Psychology
INTERNAL ASSESSMENT

Name:_____

Level: _____

Supervisor:_____

The purpose of this booklet is to help you to plan and conduct your experiment, to structure your write up and to encourage you to keep all of your work together in an orderly fashion.

Before we go any further! Whenever you type up anything for your internal assessment, **please back up all your documents**. As soon as you start a new file, save it in at least two different places! Keep your work super safe, sending it to yourself as an email attachment is a good idea as well as saving it on google drive of course! I would also advise making a new version each time you alter it by amending the file name with V1, V2 V3 etc. This way you can go back to previous versions easily.

What does the spec say?

You must plan and undertake an **experimental study** and to produce a **written report**. The work will be **internally assessed** by the teacher and **externally moderated** by the IB, except under particularly unusual circumstances as in May 2020 due to the coronavirus pandemic.

All reports must follow a set format and you will be given plenty of support to ensure that your report meets the assessment criteria. You should aim to conduct a **simple** experimental study involving the **manipulation**, by you, the student experimenter, of a **single independent variable** and the **measurement** of the effect of this independent variable on a single **dependent variable**, while controlling other variables. The IV should have **no more than two conditions** to simplify the analysis.

	Standard level	**Higher level**
% of final grade	25%	20%
Word count	1800-2200	
Mark allocation	22 (6+4+6+6)	
Requirements	Replication (modifications and simplifications are allowed) of a published study	

Authenticity

The report of the simple experimental study submitted for internal assessment must be your own work. Academic honesty is taken extremely seriously by the IBO. Following your final submission, it is our duty to ensure that there has been no malpractice.

The IBO suggests that we...

- discuss your work with you to ensure that you fully understand what you have written (viva)
- scrutinise your initial project proposal, first draft, references, style of writing compared with other pieces of your work (i.e. essays), analyse the work using the web-based plagiarism detection service, turnitin.com.

Don't worry, you will be taught how to reference all the sources that you have used properly. Do not lend your work to anyone as it is very difficult to prove 'who copied who' in cases such as these and so both students will be penalised and could potentially fail their entire diploma. You will be working as a small group and it is of course accepted that some elements of the report will be identical as you have carried out the same experiment together. This means that procedure, standardised instructions and materials will all be the same. However, the IB makes it plain that once the data has been collected the group collaboration is over and it is now down to you to analyse your data and write up the remainder of the report on your own, with support from your teacher(s). You should not under any circumstances lend you work to each other; this will avoid any opportunity for intentional or unintentional plagiarism.

Teacher Guidance

You will receive supervision and support through class time and clinics whilst you are planning your experiment and also whilst you are writing it up. Before you start, we will spend time looking at the assessment requirements (mark schemes) and ethical guidelines (you will submit a proposal and code of ethical conduct) and there will be opportunities for one –to-one or small group discussion of your progress. You are expected to initiate the support discussions as this is your project not mine! If it is felt that you could not have conducted the experiment without significant help, then we are obliged to inform the IBO.

How much help are you allowed?

You must submit a first draft of your report and we are allowed to give you feedback about how to improve your work. However, we are not allowed to heavily annotate your work. You are only allowed to enter a single first draft. This means your first draft should be as good as it possibly can be as the next draft has to be the final version. It is therefore imperative that you attend all suggested discussions in the lead up to submitting your first draft. You will also need to take thorough notes regarding our discussions and learn to ask sensible questions in order that you make best possible use of the tutorial support sessions that we provide.

Working in groups

You must work in a group of between 2 and 4 people. These can be people from our school (including A level students) but you are also allowed to collaborate with others in the UK and across the world in other IB schools. You are also allowed to collaborate with non-psychology students if certain circumstances.

What are you going to be doing?

You will choose a research study to replicate from cognitive psychology. The study must be based on one of the theories/models of memory that we study for the course, e.g. working memory, multistore, levels of processing, reconstructive memory, schema theory, flashbulb memory, etc. the link between the study and the theory upon which the study is based must be explicit, this is a new focus in the IB 2017 specification. When choosing a study, you need to make sure you have a clear reason/rationale in terms of why you wish to replicate it; why is it relevant? There is a selection of suitable studies to replicate on 'psychologyrocks'

where you will also find the original papers. You do not have to work from the originals but it does help especially if you wish to study psychology at university.

