

AS and A Level Psychology



Getting Started Guide

Pearson Edexcel Level 3 Advanced GCE in Psychology (9PS0)

Pearson Edexcel Level 3 Advanced Subsidiary GCE in Psychology (8PS0)

Getting Started: AS and A level Psychology 2015

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1. Introduction

1.1 Research and key principles

Our new AS and A level Psychology specifications are designed to support a range of student interests, learning styles and aspirations for progression.

The specifications have been developed in consultation with the teaching community, higher education, learned societies and subject associations. Teachers from a range of schools and colleges – in focus groups, surveys, phone interviews and face-to-face conversations – have provided feedback at each stage and have helped us to shape the specifications.

Academics in UK universities have helped us understand how to build on the strengths of the 2008 A level Psychology specification and advised on how progression to undergraduate study could be improved.

We have commissioned and conducted our own research projects, including international benchmarking.

Drawing on feedback from the Psychology subject community, the 2015 AS and A level specifications have been designed to support students in developing the following skills that have been identified as key for progression in this subject.

- Application of psychological concepts and theories to a range of contexts.
- A holistic understanding of psychology.
- Application of appropriate mathematical skills relevant to psychology.
- Application of theory to real-world contexts through developing knowledge and understanding of key questions for society.

The 2015 AS and A level specifications have been built on the following key principles.

- **Clear specification** – The specifications are designed in a way that makes it explicit what students need to know.
- **Progression, not repetition** – The specifications support progression from our GCSE in Psychology by building on the understanding developed at KS4 and removing unnecessary repetition, while ensuring students new to the subject are appropriately supported, to engage and inspire all learners.
- **Contemporary focus** – The specification content provides students with a dynamic, engaging and contemporary course of study while retaining a holistic basis to show underpinning theories.
- **Skills for progression** – The specifications develop skills – both practical skills that are needed to carry out research in psychology, and appropriate quantitative and research skills that underpin such practical work. In addition, they focus on the skills of critical thinking and essay writing, which encourage students to analyse and make judgements through developing an argument.
- **Clear assessment** – Assessments have been designed with defined command words to provide clarity and consistency across the assessments and between series.
- **Co-teachable** – The A level specification is designed to ensure it is co-teachable with the AS qualification.
- **Clear mark schemes** – The new mark schemes provide a consistent understanding of the skills and connections between these skills required for each question type. Clear wording reflects how teachers and examiners describe the qualities of student work, so the expectations are clear for both teachers and markers.

- **Balance of coherence and choice** – With the move from modular to linear qualifications, there is a greater focus on coherence within courses. The new A level specification is split into two key areas of study: 1 Foundations in psychology; and 2 Applications of psychology. The content is structured coherently and logically, which enables students to build their knowledge and understanding as they progress through the course. Throughout the course students develop an understanding of the key questions relevant to society today and the relevant psychology issues and debates.
- **Appropriate range and variety** – Options are available in Year 2 from three applications from Criminological psychology, Child psychology and Health psychology to ensure there is a balance between breadth and depth with greater focus on research methods and mathematical skills in these options.

1.2 Support for the new specification

This *Getting Started* guide provides an overview of the new AS and A level specifications to help you get to grips with the changes to content and assessment, and to help you understand what these changes mean for you and your students.

We will be providing a package of support to help you plan and implement the new specifications.

- **Planning** – In addition to the relevant section in this guide, we will provide a course planner and scheme of work that you can adapt to suit your department. We will also provide mapping documents to highlight key differences between the new and 2008 specifications.
- **Teaching and learning** – To support you with delivering the new specifications, we will provide suggested resource lists along with a student guide and materials for options evening.
- **Understanding the standard** – Exemplar student work with examiner commentaries for the sample assessment materials will be provided.
- **Tracking learner progress** – Our ResultsPlus service provides the most detailed analysis available of your students' exam performance. It can help you to identify topics and skills for which students could benefit from further learning. Mock Analysis provides analysis of past exam papers, which can be set as mock exams.
- **Component guides** – Our Component Guides are designed to provide you with information about content changes, delivery approaches for each area, and suitable resources and references to support you in delivering the specification.

These support documents will be available on the AS and A level Psychology pages of the website:

<http://www.edexcel.com/quals/gce/gce15/psychology/Pages/default.aspx>.

2. What's changed?

2.1 How have AS and A level changed?

Changes to AS and A level qualifications

From September 2015, A level Psychology will be a linear qualification. This means that all examinations must be sat at the end of the course. More information about the implications of the move to linear assessment is given on page 22.

From September 2015, AS level Psychology will be a standalone qualification. This means that it cannot be used to contribute towards an A level Psychology grade. More information about the relationship between AS and A level is given on page 24.

Changes to subject criteria

The subject criteria requirements for AS and A level Psychology have been revised. All awarding organisations' specifications must meet these criteria. The full subject content document can be found on the Department for Education website: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/303026/A_level_science_subject_content-.pdf, but the boxes below highlight the key requirements.

The following requirements apply to both AS and A level Psychology specifications.

Both **AS** and **A level** specifications must require learners to:

- have a basic understanding of the scope of different areas in psychology and the breadth of different approaches used in psychology
- carry out ethical, investigative activities appropriate for the study of psychology at this level. This does not have to form part of the formal assessment.

AS and **A level** specifications must require students to develop knowledge and understanding from all of the following areas of psychology:

- cognitive
- social
- developmental
- individual differences
- biological.

AS and **A level** specifications must also require students to develop knowledge and understanding of research in psychology including:

- methods and techniques for collection of quantitative and qualitative data including experimentation, observation, self-report and correlational analysis
- experimental design including independent measures and repeated measures
- descriptive statistics including measures of central tendency, dispersion and graphical presentation of results.

In addition there is a minimum requirement for specifications to cover the following:

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- specialist vocabulary and terminology
- psychological theories, concepts and studies
- ethical issues in psychology
- the collection and analysis of both quantitative and qualitative data in psychology, including the use of descriptive statistics
- the strengths and weakness of methods of research an investigation in psychology
- the contribution of psychology to an understanding of individual, social and cultural diversity.

In addition, the following requirements also apply to the A level specification.

A level Psychology specification must require learners to study to:

- develop further knowledge, understanding and skills from at least two of the core areas (from cognitive, social, developmental, individual differences and biological psychology)
- have an understanding of different approaches used in psychology including cognitive, biological, behavioural and psychodynamic. Knowledge and understanding must be related to:
 - the applications and implications of psychology to cultural, social and contemporary issues
 - the interrelationship between different areas of psychology
 - the scientific nature of psychology
 - the selection and application of knowledge and understanding of theories, concepts and approaches to the solution of problems
 - the design and reporting of investigations and drawing valid conclusions from them
 - the collection and analysis of both quantitative and qualitative data including the use of inferential statistics
 - the selection and application of knowledge and understanding of principles and perspectives
 - an appreciation of issues and/or debates in psychology.

The main change in the revised subject content is the greater emphasis on the application of appropriate quantitative skills. The assessment of these skills will include at least Level 2 mathematical skills as a minimum of 10% of the overall AS or A level marks.

All mathematical content must be assessed within the lifetime of the specification.

Students are expected to accomplish the following quantitative skills as part of their AS and A level study.

Arithmetic and numerical computation

- Recognise and use expressions in decimal and standard form
- Use ratios, fractions and percentages
- Estimate results

Handling data

- Use an appropriate number of significant figures
- Find arithmetic means
- Construct and interpret frequency tables and diagrams, bar charts and histograms
- Understand simple probability
- Understand the principles of sampling as applied to scientific data
- Understand the terms mean, median and mode
- Use scatter diagram to identify a correlation between two variables
- Use a statistical test
- Make order of magnitude calculations
- **Distinguish between levels of measurement***
- Know the characteristics of normal and skewed distribution
- **Select an appropriate statistical test***
- **Use statistical tables to determine significance***
- Understand measures of dispersion, including standard deviation and range
- Understand the difference between qualitative and quantitative data
- Understand the difference between primary and secondary data

Algebra

- Understand and use the symbols: =, <, <<, >>, >, ~, ∞
- **Substitute numerical values into algebraic equations using appropriate units for physical quantities***
- **Solve simple algebraic equations***

Graphs

- Translate information between graphical, numerical and algebraic forms
- Plot two variables from experimental or other data.

*** The skills shown in bold would only be tested in the full A Level qualification**

More information about the application of quantitative skills is given on page 29.

Changes to Assessment Objectives

The AS and A level Psychology Assessment Objectives have been revised. The objectives have been made more explicit to exemplify the skills developed through the AS and A level specifications and also so that they are more in line with the other sciences. The Assessment Objectives are the same for both AS and A level but the weightings are different.

		AS	A Level
AO1	Demonstrate knowledge and understanding of scientific ideas, processes, techniques and procedures	35-40%	30-35%
AO2	Apply knowledge and understanding of scientific ideas, processes, techniques and procedures: <ul style="list-style-type: none"> • in a theoretical context 	30-35%	30-35%

	<ul style="list-style-type: none"> • in a practical context • when handling qualitative data • when handling quantitative data 		
AO3	Analyse, interpret and evaluate scientific information, ideas and evidence, including in relation to issues, to: <ul style="list-style-type: none"> • make judgements and reach conclusions • develop and refine practical design and procedures 	30-35%	35-40%

2.2 Changes to the Pearson Edexcel Psychology specifications

In the GCE 2015 specifications, psychology students are introduced to fundamental concepts of psychology and develop a broad understanding of how they apply to various contexts. Throughout the course students develop an understanding of the key questions relevant to society today and the relevant issues and debates. The updated content provides students with a dynamic, engaging and contemporary course of study. Students embark upon practical investigations using various research methods and are encouraged to undertake practical investigations to develop an active knowledge of the scientific aspects of psychology. The goal is to develop a holistic understanding of psychology.

In developing the AS and A level 2015 specifications we have retained the strengths of the 2008 specification:

- engaging and updated content
- relevant and engaging practical investigations
- key applications: clinical, criminological, child and health
- coherent and logical structure
- a synoptic section at the end to give the holistic understanding and revision needed.

Changes have been made to the specification content and the assessments to ensure the revised subject content and assessment requirements are met, and to bring the specification up to date.

Specification overview

The charts that follow provide an overview of the AS and A level specifications, indicating the relationship between the two. (Further guidance on the relationship between AS and A level is provided on page 24)

A level Psychology

Pearson Edexcel AS and A level Psychology specifications have been designed to ensure that students follow a broad and coherent course of study.

