



**National Qualifications
Higher Psychology (C263 12)
Research Investigation Guidelines
(Revised)**

August 2010

General Information

These guidelines are intended to aid teachers and lecturers in the production of the Research Investigation in the National Course in Psychology at Higher level. The Research Investigation forms 20% of the Course award for Higher Psychology and must be submitted to SQA by the date stated in the *Operational Helpcentre* available on SQA's website.

It should be noted that candidates who are not being presented for the Higher Course award (ie only attempting Units) are not required to undertake a Research Investigation.

It is also important to note that, although candidates can work together to collect data, submissions must be made individually, and must be the **candidate's own work**.

A summary of the BPS Ethical Principles for conducting research with human participants is included in this document. However, teachers/lecturers should make themselves aware of the the most up-to-date version of the BPS Code of Ethics and Conduct (current version is 2009), published by the British Psychological Society. This can be obtained from:

The British Psychological Society
St Andrews House
48 Princess Road East
Leicester
LE1 7DR

Telephone: 0116 254 9568

E-mail: mail@bps.org.uk

Web address: www.bps.org.uk

Included in this document is further guidance on ethical requirements specific to student research for the Higher Psychology Research Investigation.

Under no circumstances should any participants under the age of 16 be used in any Research Investigation. Failure to adhere to this guidance will result in a serious marks penalty.

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1 Course Outline

The National Course in Psychology at Higher level articulates with, and provides progression from, the Intermediate 2 Psychology Course. The Course aims to provide an opportunity for reinforcing and extending the candidate's psychological knowledge and understanding, developing their ability to evaluate, analyse and set in a historical context, a wide variety of psychological evidence.

In addition, candidates prepare for further psychological study through the research and production of a psychological Research Investigation. The content covered in the Higher Course is specified in the relevant Arrangements Documents. The structure of the Higher Psychology Course is:

Mandatory Units

F5B4 12	Psychology: Understanding the Individual
DF5L 12	Psychology: Investigating Behaviour
F5B5 12	Psychology: The Individual in the Social Context

1.1 Course Assessment

In order to gain an award in the Higher Psychology Course, the candidate must pass the internal assessments associated with the component Units.

In addition, the candidate must meet the standards set by the external assessment. The external assessment will comprise a Research Investigation and a Question Paper. The Question Paper is divided into three sections. The candidate must answer two questions in sections A, all questions in section B, and two questions from section C. Section A covers the *Understanding the Individual* Unit and is worth 40 marks. Section B covers the *Investigating Behaviour* Unit (20 marks) and section C covers *The Individual in the Social Context* Unit (40 marks).

2 Research Investigation

Candidates undertaking a Psychology Course at Higher level must also undertake a Research Investigation (RI). The Research Investigation must be based on a concept selected from the list of approved RI topics, as detailed in the document '*C263 12: Higher Psychology Research Investigation Briefs*'.

The RI briefs, along with the Marker Checklist and this 'Guidelines' document, can all be accessed on SQA's website: www.sqa.org.uk under the NQ Psychology pages.

The Research Investigation is externally marked and contributes towards the candidate's overall grade as follows:

Question Paper	100 Marks	= 80% of overall grading
Research Investigation	50 Marks*	= 20% of overall grading
Course total	125 Marks	= 100%

*The Research Investigation will be marked out of 50 but scaled to 25 before combining with the mark gained in the external exam.

2.1 Aim of the Research Investigation

The aim of the Research Investigation is to assess the candidate's practical skills in applying psychological methods and descriptive statistical techniques. It also provides a context for integration of knowledge across Units, including the ability to analyse and evaluate theory and/or evidence.

Psychology is not merely a knowledge based subject. It is recognised as a science and as such, candidates must not only be aware of scientific methods and skills, but must also be able to apply those skills in the pursuit of knowledge. Candidates will be made aware of the importance of planning, literature reviews, evidence, analysis and evaluation. They will also be introduced to the format and style of report writing in psychology.

These guidelines will assist the candidate in producing a piece of work that closely resembles the research procedures and report-writing conventions of the discipline of Psychology.

Candidates who are not being presented for the Higher Course award (ie only attempting Units) are not required to undertake a Research Investigation. In this instance, all requirements for achievement are expressed within the Learning Outcomes of the Unit.

2.2 Nature and Assessment of the Research Investigation

The Research Investigation must be based on a topic selected by the teacher/lecturer and candidate from the list of approved topics. The Research Investigation report should be approximately 1,500–2,000 words long. Research Investigations may be conducted in small groups of **no more than four persons**, but the RI Report **must** be individually produced. Research Investigations need not be written under supervised conditions, however teachers/lecturers should be confident of the authenticity of each candidate's work. For example teachers/lecturers may supervise the writing of draft materials prepared by candidates. It is important to note that on submission of the Research Investigation, the candidate must sign a declaration stating that it is their own work. See SQA's 'Coursework Authenticity' document for teachers/lecturers, for more guidance on encouraging authentic work and avoiding plagiarism.

