

Lesson 3.5: Data Science - Part 2

Objectives

In this lesson, students will:

- ❖ Learn to categorize and visually represent multiple data points in a data set.
- ❖ Experience taking on different roles while working on a team
- ❖ Learn about and explore making quantitative statements about the data they collected and categorized.

Agenda

1. Review Discussion	10 mins
2. Student Activity: Drawing Conclusions	25 mins
3. Wrap Up and Discussion	15 mins

Resources & Links

- None

Preparation

- Projector to show graph examples if necessary
- Print student activity worksheets, one per team.

1. Review Discussion



Engage students in a brief review of the first data science lesson.

If students were not able to complete the previous lesson, this is also a good time to allow them a few minutes to complete the activity.



Discussion Points:

- What are examples of how Data Science is used?
- What does it mean to categorize data?
- What graph types did you use to visualize your data? Which one did your team like best to visualize the data? Why?

2. Student Activity: Drawing Conclusions



In this activity students will categorize and represent all the data they collected during the interview process; namely both the dessert preference and whether the person was born in the first or second half of the year. They will then make quantitative statements about their findings.

Students will work with the same teams as in the prior lesson or you may choose to have them work in new teams. During this activity students will explore being leaders and collaborators as they work on their data science project. Hence, a brief introduction to what it means to be a leader and collaborator is recommended.



Explain to students briefly what the activity entails and that they will take on different roles on their teams as they work on their project. Each team will choose a leader, the rest will be collaborators.

Engage students in a brief interactive discussion about what it means to be a leader and a collaborator. A leader is someone who can inspire you or motivate you to meet a goal. Collaborators work jointly on the activity to accomplish the goal. Point out that a leader is not a “bossy boss”, but rather gets the team to work together and to come to agreements.

Remind students that the activity involves making quantitative statements. What is that?

Explain and give examples of quantitative statements. Quantitative simply means something that can be measured. So a quantitative statement usually has a number in it. Here are some examples of quantitative statements:

- The house has 8 windows.
- Humans have 2 eyes and 1 heart.
- There are 26 letters in the alphabet. 5 of them are vowels.
- 6 students were on time yesterday, 4 of them from 1st grade and 2 from 3rd grade

Prompt students to come up with some of their own.

Distribute the activity worksheet and ask students to read the instructions carefully. Students may need help coming up with ideas of how to choose a leader if it appears to be causing some difficulty.

You may want to give an example of a quantitative statement of both the dessert and time of year born data or give an example using two other data sets.

Tell students to be prepared to share their findings with the class.

3. Wrap Up and Discussion


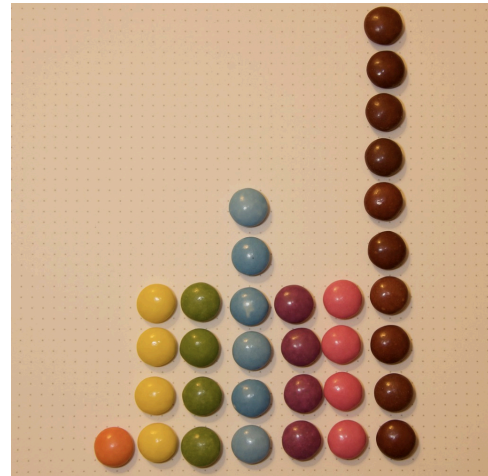
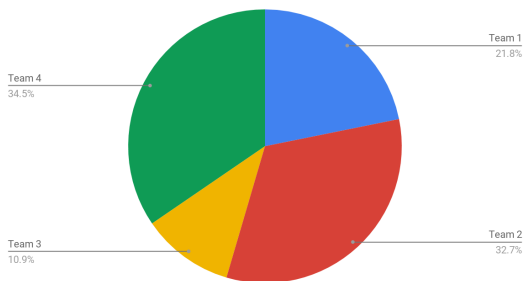
	Discussion Points:
<ul style="list-style-type: none"> ● What conclusions can you make from the data you collected? ● How was it being the leader? How was it being a collaborator? ● How did the teamwork compare to when you had no roles in your team? ● Which quantitative statements did your team come up with? ● Which graph did your team think best represents the data collected? 	

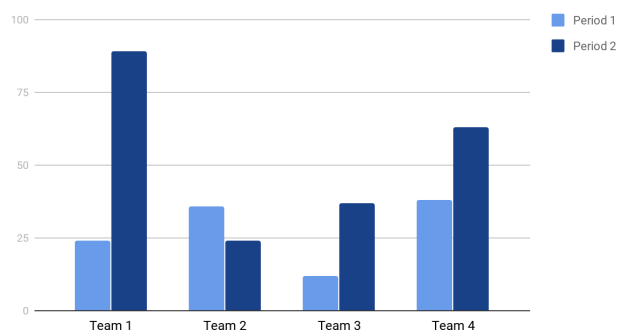
Exhibit A: Data Visualization Examples

Points scored



*Smarties Graph #1" by John. Flickr.com / CC BY-NC 2.0

Points scored



Favorite Pets	
Dogs	
Cats	
Birds	
Fish	

Student Activity Worksheet: Drawing Conclusions

What to do:

- Assign who will be the leader and collaborators on your team. The leader's job is to make sure the team agrees on the answers and that the team is moving forward to complete the activity. Collaborators contribute and help the leader reach the team's goal.
- Explore categorizing all the data you collected in your journal or workbook. How can you represent both the time of year born data and dessert data together?
- Visually represent your categories using 2 graph types (bar graph, pie chart, tally table). Use the grids provided if helpful.
- Discuss with your teammates which graph you believe gives the best visual representation? One thing to consider is how clearly can the data be seen?
- Provide the following information:
 1. Which graph type does your team think gives a clear visualization of the data collected? Why?

2. Write down 3 quantitative statements about your categorized data. Include statements about both the desserts and the time of year born data combined.

1)

2)

3)



