

**Exploring Data Analysis
JASON Academy
Road Map**

Objective	Title of Activity	Assignment	Time
Week One			
Read package file for Week One content	Week 1 Content	Read through package file for Week One content.	1 hour
Demonstrate how data analysis was used to stop cholera epidemic and explains why data analysis is important	Why Study Data Analysis?	Choose a real world example of use of data and answer questions about it.	1 hour
Explore the complexities of the four-step data analysis process and present an overview of the course	The Data Analysis Investigation Process	Read NCTM data analysis standard and answer questions.	1 hour
Present the project tasks for the course projects and explains the value of doing data projects	Your Project	Choose a data analysis project topic.	1 hour
Compare traditional statistics to statistics investigated using Exploratory Data Analysis	Exploratory Data Analysis	Explore Cats data set and record findings and questions.	1 hour
Explain the difference between categorical and numerical data and why it is important to understand the distinction	Types of Data	Investigate extremes in Cats data.	1 hour
Introduce Tabletop and other statistical programs	Technology and Data Analysis	Install Tabletop and complete Lab Sheet.	1 hour
Explain how to transform real-world questions into statistical ones.	Posing Questions	Select a purpose for the data investigation project and choose data questions to investigate.	1 hour
Introduce the various tools used to collect data for a	Data Collection Methods	Determine data collection method, answer questions and collect data.	1.5 hours

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data investigation			
Week Two			
Read package file for Week Two content	Week 2 Content	Read through package file for Week Two content.	1 hour
Explain the role of graphs in data analysis	Storytelling with Graphs	Interpret graphs using Lab Sheet.	1 hour
Examine line plots	Line Plots	Record results of Lab Sheet: Build Your Graph Sense in course journal.	1 hour
Explain why there are different types of graphs	Why Are There Different Graphs?	Make different graphs of the Cats data and compare them.	1 hour
Introduce different ways to display categorical data and explain some of the difficulties associated with them	Displaying Categorical Data	Explore the use of bar graphs for numerical data.	1 hour
Investigate histograms	Displaying Numerical Data with Histograms	Construct and compare line plots and histograms.	1 hour
Presents how to display data using a stem plot	Graphs that Group Data	Compare data on peanut butter quality using a back-to-back stem plot.	1 hour
Examine how students might reason about and organize a set of data	Reasoning about Displaying Data	Choose, develop and analyze graphs for data analysis project.	1.5 hours
Week Three			
Read package file for Week Three content	Week 3 Content	Read through package file for Week Three content.	1 hour
Investigate the concept of average	What Is Average?	Investigate salary data and determine an average salary value.	1 hour
Define the mode and explain the usefulness of it when exploring categorical data	The Mode	Use Tabletop to determine modes of various cat characteristics and evaluate the typicality of the mode value.	1 hour
Define the median and	The Median	Create alternate data sets given a median.	1 hour

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explain the usefulness of it as a measure of center		Compare modes and median values as measures of typicality for given data sets.	
Introduce how to construct a box plot using medians and outline how to use the graph	Box Plots	Use the Cats data set to explore distribution and center with box plots and summary statistics.	1 hour
Define the mean and provide information about how to develop an understanding of it	The Mean	Using mercury contamination data, explore the significance of the mean as a descriptor. Compare mean, median, and mode as measures of typicality.	1 hour
Look at differences between the mean and the median	Comparing the Mean and the Median	Using flight data and a data applet, compare mean and median as measures of typicality. Construct data sets for which mean and median are best measures of typicality.	1 hour
Present some techniques that can be used to describe the variability of a data set	Measures of Spread	Compare data sets with different shaped spreads and the impact of spread on measures of typicality.	1 hour
Connect graphs to summary statistics by investigating some common shapes of graphs	Graphs and Number	Consider the shape of the data used for the data analysis project. Calculate and interpret summary statistics for your project data.	1.5 hours
Week Four			
Read package file for Week Four content	Week 4 Content	Read through package file for Week Four content.	1 hour
List some methods used to compare data	Data and Decisions	Compare and analyze data sets to determine the "best" soap for generating bubbles.	1 hour
Examine one common method used to compare data and examine the components of a statistical argument	Comparing Individual Data Values	Compare data about two types of contact lenses and make conclusions about which material is better.	1 hour
Investigate another	Comparing Counts	Comparing gas mileage by examining individual	1 hour

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common method used to compare data involving a partitioning of data and a comparisons of counts		data values and using a cut-count compare approach.	
Introduce another technique used to compare data involving a comparison of summary statistics like the mean and median	Comparing Data Using Summary Statistics	Compare brands of batteries using: individual data values; the cut-count method; and summary statistics. Which battery and which method is best?	1 hour
Recap how to compare data based on the methods described throughout the week	Making a Statistical Argument	Complete your project and answer the following question: Can comparing data sets help you answer your data question?	1.5 hours
Week Five			
Read package file for Week Five content	Week 5 Content	Read through package file for Week Five content.	1 hour
Examine why comparing different-sized groups of data requires different techniques from those covered in Week 4	New Strategies	Compare groups with unequal numbers of data elements.	1 hour
Examine relative frequency	Reasoning Skills: Comparing Percents versus Comparing Counts	Compare male and female body temperatures and make an argument to support which sex has a warmer body temperature.	1 hour
Compare a relative-frequency histogram to an absolute-value histogram	Tools to Compare Relative Frequencies: Histograms	Construct absolute frequency graphs and relative-frequency graphs for the same set of data.	1 hour
Describe the advantage of using box plots to compare data	Tools to Compare Relative Frequencies: Box Plots	Compare unequal data sets for different weight loss products and determining which is most effective.	1 hour
Describe how you can use	Comparing Summary	Wrap-up the Course Project and reflect on the	1 hour

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summary statistics to compare two different-sized groups of data	Statistics	experience.	
Reflect on the course	Where to Next?	Reflect on how to use what you have learned in the course in the classroom.	1 hour
Reading and responding to other participants over the 5 week course.			3 hours
		Total:	44 hours