Due to the substantial nature of the Research Investigation, it is envisaged that candidates will need 25-30 hours for its preparation. Teachers/lecturers are likely to allocate around 6-8 hours teaching the skills and format for report writing and 8-10 hours monitoring the progress. Additional knowledge and skills will be taught within the *Investigating Behaviour* Unit.

Individual discretion will be required regarding the timing of introducing the Research Investigation to candidates. However, it is advised that such an introduction should be planned for before the Christmas break, or shortly thereafter, to allow time for each stage in the process. To this effect, part or all of this document can be copied and distributed to candidates. Once candidates have been introduced to the process required for such research, they can incorporate this knowledge with the content of the *Investigating Behaviour* Unit. This allows candidates to apply their learning to a practical situation. The concept, or topic around which the Research Investigation is based, should also be taught before, or concurrently with, the Research Investigation itself. Guidelines should also be given to candidates regarding the format and style used for psychology reports.

Published research studies which relate to the topics being taught in the Units *Understanding the Individual* and *The Individual in the Social Context* could be used to provide the foundation on which a practical Research Investigation could be introduced. This would facilitate understanding and would provide a frame of reference for the candidates who will then conduct a Research Investigation based on one of the approved topics provided by SQA. For practical purposes it is easier for the teacher/lecturer to have an entire class conducting the same study. This does not mean that all reports will be the same, as each candidate writes their own individual report. Although the whole class may be conducting the same study, candidates should work and collect data in small groups of no more than four persons, or as individuals, to ensure that every individual is involved in collecting data, and to reduce the risk of plagiarism. Background reading for the Introduction and analysis of findings in the Discussion section will be different for each candidate. Although the whole class may have used the same methods, each candidate will write their own Method section and this too will therefore be expressed differently by each candidate.

Candidates will be provided with the Higher Psychology Research Investigation Briefs which outline approved studies indicating hypothesis, research method, specific ethical considerations and suggested presentational method. These should enable candidates to carry out a study according to standard procedures and to produce accurate results and reach balanced conclusions about the concepts taught.

Candidates should be familiar with some of the knowledge required to carry out a Research Investigation from the *Investigating Behaviour* Unit, eg hypotheses, sampling techniques, research design, data analysis and ethical issues in research. Candidates will also have knowledge of research studies from the Units *Understanding the Individual* and *The Individual in the Social Context*.

Although the design may be non-experimental (the options of non-experimental studies will be prescribed by SQA in the Investigation Briefs for each session) and candidates may embark on their Research Investigation before completion of the *Investigating Behaviour* Unit, the following key features of research should be taught in preparation for the practical Research Investigation.

Descriptive Statistics:

- ◆ Measures of central tendency — mean, median, and mode
- ◆ Measures of dispersion — range
- ◆ Data analysis — tables, graphs, bar charts, histograms, pie charts or scattergrams

- ◆ Guidance on Conducting Research:
- ◆ Ethical considerations
- ◆ Design procedures — Format and style of report writing
 - Stages in the research process:
 - Establish research question and variables
 - Carry out background reading in the appropriate areas
 - Establish hypotheses
 - Design research
 - Plan a schedule
 - Collect data
 - Analyse data
 - Write draft
 - Write final version, following feedback from teacher/lecturer on the draft copy

3 Taught Elements

The Research Investigation allows the candidate to integrate elements, which are taught as part of the course. This includes:

Knowledge and understanding, analysis and evaluation of the various methods and designs used when collecting data and conducting research

Concepts and research issues relating to studies conducted in psychology

Ethical issues which must be considered when conducting research with human participants

Standard procedures for planning, conducting and reporting psychological research

The teaching of the required knowledge for the Research Investigation is primarily covered in the *Investigating Behaviour* Unit. However, it will be necessary to ensure that candidates are familiar with the appropriate report-writing style and format for the Research Investigation. They should also be aware of the appropriate descriptive statistics and methods used to present data. Examples of these include:

Type of Data	Descriptive Statistics	Tables and Charts
Nominal/Categorical	Percentages Mode	Pie Chart Bar Chart
Ordinal	Percentages Median Range	Barchart (means/medians) Scattergram (correlational designs)
Interval and Ratio	Mean Median Mode Range	Barchart (means/medians) Scattergram (correlational designs)

NB

1. Types of data: The Unit content does not require candidates to distinguish the three types of data shown in the table above, however, each RI brief contains specific guidance on appropriate treatment of results. In practice, the distinction between ordinal and interval/ratio data is often blurred, therefore in the RI, guidance on statistical treatment is flexible: for example, a barchart of mean scores may be acceptable for ordinal rating scale data. On the other hand, the distinction between nominal/categorical data and the other two types is clear, so that procedures suitable for nominal data are not usually suitable for interval/ratio, and vice versa: for example, pie charts are not appropriate for interval/ratio data (unless first converted to nominal data).