Students gain knowledge and understanding of the key areas in psychology; this underpins the foundations of the qualification before applying this knowledge and understanding to more complex concepts and applications. Throughout the course students develop an understating of the key issues relevant to society today and the relevant issues and debates. The updated content reflects developments in the subject criteria, providing students with breadth and depth in their understanding, as well as classic and contemporary psychology.

The GCE Psychology specification is split into two key areas of study: 1 Foundations in psychology; and 2 Applications of psychology. The content is structured coherently and logically, which enables students to build their knowledge and understanding as they progress through the course. Students are introduced to the key topic areas in psychology – social psychology, cognitive psychology, biological psychology and learning theories – which are developed further through their understanding of the applications.

The Year 1 of the A level qualification is co-teachable with the AS level qualification. The AS qualification involves Year 1 A level content with a few exceptions. These exceptions are the issues and debates (which are not required in the AS) and some of the quantitative skills (see page 28). Through the second year of study, the A level qualification will focus on application to wider contexts. It should be noted that both the AS and A level qualification look at research methods and will encourage undertaking practical investigations so that students experience some form of collecting, analysing and evaluating data.

The A level comprises three papers: Paper 1 (Foundations in psychology) assess Topics 1–4; Paper 2 (Application of psychology) assesses Topic 5 and one topic from 6, 7 and 8 the applications of Psychology; and Paper 3 (Psychological skills) assesses Topic 9. Topic 9 summarises the research methods covered throughout the specification (revision topic), reviews the studies covered in the course (revision again) and also considers the issues and debates. In Topic 9 students will make connections across the topic areas and draw upon knowledge and understanding across the research methods, psychological studies and issues and debates given in the A level specification.

Students will be given the opportunity to demonstrate a holistic understanding of the subject criteria through drawing upon content covered in the specification.

Topic 1: Social psychology <ul style="list-style-type: none"> - Obedience - Prejudice - Methods, studies, key question - <i>Issues and debates*</i> 	Topic 2: Cognitive psychology <ul style="list-style-type: none"> - Memory - Methods, studies, key question - <i>Issues and debates*</i> 	Topic 3: Biological psychology <ul style="list-style-type: none"> - CNS and neurotransmitter functioning - Brain structure and functioning related to aggression - Methods, studies, key question - <i>Issues and debates*</i>
Topic 4: Learning theories <ul style="list-style-type: none"> - Conditioning - Social learning theory - Phobias - Methods, studies, key question - <i>Issues and debates*</i> 	Topic 5: Clinical psychology <ul style="list-style-type: none"> - Abnormality - Schizophrenia and one other - Issues in diagnosis - Treatment for disorders - Methods, studies, key question - <i>Issues and debates*</i> 	Topic 6: Criminological psychology OR <ul style="list-style-type: none"> - Jury decision making - Eye witness testimony - Causes and treatments of crime - Methods, studies, key question - <i>Issues and debates*</i>
Topic 7: Child	Topic 8: Health	Topic 9: Psychological

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psychology OR	psychology	skills
<ul style="list-style-type: none"> - Attachment - Deprivation/privation - Developmental issues of autism - Methods, studies, key question - <i>Issues and debates*</i> 	<ul style="list-style-type: none"> - Nicotine/Alcohol/ heroin – drug behaviour - Psychological strategies behind campaigns - Treatments for drugs misuse - Methods, studies, key question - <i>Issues and debates*</i> 	<ul style="list-style-type: none"> - Review of methodology - Review of studies - <i>Issues and debates*</i>

Paper 1: Foundations in psychology Social, Cognitive, Biological and Learning 90 marks, 2 hour exam, 35% of qualification	Paper 2: Applications of psychology Clinical and Criminological/Child/Health 90 marks, 2 hour exam, 35% of qualification
Paper 3: Psychological Skills Methodology, Review of studies and Issues and debates 80 marks, 2 hour exam, 30% of qualification	

* *Issues and debates* is covered at A level only

AS level Psychology

The AS is embedded in the A level: Topics 1–4 comprise the same content for both the AS and A level specifications. There are two externally assessed exams:

Paper 1 assesses Topic 1: Social psychology and Topic 2: Cognitive psychology; Paper 2 assesses Topic 3: Biological psychology and Topic 4: Learning theories. In each paper students will make connections across the topics areas in terms of content and skills.

Topic 1: Social psychology <ul style="list-style-type: none"> - Obedience - Prejudice - Methods, studies, key question 	Topic 2: Cognitive psychology <ul style="list-style-type: none"> - Memory - Methods, studies, key question
Topic 3: Biological psychology <ul style="list-style-type: none"> - CNS and neurotransmitter functioning - Brain structure and functioning related to aggression - Methods, studies, key question 	Topic 4: Learning theories <ul style="list-style-type: none"> - Conditioning - Social learning theory - Phobias - Methods, studies, key question

<p>Paper 1: Social and cognitive psychology</p> <p>70 marks, 1.5 hour exam, 50% of qualification</p>	<p>Paper 2: Biological psychology and learning theories</p> <p>70 marks, 1.5 hour exam, 50% of qualification</p>
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Both the AS and A level qualification will look at research methods and will encourage undertaking practical investigations so that students experience some form of collecting, analysing and evaluating data.

Constructing a coherent course

Psychology is a wide-ranging discipline. There are specialisms at higher education and university courses and stakeholder research encourages students to be aware of the different specialisms within the subject and the skills needed for each. The specification therefore introduces some of the popular specialisms in psychology: Clinical psychology – with Criminological psychology, Child psychology and Health psychology as possible options. Students are introduced to psychology throughout Topics 1–4. This enables students to build knowledge and understanding of key psychological concepts. Topics 5–8 build on these concepts through the study of key applications: Clinical psychology and a choice of one from three: Criminological, Child and Health psychology. These topics are designed to extend the breadth and depth of knowledge through focusing on relevant psychological practices giving students scope to understanding what psychologists do.

Changes to specification content

Changes have been made to the specification content from GCE 2008, both to ensure the revised subject criteria requirements are met and to refresh the specifications to bring them more up to date in response to our research findings: for example, by updating the contemporary studies in the specification and key questions relevant to society. It is important to note that although there are changes to the specification we have retained key features that you have told us you like – for example, the specifications have retained the coherent logical structure: each topic will cover content; methods; studies; key questions; practical investigations; and, for A level only, issues and debates.

Significant/key changes to note

- In the 2008 specification, in Unit 2 Understanding the individual, students studied three approaches – one of which was called Psychodynamic approach. In the 2015 specification, this has now been removed and embedded within the other key areas of study.
- In the 2008 specification, in Unit 3 Applications of psychology, students had four options: Criminological, Child, Health and Sport. Sport psychology has now been removed as an option as there was significant overlap of content with A level Physical Education content.
- In the 2008 specification, there was no stipulated percentage coverage required to assess quantitative skills. In the 2015 specification, this requirement has been specified and is met through the study of methods and practical investigations, and will be tested in all components.

2. What's changed?

The table that follows is an overview of the main changes in content from the 2008 specification. More detailed mapping of individual topics from the 2015 specification to the 2008 specification can be found in the component guides and Psychology pages of the Edexcel website.

Table 2.1: An overview of the main changes in content from the GCE 2008 Specification to GCE 2015

	Content in 2015	Content in 2008
Social psychology <i>Content</i>	Obedience – same as GCE 2008 but adds: social impact theory, factors affecting obedience (e.g. personality); and this time three variations are specified. The requirement for one study in a different culture is removed	Obedience – Milgram's work and agency theory, one study in a different culture, one of Milgram's variations, ethical issues in obedience research
	Prejudice – same, but adds realistic conflict theory and factors affecting prejudice (e.g. personality)	Prejudice – social identity theory
<i>Method</i>	Questionnaire and interview gathering self-report data – same, though used to be referred to as 'survey'. Adds thematic analysis of qualitative data and measures of dispersion include standard deviation	Surveys – questionnaire and interview, gathering self-report data. Includes both qualitative and quantitative data.
	Sampling techniques – four specified, the same	Sampling techniques – four specified
	Ethics of using humans as participants (BPS Code of Conduct and Ethics, 2009) – this includes the five guidelines, so very similar in essence	Ethics of using humans as participants (five guidelines)
<i>Studies</i>	Main study is Sherif et al (1954/1961) which was previously a choice. Hofling et al (1966) no longer on specification	Main study was Hofling et al (1966)
	Choice of contemporary study out of three – GCE 2015 has Reicher and Haslam the same, but the other two are new choices	Choice of second study out of three
<i>Key question</i>	Key question – same as in 2008 – a free choice	Key issue
<i>Practical investigation</i>	Practical investigation – questionnaire (no choice of interview now). Some writing up of a report – has a higher profile in GCE 2015	Questionnaire or interview as a practical investigation, gathering both qualitative and quantitative data
<i>Issues and debates</i>	Issues and debates are new, a list of 11 which are in all the	Issues and debates were in Unit 4 as a synoptic area but

	topic areas and then reviewed/covered in Topic 9, the synoptic element (page 8). This does not add to the topic areas but changes the end topic	not specified in each approach/application
Cognitive psychology <i>Content</i>	Four models/theories of memory – working memory, multi-store, episodic/semantic, reconstructive. This has differences and similarities (e.g. one of these models of memory is likely to have been the choice of memory model in GCE 2008)	Levels of processing and one other (memory), cue dependent and one other (forgetting)
<i>Method</i>	Experiments and related issues – this time not naturalistic – field and lab only	Experiments and related issues – included field, lab and naturalistic
	Analysis of quantitative data includes Mann Whitney U and Wilcoxon. Now includes standard deviation and Type I and Type II errors as well as other analysis tools	Analysis for the practical investigation – measure of dispersion is at least range, graphs as relevant, measures of central tendency
	Case studies of brain damaged patients including HM	-
<i>Studies</i>	Main study is Baddeley (1966b) to go with the working memory model. Godden and Baddeley (1975) no longer on the specification	Main study is Godden and Baddeley (1975) to go with the cue dependent theory
	Choice of one from three new contemporary studies, one of which is Schmolck et al (2002) focusing on HM – and there are two other new studies. None are the same as GCE 2008	One study from a choice of three
<i>Key question</i>	Key question – same as in 2008 – free choice	Key issue
<i>Practical investigation</i>	Practical investigation – experiment as in 2008. Brings in other issues regarding analysis (see method differences, such as statistical testing). Some writing up of a report which has a higher profile	Practical investigation – experiment
<i>Issues and debates</i>	Issues and debates are new, a list of 11 which are in all the topic areas and then reviewed/covered in Topic 9, the synoptic element (page 8). This does not add to the topic areas but changes the end topic	Issues and debates are in Unit 4 as a synoptic area but not specified in each approach/application
Psychodynamic approach	-	Content around gender, methods are the correlation and case study and other

