief reflection, and you will receive five points.
3. **Slide 20**: here are some quick tips about finishing your projects:
   a. Make your work neat; proofread and edit your work.
   b. Include a scale and key.
   c. Take lots of photos or videos from different angles of any physical models you build.
   d. Remember that your action plan should help solve the problem you identified in your data trend.
   e. The requirements for the report can be found on your rubric and report document. Make sure you have included every section!
4. **Slide 21**: we have now discussed all the components of your Water Conservation Data Jam project. You will submit a report (including title, data trend, graph, possible explanation, and brief reflection), a creative project, and an action plan.