

learning focus:

- ✓ compare two populations based on random samples and use data to make inferences
- ✓ determine measures of center and variability
- ✓ compare the shapes, centers, and spreads of dot plots and box plots

DATA & STATISTICS UNIT

9 DAY CCSS-ALIGNED UNIT

7th
GRADE



A MANEUVERING THE MIDDLE ® RESOURCE

DATA & STATISTICS



a 9 day CCSS-aligned unit

CCSS: 7.SP.1, 7.SP.2, 7.SP.3, 7.SP.4

**ready-to-go, scaffolded
student materials**

DATA & STATISTICS UNIT

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student friendly + real-world application

skill application

Unit: Data & Statistics
Student Handout 2

Name _____
Date _____ Pd _____

POPULATION INFERENCES

POPULATION INFERENCES

- Once a sample has been collected from a population, an _____ about the entire population can be made by setting up a proportion.
- These inferences can also be used to compare different populations and make _____

Use the information below to answer the questions.

1. Eastside Middle School conducted a survey of 350 students to determine which elective they were most likely to take.

Elective	Number of Students
Spanish	120
Art	80
6th Grade	150

a. How many students were surveyed?

b. What percentage of students surveyed chose Spanish?

c. There are 350 students in the 6th grade. How many students can be expected to choose Spanish?

d. Of the 350 students in the 6th grade, how many students can be expected to choose Art?

e. The school decides to drop any elective that has fewer than 100 students. The school counselor says that since only 6 students would like to take Spanish, this is or is not correct.

f. Mark each of the following statements as true or false.

- Over half of the students at Eastside Middle School chose Spanish.
- Combined, the Spanish and art classes have more students than the 6th grade.
- Out of the 350 students at Eastside Middle School, 150 chose Spanish.

Unit: Data & Statistics
Homework 2

Name _____
Date _____ Pd _____

POPULATION INFERENCES

The Mitchell Junior High newspaper staff conducted a survey on school start times with two samples of 40 randomly selected students to represent the entire 600-member student population. The results are shown below.

	7:45 AM START TIME	8:30 AM START TIME	9:00 AM START TIME
SAMPLE #1	12	18	10
SAMPLE #2	14	19	7

1. Read each headline and explain if the statement is supported by the data.

HEADLINE A	HEADLINE B	HEADLINE C	HEADLINE D
OVER 300 STUDENTS WANT TO START AFTER 8:00 AM	8:30 AM START TIME MOST POPULAR WITH STUDENTS	SMALL PERCENTAGE OF STUDENTS WANT TO START AT 7:45 AM	LESS THAN 100 STUDENTS WANT TO START AT 9:00 AM

Headline A: _____

Headline B: _____

Headline C: _____

Headline D: _____

Summarize today's lesson: _____

3. The school counselor randomly selected 40 students to determine how they get home from school. Based on the data, represent the data?

TRANSPORTATION METHOD	Number of Students
BUS	15
CAR	10
WALK	5

higher level analysis

DATA & STATISTICS

7th
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streamline your planning
process with unit overviews

DATA AND STATISTICS OVERVIEW



STANDARDS

7.SP.1 Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.

7.SP.2 Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions

7.SP.3 Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability

7.SP.4 Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations

BIG IDEAS

- Statistics are a way of examining data
- A statistic is only valid if the sample is representative
- Measures of center and variability

ESSENTIAL QUESTION

- How can you determine whether a sample is representative?
- How can statistical information be used to make inferences about a population?
- When two populations overlap, how can you tell if they are the same or different?
- What constitutes a random sample?