We will conduct a guided replication of **Glanzer and Cunitz (1966)**, together in class as an example of how you will conduct your own study. This study will help you with your understanding of experimental methods and the collection of quantitative data and also helps with your evaluation of the multistore model of memory. With regard to the IA, we will use it as a model to guide you through the process of designing and conducting your own study, highlighting relevant points at which design decisions must be taken and demonstrating what the final report should look like.

Your final IA report no longer requires an abstract, however, writing and understanding what an abstract is, is still a useful skill especially for university. We will write an abstract (basically a summary) of the Glanzer and Cunitz replication completed in class. The abstract will be a paragraph of no more than 250 words covering a statement of the aim of the study, identification of the IV and DV, summary of the procedure, descriptive and inferential statistics including p statement and final conclusion linked back to the hypothesis and theory/model that was being tested. However, this will not go into your final [project as is simply a useful class exercise.

Ethical guidelines for internal assessment

- You are not allowed to conduct any experiment that creates anxiety, stress, pain or discomfort for participants or that involves harm, unjustified deception, involuntary participation or invasion of privacy
- Conformity and obedience research are not allowed under any circumstances
- Partial deception is acceptable but there must be evidence that no harm is created (presumptive consent can help here) and all Pps must be fully debriefed and given the opportunity to withdraw their participation if they wish.
- All participants must complete a written consent form giving details of exactly what their role will be and informing them of their various rights to withdrawal at any point including after they have completed their trial, right to confidentiality etc; pressure to participate must not be placed on any individual participant to continue with the investigation at any point
- Each participant must be informed of the aims and objectives of the research and must be shown the results of the research.
- Children under the age of 16 must not be used as participants.
- Participants must be debriefed and given the right to withdraw their own personal data and responses.
- Anonymity for each participant must be guaranteed.
- If any participant shows stress and/or pain at any stage of an experimental study, the investigation must finish immediately, and the participant must be allowed to withdraw.
- All data collected must be kept in a confidential and responsible manner and not divulged to any other person.
- Students must regard it as their duty to monitor the ways in which their peers conduct research.
- Students found to have carried out unethical work will be awarded no marks for the internal assessment component.
- Student experimenters must terminate the experiment for any Pp showing signs of harm, pain or distress.

Summary of report format– make sure you tick every box

Pages Headers and Title Page	The following details should be stated in the header of the report. • Title of the investigation • Subject and Level • IB candidate code (alphanumeric, for example XYZ123) • IB candidate code for all group members • Date, month and year of submission • Number of words (1800- 2200)	
Introduction	Statement of the aim of the investigation	
	Explanation of relevance of the aim	
	Description of theory/model upon which the student's investigation is based	
	Explanation of link between theory/model and student's investigation	
	Null and experimental hypothesis include fully operationalised IV and DV	
Exploration	**DESIGN**	
	Experimental design (i.e. independent measures, repeated measures or matched pairs) is explained/justified	
	Identification and full operationalisation of IV and DV	
	Controlled variables are explained.	
	Description of ethical procedures including informed consent	
	PARTICIPANTS	
	Choice of Pps is explained including characteristics of the sample, i.e. number of Pps, gender, age, background	
	Sampling technique is explained/justified	
	Relevant characteristics of the target population	
	How Pps were allocated to groups/conditions if independent measures/matched pairs	
	MATERIALS	
	Description of all materials/equipment and their choice explained/justified	
	photos of equipment and copies of any paper resources should be included as an appendix and referred to in the materials section;	
	PROCEDURES	
	Step by step description of how you conducted your experiment, listing <u>every detail</u> so that the study could be replicated exactly	
	Cross-references to standardised instructions, materials, debrief etc. which should all be attached as appendices.	
Analysis	Summary table to display descriptive statistics (can have more than one measure of CT/D as long as long as justified)	
	Accurate, fully labelled and appropriate graph that reflects the aim of the research	
	Description of results in words, i.e. justification of choice of descriptive statistic and comparison of measure(s) of central tendency/dispersion, explanation of what is shown in table and graph; links made to hypotheses	

