Mark schemes are prepared by the Lead Assessment Writer and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation events which all associates participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the students’ responses to questions and that every associate understands and applies it in the same correct way. As preparation for standardisation each associate analyses a number of students’ scripts. Alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, associates encounter unusual answers which have not been raised they are required to refer these to the Lead Assessment Writer.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of students’ reactions to a particular paper. Assumptions about future mark schemes on the basis of one year’s document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

Further copies of this mark scheme are available from aqa.org.uk
Level of response marking instructions

Level of response mark schemes are broken down into levels, each of which has a descriptor. The descriptor for the level shows the average performance for the level. There are marks in each level.

Before you apply the mark scheme to a student’s answer read through the answer and annotate it (as instructed) to show the qualities that are being looked for. You can then apply the mark scheme.

Step 1 Determine a level

Start at the lowest level of the mark scheme and use it as a ladder to see whether the answer meets the descriptor for that level. The descriptor for the level indicates the different qualities that might be seen in the student’s answer for that level. If it meets the lowest level then go to the next one and decide if it meets this level, and so on, until you have a match between the level descriptor and the answer. With practice and familiarity you will find that for better answers you will be able to quickly skip through the lower levels of the mark scheme.

When assigning a level you should look at the overall quality of the answer and not look to pick holes in small and specific parts of the answer where the student has not performed quite as well as the rest. If the answer covers different aspects of different levels of the mark scheme you should use a best fit approach for defining the level and then use the variability of the response to help decide the mark within the level, i.e. if the response is predominantly level 3 with a small amount of level 4 material it would be placed in level 3 but be awarded a mark near the top of the level because of the level 4 content.

Step 2 Determine a mark

Once you have assigned a level you need to decide on the mark. The descriptors on how to allocate marks can help with this. The exemplar materials used during standardisation will help. There will be an answer in the standardising materials which will correspond with each level of the mark scheme. This answer will have been awarded a mark by the Lead Examiner. You can compare the student’s answer with the example to determine if it is the same standard, better or worse than the example. You can then use this to allocate a mark for the answer based on the Lead Examiner’s mark on the example.

You may well need to read back through the answer as you apply the mark scheme to clarify points and assure yourself that the level and the mark are appropriate.

Indicative content in the mark scheme is provided as a guide for examiners. It is not intended to be exhaustive and you must credit other valid points. Students do not have to cover all of the points mentioned in the Indicative content to reach the highest level of the mark scheme.

An answer which contains nothing of relevance to the question must be awarded no marks.

Examiners are required to assign each of the students’ responses to the most appropriate level according to its overall quality, then allocate a single mark within the level. When deciding upon a mark in a level examiners should bear in mind the relative weightings of the assessment objectives and be careful not to over/under credit a particular skill. This will be exemplified and reinforced as part of examiner training.
## Section A

### Memory

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Which <strong>one</strong> of these describes how information is usually encoded in short term memory? Shade <strong>one</strong> box.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Marks for this question: AO1 = 1 mark**

A

<table>
<thead>
<tr>
<th>2</th>
<th>Which <strong>one</strong> of these describes the process of holding information in your memory? Shade <strong>one</strong> box.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Marks for this question: AO1 = 1 mark**

D

<table>
<thead>
<tr>
<th>3</th>
<th>What is a false memory?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Marks for this question: AO1 = 1 mark**

1 **mark** for a correct definition

Example: a memory of an event that has not actually happened.

Credit other relevant definitions.
Antoni’s mum phones him and tells him she has lots of jobs for him to do as soon as he gets home from school. She then lists all the jobs. Immediately after her phone call, Antoni remembers the first and last jobs from the list but he can’t remember the middle ones.

Explain why this occurred. In your answer, refer to the jobs at the start, middle, and end of the list.

