

# Psychology 2019 v1.4

IA2: Sample assessment instrument

## Student experiment (20%)

This sample has been compiled by the QCAA to assist and support teachers in planning and developing assessment instruments for individual school settings.

**Student name**

**Student number**

**Teacher**

**Issued**

**Due date**

## Marking summary

Criterion	Marks allocated	Provisional marks
Research and planning	6	
Analysis of evidence	6	
Interpretation and evaluation	6	
Communication	2	
<b>Overall</b>	<b>20</b>	

# Conditions

<b>Technique</b>	Student experiment
<b>Unit</b>	Unit 3: Individual thinking
<b>Topic/s</b>	Topic 3: Memory
<b>Duration</b>	10 hours class time
<b>Mode/length</b>	Written response (e.g. scientific report): 1500–2000 words
<b>Individual/group</b>	Individual response: students may collaborate to develop the methodology and perform the experiment
<b>Resources</b>	School science laboratory and library (online: internet and school intranet, databases, journals)

## Context

You have completed the following practicals in class:

- Use an experimental research design to investigate the effect of learning environment on memory, replicating aspects of the 1998 investigation by Harry Grant et al. (mandatory practical).
- Modify an experiment investigating memory, such as context-dependent cues on memory (Tulving & Pearlstone 1966) (suggested practical).
- Modify an experiment investigating memory, such as levels of processing theory — deep processing (semantic) (Elias & Perfetti 1973) (suggested practical).

## Task

Modify (i.e. refine, extend or redirect) an experiment in order to address your own related hypothesis or question.

You may use a practical performed in class, a related simulation or another practical related to Unit 3 (as negotiated with your teacher) as the basis for your methodology and research question.

**To complete this task, you must:**

- identify an experiment to modify\*
- develop a research question to be investigated\*
- research relevant background scientific information to inform the modification of the research question and methodology
- conduct a risk assessment and account for risks in the methodology\*
- conduct the experiment\*
- collect sufficient and relevant qualitative data and/or quantitative data to address the research question\*
- process and present the data appropriately
- analyse the evidence to identify trends, patterns or relationships
- analyse the evidence to identify uncertainty and the limitations
- interpret the evidence to draw conclusion/s to the research question
- evaluate the reliability and validity of the experimental process
- suggest possible improvements and extensions to the experiment
- communicate findings in an appropriate scientific genre, i.e. scientific report.

\*The steps indicated with an asterisk above may be completed in groups. All other elements must be completed individually.

## Checkpoints

- Term 2, Week 3: Select experiment and identify proposed modifications.
- Term 2, Week 4: Perform experiment and process data
- Term 2, Week 6: Analyse and evaluate evidence
- Term 2, Week 7: Submit draft
- Term 2, Week 9: Submit final response.

## Authentication strategies

- The teacher will provide class time for task completion.
- Students will provide documentation of their progress at indicated checkpoints.
- The teacher will collect and annotate one draft.
- Students will use plagiarism-detection software at submission of the response.
- Students must acknowledge all sources.
- The teacher will compare the responses of students who have worked together in groups.

## Scaffolding

The response must be presented using an appropriate scientific genre (i.e. scientific report) and contain:

- a research question
- a rationale for the experiment
- reference to the initial experiment and identification and justification of modifications to the methodology
- raw and processed qualitative data and/or quantitative data
- analysis of the evidence
- conclusion/s based on the interpretation of the evidence
- an evaluation of the methodology and suggestions of improvements and extensions to the experiment
- a reference list.

## An example of how one of the practicals could be modified to develop a research question

**Practical that will be modified:** Modify an experiment investigating memory, such as context-dependent cues on memory (Tulving & Pearlstone 1966).

**Research question:** Does the presence of retrieval cues increase the accessibility of information (recall) in short-term memory?

### Hypotheses:

- The null hypothesis states that there will be no difference in recall between participants presented with cues in the form of category headings on response sheets (cued recall condition) and those participants without cues (non-cued recall condition).
- The alternative, non-directional hypothesis states that there will be a difference in recall between participants presented with cues in the form of category headings on response sheets (cued recall condition) and participants not presented with cues (non-cued recall condition).