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		issues such as sampling. Study is Little Hans and one other study from a choice of three. There is the key issue, and the practical is a correlation using a Spearman's test and scatter diagram
Biological psychology <i>Content</i>	CNS and neurotransmitters as before and added: exemplification of functioning using recreational drugs as an example. Adding the example is new	CNS and neurotransmitters
	Aggression and brain structure and functioning (e.g. pre-frontal cortex) – a new focus. Plus hormones linked to aggression. Hormones appeared in GCE 2008 linked to gender	Gender and brain lateralisation
	Evolution and natural selection – this is new	Genes and gender – and hormones linked to gender
	Psychodynamic/Freud's explanation of gender as an alternative to biological explanations. (Psychodynamic was a separate approach in GCE 2008, no longer a separate approach in GCE 2015 – but less emphasis than in GCE 2008)	Biological, Psychodynamic and Learning explanations for gender to be compared
<i>Method</i>	Correlational research as the method, rather than Test of difference. (Correlation was in psychodynamic approach). This means Spearman's is in this section. Mann Whitney U was in Biological and is now in Cognitive alongside Wilcoxon (Wilcoxon was not in GCE 2008). Animal studies and issues is a topic in Learning Theories in GCE 2015	Test of difference is the method, with ideas around statistical testing and use of Mann Whitney U test (including levels of significance). Also use of animals in experiments
	Brain scanning – CAT, PET and fMRI so some difference	Brain scanning – PET and MRI
	Twin and adoption studies	Twin and adoption studies
<i>Studies</i>	Main study is Raine et al (1997) which was a choice in 2008. Money (1975) is not on the GCE 2015 specification	Main study is Money (1975)
	Choice of one from three contemporary studies, all new	Choice of one from three named studies, one of which is Raine et al (1997)

<i>Key question</i>	Key question – same as in 2008 – free choice	Key issue
<i>Practical investigation</i>	Practical investigation – correlational study and Spearman's which is different. Some writing up of a report which has a higher profile	Practical investigation – test of difference and Mann Whitney U. Some writing up of a report
<i>Issues and debates</i>	Issues and debates are new, a list of 11 which are in all the topic areas and then reviewed/covered in Topic 9, the synoptic element (page 8). This does not add to the topic areas but changes the end topic	Issues and debates are in Unit 4 as a synoptic area but not specified in each approach/application
Learning theories <i>Content</i>	Classical and operant conditioning and social learning theory (social learning includes Bandura's experiments, including Bandura, Ross and Ross, 1961 which is the main study from GCE 2008)	Classical and operant conditioning and social learning theory
	Learning explanations and therapies for phobias	One treatment of therapy
	-	Learning theory as an explanation of gender compared with biological psychology and the psychodynamic approach as an explanation of gender
	-	Learning theory as an explanation of gender
<i>Method</i>	Observation and content analysis methods. Content analysis is new.	Observation
	Animals in experiments and ethics of using animals	Animals in experiments and ethics of using animals
	Chi-squared test and related issues	Chi-squared test and related issues
	Scientific status of psychology	Lab experiment and ethical guidelines for using humans
<i>Studies</i>	Main study is Watson and Rayner (1920), a choice in 2008	Main study is Bandura, Ross and Ross, 1961
	Choice of one from three contemporary studies, all new	Choice of one out of three named studies, one of which is Watson and Rayner (1920)
<i>Key question</i>	Key question – same as in 2008 – free choice	Key issue
<i>Practical investigation</i>	Practical investigation – observation and use chi squared to analyse quantitative data. Gather both qualitative and quantitative data and analyse qualitative data using thematic analysis	Practical investigation – observation and use of chi squared. No calculations of tests in the exam is a comment made in GCE 2008

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	Some writing up of a report which has a higher profile	
<i>Issues and debates</i>	Issues and debates are new, a list of 11 which are in all the topic areas and then reviewed/covered in Topic 9, the synoptic element (page 8). This does not add to the topic areas but changes the end topic	Issues and debates are in Unit 4 as a synoptic area but not specified in each approach/application
Clinical psychology <i>Content</i>	Diagnosis and 4 'D's	-
	DSM and classification – including ICD as a system too – issues of reliability and validity (not culture)	DSM and classification and issues of reliability, validity and culture
	-	Definitions of abnormality
	Schizophrenia and one other but more limited choice (anorexia, OCD and unipolar depression). Symptoms, features, explanations, treatments, so the same requirements in that sense	Schizophrenia and one from a choice (unipolar depression, bipolar depression, phobias, OCD, anorexia nervosa, bulimia nervosa). Symptoms and features, explanations treatments
	-	One treatment from each of the five approaches in the AS year
<i>Method</i>	Health Care Professions Council (HCPC) – this is different	Two research methods to study schizophrenia
	Longitudinal, cross-sectional, cross-cultural, meta-analysis, primary/secondary data – this is different from GCE 2008 except for primary and secondary data. And the other issues could be in the chosen methods for schizophrenia in GCE 2008	Primary and secondary data
	Case studies and one example study – this is different	Two studies to go with the two research methods for schizophrenia
	Interviews and one example study – this is different	-
	Analysis of qualitative and quantitative data – qualitative data to include thematic analysis and grounded theory, and quantitative data to include the four tests from Year One. This is all from Year One and already covered except for use of grounded theory	-
<i>Studies</i>	Main study is Rosenhan (1973), no change	Main study is Rosenhan
	One required study for schizophrenia – Carlsson et al (1999) – not a free choice, which is a change	One study for schizophrenia (free choice)
	One other study from a choice	One study for the 'other'

	of two relating to the 'other' chosen mental health issues – choice from two rather than a free choice	mental health issue (free choice)
<i>Key question</i>	Key question – same as in 2008 – free choice. This time, though, involving applying concepts and so on	Describe a key issue, which is the topic of the leaflet in the practical investigation
<i>Practical investigation</i>	Practical investigation – a content analysis exploring attitudes to mental health	Practical investigation – A leaflet gathering primary and secondary data, commenting on issues such as the audience and why decisions were made
<i>Issues and debates</i>	Issues and debates are new, a list of 11 which are in all the topic areas and then reviewed/covered in Topic 9, the synoptic element (page 8). This does not add to the topic areas but changes the end topic	Issues and debates are in Unit 4 as a synoptic area but not specified in each approach/application
Criminological psychology <i>Content</i>	Biological and social explanations for crime. Social explanations are the same (labelling/self-fulfilling prophecy). Biological are more specified. A lot here is the same	Social learning and one other explanation for crime (from personality or labelling)
	Cognitive interview, ethical interview, formulation	-
	Two treatments – behavioural and biological	Two treatments – one is TEP and one other
	Factors affecting eye witness testimony – not exactly the same, similar focus	Three studies looking at eye witness memory
	Jury decision making	-
<i>Method</i>	Lab experiment, field experiment, case studies to test eye witness effectiveness. Different as includes case studies	Lab and field experiments to test eye witness effectiveness
	Four sampling techniques (in social psychology so not new)	-
	Analysis of quantitative data (descriptive and inferential statistics, as in Year One so not new)	-
	Analysis of qualitative data, grounded theory and thematic analysis (thematic analysis is in Year One so not new)	-
	Ethics – HCPC and Code of Conduct and Ethics (2009) – covered in clinical (HCPC) and	-

2. What's changed?

	social psychology (BPS Code of Conduct and Ethics) already so not new	
<i>Studies</i>	Main study is Loftus and Palmer (1974)	Main study is Loftus and Palmer (1974)
	One from a choice of three contemporary studies – all new ones	One from a choice of three other studies
<i>Key question</i>	Key question – same as in 2008 – free choice. This time, though, involving applying concepts and so on	Describe a key issue, which is the topic of the summary of articles or the content analysis in the practical investigation
<i>Practical investigation</i>	Practical investigation – questionnaire, interview or case study – a study as in Year One, this is different	Practical investigation – either a content analysis or a summary of two articles
<i>Issues and debates</i>	Issues and debates are new, a list of 11 which are in all the topic areas and then reviewed/covered in Topic 9, the synoptic element (page 8). This does not add to the topic areas but changes the end topic	Issues and debates are in Unit 4 as a synoptic area but not specified in each approach/application
Child psychology <i>Content</i>	Bowlby's work on attachment	Bowlby's work on attachment (psychodynamic and evolutionary focus)
	Ainsworth, including use of the strange situation	Ainsworth, including use of the strange situation
	Deprivation and reducing negative effects	Deprivation (including maternal deprivation hypothesis) and reducing negative effects
	Privation and reducing negative effects	Privation and reducing negative effects
	Cross-cultural research into attachment types and nature-nurture issues arising	Cross-cultural research into attachment types
	Day care and 'good and bad' features	Day care and one study 'pro', one study 'against'
	Autism – features, biological explanation, 'other' explanations and therapies (which is a difference). No choice this time	Choice of a developmental issue from three (includes autism) – features, two ways development might be affected
Method	Observation	Observation
	Questionnaire/interview	Case study method
	Cross-cultural research	Cross-cultural and longitudinal ways of studying children in psychology
	Ethics of researching with children, UCNRC participation versus protection rights	-
	Analysis of quantitative data (descriptive and inferential statistics, as in Year One)	-