DATA & STATISTICS PACING GUIDE



DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
Populations and Samples	Population Inferences	Measures of Center	Measures of Variability	Data and Statistics Quiz
Student Handout 1 Homework 1	Student Handout 2 Homework 2			
DAY 6	DAY 7			
Comparing Dot Plots	Comparing Box Plots			
Student Handout 5 Homework 5	Student Handout 6 Homework 6			

DATA & STATISTICS OVERVIEW



TOPIC	TEACHING TIPS
Random Sampling	<ul style="list-style-type: none">• This is a great opportunity to get students out of their seats and working with others. Ask them to create a short (2-3) question survey and use it to collect data amongst their classmates. Based on their data, students should be able to determine their sample and if it was random or not. Ask students to make improvements on their collection methods to ensure it is a random sample.
Measures of Center	<ul style="list-style-type: none">• Students need to be able to recognize that the mean and the median are two different measures of center, and one is a better judge based on what the data set looks like. When the data is skewed, the median is the best representation. When the data is symmetric the mean is the best representation.
Measure of Variability	<ul style="list-style-type: none">• I think this is a great discussion when looking at the statistics of a professional basketball team. There will be specific measurements (height) that have less variability, but then there will be others that have great variability (number of free throws, number of points scored).
Comparing Data Sets	<ul style="list-style-type: none">• Students tend to struggle with the "wordiness" of these types of questions. Encourage them to see each answer choice as a true or false statement.• Take a quick poll of your classroom regarding the time in which they go to bed each evening. Then, ask the girls (or one half of the class) to put their sticky note on the board in the appropriate column. Have the other half of the class do the same on another graph. Use the sticky notes to create either a dot plot or a histogram. Have students compare the two sets as a class.

teaching
ideas

✓ key vocabulary

✓ vertical alignment

sample
pacing
calendar

DATA & STATISTICS



a 9 day CCSS-aligned unit

CCSS: 7.SP.1, 7.SP.2, 7.SP.3, 7.SP.4

unit study guide + assessments



quizzes



editable unit test

Unit: Data & Statistics
Quiz

Name _____
Date _____ Pd _____

QUIZ: DATA & STATISTICS

Use the table below to answer questions 1-2.

	6 TH GRADE	7 TH GRADE	8 TH GRADE
A-HONOR ROLL	15	11	14

1. A sample of students is taken from the school's A honor roll. The school estimates that there are 360 students on the A honor roll. How many students are 7th graders?

2. If there are 360 students in the school, how many students are 7th graders?

Answer the following questions.

3. A new restaurant in town is surveying residents to determine how much they typically pay for a meal out. Which of the following describes a random sample?

A. They go door-to-door in a nearby neighborhood.
B. They randomly select 50 residents of nursing home.
C. They call 200 randomly selected town residents.
D. They ask patrons if the price was reasonable.

5. A streaming service randomly selects 100 of its customers and asked them how many hours per week they watch per week. Of those surveyed, 28 use the internet more than 15 hours per week. Based on the data, the company has 800 subscribers, how many subscribers watch more than 15 hours per week?

A. 400
B. 1,125
C. 1,400
D. 800

Unit: Data & Statistics
Review

Name _____
Date _____ Pd _____

DATA & STATISTICS UNIT STUDY GUIDE

Solve each of the problems below. These represent the types of questions on your test. Be sure to ask questions if you need more help with a topic.

I CAN COMPARE TWO POPULATIONS BASED ON RANDOM SAMPLES.

1. A random sample from the 6th and 7th grade student population was taken to determine which clubs were the most popular.

	6 TH GRADE	7 TH GRADE
Y		

a. If there are 280 6th graders and 200 7th graders, how many students are in the yearbook?

b. What percent of 6th graders are in the yearbook?

c. The school decides to drop any club that has less than 10 members. Which club should be dropped?

I CAN USE DATA FROM A RANDOM SAMPLE.

2. An internet company randomly selected 100 of its customers and asked them how many hours per week they use the internet. Based on the data, the company has 800 subscribers, how many subscribers use the internet more than 15 hours per week?

SEVENTH GRADE CURRICULUM

DATA AND STATISTICS

UNIT TEN: ANSWER KEYS

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answer keys
included