### Developing the research question:

Steps	Details
Identify the independent variable to be investigated.	The presence of retrieval cues.
Identify the dependent variable.	Accessibility of information.
Identify the methodology to be used.	Modification of Tulving and Pearlstone (1966).
Draft research questions.	Do retrieval cues increase recall in short-term memory? Do retrieval cues increase the accessibility of information in short-term memory?
Refine and focus the research question.	Does the presence of retrieval cues increase the accessibility of information in short-term memory?
Present research question to teacher for approval.	Does the presence of retrieval cues increase the accessibility of information (recall) in short-term memory?

**Note:** You cannot use this sample research question for your experiment.

# Instrument-specific marking guide (IA2): Student experiment (20%)

## Criterion: Research and planning

### Assessment objectives

2. apply understanding of localisation of function in the brain, visual perception, memory or learning to modify experimental methodologies and process primary data
5. investigate phenomena associated with localisation of function in the brain, visual perception, memory or learning through an experiment

The student work has the following characteristics:	Marks
<ul style="list-style-type: none"> <li>• informed application of understanding of localisation of function in the brain, visual perception, memory or learning to modify experimental methodologies demonstrated by               <ul style="list-style-type: none"> <li>– a considered rationale for the experiment</li> <li>– justified modifications to the methodology</li> </ul> </li> <li>• effective and efficient investigation of phenomena associated with localisation of function in the brain, visual perception, memory or learning demonstrated by               <ul style="list-style-type: none"> <li>– a specific and relevant research question</li> <li>– a methodology that enables the collection of sufficient, relevant data</li> <li>– considered management of risks and ethical or environmental issues.</li> </ul> </li> </ul>	5–6
<ul style="list-style-type: none"> <li>• adequate application of understanding of localisation of function in the brain, visual perception, memory or learning to modify experimental methodologies demonstrated by               <ul style="list-style-type: none"> <li>– a reasonable rationale for the experiment</li> <li>– feasible modifications to the methodology</li> </ul> </li> <li>• effective investigation of phenomena associated with localisation of function in the brain, visual perception, memory or learning demonstrated by               <ul style="list-style-type: none"> <li>– a relevant research question</li> <li>– a methodology that enables the collection of relevant data</li> <li>– management of risks and ethical or environmental issues.</li> </ul> </li> </ul>	3–4
<ul style="list-style-type: none"> <li>• rudimentary application of understanding of localisation of function in the brain, visual perception, memory or learning to modify experimental methodologies demonstrated by               <ul style="list-style-type: none"> <li>– a vague or irrelevant rationale for the experiment</li> <li>– inappropriate modifications to the methodology</li> </ul> </li> <li>• ineffective investigation of phenomena associated with localisation of function in the brain, visual perception, memory or learning demonstrated by               <ul style="list-style-type: none"> <li>– an inappropriate research question</li> <li>– a methodology that causes the collection of insufficient and irrelevant data</li> <li>– inadequate management of risks and ethical or environmental issues.</li> </ul> </li> </ul>	1–2
<ul style="list-style-type: none"> <li>• does not satisfy any of the descriptors above.</li> </ul>	0

## Criterion: Analysis of evidence

### Assessment objectives

2. apply understanding of localisation of function in the brain, visual perception, memory or learning to modify experimental methodologies and process primary data
3. analyse experimental evidence about localisation of function in the brain, visual perception, memory or learning
5. investigate phenomena associated with localisation of function in the brain, visual perception, memory or learning through an experiment