2. Descriptive statistics, tables and charts: those listed in the table are those required in the Unit content. Further procedures may be used in the RI if desired, such as frequency tables and histograms, standard deviation etc, but are not essential in the RI report.

4 Ethical Guidelines

It is essential that all teachers/lecturers are familiar with the most recent version of the 'BPS Code of Ethics and Conduct' (2009), at www.bps.org.uk, which **applies to ALL psychological research**, and the further guidance from SQA on ethical aspects **specific to student research for the Higher Psychology Research Investigation** (see 4.2, below).

The BPS Code establishes four ethical principles: **Respect, Competence, Responsibility, Integrity**. Below is a summary of selected points adapted from these principles, which are relevant for the Higher Psychology RI. It is followed by additional ethical requirements set by SQA for the RI.

4.1 Summary of BPS ethical principles for conducting research with human participants

Introduction

- ◆ Participants should have confidence in the investigators.
- ◆ There should be mutual respect between investigators and participants.
- ◆ BPS members should encourage colleagues to adopt these Ethical Principles and ensure that they are followed by those under their supervision, ie Higher Psychology candidates.

General

- ◆ Investigators should consider all ethical and psychological consequences of their research on their participants.
- ◆ They should respect individual, cultural and role differences, including (but not exclusively) those involving age, disability, education, ethnicity, gender, language, national origin, race, religion, sexual orientation, marital or family status and socio-economic status.
- ◆ Psychologists should consider all research from the standpoint of research participants, for the purpose of eliminating potential risks to psychological well-being, physical health, personal values, or dignity. It is suggested that the best judge of whether a Research Investigation may cause offence to the participants, are members of the population from which the sample is drawn.
- ◆ Psychologists owe a debt to those who agree to take part in research. Participants should be treated with the highest degree of consideration and respect. As such, the term 'participants' should be used rather than 'subjects'. This is seen to be a less derogatory and impersonal term.

Consent

- ◆ Ensure that clients are given ample opportunity to understand the nature, purpose, and anticipated consequences of any research participation, so that they may give informed consent.
- ◆ Seek to obtain the informed consent of all clients to whom research participation is offered.

NB Higher candidates must not use participants under the age of 16 in their research.

Deception

- ◆ Researchers should avoid intentional deception of participants
- ◆ Withholding information about the nature of the research is unacceptable where such information may influence the decision of the participant to take part.
- ◆ Some research would not be possible, or would result in inaccurate results, if the full nature of the research were known to participants prior to their participation. However, a distinction is made between withholding information and deliberately giving false information. The BPS consider deception to have taken place if, on revelation of the nature of the hypothesis, participants feel any form of discomfort.

Debriefing

- ◆ Investigators should ensure that participants are given enough information on completion of the research to complete their understanding.
- ◆ Investigators should also discuss with the participants, their experience of the research.
- ◆ Debriefing does not justify unethical research.
- ◆ Debrief research participants at the conclusion of their participation, in order to inform them of the outcomes and nature of the research, to identify any unforeseen harm, discomfort, or misconceptions, and in order to arrange for assistance as needed.

Withdrawal

- ◆ Researchers should ensure that participants are aware of their right to withdraw at any time from research participation, without giving a reason and without any adverse consequences to themselves
- ◆ Researchers should comply with requests by those who are withdrawing from research participation that any data they have given be destroyed.
- ◆ Withdrawal can take place before, during or after the Research Investigation is complete.

Confidentiality

- ◆ Participant information is confidential unless otherwise agreed in advance.
- ◆ Participants have the right to expect that any information about them is confidential and that they will not be identifiable from any written reports on the Research Investigation.
- ◆ Researchers should record, process, and store confidential information in a fashion designed to avoid inadvertent disclosure.

Protection

- ◆ It is the investigator's responsibility to ensure that participants are not subjected to any greater physical or mental harm than they would expect in their everyday life.
- ◆ Researchers should inform participants from the first contact that they may decline to answer any questions put to them.
- ◆ Participants should be given a contact number (school/college) which can be used if they experience any stress following the Research Investigation, or if they have any further questions.
- ◆ Participants should be assured that they are not required to give any information that they consider to be private or personal.

Observation

- ◆ Unless informed consent has been obtained, researchers should restrict observations of public behaviour to those situations in which persons being studied would reasonably expect to be observed by strangers.
- ◆ Cultural differences should be considered when applying the above rule.

Giving Advice

- ◆ Higher candidates should not offer advice to participants as part of their Research Investigation; if asked for advice by a participant, candidates should consult their teacher/lecturer.

Colleagues

- ◆ Investigators share responsibility for the ethical treatment of participants with their colleagues and candidates. A psychologist who believes that an investigator may be conducting unethical research should encourage them to re-evaluate their research.