<table>
<tr><td></td><td colspan="4">Appropriate inferential statistics and justification for their use (calculations in appendix), statement of statistical significance; links made to hypotheses</td><td></td></tr>
<tr><td rowspan="7">Evaluation</td><td colspan="4">Findings of the student's investigation are discussed with reference to the background theory or model.</td><td></td></tr>
<tr><td colspan="4">Strengths and limitations of the investigation must be stated, explained and relevant</td><td></td></tr>
<tr><td colspan="4">Modifications are explicitly linked to the limitations of the student's investigation and fully justified.</td><td></td></tr>
<tr><td></td><td>Strengths</td><td>Limitations</td><td>Modification</td><td rowspan="4"></td></tr>
<tr><td>Design</td><td></td><td></td><td></td></tr>
<tr><td>Sample</td><td></td><td></td><td></td></tr>
<tr><td>Procedure</td><td></td><td></td><td></td></tr>
<tr><td colspan="4">Conclusion linked back to aim and hypotheses</td><td></td></tr>
<tr><td>References*</td><td colspan="4">Alphabetical list of all sources using APA referencing

"The references are not assessed but must be included to meet the requirements of honest academic practice. Not attributing ideas of others included in your work amounts to academic misconduct. If academic misconduct is discovered in any work you submit for IB assessment, you will not be awarded a grade for the subject." (IB Guide 2018)</td><td></td></tr>
<tr><td rowspan="6">Appendices*</td><td colspan="4">Raw data tables</td><td></td></tr>
<tr><td colspan="4">Calculations</td><td></td></tr>
<tr><td colspan="4">Consent form pro forma (unfilled)</td><td></td></tr>
<tr><td colspan="4">Supplementary materials</td><td></td></tr>
<tr><td colspan="4">One copy of the instruments/materials used</td><td></td></tr>
<tr><td colspan="4">Copy of standardized instructions and debriefing notes.</td><td></td></tr>
</table>

* Title page, references and appendices are not included in the word count.

Introduction

John Crane provides much excellent advice on his website so be sure to visit the relevant pages when drafting your chapters. He also provides writing samples as well. Your introduction will start with a clear statement of the aim of your study making reference to the 'to be replicated' study. YOu do not have to replicate a published study but it is advisable to use something as a starting point even if you have adapted it considerably. Next off will be a rationale as to why this study is being conducted where you may make reference to some of the alterations that have been made, for example to the target population or where you have altered something which you perceived to be a limitation in the previous research.

Remember the circle of science that we introduced at induction? All scientific studies in psychology are 'borne' of scientific theories/models. Theories are possible explanations of psychological phenomena observed in the world. Hypotheses can be made based on these theories, i.e. if this theory is correct then one would expect x to happen under y circumstances. This means that your introduction must include a detailed description of the area of theory/model that your study tests. This should be explicitly linked to your study.

Your introduction will finish with your experimental and null hypotheses which must logically follow from the information presented in the introduction. Both IV and DV must be fully operationalised. You will need to decide whether you are going for a one or two tailed experimental hypothesis based on the available research and then ensure that the null matches, i.e. one tailed or two, same as the experimental.

Details of Background Information

Use this page to record ideas for your introduction

Aim:

Description of theory/model:

Description of 'to be replicated' study:

Link between model, to be replicated study and own version of study:

Rationale:

Experimental hypothesis:

Null hypothesis:

List of the References

Use this page to record all psychologists, books, articles used while researching introduction. Make sure you record all the necessary details, author, initial, date of publication, title of chapter/book/article, publisher, journal, page numbers etc.

Books

e.g. Gross, R. (2005). *The Science of the Mind and Behaviour*. Hodder and Stoughton. Fifth Edition, p.56

Journals

e.g. Stafford, L. Salehi, S. & Waller, B.M. (2009). Odors Cue Memory for Odor-Associated Words. *Chemosensory Perception. Volume 2, p59–69*

Websites

e.g. *Personal information*. (2006). Retrieved May, 2, 2006, from http://www.csci.org.uk/system_pages/data_protection/personal_information.aspx

It's important to plan your project with great care as a group, where everyone's voice is heard. Think about how you work as a group member, do you take an active role in ensuring that everyone gets involved? Do you sit back quietly and hope no one asks you anything? Do you grumble when others make decisions you don't agree with but never actually bother to explain your reasons? Working as an effective team player is an essential life skill and useful to talk about in your UCAS application so bear that in mind! Maybe keep a learning journal to chart the progress of your IA planning and reflect on your team's progress.