	Analysis of qualitative data, grounded theory and thematic analysis	-
<i>Studies</i>	Main study is van IJzendoorn and Kroonenberg (1988) – this is different	Main study is Curtiss (1977)
	One from a choice of three contemporary studies – all new ones	One from a choice of three other studies
<i>Key question</i>	Key question – same as in 2008 – free choice. This time, though, involving applying concepts and so on	Describe a key issue, which is the topic of the summary of articles or the content analysis in the practical investigation
<i>Practical investigation</i>	Practical investigation – questionnaire, interview or observation – a study as in Year One, this is different from GCE 2008	Practical investigation – either a content analysis or a summary of two articles
<i>Issues and debates</i>	Issues and debates are new, a list of 11 which are in all the topic areas and then reviewed/covered in Topic 9, the synoptic element (page 8). This does not add to the topic areas but changes the end topic	Issues and debates are in Unit 4 as a synoptic area but not specified in each approach/application
Health psychology <i>Content</i>	Issues around drug taking	Issues around heroin and one other (mode of action, effects, tolerance, physical and psychological dependence, withdrawal)
	A biological and a learning explanation for drug taking	Two explanations of drug misuse, one biological, one learning
	Two treatments for drug addiction	Two treatments for drug addiction (drug treatment and one other)
	One anti-drug campaign and the strategies behind it	One anti-drug campaign
<i>Method</i>	Use of animals and ethics of animals (see Learning theories in Year One)	Use of animals to research into drugs. Includes practical and ethical issues of using animals
	Two research methods using humans and ethics of using humans	Two research methods using humans to study the effects of drugs. Includes ethical issues of using humans
	Cross-cultural research, including nature–nurture, to study drugs	-
	Analysis of quantitative data (descriptive and inferential statistics, as in Year One)	-
	Analysis of qualitative data, grounded theory and thematic analysis (thematic analysis covered in Year One)	-
<i>Studies</i>	Main study is Olds and Milner	Main study is Blättler et al

2. What's changed?

	(1954) – this is different One from a choice of three contemporary studies – all new ones	(2000) One from a choice of three other studies
<i>Key question</i>	Key question – same as in 2008 – free choice. This time, though, involving applying concepts and so on	Describe a key issue, which is the topic of the summary of articles or the content analysis in the practical investigation
<i>Practical investigation</i>	Practical investigation – questionnaire, interview or observation – a study as in Year One, this is different	Practical investigation – either a content analysis or a summary of two articles
<i>Issues and debates</i>	Issues and debates are new, a list of 11 which are in all the topic areas and then reviewed/covered in Topic 9, the synoptic element (page 8). This does not add to the topic areas but changes the end topic	Issues and debates are in Unit 4 as a synoptic area but not specified in each approach/application
Sports psychology	Not an option in GCE 2015	Content, methods, studies, key issue and practical in sports psychology
Psychological skills <i>Research methods</i>	All the material from the specification with nothing new except peer reviewing. Largely similar	9 research methods largely drawing on the specification and one study for each of them
Review of studies	The classic studies from Topics 1 to 5 (and can draw on other studies). This is different, though such questions (about specified studies) could be asked in GCE 2008	-
Issues and debates	Eleven issues and debates including culture as well as nature–nurture, psychology and science and issues of social control. And others, so there are differences, such as 'reductionism'. Contributions, key issues and ethics fit into the 11 issues and debates listed. So there are similarities	Specified issues and debates, of which ethnocentrism was largely new to students. Nature-nurture, is psychology a science and issues of social control. Contributions of psychology to society, key issues, ethics

Changes to assessment

The assessment structures for AS and A level Psychology are outlined below and on page 9. More detail on the assessment for each component is given in later sections of this guide (pages 25).

A level assessment

<p>Paper 1 Foundations in psychology</p> <p>Total marks: 90 Weighting: 35% Exam time: 2 hours</p> <p>Questions drawn from Topics 1–4 content.</p>	<p>Section A–D (the four topic areas): Each section comprised of a range of question types from short answer to extended open response and including stimulus/data response questions.</p> <p>Section E: Comprised of two extended open response questions.</p>
<p>Paper 2 Applications of psychology</p> <p>Total marks: 90 Weighting: 35% Exam time: 2 hours</p> <p>Questions drawn from Topics 5 and one from Topics 6–8.</p>	<p>Section A (clinical): Comprised of a range of question types from short answer to extended open response questions, including an essay and stimulus/data response questions.</p> <p>Section B (the option): Comprised of a range of question types from short answer to extended open response, including an essay and stimulus/data response questions.</p>
<p>Paper 3 Psychological skills</p> <p>Total marks: 80 Weighting: 30% Exam time: 2 hours</p> <p>Questions drawn from Topics 9 which is a synoptic/revision topic. Learners will make connections across the topics areas and draw upon knowledge and understanding across the research methods, psychological studies and issues and debates given in the Specification.</p>	<p>Section A (research methods): Comprised of a range of question types from short answer to extended open response questions, including an essay and stimulus/data response questions.</p> <p>Section B (review of studies): Comprised of a range of question types but dominated by two extended open response questions based on psychological studies given in the specification. Can involve stimulus/data response questions.</p> <p>Section C (issues and debates): Comprised of two extended open response questions focusing on issues and debates.</p>

2. What's changed?

AS level assessment

Paper 1 Social and cognitive psychology Total marks: 70 Weighting: 50% Exam time: 1.5 hours Questions drawn from Topics 1 and 2 content.	Section A: (social): Comprised of a range of question types from short answer to extended open response. Including stimulus/data response questions.
	Section B (cognitive): Comprised of a range of question types from short answer to extended open response. Including stimulus/data response questions.
	Section C: Comprised of one extended open response question, covering both social and cognitive psychology topic areas.
Paper 2 Biological psychology and learning theories Total marks: 70 Weighting: 50% Exam time: 1.5 hours Questions drawn from Topics 3 and 4 content.	Section A (biological): Comprised of a range of question types from short answer to extended open response. Including stimulus/data response questions.
	Section B (learning): Comprised of a range of question types from short answer to extended open response. Including stimulus/data response questions.
	Section C: Comprised of one extended open response question covering both biological psychology and learning theories topic areas.

3. Planning

3.1 Planning and delivering linear AS and A level courses

Both the AS and the A level qualifications are linear, with assessments taken at the end of the course. There will be no January assessment window.

For A level, centres will need to decide whether they are delivering the A level on its own or co-teaching AS and A level students together, as this may impact on the approach to teaching in the first year. See sections 3.2 and 3.3 below for further guidance on this.

With a linear A level, consideration will need to be given to leaving sufficient time for revision in the second year, particularly to revisit topics studied in the first year. The structure of the course supports ongoing revision as students develop knowledge and understanding from Topics 1–4 which enables them to apply it in contexts in Topics 5 and 6/7/8. Topic 9 summarises the research methods covered throughout the specification (revision topic). Students will make connections across the topics areas and draw upon knowledge and understanding across the research methods, psychological studies, and issues and debates given in the specification.

3.2 Delivery models

One of the first decisions centres will need to make is the approach to offering AS and A level. The benefits of a linear A level course include more flexibility in structuring the course, more time for teaching in the first year, greater student maturity when completing assessments and more opportunity for students to make links between different elements of the course. On the other hand, it means that all students must embark on a two-year course; any student who leaves the course after one year, for whatever reason, will leave with no qualification.

Centres wishing to offer the AS alongside the A level will need to decide whether they can run separate AS and A level classes, or whether AS and A level students will need to be taught in the same class. Co-teaching means that students may be able to delay their decision to take the full A level once they have experience of the subject content; many students are learning psychology for the first time at this level. Those who did go on to the full A level would still have to be examined on all the A level content at the end of the second year and their AS grade will not count towards their A level grade.

Centres are advised to check the funding implications of students delaying AS and A level decisions.

These different options for delivery are given in the table on page 23.

	Option 1	Option 2	Option 3	Option 4	Option 5
<i>Enrolment</i>	Only an A level course is offered: no AS course available.	Students enrol on either an AS course or an A level course, with no option to switch later on.		Students enrol on either an AS course or an A level course, but can switch later on. OR All students enrol on an AS course and decide later whether to do the full A level.	
<i>Teaching</i>	Only A level is taught.	AS and A level students are taught separately.	AS and A level students are taught in the same class.	AS and A level students are co-taught in the same class.	
<i>End of year 1</i>	Internal exam on year 1 topics, using A level-style questions.	AS students sit AS exams. A level students sit an internal exam on year 1 topics, using A level-style questions.		Teaching finishes in time for revision for AS exams. All students sit AS exam. Students decide whether to continue to A level once they have their AS results.	Students confirm by the AS entry deadline whether they want to continue to A level. Only those not continuing sit the AS exam. All other students sit an internal exam, using A level-style questions.

Centres co-teaching the AS will deliver Topics 1 to 4 in the first year. The topics could be run in parallel or taught sequentially, depending on what is most appropriate for staffing and timetabling within each centre. Centres offering only the A level may also start with Topics 1 to 4 in the first year and decide to leave the issues and debates section as part of Topic 9 to co-teach the AS and A level cohort together, but could decide to structure the course differently – for example, deliver the issues and debates section alongside each topic and use Topic 9 as a revision topic. For the A level students, there is some additional ‘math’ and that can be left until after the AS is finished. Different approaches to structuring the course are given in the separate Component guides.

3.3 Co-teaching AS and A level

The AS level is embedded in the A level: Topics 1 to 4 have similar content for the AS and A level specifications (content in **bold** indicates areas that will be assessed for A level only – for example, the issues and debates section, which can be taught as part of Topic 9 if preferred; additionally, some of the mathematical skills (Appendix 3 in the specifications) are in **bold**, meaning not in the AS). The issues and debates, and the 'bold' mathematical material is the only difference between A level Year One and the AS course. This means that Topics 1, 2, 3 and 4 can be co-taught for AS and A level.

The AS and A level assessments are differentiated. Content in Topics 1, 2, 3 and 4 may be assessed at both AS and A level, but the style of questions may be differentiated. For example, students may be asked to define a concept from Topic 1 in the AS level assessments but may be asked to explain the relevance of this concept in some way in the A level assessments. Students may be required to perform a calculation at AS level but may be asked to complete an additional step (such as interpret the result of this calculation using critical value tables) at A level.

3.4 Suggested resources

To support in the teaching and learning of the new specifications, we will provide a comprehensive suggested resources list to capture a range of sources you may find useful. The list will be regularly updated and can be viewed in the component guides and Psychology page of the Edexcel website.

4. Assessment guidance

4.1 Implications of linear assessment

For the AS qualification, both exams (Paper 1 and Paper 2) must be sat at the end of the course – normally one year.

For the A level qualification, the three exams (Paper 1, Paper 2 and Paper 3) must be sat at the end of the course (normally 2 years).

There will be no January assessment window, and it will not be possible to take exams for the same qualification in different exam series: all assessments must be completed together at the end of the course.

It will not be possible for students to re-sit individual components. Students may re-take the whole AS or A level qualification.