4.2 Additional ethical safeguards required for the Higher Psychology RI.

The following is a list of topics and participants which must be avoided by students while carrying out their research for the Research Investigation at Higher. This is in accordance with the recommendations made by the British Psychological Society and the Association for the Teaching of Psychology in Scotland.

In line with these recommendations the following points should be noted:

Participants

- ◆ **ALL** participants must be 16 years of age or over, regardless of parental consent being given or not.
- ◆ No participants, the general public or the researchers should be put into ANY situation which may cause alarm or potential danger, eg no re enactments of Piliavin or similar type RI's in a public place
- ◆ Participants should not be questioned on aspects of sexuality.
- ◆ Direct/personal questioning about state of mental health should be avoided, including asking questions about eating disorders.
- ◆ Appendices should not include names/addresses or any other means of identifying participants.

The recommendation is to keep all RIs 'in-house' if possible. If the public is used, great care must be taken not to offend in any way.

Topics

The following must **not** be used:

- ◆ Substances such as alcohol or drugs of any description.
- ◆ Sexually explicit material (even moderate).
- ◆ Direct questioning involving mental or specific areas of physical health.
- ◆ Feigning illness or situations of concern in public places.
- ◆ IQ testing.

These points are relevant to **ALL** psychology candidates regardless of learning mode, ie they apply to school, college and Flexible Learning candidates.

4.3 Ethical Checklist

Clearly, it is important to ensure that the research you conduct is ethical. The table below can be used to check what ethical issues you may need to consider before conducting your research.

Ethical Checklist

Question	Response Yes or No	Consequence
1. Are the participants likely to suffer any threats to their wellbeing, health, values or dignity?		If yes — consider altering the procedure. If no — go to question 2(a).
2(a) Are the participants from a different cultural or social background, or of different age or sex from the investigators?		If yes — go to question 2(b). If no — go to question 3.
2(b) Have members of the target population been asked if the procedure is likely to threaten participants' wellbeing?		If yes — go to question 3. If no — ask members of target population about any possible threat/intrusion. If there is no objection then proceed.
3. Have you informed potential participants of the aim of the study?		If yes — go to question 4. If no consider doing so. If this is impractical seek advice from an experienced researcher.
4. Are any of the participants unable (because of age or understanding) to give informed consent?		If no go to question 5. If yes — if participants are children (ie under 16), then they must not be involved in the Research Investigation. If they are not children then consider another target population.
5. Does the Research Investigation involve withholding information about what the participants will experience?		If no — go to question 6. If yes — add a stage to the procedures where this information is given. If this is not practical seek advice from an experienced researcher.
6(a) Does the Research Investigation involve giving misleading information about what the participants will experience?		If no — go to question 7. If yes — go to question 6(b).
6(b) Has the approval of an independent advisor been obtained?		If yes — go to question 7. If no — obtain approval from an independent advisor, or change your procedure to avoid deception.
7. Are the debriefing arrangements full and properly timed?		If yes — go to question 8. If no — add debriefing notes to the procedure.
8. Have participants been informed of their right to withdraw at any stage?		If yes — go to question 9. If no — add this information to the procedures before data is collected.
9. Do procedures ensure anonymity and confidentiality?		If yes — go to question 10. If no — review procedures to ensure this, or inform participants that anonymity and confidentiality are not ensured.
10. Have participants been asked about any medical conditions that may create a risk if they participate in the Research Investigation?		If yes — go to question 11. If no — where appropriate, add this to the procedures.

11. Does the procedure advise participants that they need not answer personal questions?		If yes — go to question 12. If no — add this to the procedures.
12. Does the Research Investigation involve any invasion of privacy?		If no — you are ready to collect data. If yes — revise the procedure or if this is impractical, seek approval from an experienced researcher.

5 Planning the Research Investigation

Early and effective planning will save time, reduce errors and maximise the potential for gaining a good mark in the Research Investigation. It is recommended that candidates use the 'Project Plan and Log' to plan their RI. The Project Plan and Log constitutes the Practical Portfolio element of the NAB assessment for the *Investigating Behaviour* Unit. It resembles a template of an authentic research proposal as it facilitates an overview of all design essentials and an overall implementation schedule which includes interim 'deadlines'. It will allow candidates to track and record their own progress as researchers, and provide the opportunity for teachers/lecturers to monitor candidates' understanding and progress of the Research Investigation. Teachers/lecturers should consider incorporating dates within the schedule for candidates to submit draft work, eg for certain sections of the report, as suggested in the SQA 'Coursework Authenticity' guide.

6 Report Style

Good report writing should incorporate: **Accuracy**, **Brevity** and **Clarity**. Above all, the report should be readable.

