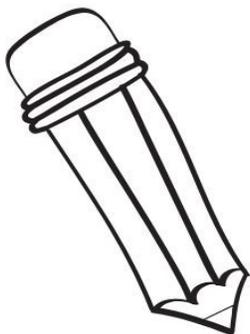


HIGH STORRS SIXTH FORM BRIDGING WORK



2023

Psychology



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BRACE YOURSELF

**RESEARCH METHODS IS
COMING**

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Checklist of Maths Requirements:

These are the skills that AQA say you may be asked to demonstrate:
For each of them rate yourself on a 1-5 scale

(1 = no clue, 2 = vaguely heard of, 3= heard of and could probably do with help, 4= reasonably ok with, 5= confident)

Skill	Rating
Know the difference between quantitative and qualitative data	
Know the difference between primary and secondary data	
Calculate percentages	
Calculate ratios	
Calculate fractions and present them in their simplest form	
Estimate results (without a calculator)	
Calculate the range for a set of numbers	
Know what is meant by standard deviation	
Calculate an answer to a given number of significant figures	
Calculate an answer to a given number of decimal places	
Calculate means, medians and modes	
Construct a frequency table (tally chart)	
Interpret a pie chart	
Construct and label a bar chart	
Construct and label a histogram	
Plot a scattergraph	
Understand simple probability	
Make order of magnitude calculations	
Recognise a normal and a skewed distribution	
Understand and use symbols: = < ≤ , ≥ >	

**There are some advanced statistics in year 13, which are not included on this list*

I signed up for Psychology, so why am I doing maths???

Psychology is built upon research, often including experiments or other scientific studies. It is essential that students know how to present, summarize and analyze data.

30% of the marks awarded at A level come from the area of Research Methods and out of those, 10% comes from handling data correctly. (In other words, doing “maths”!!)

The A level Psychology specification covers two types of maths (Data presentation & summary and Inferential Statistics): We will only look at the first part in this booklet

We need to ensure that you have the core skills needed to handle data effectively.

By checking your skills now, it will reduce the amount of time we need to spend on those skills next year. It will also allow us to offer targeted help to anyone who needs it.

All of the questions which follow are taken from real past exam papers

Don't worry!! Just try your best 😊

1. Researchers investigated learning by placing cats into puzzle boxes and measuring how long it took them to escape.

The data from the laboratory experiment are shown in Table 1.

Table 1: Time taken for the cat to escape from the puzzle box

Attempt	Time taken for the cat to escape from the puzzle box (seconds)
1	63
2	60
3	45
4	37
5	18
6	15
7	5
8	3

Calculate the mean time taken for the cat to escape from the puzzle box. Show your calculations.

[2 marks]

The researcher compared the time taken for the cat to escape at the first attempt, with the time taken for the eighth attempt. He found that after learning had taken place the cat's escape time was: Shade one box only.

- A 9 times faster than it was at the start.
- B 11 times faster than it was at the start.
- C 15 times faster than it was at the start.
- D 21 times faster than it was at the start.

[1 mark]

Ten A-level students took part in a study of attitudes to Milgram's research on obedience. They were asked about the value of Milgram's research and about ethical concerns with Milgram's research.

For each student, the researcher recorded two scores out of 10, a 'value of research' score and an 'ethical concern' score.

A high 'value of research' score means the student thinks Milgram's research was very valuable and a high 'ethical concern' score means that the student thinks that Milgram's research caused many ethical concerns.

The findings are shown in Table 1 below.

Table 1

Student	Value of research score	Ethical concern score
1	6	10
2	8	9
3	9	7
4	5	7
5	2	3
6	6	8
7	7	7
8	9	8
9	6	10
10	6	7

- How many students have a value of research score of <6? _____
- What is the mode for the value of research scores? _____
- Calculate the range for the value of research scores? _____
- What is the mode for the ethical concern scores? _____
- Calculate the range for the ethical concern scores? _____

A psychologist was reading an article about typical dream themes in adults. They summarised their data in a pie chart:



Use the pie chart to estimate the percentage of dreams which were about being chased. (1 mark)

A 4%

B 12%

C 27%

D 42%

When comparing the data for males and females, the psychologist found that there was a difference in the proportion of friendly and aggressive social interactions. This is shown in Table 2.