4.2 AS assessment

The focus at AS level is on building knowledge and understanding of fundamental areas of psychology, with a greater emphasis on breadth rather than depth.

There are two externally assessed papers at AS level. Each paper comprises 70 marks and is 1.5 hours in duration.

Each paper assesses distinct areas of the specification content, with Paper 1 assessing Topics 1 and 2 and Paper 2 assessing Topics 3 and 4. In each paper, Section A and Section B is comprised of a range of question types from short answer to extended open response.

Section C is comprised of one extended open response question, covering both topics in sections A and B. Questions in this section draws upon topics tested in A and B in combination; this is to allow for synoptic assessment.

The structure of the two papers is the same to ensure a consistent approach to assessing the different content areas. There is greater focus on AO1 and less AO3 in AS than A level.

4.3 A level assessment

There are three externally assessed papers at A level. Papers 1 and 2 comprise 90 marks and are 2 hours in duration; Paper 3 comprises 80 marks and is also 2 hours in duration.

Paper 1 and Paper 2 assess distinct areas of the qualification content, with Paper 1 assessing the Foundations in psychology Topics 1 to 4, and Paper 2 assessing Applications in psychology Topic 5 and one topic from 6, 7 or 8.

In each paper, each section is comprised of a range of question types from short answer to extended open response, including an essay and stimulus/data response questions. The extended open response question in each section allows for in-depth exploration of a topic, enabling students to demonstrate higher-order skills and extended writing skills.

A key differentiator between the AS and A level assessments is that the A level papers draw on content from across all nine topics with a greater emphasis on making connections and links between the topics. A further differentiation is provided in the style of questions at A level when assessing content that is covered in Topics 1 to 4 – for example, students may be asked to define the ideas in an area of psychology (such as social psychology) in the AS level assessments but

may be asked to use the area of psychology (such as social psychology) to explain a mental health issue (e.g. schizophrenia) in the A level assessments. At AS level students may be required to express the outcome of an inferential test in the conventional form by stating the level of significance at the 0.05 level or 0.01 level by using the symbols appropriately, whereas at A level students may be asked to select a suitable inferential test for a given practical investigation and explain why the chosen test is appropriate.

4.4 Question types

A range of question types has been used across the AS and A level Psychology assessments. The question types reflect the skills students should demonstrate both in terms of the questions themselves and in the way the associated mark schemes are constructed. The question types reflect not only the content being assessed but also the skills associated with psychology.

The different question types utilised are as follow.

- 1 Open response: usually 1–4 marks
- 2 Calculation: usually 1–4 marks
- 3 Construction: usually 1–4 marks
- 4 Extended open response: 6–20 marks; marked using levels based MS.

The assessments comprise short answer and extended open response questions.

Short answer response questions have been used to assess both discrete knowledge and understanding of psychological concepts (AO1) as well as the application of these concepts to a particular context (AO2). Questions assessing AO1 target lower-order skills. Short answer questions also allow for the development of student responses, requiring students to make connections and show a logical chain of reasoning and therefore access higher-order cognitive skills and demand (AO3). Extended open response questions have been used to assess across the breadth of assessment objectives.

4.5 Taxonomy (command words)

Taxonomy has also been defined and will be applied consistently to ensure students are rewarded for demonstrating the necessary skills. Careful consideration has been given to the taxonomies associated to particular question types, to ensure that assessment objectives are targeted consistently across questions.

Please note: The list does below does not necessarily have to be used in every paper/session and is provided for guidance only.

One of the key changes is that a single command word will be used per item moving forward; dual injunctions e.g. describe and evaluate, will no longer be used.

Command word	Definition/meaning
Analyse	Break something down into its components/parts. Examine each part methodically and in detail in order to discover the meaning or essential features of a theme, topic or situation. Explore the relationship between the features and how each one contributes to the topic.
Assess	Give careful consideration to all the factors or events that apply

	and identify which are the most important or relevant. Make a judgement on the importance of something, and come to a conclusion where needed.
Calculate	Obtain a numerical answer, showing relevant working. If the answer has a unit, this must be included.
Compare	Looking for the similarities and differences of two (or more) things. This should not require the drawing of a conclusion. The answer must relate to both (or all) things mentioned in the question. The answer must include at least one similarity and one difference.
Complete	To fill in/write all the details asked for.
Convert	Express a quantity in alternative units.
Define	Provide a definition of something.
Describe	To give an account of something. Statements in the response need to be developed as they are often linked but do not need to include a justification or reason.
Determine	The answer must have an element that is quantitative from the stimulus provided, or must show how the answer can be reached quantitatively. To gain maximum marks there must be a quantitative element to the answer.
Discuss	Explore the issue/situation/problem/argument that is being presented within the question, articulating different or contrasting viewpoints.
Draw	Produce an output, either by freehand or using a ruler (e.g. graph).
Evaluate	Review information then bring it together to form a conclusion, drawing on evidence including strengths, weaknesses, alternative actions, relevant data or information. Come to a supported judgement of a subject's qualities and relation to its context.
Explain	An explanation that requires a justification/exemplification of a point. The answer must contain some element of reasoning/justification, this can include mathematical explanations.
Give	Generally involves the recall of one or more pieces of information; when used in relation to a context, it is used to determine a candidate's grasp of the factual information presented.
Identify	This requires some key information to be selected from a given stimulus/resource.
Interpret	Recognise a trend or pattern(s) within a given stimulus/resource.
Justify	Rationalise a decision or action.
Name	Synonymous with 'Give'.
Plot	Produce, or add detail to, a graph/chart by marking points accurately (e.g. line of best fit).
Predict	Articulate an expected result.
State	Synonymous with 'Give'.
Suggest	Make a proposal/propose an idea in written form.
To what extent	Review information then bring it together to form a judgement conclusion, following the provision of a balanced and reasoned argument.

4.6 Mark schemes

Robust levels based mark schemes have been developed to ensure the consistent application of the Assessment Objectives. This has been achieved through providing a consistent understanding of the skills required for each question type to appropriately evidence achievement on a particular question. The bands within each mark scheme show the progression of these skills from the lower bands to the higher bands. Equally, the mark schemes evidence the connections between the various skills and the requirements for students to support their achievement in one Assessment Objective through their achievement in another.

For example, below is the mark scheme for a 6 mark 'to what extent' question. The skills outlined in the Assessment Objectives (**knowledge and understanding**, **application**, **analysis and evaluation** and **originality and clarity**) are connected and evidenced throughout the levels.

Level	Mark	Descriptor
	0	No rewardable material
Level 1	1–2 marks	<ul style="list-style-type: none"> - Demonstrates isolated elements of knowledge and understanding. - Provides little or no reference to relevant evidence (scientific ideas, processes, techniques & procedures). - Candidates will produce statements with some development in the form of mostly accurate and relevant factual material, leading to a superficial judgement/decision being made, if at all. - Response is generally comprehensible and may have some coherence but does lack clarity and organisation.
Level 2	3–4 marks	<ul style="list-style-type: none"> - Demonstrates mostly accurate knowledge and understanding. - Line(s) of argument occasionally supported through the application of relevant evidence (scientific ideas, processes, techniques and procedures). - Arguments developed using mostly coherent chains of reasoning. Leading to a judgement/decision being presented. Candidates will demonstrate a grasp of competing arguments but may be imbalanced. - Response is likely to contain parts which lack clarity and proper organisation.
Level 3	5–6 marks	<ul style="list-style-type: none"> - Demonstrates accurate knowledge and understanding. - Line(s) of argument supported throughout by sustained application of relevant evidence (scientific ideas, processes, techniques or procedures). Might demonstrate the ability to integrate and synthesise relevant knowledge. - Displays a well-developed and logical argument, containing logical chains of reasoning throughout. Demonstrates an awareness of competing arguments, presenting a balanced and supported judgement/decision. - Response demonstrates good organisation and clarity.

The new mark schemes provide a consistent understanding of the skills and connections between these skills required for each question type. Clear wording reflects how teachers and examiners describe the qualities of student work, so the expectations are clearer for teachers and for markers.

The application of the new mark schemes will be demonstrated in the exemplar materials (marked student answers to the sample assessment questions with examiner commentary), which will be available on the Edexcel website in spring 2015.

5. Mathematical skills (Quantitative skills)

5.1 Application of mathematical skills (quantitative skills)

Students are required to develop and demonstrate competence in the quantitative skills outlined in this section throughout the course of study. It is important for these skills to be applied to relevant psychological contexts to ensure students develop a holistic understanding of the application of quantitative skills to psychology. Students will already be familiar with most of the skills through their study of GCSE Maths and it is important to demonstrate how these mathematical skills are relevant to areas in psychology. Skills that are not in GCSE Maths are those that are found in the study of psychology at this level, such as inferential statistical testing.

Where appropriate, the quantitative skills have been included within the specified content in each topic of the specification.

Table 5.1 below is taken from the document GCE AS and A level regulatory requirements for biology, chemistry, physics and psychology, published by DfE in April 2014. Appendix D in the document is for psychology. The GCE 2015 specification reproduces Appendix D as Appendix 3. Throughout the course of study, students will develop competence in the mathematical skills listed below. There are opportunities for students to develop these skills throughout the content and they are required to apply the skills to relevant psychological contexts. The assessment of mathematical skills will include at least Level 2 mathematical skills as a minimum of 10% of the overall marks for this qualification.

Bold text indicates mathematical skills that will be assessed for this qualification but not assessed as part of the Advanced Subsidiary GCE qualification.

The table captures the direct references to the quantitative skills within the specification content but these are not exhaustive and there are opportunities for students to develop these skills throughout the specification content – students should be encouraged to practise and apply these skills throughout each topic.

The skills can also be developed through the use of stimulus material, providing opportunities for students to apply a range of quantitative skills to analyse psychological cases. This stimulus material should take the form of both qualitative and quantitative data.

Table 5.1: Listing the mathematical skills required and examples of where in the specification they can be used. This list is not exhaustive.