The student work has the following characteristics:	Marks
<ul style="list-style-type: none"> <li>• appropriate application of algorithms, visual and graphical representations of data about localisation of function in the brain, visual perception, memory or learning demonstrated by correct and relevant processing of data</li> <li>• systematic and effective analysis of experimental evidence about localisation of function in the brain, visual perception, memory or learning demonstrated by               <ul style="list-style-type: none"> <li>– thorough identification of relevant trends, patterns or relationships</li> <li>– thorough and appropriate identification of the uncertainty and limitations of evidence</li> </ul> </li> <li>• effective and efficient investigation of phenomena associated with localisation of function in the brain, visual perception, memory or learning demonstrated by the collection of sufficient and relevant raw data.</li> </ul>	5–6
<ul style="list-style-type: none"> <li>• adequate application of algorithms, visual and graphical representations of data about localisation of function in the brain, visual perception, memory or learning demonstrated by basic processing of data</li> <li>• effective analysis of experimental evidence about localisation of function in the brain, visual perception, memory or learning demonstrated by               <ul style="list-style-type: none"> <li>– identification of obvious trends, patterns or relationships</li> <li>– basic identification of uncertainty and limitations of evidence</li> </ul> </li> <li>• effective investigation of phenomena associated with localisation of function in the brain, visual perception, memory or learning demonstrated by the collection of relevant raw data.</li> </ul>	3–4
<ul style="list-style-type: none"> <li>• rudimentary application of algorithms, visual and graphical representations of data about localisation of function in the brain, visual perception, memory or learning demonstrated by incorrect or irrelevant processing of data</li> <li>• ineffective analysis of experimental evidence about localisation of function in the brain, visual perception, memory or learning demonstrated by               <ul style="list-style-type: none"> <li>– identification of incorrect or irrelevant trends, patterns or relationships</li> <li>– incorrect or insufficient identification of uncertainty and limitations of evidence</li> </ul> </li> <li>• ineffective investigation of phenomena associated with localisation of function in the brain, visual perception, memory or learning demonstrated by the collection of insufficient and irrelevant raw data.</li> </ul>	1–2
<ul style="list-style-type: none"> <li>• does not satisfy any of the descriptors above.</li> </ul>	0

## Criterion: Interpretation and evaluation

### Assessment objectives

- interpret experimental evidence about localisation of function in the brain, visual perception, memory or learning
- evaluate experimental processes and conclusions about localisation of function in the brain, visual perception, memory or learning

The student work has the following characteristics:	Marks
<ul style="list-style-type: none"><li>insightful interpretation of experimental evidence about localisation of function in the brain, visual perception, memory or learning demonstrated by justified conclusion/s linked to the research question</li><li>critical evaluation of experimental processes about localisation of function in the brain, visual perception, memory or learning demonstrated by<ul style="list-style-type: none"><li>justified discussion of the reliability and validity of the experimental process</li><li>suggested improvements and extensions to the experiment that are logically derived from the analysis of evidence.</li></ul></li></ul>	5–6
<ul style="list-style-type: none"><li>adequate interpretation of experimental evidence about localisation of function in the brain, visual perception, memory or learning demonstrated by reasonable conclusion/s relevant to the research question</li><li>basic evaluation of experimental processes about localisation of function in the brain, visual perception, memory or learning demonstrated by<ul style="list-style-type: none"><li>reasonable description of the reliability and validity of the experimental process</li><li>suggested improvements and extensions to the experiment that are related to the analysis of evidence.</li></ul></li></ul>	3–4
<ul style="list-style-type: none"><li>invalid interpretation of experimental evidence about localisation of function in the brain, visual perception, memory or learning demonstrated by inappropriate or irrelevant conclusion/s</li><li>superficial evaluation of experimental processes about localisation of function in the brain, visual perception, memory or learning demonstrated by<ul style="list-style-type: none"><li>cursory or simplistic statements about the reliability and validity of the experimental process</li><li>ineffective or irrelevant suggestions</li></ul></li></ul>	1–2
<ul style="list-style-type: none"><li>does not satisfy any of the descriptors above.</li></ul>	0



## Criterion: Communication

### Assessment objectives

7. communicate understandings and experimental findings, arguments and conclusions about localisation of function in the brain, visual perception, memory or learning

The student work has the following characteristics:	Marks
<ul style="list-style-type: none"><li>• effective communication of understandings and experimental findings, arguments and conclusions about localisation of function in the brain, visual perception, memory or learning demonstrated by<ul style="list-style-type: none"><li>– fluent and concise use of scientific language and representations</li><li>– appropriate use of genre conventions</li><li>– acknowledgment of sources of information through appropriate use of referencing conventions</li></ul></li></ul>	2
<ul style="list-style-type: none"><li>• adequate communication of understandings and experimental findings, arguments and conclusions about localisation of function in the brain, visual perception, memory or learning demonstrated by<ul style="list-style-type: none"><li>– competent use of scientific language and representations</li><li>– use of basic genre conventions</li><li>– use of basic referencing conventions</li></ul></li></ul>	1
<ul style="list-style-type: none"><li>• does not satisfy any of the descriptors above.</li></ul>	0



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