[6 marks]

Marks for this question: AO1 = 3 marks and AO2 = 3 marks

<table>
<thead>
<tr>
<th>Level</th>
<th>Marks</th>
<th>Description</th>
</tr>
</thead>
</table>
| 3 Detailed | 5-6   | AO1: Relevant knowledge and understanding of the effects of serial position is accurate with detail.  
AO2: Clear application of knowledge and understanding of the effects of serial position that includes references to all three sections of the list. 
Relevant terminology is used consistently throughout. The answer demonstrates a high level of substantiated reasoning, is clear, coherent and focused. |
| 2 Clear | 3-4 | AO1: Relevant knowledge and understanding of the effects of serial position is present but there are occasional inaccuracies/omissions.  
AO2: Reasonable application of knowledge and understanding of the effects of serial position. Includes some references to the sections of the list. 
Relevant terminology is used consistently throughout. The answer demonstrates a high level of substantiated reasoning and is clear, coherent and focused. |
| 1 Basic | 1-2 | AO1: Knowledge and understanding of the effects of serial position is present but limited.  
AO2: Limited application of knowledge and understanding of the effects of serial position. 
Relevant terminology is occasionally used. The answer occasionally demonstrates substantiated reasoning, but may lack clarity, coherence, focus and logical structure. |
| 0 | No relevant content |
Indicative content:

AO1

- The serial position effect states that the chances of recalling information depends on its position in a list.
- Information at the start of a list is likely to be remembered well. This is because we start to rehearse this information so it is transferred to our long term memory. This is known as the primacy effect.
- Information at the end of a list is likely to be remembered well. This is because it is still held in our short term memory. This is known as the recency effect.
- Information in the middle of a list is less likely to be remembered. This is because it is unlikely that we will rehearse it so it will not be transferred to long term memory and it is likely to be displaced from our short term memory or lost through decay.

AO2

- Antoni has remembered jobs from the start of his mum’s list because he has been able to rehearse this information and transfer it to his long term memory.
- Antoni has remembered jobs from the end of his mum’s list because these are still held in his short term memory.
- Antoni has forgotten the items from the middle of his mum’s list because he has not rehearsed this information so it has not been transferred to his long term memory and it has been lost from his short term memory through displacement or decay.
Describe the theory of reconstructive memory.

Marks for this question: AO1 = 4 marks

<table>
<thead>
<tr>
<th>Level</th>
<th>Marks</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Clear</td>
<td>3–4</td>
<td>Relevant knowledge and understanding of the theory of reconstructive memory is accurate with detail. Relevant terminology is used consistently throughout. The answer is clear, coherent and focused.</td>
</tr>
<tr>
<td>1 Basic</td>
<td>1–2</td>
<td>Relevant knowledge and understanding of the theory of reconstructive memory is present but limited. Relevant terminology is occasionally used. The answer may lack clarity, coherence, focus and logical structure.</td>
</tr>
<tr>
<td>0</td>
<td></td>
<td>No relevant content.</td>
</tr>
</tbody>
</table>

Indicative content:

- We change our memories to fit with what we already know
- We may think we are remembering what happened, but it is reconstructed (active process)
- Bartlett stated that when we are trying to recall information we may fill in the small gaps with details that make sense and ‘fit in’ with the rest of the information
- The overall meaning of an event is remembered
- Bartlett’s War of the Ghosts’ study supports reconstructive memory as an active process

Credit other relevant content.
Seema is moving house. She is filling in an application form for a course and is struggling to accurately remember her new address.

Identify and explain two factors that might have affected the accuracy of Seema’s memory.

Marks for this question: AO1 = 2 mark and AO2 = 2 marks

AO1

1 mark for identifying each relevant factor.

• Interference
• Context

PLUS

AO2

1 mark: for each clear explanation

Possible content

Interference

• Seema is experiencing interference because her old address and new address are different.
• Seema’s old memory of her address is confused with her new learning of her new address. This makes it hard for Seema to remember her current address.

Context

• Seema may have learned her new address in a different context to where she is trying to recall her new address

Credit other relevant content.
Research into memory often uses laboratory experiments. Describe one advantage and one disadvantage of using laboratory experiments to investigate factors affecting memory.