Mathematical skills		Exemplification of mathematical skill in the AS and A level psychology specifications
D.0 – Arithmetic and numerical computation		
D.0.1	Recognise and use expressions in decimal and standard form	<p>Possible areas within the specification</p> <ul style="list-style-type: none"> When learning about levels of significance to two or three significant figures (in cognitive and biological psychology) and understanding 5% is 0.05, for example (2.2.12 and 3.2.2) In learning theories, when getting data for a chi-squared test, the numbers can be represented as ratios or percentages, and that can include decimal points (4.2.3 and 4.5.1) Levels of significance are also required in clinical psychology (5.2.5) and in the

5. Mathematical skills (Quantitative skills)

		<p>applications that are options (6.2.4, 6.5.1, 7.2.5, 7.5.1, 8.2.4 and 8.5.1)</p> <ul style="list-style-type: none"> In the option applications all three involve statistical testing and gathering of data so can involve issues around decimals and standard format for numbers (6.5.1, 7.5.1. and 8.5.1)
D.0.2	Use ratios, fractions and percentages	<p>Possible areas within the specification</p> <ul style="list-style-type: none"> Incorporate percentages when designing questionnaires in social psychology and asking closed questions, for example (1.2.1 and 1.5.1) In learning theories, when getting data for a chi-squared test, the numbers can be represented as ratios, fractions or percentages, and that can include decimal points (4.2.3 and 4.5.1) A content analysis in clinical psychology can offer the opportunity to work out fractions and percentages (5.2.5) and in the applications that are options there are data gathered too (such as using a questionnaire) (6.2.4, 6.5.1, 7.2.5, 7.5.1, 8.2.4 and 8.5.1) In the option applications all three involve statistical testing and gathering of data so can involve issues around decimals and standard format for numbers (6.5.1, 7.5.1. and 8.5.1)
D.0.3	Estimate results	<p>Possible areas within the specification</p> <ul style="list-style-type: none"> When using a Wilcoxon and looking at the differences without finishing the test, to see what the result is likely to be, such as in the cognitive practical investigation/experiment (2.2.12 and 2.5.1) Using a scatter diagram for the biological psychology practical investigation to see if there is a correlation and in which direction before doing the Spearman's test (3.5.1) In learning theories use a two by two table ready for the chi-squared table and judge significance depending on how different the values are compared with the end/total values (4.2.3 and 4.5.1) Data are gathered using a content analysis in clinical psychology which gives the opportunity to estimate results (5.5.1) and in the applications that are options data are gathered too, so again estimation of results is possible (6.5.1, 7.5.1, and 8.5.1)
D.1 – Handling data		
D.1.1	Use an appropriate number of significant figures	<p>Possible areas within the specification</p> <ul style="list-style-type: none"> When learning about levels of significance to two or three significant figures (in cognitive psychology and biological psychology) (2.2.12 and 3.2.2) In learning theories, looking at the chi-squared test the result can be 'reduced' to two decimal figures or more (or fewer) to practise doing this (4.2.3 and 4.5.1) The option applications in Year 2 ask for

		statistical testing and the 'results' of a test can require an appropriate number of significant figures (6.5.1, 7.5.1, and 8.5.1)
D.1.2	Find arithmetic means	<p>Possible areas within the specification</p> <ul style="list-style-type: none"> When carrying out analysis of quantitative data in social psychology and producing a table of descriptive statistics, perhaps for the practical investigation that is a questionnaire (if data are interval) (1.2.5 and 1.5.1) The data from the cognitive psychology experiment can produce means as well as other measures of central tendency (2.5.1) Depending on the level of measurement, the data gathered in the option applications can offer the opportunity to calculate measures of central tendency, including means (6.5.1, 7.5.1, and 8.5.1)
D.1.3	Construct and interpret frequency tables and diagrams, bar charts and histograms	<p>Possible areas within the specification</p> <ul style="list-style-type: none"> When carrying out analysis of quantitative data in social psychology and producing descriptive statistics in the form of graphs, tables and charts, perhaps for the practical investigation that is a questionnaire (1.2.5 and 1.5.1) When doing the cognitive psychology experiment graphs can be produced, perhaps considering which type of graph suits which type of data (2.5.1) The content analysis in clinical psychology requires entering data into a table and drawing a table up (5.5.1) Depending on the level of measurement, the data gathered in the option applications can offer the opportunity to draw graphs and interpret tables (and construct tables) (6.5.1, 7.5.1 and 8.5.1)
D.1.4	Understand simple probability	<p>Possible areas within the specification</p> <ul style="list-style-type: none"> When learning about levels of significance (probability that the results are due to chance) to two or three significant figures (in cognitive psychology and biological psychology) (2.2.12 and 3.2.2) In learning theories when a chi-squared test is carried out level of significance is important and the probability of the result being due to chance (4.5.1) Depending on choices in the option applications, a chi-squared test can be carried out using formula (6.5.1, 7.5.1, and 8.5.1)
D.1.5	Understand the principles of sampling as applied to scientific data	<p>Possible areas within the specification</p> <ul style="list-style-type: none"> When learning about the four sampling techniques required in social psychology (1.2.4) When carrying out the practical investigation for social psychology (1.5.1) Practical investigations involve sampling decisions (2.5.1, 3.5.1 and 4.5.1) Practical investigations in Year Two also

5. Mathematical skills (Quantitative skills)

		involve sampling decisions (6.5.1, 7.5.1 and 8.5.1)
D.1.6	Understand the terms mean, median and mode	<p>Possible areas within the specification</p> <ul style="list-style-type: none"> When carrying out analysis of quantitative data in social psychology and producing a table of descriptive statistics, perhaps for the practical investigation that is a questionnaire (use mean if data are interval) (1.2.5 and 1.5.1) In cognitive psychology, in the practical investigation, the mean, median and mode can be calculated (depending on level of measurement) and worked on (2.5.1) Depending on the level of measurement, the data gathered in the option applications and in clinical psychology can offer the opportunity to calculate measures of central tendency, including means (5.5.1, 6.5.1, 7.5.1, and 8.5.1)
D.1.7	Use a scatter diagram to identify a correlation between two variables	<p>Possible areas within the specification</p> <ul style="list-style-type: none"> When learning about correlational data in biological psychology, scatter diagrams must be learned about (3.2.1) When carrying out the correlational study for the biological psychology practical investigation, draw a scatter diagram (3.5.1) Depending on choice of method, the data gathered in the option applications can offer the opportunity to carry out a correlational analysis (using Spearman and a scatter diagram) (6.5.1, 7.5.1, and 8.5.1)
D.1.8	Use a statistical test	<p>Possible areas within the specification</p> <ul style="list-style-type: none"> In the cognitive psychology practical, carrying out a Wilcoxon if repeated measures (or matched pairs) or a Mann Whitney U if independent groups (2.5.1) In the biological psychology practical investigation, carrying out a Spearman's rho to see if there is a correlation (significant) (3.2.2 and 3.5.1) In learning theories a chi-squared test is required in the practical investigation and in the method section (4.2.3 and 4.5.1) Depending on the choices made in the option applications, the practical investigation can offer the opportunity to use the relevant statistical test (6.5.1, 7.5.1, and 8.5.1)
D.1.9	Make order of magnitude calculations	<p>Possible areas within the specification</p> <ul style="list-style-type: none"> Use a set of scores and a total score and estimate the mean average from the information, such as the results of the practical investigation for cognitive psychology (2.5.1) In the biological psychology practical investigation look at the correlational data to estimate whether there is a correlation or not (3.5.1) The choices made for Year Two practical

		applications can mean order of magnitude calculations are possible (6.5.1, 7.5.1 and 8.5.1)
D.1.10	Distinguish between levels of measurement	<p>Possible areas within the specification</p> <ul style="list-style-type: none"> For A level students, in the cognitive psychology practical investigation probably the data are interval data and in the questionnaire for the social psychology investigation there are likely to be both ordinal and nominal data. Make comparisons (1.5.1 and 2.5.1) A level students only when learning about correlations can generate some ideas for correlations, understanding that nominal data does not suit, and why – in biological psychology (3.2.2 and 3.5.1) A level students only – when doing biological psychology there is the requirement to cover levels of measurement (3.2.2) A level students only in learning theories have a chi-squared test which will mean nominal data so with the other practical investigations in Year One, the levels of measurement are covered, and they could be used to explain this concept (e.g. 2.5.1, 3.5.1 and 4.5.1) In Year Two the content analysis for clinical psychology, and the choice of practical investigation for the option application will mean considering levels of measurement, in order to make decisions about descriptive statistics and also inferential statistical testing (5.5.1, 6.5.1, 7.5.1 and 8.5.1)
D.1.11	Know the characteristics of normal and skewed distributions	<p>Possible areas within the specification</p> <ul style="list-style-type: none"> In the cognitive psychology practical investigation there is likely to be interval data, and mean, median and mode can be calculated. At this point distribution can be tested as well as a comparison of the mean, median and mode to estimate the distribution (2.5.1) Depending on choice of method in the option application in Year Two, if the data are the right level of measurement, there is the opportunity to consider distribution of data (6.5.1, 7.5.1 and 8.5.1)
D.1.12	Select an appropriate statistical test	<p>Possible areas within the specification</p> <ul style="list-style-type: none"> A level students – in the cognitive psychology practical investigation the test must be Mann Whitney U or Wilcoxon depending on the design, so the test must be selected (2.2.12 and 2.5.1) A level students – need to know the reasons for choosing a Spearman's rho test (in biological psychology) (3.2.2) For A level students, the chi-squared test is used in learning theories, and reasons for choosing the test can be looked at there (4.2.3 and 4.5.1) In Year Two, for the option application, there