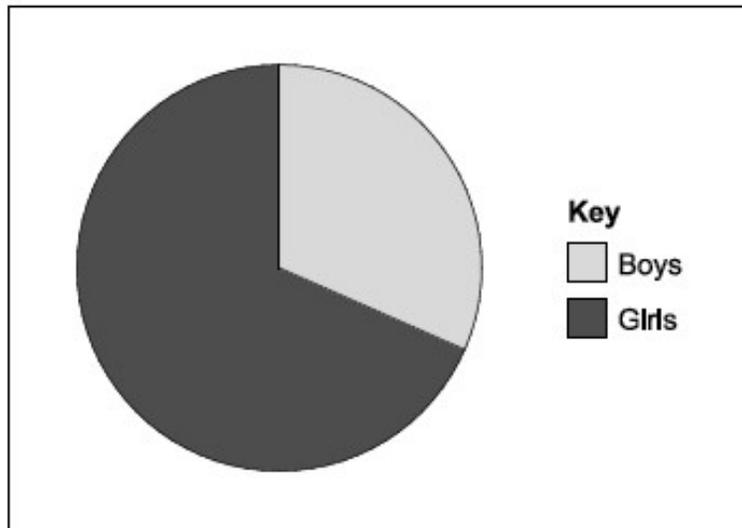
Table 2 Percentage of friendly and aggressive social interactions in dreams reported by males and females

	Males	Females
Friendly	40%	56%
Aggressive	60%	44%

A total of 375 dreams reported by males included social interaction. Use the data in Table 2 to calculate how many of these dreams reported by males were classified as aggressive. Show your workings.

[2 marks]

Figure 1 The proportions of boys and girls who are classified as securely attached



Using the information in **Figure 1**, estimate the percentage of **boys** and **girls** that are securely attached.

Boys = _____

Girls = _____

[2 marks]

In a different study, 150 children were classified as securely attached. Of these, 40% were boys. How many of the 150 children were girls? Show your workings.

[2 marks]

4. Julia's baby is keeping her awake at night. She records her baby's sleep patterns for a week:

Table 1 The number of hours slept in the day and the number of hours slept in the night over one week

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Number of hours slept in the day	8.5	9.0	7.0	9.5	10.5	6.5	8.5
Number of hours slept in the night	9.0	8.0	8.5	7.0	7.5	10.5	8.0

Calculate the mean number of hours slept in the night. Show your workings.

Give your answer to two significant figures.

[3 marks]

What was the median number of hours that the baby slept in the day?
Show how you worked out your answer. (2 marks)

A psychologist was at a concert where someone threw a bottle onto the stage and injured one of the band members. She asked 10 witnesses if they would allow her to interview them. It took her two and a half hours in total to interview the 10 witnesses. There were 1000 people at the event.

Calculate how long it would have taken the psychologist to interview all of the 1000 people. Show your workings (2 marks)

Researchers investigated how considerate people were in two different towns. Their results are shown below:

Considerate behaviours			
	Litter in bin	Dog on lead	Riding bike with care
Greensville	23	12	19
Browntonn	10	17	9

Calculate the ratio of the total number of considerate behaviours observed in Greensville to the total number of considerate behaviours observed in Browntonn.

Show your workings and present your answer in its simplest form (3 marks)

Participants in an experiment were shown a film of a robbery. The participants were then divided into two groups. One group was interviewed using a standard interview technique and the other group was interviewed using the cognitive interview technique. All participants were then given an 'accuracy score' (out of 20) based on how closely their recall matched the events in the film (20 = completely accurate, 0 = not at all accurate).