Tense

Psychology reports are written mainly in the past tense. The previous research findings referred to have already been published, the procedures used already carried out and the results have been outlined. However, there are instances where the present tense is appropriate ie where a statement indicates continuing or general applicability of a concept, eg 'Jones established (*past tense, referring to a particular study*) that auditory stimuli are (*present tense, general finding*) more effective...'.

Person and Voice

Reports are generally written in the third person. For example, 'the researcher(s) found that...' as opposed to 'we found that...'. Exceptions to this rule would be found when discussing a particular problem found while conducting the research. The passive voice should be used, especially in the Methods and Results sections. For example, 'participants were asked to carry out the task' as opposed to 'I asked them to...'. 'A difference in scores was found' as opposed to 'we found a difference'. Objectivity can often be gained if candidates write as though someone else performed the research and they are merely reporting on what the other person did and found.

General Style

- ◆ Clumsy sentences can be improved by removing non-functional or redundant words.
- ◆ Avoid using the indefinite 'This' when starting sentences or paragraphs. Be more explicit.

- ◆ Avoid giving irrelevant descriptions, eg the fact that subjects may have been drawn from a number of different classes may be relevant **but** if it is not then the reader may wrongly assume that this was a variable which was of interest in the study.
- ◆ Candidates should check spelling, grammar and punctuation thoroughly. Sloppy usage may signal sloppy work. Particular attention should be paid to the commonly mis-spelled words 'dependent' and 'independent', 'affect' (verb) and 'effect' (noun).
- ◆ Write in plain English. Avoid using jargon and slang. Also, ensure that any theoretical terms are used in the correct context. Inappropriate usage may indicate a lack of understanding.

Specifics

- ◆ Typed/word-processed reports are to be encouraged and should have 1.5 or double line-spacing, in a font of 'normal' size and style. Hand writing should be in dark ink and should be legible.
- ◆ Use A4 paper, provide a Contents page and number pages, including Appendices.
- ◆ Do not put each separate page into a poly-pocket. A single staple is sufficient.
- ◆ Do not hand in ring-binders, spiral-bound booklets or slide-on (slide-off!) binders.
- ◆ Candidates should keep a copy of their report, on disk or photocopied, for security and for revision purposes.
- ◆ To avoid last-minute panics, candidates should ensure they save all word-processed work regularly, back it up, and print off draft work regularly.

NB

- ◆ When using an abbreviation for the first time, spell out its meaning.
- ◆ Axes on graphs should be correctly labelled as per the parameter. The x axis should represent the independent variable and the y axis should represent the dependent variable. Also include the unit of measurement. If abbreviations are used, explain them in the figure legend.
- ◆ Figures and tables should be accompanied by brief but explicit informative legends.
- ◆ Methods and Results sections should be presented in prose and not just consist of a list or a set of bullet points or tables and figures.
- ◆ Results can only be described as '**significant**' if inferential statistics have been carried out.

7 Report Format

A Research Investigation report should convey its message briefly and clearly. It should be possible to replicate the study after reading the report; all relevant information must therefore be given. The following notes are intended to help candidates to produce Research Investigations, which conform to the conventional format. The RI Marker Checklist (p22–23), and available from the NQ Psychology website, is particularly helpful as it is the mark scheme used by markers to assess each RI.

The marks available for each section are:

Section	Marks allocated
Abstract	5
Introduction Background — 5 Aim & link — 2 Hypotheses — 3	10
Method Design — 4 Sample/materials/procedure — 4	8
Results	8
Discussion Interpretation of findings — 4 Evaluation of method — 5 Implications & conclusion — 3	12
References	3
Presentation and Style	4
Total	50

Expanded guidance on each section is also provided below.

Organisation

The report must contain a Title, Contents page, Abstract, Introduction, Method, Results, Discussion, References and Appendices. The Contents page should be clear and accurate allowing quick and easy direction to relevant sections. Appendices should be appropriate and their location indicated in the main body of the report.

Title (no marks allocated directly)

This should be short but specific. The subject matter of the report should be clear from the title. Avoid 'catchy' titles (eg 'To obey or not to obey'). The title page could also include the candidate's name and centre. Alternatively, this information could be presented on a separate sheet.

Abstract (5 marks)

The abstract is a short summary of the whole report (approx. 150–200 words). The key points should be clear. It should include:

- ◆ aim of the study
- ◆ short statement of the issue being investigated (topic and previous research on the topic)
- ◆ the method(s) and design used
- ◆ brief outline of procedure
- ◆ sample — how many there were and how they were selected
- ◆ statement of IV and DV, or variables that were correlated
- ◆ summary of the experimental/alternative hypothesis
- ◆ summary of the main results, in numerical format unless correlational (a sentence should suffice)
- ◆ brief conclusion (a sentence should suffice)

The abstract should be written after all the other sections have been written.