5. Mathematical skills (Quantitative skills)

		is a choice of research methods and the need for an inferential test if appropriate (6.5.1, 7.5.1 and 8.5.1)
D.1.13	Use statistical tables to determine significance	<p>Possible areas within the specification</p> <ul style="list-style-type: none"> • A level students – can calculate the Mann Whitney or Wilcoxon for their practical data and see if the result is significant, using critical value tables (2.2.12 and 2.5.1) • A level students – can use critical values tables to see if the rho from their Spearman's test is significant at a certain level of significance (3.2.2 and 3.5.1) • A level students can use statistical tables to see the significance of chi-squared tests (4.2.3 and 4.5.1) • In Year Two, for the option application, there is a choice of research methods and the need for an inferential test if appropriate, which means using statistical tables (6.5.1, 7.5.1 and 8.5.1)
D.1.14	Understand measures of dispersion, including standard deviation and range	<p>Possible areas within the specification</p> <ul style="list-style-type: none"> • When carrying out analysis of quantitative data in social psychology and considering a set of data, perhaps for the practical investigation that is a questionnaire (depends on level of measurement of the data) (1.2.5 and 1.5.1) • In Year Two, for the option application, there is a choice of research methods which means different levels of measurement and types of data. This means that measures of dispersion might be appropriate. (6.5.1, 7.5.1 and 8.5.1)
D.1.15	Understand the differences between qualitative and quantitative data	<p>Possible areas within the specification</p> <ul style="list-style-type: none"> • When designing and conducting a questionnaire in social psychology, to gather both types of data (1.2.1 and 1.5.1) • In learning theories the observation includes both qualitative and quantitative data so difference can be looked at there (4.2.1 and 4.5.1) • In learning theories the analysis of both qualitative and quantitative data is required (and in social psychology too) and that is an opportunity to look at the difference – by looking at the differences in the analysis (4.2 and 4.5.1) • In clinical psychology a content analysis will be looking at potentially qualitative data and turning it into quantitative data by counting categories so that is a good opportunity to consider the differences between the two, and the possibly different ways of analysing the data (5.5.1) • In Year Two, for the option application, there is a choice of research methods which means different types of data. Considering the choice of research method, driven by the research question, can help to look at differences

		between qualitative and quantitative data (6.5.1, 7.5.1 and 8.5.1)
D.1.16	Understand the difference between primary and secondary data	<p>Possible areas within the specification</p> <ul style="list-style-type: none"> • When doing the questionnaire in social psychology it can be pointed out that the practical investigation gathers primary data (1.5.1) • When doing the correlation study in biological psychology it can be pointed out that this is primary data (3.5.1) • In clinical psychology the content analysis is about primary data but within the sources being analysed there might be secondary data (5.5.1) • In all the Topic Areas there are studies and in their introduction/literature reviews they are likely to use secondary data (1.3, 2.3, 3.3, 4.3, 5.3, 6.3, 7.3, 8.3) • When considering a meta-analysis, such as in clinical psychology, a discussion about primary and secondary data can take place (5.2.2) • When looking at health promotion campaigns in health psychology they might use secondary data (8.1.5, this is an option)
D.2 – algebra		
D.2.1	Understand and use the symbols: =, <, <<, >>, >, , ~.	<p>Possible areas within the specification</p> <ul style="list-style-type: none"> • When learning about levels of significance (in cognitive psychology and biological psychology) and understanding whether a result using critical value tables is significant – greater than or less than... (2.2.12 and 3.2.2) • Depending on choice of research method in the option applications, if a statistical test is carried out, levels of significance will arise (6.5.1, 7.5.1 and 8.5.1).
D.2.2	Substitute numerical values into algebraic equations using appropriate units for physical quantities	<p>Possible areas within the specification</p> <ul style="list-style-type: none"> • A level students – can use the algebraic formula for a Mann Whitney U for a set of data generated in cognitive psychology (2.2.12 or 2.5.1) • A level students – can use the algebraic formula for Spearman's rho for a set of data generated in biological psychology (3.5.1) • A level students – can use the formula for chi squared and also for calculating df for chi squared, to practise using equations to calculate results (4.2.3 and 4.5.1) • In Year Two in the option applications depending on choices made, statistical testing is carried out and the formula can be used (6.5.1, 7.5.1 and 8.5.1)
D.2.3	Solve simple algebraic equations	<p>Possible areas within the specification</p> <ul style="list-style-type: none"> • A level students – when carrying out a chi-squared test in learning theories as the practical investigation (the observation), degrees of freedom can be calculated from (r-1) (c-1) (4.5.1)

		<ul style="list-style-type: none"> A level students can use the formula for standard deviation, which includes other calculations, such as difference from the mean (e.g. 2.2.11) In the Year Two standard deviation is required, which gives more opportunity for practice (6.2.4, 7.2.5 and 8.2.4)
D.3 – Graphs		
D.3.1	Translate information between graphical, numerical and algebraic forms	<p>Possible areas within the specification</p> <ul style="list-style-type: none"> When analysing data for the questionnaire carried out for the practical investigation in social psychology, having a data table (raw scores) and using it to draw a graph (1.5.1) When carrying out a correlation, using the data in a table (raw data) to draw a scatter diagram (3.5.1) In Year Two in the option applications depending on choices made, quantitative data can be gathered, and graphs and tables used for this skill (6.5.1, 7.5.1 and 8.5.1)
D.3.2	Plot two variables from experimental or other data	<p>Possible areas within the specification</p> <ul style="list-style-type: none"> Can draw up a graph to represent the data in the cognitive psychology practical investigation (experiment) (2.5.1) Can draw up a scatter diagram to see if there is a correlation (in the biological approach) (3.5.1) In Year Two in the option applications depending on choices made, quantitative data can be gathered, and graphs and tables used for this skill (6.5.1, 7.5.1 and 8.5.1)

Although the ethos of this specification is for mathematical skills to be integrated into unit delivery throughout the course, some centres may wish to choose to deliver mathematical skills as a discrete module. There are advantages to this approach in that the learners will develop these skills in a focused way and the teacher/lecturer can then refer back to these skills at relevant times as the need arises in each of the units. This approach could also enable some centres to draw on the skills of colleagues from the mathematics department to help with delivery the content and build on the mathematical skills already developed in KS4.

How to deliver and develop the mathematical skills needed by learners in Psychology is very much a centre decision to be determined by the nature of the centre learners.

6. Issues and debates summary

6.1 Summary of all the issues and debates

The table below summarises the issues and debates sections in each topic area and gives examples of how they apply each of the topic areas of psychology.

Issues and debates section	Topic Area	Examples
Ethics	Social	- when researching obedience and prejudice, and also implications of findings in both areas
	Cognitive	- Henry Molaison (HM) and confidentiality
	Biological	- studying aggression and how findings are used; - in the research itself such as issues of confidentiality and informed consent
	Learning	- the ethical issues involved in using animals in studies
	Clinical	- issues of diagnosing mental disorders - such as using labelling; - obtaining consent for participation in research; - HCPC guidelines for practitioners
	Criminological	- effects of unreliability of jury decision making; - effects of unreliability of eye witness testimony; - using field experiments to test eye witness unreliability with possible lack of debriefing
	Child	- balancing participation and protection rights and the UNCRC
	Health	- the use of animals and humans when researching drugs and drug treatments like aversion therapy
Practical issues in the design and implementation of research	Social	- issues around informed consent and deception for Milgram; - designing questionnaires and interviews and social desirability
	Cognitive	- how to measure memory and the validity of experimental design
	Biological	- issues in scanning and measuring the complexity of the brain
	Learning	- generalising from animal study findings to humans
	Clinical	- quantitative v qualitative data, balancing validity with reliability
	Criminological	- having to use mock juries and artificial situations because of not being able to manipulate real trial situations
	Child	- in meta-analyses, with special issues about comparing results from different studies; - in observations and getting objective data
	Health	- generalising from findings from animal

		<ul style="list-style-type: none"> studies to human behaviour; studying drug action in the brain is hard to access holistically
Reductionism	Social	<ul style="list-style-type: none"> the risk of reductionism when drawing conclusions from social data***
	Cognitive	<ul style="list-style-type: none"> under-emphasis on the interconnections between parts of the brain in favour of individual parts responsible for memory; artificially breaking memory up into parts like STM and LTM for the purposes of study
	Biological	<ul style="list-style-type: none"> focusing specifically on aggression when studying the brain
	Learning	<ul style="list-style-type: none"> in the way behaviourism reduces behaviour into parts to be studied
	Clinical	<ul style="list-style-type: none"> in research where causes of mental disorders are isolated and diagnoses are not holistic
	Criminological	<ul style="list-style-type: none"> using experiments and field experiments to test issues around eye witness testimony such as weapons effect; biological explanations for criminal behaviour
	Child	<ul style="list-style-type: none"> reducing behaviour to the Strange Situation in order to test attachment types
	Health	<ul style="list-style-type: none"> when considering the use of methods such as experiments; that studies using animals tend to isolate variables
Comparisons between ways of explaining behaviour using different themes	Social	<ul style="list-style-type: none"> the two theories of prejudice – social identity and realistic conflict
	Cognitive	<ul style="list-style-type: none"> The different memory models
	Biological	<ul style="list-style-type: none"> causes of aggression comparing Freud's ideas and biological explanations
	Learning	<ul style="list-style-type: none"> Different learning theories
	Clinical	<ul style="list-style-type: none"> ICD and DSM; different explanations for mental health issues
	Criminological	<ul style="list-style-type: none"> different explanations for criminal behaviour drawing on biology, learning theories and social psychology
	Child	<ul style="list-style-type: none"> Ainsworth's and Bowlby's theories about attachment; evolution ideas about attachment
	Health	<ul style="list-style-type: none"> different explanations for drug misuse, learning and biological
Psychology as a science	Social	<ul style="list-style-type: none"> social desirability in questionnaires; issues of validity in questionnaires
	Cognitive	<ul style="list-style-type: none"> laboratory experiments and controls
	Biological	<ul style="list-style-type: none"> Synaptic transmission; brain scanning techniques
	Learning	<ul style="list-style-type: none"> in the methodology; in the explicit focus of behaviourism on the measurable
	Clinical	<ul style="list-style-type: none"> in research which involves biological methods; in treatments such as drug therapies, e.g. in research which uses scientific research methods such as laboratory experiments
	Criminological	<ul style="list-style-type: none"> using experiments and field experiments;

		- using biological explanations
	Child	- looking at how cross-cultural research can answer questions about nature nurture, so looking at what is universal in child development
	Health	- using animal experiments to study drug misuse; - considering biological explanations for drug misuse
Culture and gender	Social	- whether prejudice and obedience are influenced by cultural factors, or according to gender
	Cognitive	- not specifically looked at in this topic area
	Biological	- not specifically looked at in this topic area
	Learning	- culture, e.g. relates to reinforcement patterns in learning theory as well as social learning theory and what is modelled - gender, e.g. if used in the practical research exercise; - gender, e.g. in observational learning issues
	Clinical	- culture, e.g. cultural differences in diagnosis practice - gender, e.g. gender featuring as a difference in frequency of a disorder
	Criminological	- as issues that might affect jury decision making – sometimes to the detriment of the defendant
	Child	- culture, e.g. cross-cultural findings about attachment types and cultural differences in child rearing - gender, e.g. not considered directly but studies do look at differences in gender, day care, and social, emotional and cognitive development
	Health	- culture, e.g. considering the cross-cultural research - gender not specifically considered in this topic area, though gender differences in drug taking could be considered
Nature-nurture	Social	- the role of personality in obedience compared with the role of the situation
	Cognitive	- Henry Molaison (HM) and brain function = nature, reconstructive memory emphasises experiences = nurture
	Biological	- brain localisation in aggression and environmental influences in aggression
	Learning	- in the observations if looking at gender or age or characteristics as these can be learned or biologically given
	Clinical	- different theories of what causes mental disorders, biological compared to social psychology
	Criminological	- biological versus social/learning explanations for criminal behaviour
	Child	- what cross-cultural studies say about the universality of attachment types