The research method, participants and materials, operationalisation of the IV and DV will all result from your groups discussions and teamwork.

We will complete this project brief in class for the Glanzer and Cunitz (1966) replication and then you will complete your own version for the study that you decide as a group to replicate for your IA.

So....

Let's take a look at ...
Glanzer and Cunitz's (1966) Experiment 2

Use the original paper to answer each of the questions below. As you answer each question, think; if I was to replicate this study would I want to make a change here? If so why? How might this affect your study?

1. Who were the participants?
2. How were the words presented?
3. How many words were shown to each participant?
4. How were the words chosen?
5. Why do you think they used practice lists?
6. How many sets of words were shown in the proper experiment (as opposed to the practice) and how many words in each list?
7. What was the exact procedure for each Pp?
8. Can you think of any problems that might arise during the procedure that you would need to think carefully about in advance?
9. What materials would you need to gather in addition to the word list?
10. How many conditions were there in this study?
11. How many word lists were used in each condition? Why do you think they used more than one word list for each condition?
12. What controls did Glanzer and Cunitz put in place?
13. Why were the words and the sequence of the delays randomised for each pp?
14. How long were Pps allowed to complete their free recall?
15. What other checks were put in place to improve the validity of the dependent variable?

Having scrutinised the procedure of this study you should be able to see how you might replicate this study yourselves and have an idea of some of the design decisions that you need to make. Complete the project brief form as if you are going to replicate Glanzer and Cunitz's study for your IA.

Identify the **aim of the research**

State your **experimental and null hypotheses**	H_1 –	
	Is this hypothesis **directional or non-directional**; explain why this choice was made.	
	H_0-	
Please state the operationalised **IV** and the **DV**	**IV**	**DV** (what units will this be measured in?)
What **experimental design** are you going to use?	**Experimental Design:** Independent Repeated Matched pairs	
	Justification:	
Please describe your **two conditions.**	**Condition A**	
	Condition B	
Give details of the **sampling method**	**Sampling Method**	
	How this will be achieved	
	Justification for using this technique	
Participants	**Target population**	**Estimated number**
	Thoughts on recruitment	
Identify **potential sources of bias**/possible **confounding variables**.		

Explain what procedures will be adopted to deal with these (**controls**)			
Identify any relevant **ethical issues** and identify the **steps to be taken to deal with these**.	Informed consent: Deception: Right to withdraw: Confidentiality: Psychological/Physical harm:		
What **materials** will be required, how/when and by whom will they be created? This should include preparation of standardised instructions and ethical documentation, e.g. consent forms, standardised debriefing. You may also need to create emails/posters/ flyers to recruit participants.	**Materials**	**Person responsible for first draft**	**Action plan**
Thoughts of the sequence of events for **procedure** (including gaining informed consent, standardised instructions and debriefing) how this will be achieved.			

Your study: Once you have chosen a study, you will need to work through the procedure together in your group, asking yourself similar questions to the ones above and then complete another copy of the project brief in order to plan out your study, including any modifications that you want to make.

When you complete your study, you will also need to think about ...

- when and where you are going to conduct the study
- how you will ensure that all your Pps. end up in the right place at the right time!

Where will the study take place?	
When will you complete the study?	
How will we organise this with our participants?	

Pilot study

Before conducting the main study, many researchers will conduct a pilot study or 'dry run' to ensure that everything works out as planned and there are no unexpected hitches. The researchers will run a few participants through the procedure and use the experience to make any necessary changes. Use the space below to think about when, where and how you will conduct your pilot study.

Ideas for standardised instructions

Ideas for ethical documentation, e.g. including consent and debriefing.

Recording the data: Raw Data

Where does this belong in the real report? .....