Introduction (10 marks) (*Why you did it*)

This section should give the background to **related** studies and theory. The introduction should progress from general background information towards the specific aims of the present Research Investigation. Use studies which relate to your IV/DV, eg if gender is your IV give evidence of studies whose IV was also gender. If you are modifying an existing study, give adequate details of the original study.

Introduction to area of the research question, including, domain of psychology within which it is 'located'; relevant theory(ies) and concept(s); related previous research, classic and contemporary.

(5 marks)

Rationale/link to current study, in relation to this context. Aim of current study.

(2 marks)

Experimental/alternative and null hypotheses should be accurately stated, including a clear expression of variables and conditions of IV (where applicable). You should clearly express whether an effect/difference is predicted, or a relation/correlation, and should state whether the alternative hypothesis is one- or two-tailed.

(3 marks)

Method (8 marks) (*How you did it*)

It should be possible for readers to replicate your Research Investigation simply by reading the Method section. It should be comprehensive yet concise. Do not include irrelevant details. **Use the following sub-headings within the Method section:**

(i) **Design:** State whether experimental or non-experimental and the actual method of research undertaken. State the design used (independent measures, repeated measures, matched pairs, correlational). Give a brief sentence explaining why this method and design were used. Where an experiment was conducted, state how participants were assigned to control/experimental conditions (together with numbers in each, if independent measures design was used). Describe fully the independent variable and its conditions, and the dependent variable and the meaning of DV scores. Where a correlational study was conducted, describe fully the two variables. The experimental/alternative and null hypotheses should be a reflection of this information. State the controls (eg standard instructions, environment, time of day, time given, nature of materials). Control of extraneous and/or confounding variables should be described.

(4 marks)

(ii) **Sample/Participants:** Describe the relevant characteristics of the participants, eg how many were used, whether naïve. Describe the population from which the sample was selected, ie who were they? (usually friends, neighbours, etc) and the method of sampling used. Age and numbers of each sex should also be stated.

(iii) **Materials:** This section should describe all materials used, eg: brief/consent request; standardised instructions; debrief; questionnaires; tasks; response sheets; observation schedule; diagrams, etc In the case of an observational study include a copy of the observation schedule in the appendices. If a survey was conducted include a copy of the questionnaire. If an experiment was conducted ensure that a copy of the test materials used by participants is also included. If stimuli such as words, digits, or images were used, candidates should explain their origins, and how selected (eg clipart, photos, everyday objects, etc). All paper materials referred to here, in the Method section, should be included in appendices.

Where unusual laboratory apparatus has been used, an illustration or photograph may be included. Any materials in other media, eg videotape, audiotape or disk (CD or floppy) should also be included.

(iv) **Procedure:** This should include a step-by-step summary of what the experimenter/researcher and participants were required to do, starting with the ethical procedure of giving participants information about the study, asking for consent and informing them regarding their right to withdraw. Both the routine aspects addressed by the brief/consent request/debrief, and the issues specific to this research should be described; for example, if participants were asked to complete a memory task or other type of task, it should be made clear that they were reassured it was not an intelligence test.

Where procedure has varied according to conditions of the IV, this should be clearly described. Location/environment should be described. It should be indicated whether tasks were carried out by participants individually, or in a group. If observations were recorded, state whether time or event sampling was used. If

questionnaires were used, did the researcher read questions and record answers or did participants complete them independently? Were participants treated individually or as a group? A summary of instructions given to participants should be given in this section, but word-for-word standardised instruction sheets should be placed in the appendices, and referred to here in the Procedure. It should be made clear that on completion of the task, participants were thanked and debriefed, and asked for their comments. They should be given a contact number or e-mail address for any further queries (eg the school/college phone number — not the candidate's own number).

(4 marks)

Results (8 marks) (What you found out)

This should start with a few sentences of text explaining what was done with the data; ie a step-by-step account of the descriptive statistics that have been applied to the data. Raw data chart(s) and calculations should be shown in full and included in the appendices. A summary table of measures of central tendency and dispersion should be provided here; if the study is correlational, a table of pairs of raw scores may be given instead. Use appropriate statistical techniques, eg mean, median, mode, range. Use tables and graphs to represent data (see notes on 'Report Style' in Section 6).

Graphical presentation of results: all graphs/charts should be accurately drawn/presented, whether by hand or spreadsheet (eg Excel). Tables and graphs/charts should be given titles. Rows, columns and axes must be labelled accurately (ie not just 'scores'). Tables and graphs/charts should **never** stand alone; they should be accompanied by explanations in prose and the reader should be told where to look for the various results, and which statistical calculations were conducted.

The workings, which accompany statistical findings, should be included in the appendix.

The chosen statistical techniques should focus on the relationship between variables that has been predicted by the hypothesis. Full marks for this section may be achieved only where you have demonstrated a clear understanding of why your choice of statistical techniques is appropriate in relation to the data, and to the research aim and hypothesis. Inferential statistics are not required.

