

Mathematics

Sampling worksheet

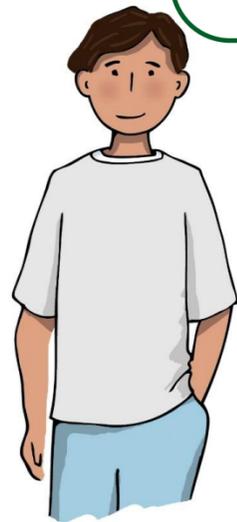
Mr Millar



Try this

Antoni is testing which is the most popular football team in the UK.
Why might Binh be correct?

I will take a sample
of 25 people near
my home in north
London.



Hm, I'm not
sure this will be
a fair sample...



Independent task

1. Antoni want to test the hypothesis that voters in the UK care more about the NHS than education. State the population and explain why it would be better to take a sample than a census.
2. Malcolm wants to find out if his local gym is good. On Monday morning, he stands outside the gym and asks 10 people, before entering, to answer a questionnaire on whether they like the gym and go frequently.

Why is this sample likely to be biased? Can you think of a better sample?



Explore

REMINDER: A designer clothes brand, “Cool Sports Inc” wants to hire a pupil to do some data analysis.

Today, they had some ideas for a sample, and you need to tell them:

- Why their sample is likely to be biased
- What approach you would recommend instead

“The sample we are thinking of taking is a survey of 50 people on the TikTok app”

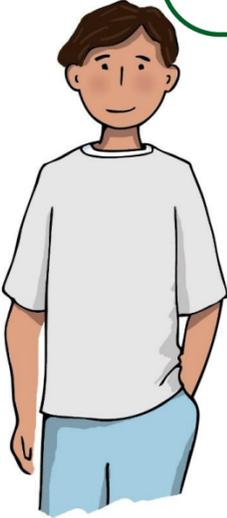


Answers



Try this

Antoni is testing which is the most popular football team in the UK. Why might Binh be correct?



I will take a sample of 25 people near my home in north London.



Hm, I'm not sure this will be a fair sample...

This sample is likely to be biased as he is only asking people in North London (may be more likely to support Arsenal / Tottenham)

Bias occurs when data has not been collected fairly. If a sample is biased, it doesn't accurately reflect the population.



Independent task

1. Antoni want to test the hypothesis that voters in the UK care more about the NHS than education. State the population and explain why it would be better to take a sample than a census.

Population: all voters in the UK. It's better to take a sample as there are over 15 million voters in the UK, so very difficult to ask every one of them! A large sample would be fine to take, as long as it is unbiased.

2. Malcolm wants to find out if his local gym is good. On Monday morning, he stands outside the gym and asks 10 people, before entering, to answer a questionnaire on whether they like the gym and go frequently.

Why is this sample likely to be biased? Can you think of a better sample?

The sample is likely to be biased as people who go to that gym are likely to say it's good! For a more reliable sample, he should ask people who use other gyms, as well as non gym users. Also, the type of people who use the gym on Monday morning might be different to other times so it is worth asking people who go at different times.



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“The sample we are thinking of taking is a survey of 50 people on the TikTok app”

Likely to be biased as TikTok targets young people.

Lots of alternative approaches, eg ask across a range of online platforms and check that every age group is fairly represented