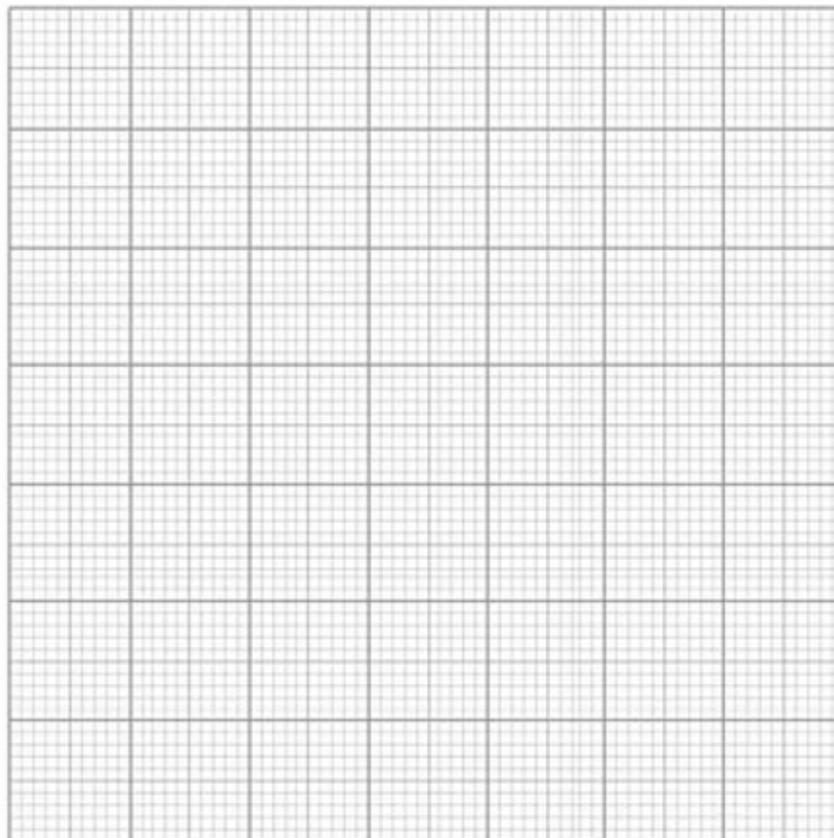
The results of the experiment are shown in **Table 1**.

Table 1: The median accuracy score for the standard interview and the cognitive interview

	Standard interview	Cognitive interview
Median	10	15

Sketch an appropriate graphical display to show the median accuracy scores in **Table 1**.

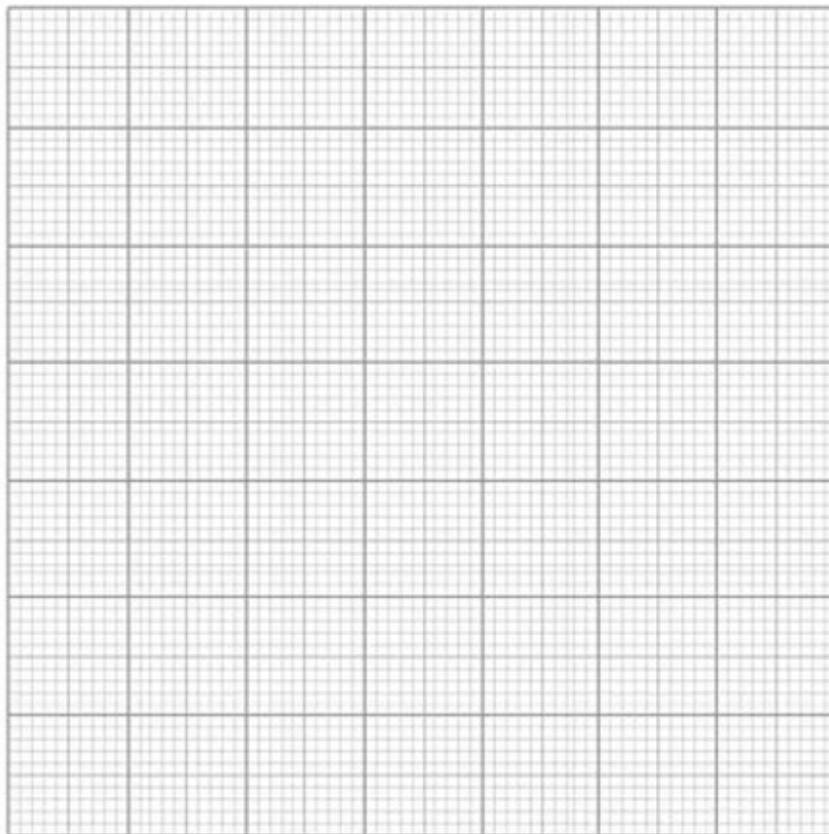
[6 marks]