	Number of words correctly recalled from the last third of the 18 item list (score out of 6)	
Pp	**Condition A:** No delay before free recall	**Condition B:** 20 second delay before free recall while completing maths problems
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
12		
13		
14		
15		
16		
17		
18		
19		
20		

Analysing the data

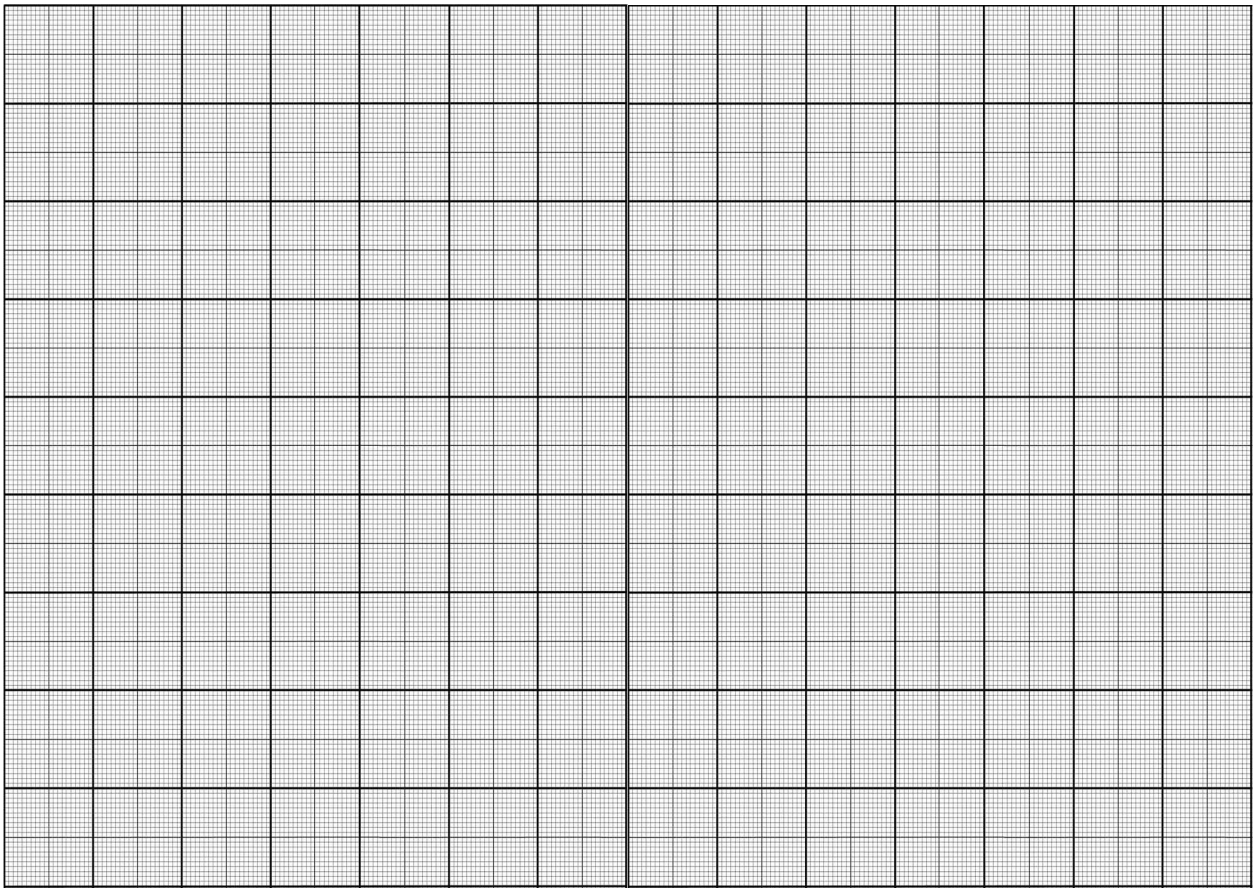
Level of measurement of the data	Nominal	Ordinal	Interval/Ratio
	Explanation:		

Descriptive statistics	
Measure of central tendency (M of CT)	
Measure of dispersion (M of D)	

Example of Summary table: The table should stand alone, meaning that you should not necessarily need to read much of the rest of the report to understand what the figures refer to , i.e. you say what condition A and B were within the titles of these rows and you should ensure that the units are also clear.