This section should end with a statement of the statistical result (eg actual mean scores and difference between them, or, if research was correlational, a verbal description of the strength and direction of the relationship shown on the scattergram) and whether or not it supports the research hypothesis.

Discussion (12 marks) (What you think it means)

Should state statistical results and indicate whether research hypothesis is supported/null hypothesis rejected. The findings should be explained and interpreted in terms of the variables studied. If you predicted a difference, how big is the difference you found? Is it in the direction you predicted (if hypothesis was one-tailed)? If you predicted a relationship, how strong is the correlation, and is it in the direction predicted (if one-tailed)? Consider the relevance of your findings to existing

theory/concept(s) and research evidence (which you outlined in Introduction).

(4 marks)

Methodology and design of the investigation should be evaluated, and remedies suggested for any problems encountered, eg extraneous variables that should have been controlled, poor ecological validity, participant bias, etc Consider the specific weaknesses of your study: 'sample was small and unrepresentative' is true of virtually all candidate studies and will gain little credit. On the other hand, you will be credited for identifying problems specific to the current study, such as control of potential confounding variables inherent in the design (eg order effects in repeated measures, individual differences in independent measures), or known weaknesses of a non-experimental method as they apply to your particular variables/materials/procedure. Ethical concerns specific to the study should be discussed, and possible remedies suggested.

(5 marks)

Implications of the findings should be discussed: suggestions may be made for further research, arising from the findings of the current study. This should be 'further' research, ie a different study that is not simply a replication of the current one with improved methodology. Alternatively (or in addition), possible 'real world' applications of the findings may be considered. This section should conclude with a brief summary of the main statistical conclusion(s), expressed in relation to hypotheses.

(3 marks)

References (3 marks)

References should be presented correctly in the APA format (ie alphabetically, all elements present and in the right order), and should correspond to all sources cited in the text, including research studies, books, website articles, etc Examples:

Journals: Last name, initials, year of publication, title or article, *journal title*, volume pages.

For example:

Sturge, A. (1953). Operant conditioning and anxiety reduction in three species of insects. *Journal of the Experimental Control of Behaviour*, 4, 189-196.

Books: Last name, initials, year, *title*, place of publication, publisher.

For example:

Sweeney, A (1960). *Backwaters of Behavioural Research*. London: Maudley and Carter.

Research cited in a text book:

For example:

Wells, G.L. (1993). What do we know about eyewitness identification? *American Psychologist*, 48, 553-571. Cited in Gross, R. & McIlveen, R. (1998) *Psychology: A New Introduction*. London: Hodder & Stoughton.

To cite a piece of research, or an author, in the body of your report, give the name(s) and date of the research in brackets. Give page numbers for any direct quotes you may use. Ensure that **all** cited researchers/authors are listed in your references, and that each

reference in your list corresponds to the citations you have given in your text.

Appendices (no separate marks allocated as these will be credited in the Method and Results sections)

This is the place to include raw data, calculations, standard instructions, questionnaires, observation schedules etc. The acid test as to what goes in the body of the report and what goes in an appendix is whether it is information the majority of readers will need to enable them to understand your Research Investigation. Diagrams, for example, are more useful close to the text they support, rather than buried in an appendix. Anything else, especially if it is lengthy or very detailed, should go in an appendix.

Presentation and Style (4 marks)

Marks will be awarded for a well-written Research Investigation, which follows the appropriate formal style and format of a psychology report. You should use appropriate terminology and reflect the scientific nature of the discipline. Consider the following points:

- ◆ quality of presentation (can be written or typed)
- ◆ title should be formal and appropriate to the actual study
- ◆ contents page
- ◆ pages numbered
- ◆ all sections and sub-sections in conventional format
- ◆ tables/graphs/appendices numbered and referenced in text
- ◆ appropriate use of terminology
- ◆ formal style of expression, appropriate to the discipline: past tense throughout, passive (impersonal voice)
- ◆ anonymity/confidentiality observed, ie no names or other identifying features of participants
- ◆ coherence of whole report.

8 Research Investigation Marker Checklist

Once the data has been collected, the Marker Checklist (overleaf) can be used by the candidate when producing the draft Research Investigation and by the teacher/lecturer when giving feedback on the Research Investigation.

National Qualifications

C263 12 Higher Psychology: Research Investigation — Marker Checklist

The candidate must choose their investigation from the Research Investigation briefs for the current year.