A researcher studying depression wanted to see if there was a relationship between self esteem and how popular people believe they are. She measured self esteem using a questionnaire (marked out of 10, where 1 indicated low self-esteem. She then asked people to rate how popular they believed themselves to be (1-10, where 1= not at all popular)

Participant number	1	2	3	4	5	6	7	8	9	10
Self-esteem score (1-10)	8	9	9	11	13	17	18	18	20	22
Popularity rating (1-10)	11	15	13	18	12	14	20	16	17	19

Draw a scattergraph to show this data. Label your scattergraph appropriately. Remember to include a clear title (4 marks)



The results of the investigation for references to love and references to fear of rejection are shown in **Table 1** below:

Table 1: The total number of references to love and references to fear of rejection in essays written by the care group and the non-care group

	Total number of references to love	Total number of references to fear of rejection
Non-care group	40	5
Care group	16	15

Express the total number of references to love in the essays written by the care group as a fraction of the total number of references to love in the essays overall. Show your calculations.

[3 marks]

A child psychologist carried out an overt observation of caregiver-infant interaction. She observed a baby boy interacting separately with each of his parents. Using a time sampling technique, she observed the baby with each parent for 10 minutes. Her findings are shown in **Table 1** below.

Table 1: Frequency of each behaviour displayed by the infant when interacting with his mother and when interacting with his father

	Gazing at parent	Looking away from parent	Eyes closed	Total
Mother	12	2	6	20
Father	6	10	4	20
Total	18	12	10	40

In what percentage of the **total** observations was the baby gazing at his mother?

Show your calculations

(2 marks)

A psychologist wanted to test whether listening to music improves running performance. Participants completed a 400m run in one of two conditions:

A= without music

B= with music

The results are shown below:

	Condition A (without music)	Condition B (with music)
Mean time (s)	123	117

Calculate the **percentage decrease** in the mean time it took participants to run 400m when listening to music.

Show your workings. Give your answer to 3 significant figures. (4 marks)

In a replication of the part of the study in which map reading skills were investigated, 20 men and 20 women completed the original map reading task and the researchers obtained the following data:

Male map reading scores	17, 20, 13, 12, 13, 11, 8, 17, 12, 15, 14, 18, 20, 17, 17, 15, 13, 10, 5, 9.
Female map reading scores	12, 8, 10, 11, 4, 2, 11, 18, 17, 12, 13, 10, 3, 15, 11, 9, 10, 11, 16, 10.

The mean map reading score for both groups together was 12.23.

What percentage of the male group scored above the mean score and what percentage of the female group scored above the mean score? Show your calculations.

[4 marks]

Finally: now for something new!

When we collect data in psychology, we need to know the type of data it is. This is called the level of measurement. There are 3 different levels:

The highest level is called Interval Data

Interval data is data which is measured on a meaningful scale, with equal spaces between the units. This includes things like scores on a test or reaction time.

If it is possible to make meaningful comparisons, e.g. "I get 5 right, you get 10... you have done twice as well as me" the data is probably interval

The next level is called Ordinal data

Ordinal data is when data is collected on a scale, but the spaces aren't necessarily equal. This tends to happen when the scale is an arbitrary (made up) scale.

Any scale which asks for a rating (e.g. rating out of 10) tends to be ordinal

The lowest level is called Nominal data

Sometimes we don't collect individual scores, but simply tally up people's responses into categories (a tally chart / frequency chart)

There are 3 to try:

Can you identify the level of data in each of the following examples?

1. A set of records of phobic patients who are classified as 'improved' 'worse' or 'no change'

2. Phobic patients are put on a scale of 1 to 10 depending on degree of improvement, where 1= no improvement and 10= completely cured

3. Phobic patients are assessed by measuring the increase in their heart rate when they are confronted with their feared object

Finally, one to guess! There are rules about which measure of central tendency (average) goes with each level.

Can you complete this table? (one answer per box!!)

	Level of data it is usually used with (interval / ordinal / nominal)
Mean	
Median	
Mode	

The End!!

We will go through the answers during the first lesson.

**Remember to bring your
booklet!!!!**

This booklet will also help you to revise for Research

Methods during the course, so don't lose it!