

# Drawing Inferences from Random Sampling

**Statistics** is math that deals with collecting, analysing, interpreting, and presenting data

- Population - entire group
- Sample - part of the population
- Random sample - part of the population that mimics the population

# Lesson Goals (Academic)

- We will use random sampling to draw inferences about a population.<sup>(7.SP.A)</sup>
  - We will answer real-world questions to understand that statistics can be used to
    - gain information about a population by examining a sample of the population
    - make generalizations about a population from a sample and that they are valid only if the sample is representative of the population
  - We will answer real-world questions to understand that random sampling tends to produce representative samples and support valid inferences

# Lesson Goals (Socio-Emotional)

- We will work in learning teams to
  - Make sense of problems and persevere in solving them (SMP.1)
  - Construct viable arguments and critique the reasoning of others (SMP.3)
  - Attend to precision (SMP.6)

# Three Reads Protocol

Each person will read their card 3 times *before* everyone begins to solve

1st Read

Goal: Comprehend Text

2nd Read

Goal: Analyze and discuss

3rd Read

Goal: Brainstorm ways to solve

# Recognizing Valid Samples

You can create and recognize valid samples of larger populations by making sure the sample meets 3 criteria.

Random	Representative	Adequate
<i>A random survey ensures that every item/person has an equal chance of being chosen.</i>	<i>A representative sample selects data and/or members from the population to be represented.</i>	<i>An adequate sample size includes a sufficient number of data points/participants.</i>
Example: drawing a number out of a hat Non-Example: Choosing the 1 <sup>st</sup> 3 people you see	Example: surveying students about opinions of cafeteria food Non-Example: surveying a group of girls about what boy sports should be added to your school	Example: The sample is approximately 20% or larger of the population Non-Example: The sample size is about 5% of the population

# Team Member A

- You are responsible for reading and sharing cards 1, 4, 7, 10, 13, 18
- When it is your turn, you will:
  - 1 - Share your screen
  - 2 - Read the card aloud and ask for any word clarifications from the team
  - 3 - Read again and summarize the card in your own words with support from the team if needed
  - 4 - Read once more and lead the discussion on how to solve the problem (what is needed, where to start)
  - 5 - Give time for everyone to solve the problem, and lead the discussion for the solution

1. A school principal wants to offer an after-school club setting. She decides to survey the entire student body about this. Which word best describes the survey she conducts?

sample

prediction

data

census

population

4. A candidate for city chancellor wants to poll voters to see how well her campaign is going. What collection method should she use to gather her information?

A. Polling random grocery shoppers at the local market

B. Posting signs around town asking people to call in to voice their opinion

C. Calling a group of randomly selected registered voters

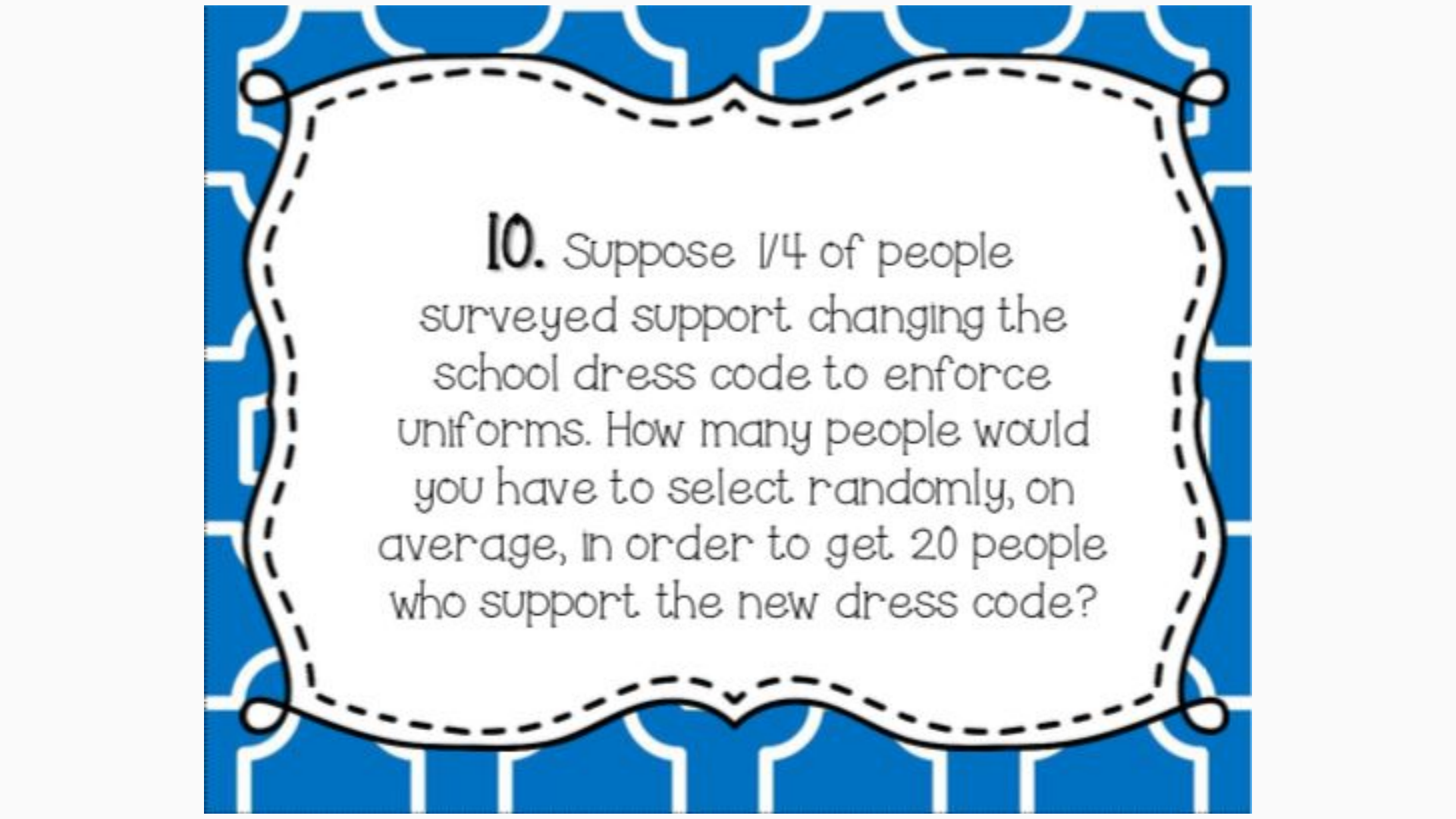


7. The class has been assigned the task of predicting the next student council president. Which question is most appropriate for this task?

A. Do you like Janelle or Tristan?

B. Are you going to be voting in the student council election?

C. Are you going to vote for Janelle or Tristan?



**10.** Suppose  $\frac{1}{4}$  of people surveyed support changing the school dress code to enforce uniforms. How many people would you have to select randomly, on average, in order to get 20 people who support the new dress code?

13. Killeen, TX would like to create a new city park for families to visit. They have randomly surveyed 100 people and found that 78 people from the sample support building and creating a new city park. What is the best conclusion?

A. The city should begin the process of building a new city park.

B. The city should not begin building a new city park.

C. The city should build a new water park instead.

**16.** An average home game for the WildCats brings in a crowd of 250 people. A random sample of 10 people at the entrance gate reveals that 6 people will be supporting the WildCats and 4 will be supporting the visiting team. Approximately, how many fans at the game will be supporting the WildCats?