		Marks available
ABSTRACT	150-200 words marked holistically to include most of: Aim of the study; brief theoretical or research background; hypothesis and variables being investigated; method and design; sample (who and how many); outline of procedure; summary of statistical results; brief conclusion. Can the abstract be understood without referring to the full report? Yes — award 4/5 marks, No — award 3 or less	5 marks
INTRODUCTION	(i) Introduction to area of the research question, including most of: domain of psychology within which it is 'located'; relevant theory(ies) and concept(s); related previous research, classic and contemporary. Is the area introduced adequately? Yes — award 4/5 marks, No — award 3 or less	5 marks
	(ii) Aim of current study (1); Link to current study (1)	2 marks
	(iii) Experimental/alternative and null hypotheses accurately stated (1 mark each) including clear expression of variables and conditions of IV (where applicable); 1 further mark can be awarded for further detail such as indicating if the hypothesis is one or two tailed or mentioning chance factors.	3 marks
METHOD	To be awarded holistically, taking into account complexity of procedure and materials of specific study.	
i) Design	Should state whether experimental or non-experimental, and specify actual method and design (independent measures, repeated measures, matched pairs, correlational). Variables under investigation (IV and DV, or variables to be correlated) should be precisely described/operationally defined, including conditions of the IV (where study is experimental), and the meaning of DV scores. Control of extraneous and/or confounding variables should be described.	4 marks
ii) Sample/participants	Number, ages, sex; who they were; sampling method.	

iii) Materials	This section should describe all materials used, eg: brief/consent request; standardised instructions; debrief; questionnaires; tasks; response sheets; observation schedule; diagrams, etc All paper materials referred to here, in the Method section, should be included in appendices. Where unusual laboratory apparatus has been used, an illustration or photograph may be included.	4 marks
iv) Procedure	Detailed step-by-step account of how research procedure was conducted with each participant. Where procedure has varied according to conditions of the IV, this should be clearly described. Location/environment should be described. It should be indicated whether tasks were carried out by participants individually, or in a group. Ethical procedure should be described. Method section — is sufficient information provided to permit replication? Yes — award 6-8 marks, No — award 5 or less (in total).	
RESULTS	Choice of statistical procedures is appropriate (1); Elements of results are appropriately located in either this section (or appendices) (1); Explanation of the statistical analysis procedures that have been applied to data (inferential stats not required), including any qualitative analysis (1); Raw data charts and calculations (1); Summary table(s) of measures of central tendency and dispersion; or table of raw scores if design is correlational. (1); Graphs are adequately drawn (by hand or spreadsheet) (1); All tables/charts/graphs have a title and are referred to in the text. Axes, rows and columns are labelled. (1); Results are explained in terms of the hypothesis. (1)	8 marks
DISCUSSION	(i) Should state statistical results and indicate whether research hypothesis is supported/null hypothesis rejected. The findings should be explained and interpreted in terms of the variables studied. (2) Relevance of findings to existing theory/concept(s) and research evidence should be considered. (2)	4 marks
	(ii) Methodology, design and ethics of the investigation should be evaluated, and remedies suggested for any problems encountered, eg extraneous variables that should have been controlled, poor ecological validity, participant bias, etc; identification of problems specific to the current study will gain more credit. (5)	5 marks

	(iii) Implications of the findings should be discussed: suggestions may be made for further research, arising from the findings of the current study. This should be 'further' research, ie a different study that is not simply a replication of the current one with improved methodology. Alternatively (or in addition), possible 'real world' applications of the findings may be considered. (2) This section should conclude with a brief summary of the main statistical conclusion(s), expressed in relation to hypotheses. (1)	3 marks
REFERENCES	References should be presented correctly (1); at least two relevant research studies should be given (1); they should correspond to those cited in the body of the report (1).	3 marks
PRESENTATION and STYLE	<i>Presentation and style is marked holistically to include most of:</i> Quality of presentation (can be written or typed); contents page, pages numbered; all above sections in conventional format; appropriate use of terminology; formal style of expression, appropriate to the discipline: past tense throughout, passive (impersonal) voice; anonymity/confidentiality observed, ie, no names or other identifying features of participants; coherence of whole report, as evidence of candidates' understanding of her/his research. <i>Would someone without knowledge of the study or in the area of psychology in which the study took place be able to logically follow the investigation? Yes — award 3/4 marks, No — award 2 or less.</i>	4 marks
Total		50 marks

9 Things to Consider Before Submitting the Research Investigation

- ◆ Produce draft(s) **on time** — this will allow your teacher/lecturer to give you feedback.
- ◆ Get someone to proof read the final draft before you submit it.
- ◆ Although the same results may be used by the group, all written work must be each individual candidate's own work.
- ◆ Show workings for descriptive statistics (NB. inferential statistics are not necessary).
- ◆ Use report style and format notes to ensure that you include everything, using the correct headings
- ◆ Consider ethics, and address them in the report.
- ◆ Keep a copy of your report.

10 Special Needs

The Research Investigation is intended to ensure that there are no artificial barriers to learning or assessment. Special needs of individual candidates should be taken into account when planning learning experiences and selecting assessment instruments. For information on these please refer to SQA document *Guidance on Assessment Arrangements for Candidates with Disabilities and/or Additional Support Needs* www.sqa.org.uk.