	M of CT	**M of D**
Condition A		
Condition B		

Appropriate graph:



Thoughts on 'Explaining the descriptive statistics' including link to hypotheses

Analysing the data: Inferential Statistics

Inferential statistics					
Test of ….	Association			Difference	
Design	Correlation		Independent measures	Repeated measures	
Type of data	Nominal		Ordinal	Interval	
Choice of statistical test					
Number of Pps (N)	**One tailed or two tailed**	**Observed value**	**Critical value**	**P Value**	**H_1**
					Accepted
					Rejected

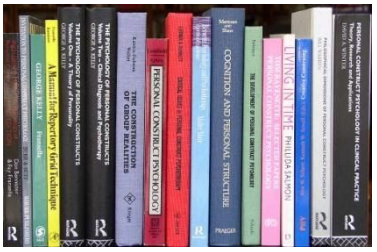
At the 5% level of significance, the critical value for a .....-tailed test, when n=..... is .....

Since the observed value of ..... is ..... than the critical value, the ..... hypothesis can be ..... and the .....hypothesis can be .....

Thoughts on the 'evaluation' AKA The discussion ;)

Discussion of findings linked to the background theory/model	
Explanation of Strengths: Design: Sample: Procedure:	
Explanation of Weaknesses:	Linked modifications:
Design:	
Sample:	
Procedure:	
Conclusions	

Referencing



In Psychology we are required to write up our *references*. These are different to a *bibliography*. A bibliography is essentially a list of all the sources that you have used to create your essay or report. References on the other hand are more specific. They are there to help your reader to find out more about the authors/psychologists that you have directly referred to in the text, but more importantly to give credit to these authors.

Referencing in the text
If you mention a study, theory or concept in your essay or report, which can be attributed to a specific psychologist, then you should mention their name in brackets followed by the date of publication of the book or journal article where the information was originally discussed, e.g. if you mentioned agency theory in your essay, you would follow up with: (Milgram, 1974). If the reader wants to know more about agency theory, in Milgram's own words and not those of 500 different 'psychology for A level' textbooks, then one should turn to the references section at the end of the essay, scroll through to M and find the whole reference for Milgram, (1974.) Often psychological chapters and articles have many authors; if there are two, mention them both, e.g. Van Ijzendoorn and Kroonenberg (1988). When there's more than two, just quote the first author followed by 'et al'-it means and others in French and will save a lot of time! This is only allowed in the main body of the text.

Primary referencing
The references section appears at the end of the essay or report and is an alphabetical list of the original sources where a reader can discover the exact origin of the ideas of the authors/psychologists that you have directly referred to in the text. This is usually a book or journal article although more recently many publications appear online and so you may well be referencing websites. There are a variety of different ways in which you can write up your references, for example The Harvard System is one of the most commonly used in universities while you can also use a system devised by the APA or American Psychological Association. I tend to use the latter;

Here's what to write:

For books…

Author/s' surname followed by initials, date, title, publisher, edition; you should underline or italicise the title. e.g.

Davenport, G.C. (1994). *An introduction to child development*. Collins Educational. 2nd Edition.

Pay special attention to all those full stops and commas. Always use full stops between each section, but a comma between author's surname and initials.

For journals, magazines, newspapers…

Author/s' surname followed by initials, publication date, title of article, title of journal/magazine, issue number or month, page reference, you should underline or italicize the journal/magazine title and issue details e.g.

Smith, P.K. (2000). Why I study bullying. *The Psychologist. July, Vol.13, No.7, p.348-349.*

For websites:

This can be tricky as not all website have all the details that you need. Here are some rules of thumb.

Stand-alone documents, no author identified, no date
Title of page in italics, date in brackets or (n.d.) if no date given, in plain text, followed by the phrase 'Retrieved *date with month first then date and year*, e.g. May, 2, 2006, from *followed by website, e.g. from*

http://www.csci.org.uk/system_pages/data_protection/personal_information.aspx

Full reference would look like this:

Personal information. (2006). Retrieved May, 2, 2006, from http://www.csci.org.uk/system_pages/data_protection/personal_information.aspx

If the authors are listed then their names should come first, before the title of the page, in the following format:

Chou, L., McClintock, R., Moretti, F., Nix, D. H. (1993). *Technology and education: New wine in new bottles: Choosing pasts and imagining educational futures*. Retrieved August 24, 2000, from Columbia University, Institute for Learning Technologies Web site: http://www.ilt.columbia.edu/publications/papers/newwine1.html

A tip for making sure you have a complete list of references:

Save yourself a lot of hassle by making a list of references as you go. When you are making notes to research an essay or report, head each area of notes with the author, publication date, title, publisher and edition of the book that you are using. Then if you need to quote a bit you can. Also if you mention a psychologist in your notes, look them up in the references in the back of the book you are using and copy out the reference it gives. This is the original place that their work can be found.