	Health	- learning as opposed to biological explanations for drug misuse
An understanding of how psychological understanding has developed over time	Social	- if using Burger's work replicating Milgram and comparing with Milgram's work; - looking at Tajfel's ideas and a contemporary study
	Cognitive	- if studying the development of the working memory model over time; - how the multi-store model informed later memory models
	Biological	- development of scanning techniques up to fMRI and development of knowledge accordingly
	Learning	- can come through choice of study, such as if looking at video game violence; - through current therapy practice
	Clinical	- DSM changes; - changes in therapies; - changing explanations for mental health issues
	Criminological	- Loftus and Palmer's study of eye witness testimony and consider Loftus's work in the field currently; - cognitive interview and ethical interview
	Child	- Bowlby's work has been followed up with more recent studies on maternal deprivation linking to issues around day care
	Health	- rise of understanding about drug misuse – explanations for drug misuse; - rising understanding used in anti-drug campaigns
Issues of social control	Social	- reducing prejudice; - how people obey someone in authority/uniform
	Cognitive	- perhaps using understanding of memory in court situations
	Biological	- using knowledge of brain function to control individuals
	Learning	- use of learning theories in therapy can be social control, including issues of power of the therapist
	Clinical	- policies for the treatment and therapy for mental health issues can itself be seen as a form of social control
	Criminological	- treatments and therapies for those convicted of crime or anti-social behaviour; - the power of a therapist, a forensic psychologist, or the person controlling the treatment/therapy
	Child	- how findings about day care and parenting styles/attachments can be used as a form of control such as advising day care (or not) for economic reasons; - treatment, therapy and behaviour around the issue of autism
	Health	- treating drug misuse as criminal and requiring treatment
The use of	Social	- reducing conflict in society

psychological knowledge within society	Cognitive	- using understanding of memory to help with memory 'loss' such as a memory bus
	Biological	- understanding causes of aggression, in order to perhaps deal with them
	Learning	- using patterns of reward to shape behaviour in schools or prisons
	Clinical	- therapies and treatments for mental health issues
	Criminological	- warning about unreliability of eye witness testimony; - warning about issues that might affect jury decision making
	Child	- treatment or therapy for problem behaviour; - pros and cons of day care and advice to parents; - advice regarding looked after children
	Health	- using understanding of drug misuse to develop treatment ideas
Issues related to socially sensitive research	Social	- racism or cultural differences in social psychology
	Cognitive	- memory loss related to dementia is socially sensitive for the individual
	Biological	- HM and confidentiality
	Learning	- issues of the power of the therapist
	Clinical	- research in the area of mental health and cultural issues
	Criminological	- looking at causes for criminal behaviour in socially sensitive areas such as socio economic status, race, age, gender
	Child	- research into developmental issues such as autism; research into issues around child development such as socio economic status; - research around adoption and the effects of privation
	Health	- asking about drug 'habits' when people are vulnerable

7. Transferable skills

7.1 The need for 21st-century skills

In recent years higher education institutions, as well as employers, have consistently flagged the need for students to develop a range of 21st-century skills to enable them to respond to the demands of undergraduate study and the world of work with confidence.

The National Research Council's 21st-century skills framework, to which we have mapped our specifications, identified three overarching skills domains: cognitive skills, interpersonal skills and intrapersonal skills. The following tables outline how 21st-century skills are applicable to the teaching and assessment of this qualification.

7.2 Cognitive skills

- Non-routine problem solving skills of expert thinking, metacognition and creativity.
- Systems thinking skills of decision making and reasoning.
- Critical thinking skills of analysis, synthesising and reasoning.
- ICT literacy skills so that individual can appropriately use digital technology and communication tools to access, manage, integrate, evaluate, construct and communicate information.

	Cognitive skills		
	Assess	Encouraged through teaching	Suggested evidence
Expert thinking	x		Examining information and data, e.g. information/data in the stimulus material to answer an 'analyse or evaluate' question on predicted behaviour. The relationship of the theoretical concepts to the findings of the practical research exercises. Understanding which statistical tests are appropriate in a particular scenario.
Metacognition	x		Reflect on the effectiveness of a topic area used, e.g. statistical tests or methodology.
Creativity	x	x	Creative practical research exercises – new innovative ideas – devising surveys, questionnaires, etc. This can be directly assessed (e.g. 'design a study') and would be expected to be encouraged through teaching and learning.
Systems thinking	x		Develop a holistic understanding of psychology in a range of contexts, e.g. linking of concepts: <ul style="list-style-type: none"> • biological – drugs and its links to health

			<p>psychology and biological explanations for behaviour, such as in criminological psychology</p> <ul style="list-style-type: none"> • history of psychology and how it has evolved over time and how it's used in psychology today • understanding and responding to ethical issues and a range of influences, e.g. individual differences in different areas of psychology.
Decision making	x		<p>Understanding the intended consequences of changing of variables in experiments, e.g. change of target group, age, gender, etc.</p> <p>Evaluating the consequences of individual actions or behaviour in a given situation – brain functioning and behavioural psychology.</p>
Reasoning skills	x		<p>AO2 application and AO3 analysis and evaluation. There is no right answer in psychology; therefore abstract reasoning can be exemplified through developing an understanding of the topic areas and how they can be applied and studied from a range of perspectives.</p>
Critical thinking	x	x	<p>Developing critical understanding of concepts and behaviour, e.g. understanding correlation does not equal causation; this can be exemplified through flawed conclusions in a study – all studies are flawed in some way, no study is perfect. Therefore, you can look at flaws within a system.</p>
Access	x	x	<p>Use of online journals, further research around the studies, retrieving secondary data for form evidence for practical research exercises.</p>
Manage	x	x	<p>Classification of data into various forms, e.g. primary data, secondary data, across studies.</p> <p>Managing security of data – data protection (edit and anonymise data), e.g. names, age, etc.</p>
Integrate	x	x	<p>Ability to interpret, summarise, compare and contrast information, weighing up evidence – can be done in an ICT content and non-ICT content because of the mathematical skills requirements.</p>
Evaluate	x	x	<p>As part of AO3, students analyse, interpret and evaluate a range of scientific information ideas and evidence to make judgements and reach conclusions and/or to refine practical design procedures – will be assessed through teaching and learning</p>

			rather than through ICT.
Construct	x	x	Spreadsheets, data manipulation – will be assessed through teaching and learning rather than through ICT.
Communicate		x	Communicating through a range of techniques, e.g. presentations, written reports, etc. – will be assessed through teaching and learning rather than through ICT.

7.3 Interpersonal skills

- Communication skills of active listening; oral, written; assertive and non-verbal communication.
- Relationship-building skills of teamwork. Trust; intercultural sensitivity; service orientation, self-presentation; social influence; conflict resolution and negotiation.
- Collaborative problem solving skills of establishing and maintaining shared understanding; taking appropriate action and establishing and maintaining team organisation.

	Interpersonal skills		
	Assess	Encouraged through teaching	Evidence
Communication			
Active listening		x	Feature of this spec as students are required to engage with viewpoints of others and understand ambiguities to enable for discussions and debates.
Oral communication		x	Communication with peers/participants, etc.
Written communication	x	x	Demonstrate knowledge and understanding of the subject through writing coherently and through structured responses in the written exam. Quality of Written Communication (QWC) requirement. Writing for different audiences such as writing up a report of a study.
Assertive communication		x	Forming sustained arguments and how to present an argument (assertive not aggressive). Presenting facts and opinions.
Non-verbal communication		x	Body language, gestures and tone of students in a teaching and learning environment (presentations, class discussions, etc.)
Relationship building			
Teamwork		x	Working with others is key in psychology as you will be working with

			groups, individuals, etc. Gathering data in the practical investigations can be group work.
Trust		x	Developed through teamwork. Trust of participants in an experiment for example to use their data/details anonymously (linked with system thinking).
Intercultural sensitivity		x	Culture, ethics, understanding the importance of individual differences.
Service orientation		x	Influence the reactions and images people have of them and their ideas.
Conflict resolution and negotiation		x	Weigh up arguments. Develop understanding of how to deal with conflicting arguments/opinions in a group. Social psychology helps to explain how to reduce prejudice and why people obey others, can apply that to situations.
Collaborative problem solving			
Collaborative problem solving		x	Working with others to investigate psychological issues.

7.4 Intrapersonal skills

- Adaptability skills to develop the ability and willingness to cope with uncertain, new and rapidly changing conditions.
- Self-management/self-development skills to develop the ability to work remotely, in virtual teams, autonomously and to be self-motivating and self-monitoring.

	Intrapersonal Skills		
	Assess	Encouraged through teaching	Evidence
Adaptability			
Ability and willingness to cope with uncertain, new and rapidly changing conditions on the job		x	Adapting to changing situations and unexpected events during practical research exercises such as change in participants circumstances leading them to withdraw from study/experiment.
Handling work stress		x	Develop the ability to manage time and plan for unknowns (generic skills not subject specific). Develop the ability to prioritise work through planning (generic skills not subject specific).

Adapting to different personalities, communication styles and cultures		x	Develop an understanding and adjusting behaviour to show respect for different cultures, personalities, beliefs and to understand the implications of their own behaviour: practical research exercises such as surveys, experiments, etc.
Self management / Self development			
Work remotely, in virtual terms		x	Independent learning and research – read around the subject and keep up to date with current issues/developments in psychology through a range of media. Manage homework tasks.
Work autonomously		x	Independent learning/research opportunities within subject, e.g. interviews, questionnaires as part of their practical research exercises.
Be self-motivating and self-monitoring		x	Setting goals/targets (generic skills not subject specific).
Willingness and ability to acquire new information and skills related to work		x	Wider reading opportunities and independent research skills. Project work though other qualifications on subject of interest, i.e. Extended project Qualification (EPQ) on the effects of drugs on behaviour.