<table>
<thead>
<tr>
<th>Level</th>
<th>Marks</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Clear</td>
<td>3–4</td>
<td>Analysis and evaluation of one advantage and one disadvantage of using laboratory experiments to investigate memory is effective. Any conclusions drawn are sound and fully expressed. Relevant terminology is used consistently throughout. The answer demonstrates a high level of substantiated reasoning and is clear, coherent and focused.</td>
</tr>
<tr>
<td>1 Basic</td>
<td>1–2</td>
<td>Analysis and evaluation of one advantage and one disadvantage of using laboratory experiments to investigate memory is of limited effectiveness or muddled. Any attempts to draw conclusions are not always successful. OR Analysis and evaluation of one advantage OR one disadvantage of using laboratory experiments to investigate memory is effective. Any conclusions drawn are sound and fully expressed. Relevant terminology is occasionally used. The answer occasionally demonstrates substantiated reasoning, but may lack clarity, coherence, focus and logical structure.</td>
</tr>
<tr>
<td>0</td>
<td>No relevant content.</td>
<td></td>
</tr>
</tbody>
</table>

Possible content

- One advantage of using laboratory experiments to investigate memory is that the experimenter has a high level of control over variables such as extraneous variables. This means they are able to identify the effect of the independent variable on the dependent variable. For example, they can establish that the position of an item in a list affects the likelihood of it being remembered.
- Another advantage is that laboratory experiments looking at memory normally use standardised procedures. This means that other researchers can replicate memory research. If the results are the same this increases the reliability of research into memory.
- One disadvantage is that memory research often involves learning lists of words or other artificial tasks. This is not similar to how we use of memory in normal situations which limits the ecological validity of research into memory.
- Another disadvantage of using laboratory experiments to investigate memory, is that a laboratory setting is not very similar to the environments in which we usually memorise information. This means participants may not behave as they normally would when memorising. This limits the ecological validity of research into memory.

Credit other relevant content.
Outline the multi-store model of memory. [4 marks]

Marks for this question: AO1 = 4 marks.

<table>
<thead>
<tr>
<th>Level</th>
<th>Marks</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Clear</td>
<td>3–4</td>
<td>Relevant knowledge and understanding of the multi-store model of memory is accurate with detail. Relevant terminology is used consistently throughout. The answer is clear, coherent and focused.</td>
</tr>
<tr>
<td>1 Basic</td>
<td>1–2</td>
<td>Relevant knowledge and understanding of the theory of the multi-store model is present but limited. Relevant terminology is occasionally used. The answer may lack clarity, coherence, focus and logical structure.</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>No relevant content.</td>
</tr>
</tbody>
</table>

Indicative content

- Information flows through the sensory, short term and long term memory stores.
- Information is transferred from the sensory to short term memory if we pay attention to it.
- Information is transferred from the short term to long term memory store if it is rehearsed.
- Each store has different characteristics, for example the short term store has a capacity of about 7 items whilst the capacity of long term memory is unlimited.

Credit other relevant content.
Section B
Perception and development

9.1 Most people say that they see a white square in the centre of Figure 1. Outline what psychologists mean by ‘fiction’ when explaining this type of visual illusion. [2 marks]

Marks for this question: AO1 = 2 marks
Up to 2 marks for a correct definition.
Example: When something (an image, object, figure, colour or movement) is perceived (1 mark) but the construction is not actually there/even though it is not presented (1 mark).

Credit other relevant content.

9.2 Explain the difference between sensation and perception. [2 marks]

Marks for this question: AO1 = 2 marks

Possible content
- Sensation is the information from the world around us that we receive through our sense organs (1 mark) whereas perception is how we organise, interpret and make sense of that information (1 mark).

Credit other relevant explanations.

9.3 Which visual illusion is also an example of ‘fiction’? Shade one box. [1 mark]

Marks for this question: AO1 = 1 mark

A

10.1 Express the result for the number of participants who identified a vase to two significant figures. [1 mark]

Marks for this question: AO2 = 1 mark

290,000
The researchers decided to leave the survey online until another 100,000 participants have answered the question.

Based on the results in Table 1, what is the best estimate of how many of these extra participants will identify two faces. Shade one box.

[1 mark]  

Marks for this question: AO2 = 1 mark

B
Outline Gibson’s direct theory of perception. Compare Gibson’s direct theory of perception with Gregory’s constructivist theory of perception. Refer to the article in your answer.