Most of the time you will probably read about psychologists in textbooks.

Here's how to reference them; we call this secondary referencing…

1. Look up the psychologist in the references section at the back of the book and copy the reference out in full. You write all of this into your references sections and then…
2. write 'cited in' followed by the full reference for the book you found it in and the page number, e.g.

Miller, K.F., Smith, C.M., Zhu, J., & Zhang, H. (1995). Preschool origins of cross national differences in mathematical competence. The role of number naming systems. *Psychological Science*, 6, 56-60 cited in Siegler, R., DeLoache, J., & Eisenberg, N. (2002). *How children develop*. Worth Publishers. New York, p. 282.

Thoughts on Necessary Appendices

Please include – your materials that you have used and details of standardised instructions.

Assessment Criteria/Mark Scheme

1. Introduction (6 marks)

Marks	Level descriptor
0	Does not reach the standard described by the descriptors below.
1–2	The aim of the investigation is stated but its relevance is not identified. The theory or model upon which the student's investigation is based is identified but the description is incomplete or contains errors. Null and/or research hypotheses are stated, but do not correctly identify the Independent or Dependent Variables.
3–4	The aim of the investigation is stated and its relevance is identified but not explained. The theory or model upon which the student's investigation is based is described but the link to the student's investigation is not explained. The Independent and Dependent Variables are correctly stated in the null or research hypotheses, but not operationalized.
5–6	The aim of the investigation is stated and its relevance is explained. The theory or model upon which the student's investigation is based is described and the link to the student's investigation is explained. The Independent and Dependent Variables are stated and operationalized in the null or research hypotheses.

2. Exploration (4 marks)

Marks	Level descriptor
0	Does not reach the standard described by the descriptors below.
1–2	The research design is described. The sampling technique is described. Characteristics of the participants are described. Controlled variables are described. The materials used are described.
3–4	The research design is explained. The sampling technique is explained. The choice of participants is explained. Controlled variables are explained. The choice of materials is explained.

3. Analysis (6 marks)

Marks	Level descriptor
0	Does not reach the standard described by the descriptors below.
1–2	Only descriptive or inferential statistics are applied. A correct graphing technique is chosen but the graph does not address the hypothesis. There is no clear statement of findings.
3–4	Appropriate descriptive and inferential statistics are applied but there are errors. The graph addresses the hypothesis but contains errors. The statistical findings are stated but either not interpreted with regard to the data or not linked to the hypothesis.
5–6	Descriptive and inferential statistics are appropriately and accurately applied. The graph is correctly presented and addresses the hypothesis. The statistical findings are interpreted with regard to the data and linked to the hypothesis.

4. Evaluation (6 marks)

Marks	Level descriptor
0	Does not reach the standard described by the descriptors below.
1–2	The findings of the student's investigation are described without reference to the background theory or model. Strengths and limitations of the design, sample or procedure are stated but are not directly relevant to the hypothesis. One or more modifications are stated.
3–4	The findings of the student's investigation are described with reference to the background theory or model. Strengths and limitations of the design, sample or procedure are stated and described and relevant to the investigation. Modifications are described but not explicitly linked to the limitations of the student's investigation.
5–6	The findings of the student's investigation are discussed with reference to the background theory or model. Strengths and limitations of the design, sample and procedure are stated and explained and relevant to the investigation. Modifications are explicitly linked to the limitations of the student's investigation and fully justified.

Good luck completing your IA! I am here to help and part of the research process is working with a supervisor to conduct a study so please come and talk things through at any stage!

Use the table on the next page to keep a record of our supervision discussions.

Supervision

Questions to ask at supervision	Time/ place	Outcomes/reflections