Mathematics

Forming and testing a hypothesis worksheet

Mr Millar

Try this

A **hypothesis** is an unproven statement which can be tested.
Which of these are valid hypotheses?

Is it hotter in London than Brighton?	Goals in football are more likely in the second half than first
Cats are better than dogs	Teenagers prefer TikTok to Instagram

Connect

Xavier and Yasmin are discussing different sources of data they could use to test their hypothesis.
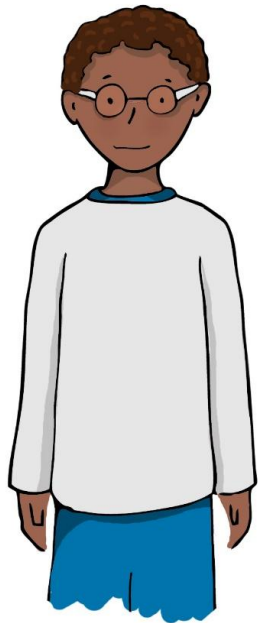What's the same and what's different about them?

Run a lab experiment

Check the government website

Use a survey from a news article

Conduct an online survey

Read an academic journal

Interview customers

Independent task

1. Mr Millar is interested whether boys or girls complete their maths homework more often. Write a suitable hypothesis for this experiment and a primary and secondary data sources he could use.

2. You are interested in whether London or Manchester is more rainy. Write a suitable hypothesis for this experiment and explain why it would be better to use a secondary source of data.

3. The UK Government is interested whether people exercised more or less in the first month of lockdown compared to before. Explain why you couldn't use gyms as a secondary source to test this hypothesis and suggest a primary source you could use.

Explore

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

Today, they have some questions, and for each they want you to
- Write it as a hypothesis instead of a question
- Decide what primary / secondary sources you would use to test the hypothesis

What time of year do people spend the most on clothes?

Do teenagers like our brand compared to other brands?

Since coronavirus started, have people spent less money on clothes?

Answers

Try this

A **hypothesis** is an unproven statement which can be tested.
Which of these are valid hypotheses?

Is it hotter in London than Brighton?

No: a hypothesis needs to be a statement not a question

Goals in football are more likely in the second half than first

Yes, this is valid

Cats are better than dogs

No: what does "better" mean?

Teenagers prefer TikTok to Instagram

Yes, this is valid

Connect

Xavier and Yasmin are discussing different sources of data they could use to test their hypothesis.
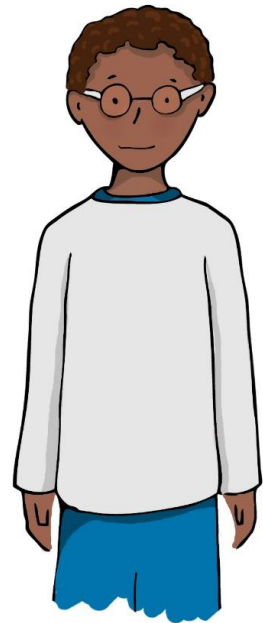What's the same and what's different about them?

Primary

Secondary

Secondary

| Run a lab experiment | Check the government website | Use a survey from a news article |

| Conduct an online survey | Read an academic journal | Interview customers |

Primary

Secondary

Primary

Primary: Data you collect yourself

Secondary: Data that someone else has already collected

Independent task

1. Mr Millar is interested whether boys or girls complete their maths homework more often. Write a suitable hypothesis for this experiment and a primary and secondary data sources he could use.

    Hypothesis: Boys complete their maths homework more often than girls
    Primary: Data from his own class / school
    Secondary: Data already gathered from other schools / teachers

2. You are interested in whether London or Manchester is more rainy. Write a suitable hypothesis for this experiment and explain why it would be better to use a secondary source of data.

    Hypothesis: London gets more rainfall (in mm) per year than Manchester.
    Secondary better as reliable data sources are freely available (eg weather reports) and collecting primary data would take a long time and be expensive

3. The UK Government is interested whether people exercised more or less in the first month of lockdown compared to before. Explain why you couldn't use gyms as a secondary source to test this hypothesis and suggest a primary source you could use.

    Gyms were shut in the first few months of lockdown! Can use a survey as a primary source

Explore

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Today, they have some questions, and for each they want you to
- Write it as a hypothesis instead of a question
- Decide what primary / secondary sources you would use to test the hypothesis

What time of year do people spend the most on clothes?	**Do teenagers like our brand compared to other brands?**	**Since coronavirus started, have people spent less money on clothes?**

Eg, People spend more on clothes in the winter

Eg, Teenagers do prefer our brand to others

Eg, People have spent less money on clothes since coronavirus

Eg Can test with survey or official data

Eg test with a survey

Eg Can test if there is official spending data