Marks for this question: AO1 = 3 marks, AO2 = 3 marks and AO3 = 3 marks

<table>
<thead>
<tr>
<th>Level</th>
<th>Marks</th>
<th>Description</th>
</tr>
</thead>
</table>
| 3 Detailed | 7-9   | AO1: Relevant knowledge and understanding of Gibson’s theory is accurate with detail.  
AO2: Clear application of knowledge and understanding of Gibson’s and Gregory’s theories to the article.  
AO3: Analysis of the similarities and/or differences between Gibson’s and Gregory’s theories is effective. Any conclusions drawn are sound and fully expressed.  
Relevant terminology is used consistently throughout. The answer demonstrates a high level of substantiated reasoning, is clear, coherent and focused. |
| 2 Clear | 4-6   | AO1: Relevant knowledge and understanding of Gibson’s theory is present but there are occasional inaccuracies/omissions.  
AO2: Reasonable application of knowledge and understanding of Gibson’s and/or Gregory’s theories to the article.  
AO3: There may be some effective analysis and evaluation of the similarities and/or differences between Gibson’s and Gregory’s theories. There may be an attempt to draw conclusions.  
Relevant terminology is usually used. The answer frequently demonstrates substantiated reasoning, is clear, generally coherent and focused although structure may lack some logic. |
| 1 Basic | 1-3   | AO1: Knowledge and understanding of Gibson’s theory is limited.  
AO2: Limited application of knowledge of Gibson’s and/or Gregory’s theories.  
AO3: Analysis and evaluation of the similarities and/or differences between Gibson’s and Gregory’s theories is of limited effectiveness or may be absent. Any attempts to draw conclusions are not always successful or present.  
Relevant terminology is occasionally used. The answer occasionally demonstrates substantiated reasoning, but may lack clarity, coherence, focus and logical structure. |
| 0      | 0     | No relevant content |
Examiners are reminded that AO1, AO2 and AO3 are regarded as interdependent. When deciding on a mark in instances where there is an attempt at more than one assessment objective all attempts should be considered together using the best fit approach. In doing so, examiners should bear in mind the relative weightings of the assessment objectives.

When an answer only contains content related to one of the skills (AO1/AO2/AO3), then the levels descriptors for the award of marks for the skill attempted should be applied to the answer, up to the maximum mark available.

**Indicative content**

**AO1**

- Gibson’s direct theory of perception is the idea that we perceive simply by using the information we receive through our senses. This gives us enough information to make sense of the world. Gibson saw texture gradients and colour gradients as examples of how the real world gives us plenty of information for perception.
- Gibson believed that perception evolved in order to help an animal deal best with its environment. Dealing with our environment includes our own actions, as well as the information we receive. Gibson argued that our perception of objects includes the possibilities for action which they afford, so we perceive what is around us in terms of ourselves, and what it allows us to do.

**AO2**

- The tribe’s people had never had any previous experience of seeing large objects far away from them and that is why they thought that the animals they could see in the distance were actually insects.
- The incident described in the article helps to support Gregory’s theory but goes against what Gibson says in his theory.

**AO3**

- Gregory’s theory is a top-down theory whereas Gibson’s theory is bottom-up.
- Gregory’s theory suggests that perception is influenced by nurture / learning and past experiences, whereas Gibson’s theory suggests that perception is influenced by nature and inborn biological factors rather than learning.

Credit other relevant content.
12.1 Outline Bruner and Minturn’s study of perceptual set.

[3 marks]

Marks for this question: AO1 = 3 marks

3 marks: a clear and detailed outline
2 marks: a limited outline
1 mark: a muddled outline

Indicative content

- Participants took part in an experiment on recognising numbers and letters. Letters or numbers were flashed up very quickly and the participants were asked to draw the letter or number as soon as they could recognise it. The test stimulus was a broken ‘B’, that could be seen as either the letter B or the number 13.
- The participants were shown a series of four stimulus letters (L, M, Y, and A) as training for what to do. Then they were shown the test stimulus. After that, they were shown a series of test numbers (16, 17, 10, and 12) followed by the test stimulus. Then they were shown a series of mixed letters and numbers, again followed by the test stimulus.
- Most of the participants drew a ‘13’, when they were expecting a number to come up, and the letter ‘B’, when they were expecting a letter. When they were expecting either a letter or a number they produced mixed results: some people drew a ‘13’ and some drew a ‘B’.
- The researchers concluded that the participants’ expectations had directly affected how they interpreted the stimulus figure.

Credit other relevant content.
Evaluate Bruner and Minturn’s study of perceptual set.

Marks for this question: AO3 = 4 marks

<table>
<thead>
<tr>
<th>Level</th>
<th>Marks</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Clear</td>
<td>3–4</td>
<td>Analysis and evaluation of Bruner and Minturn’s study is effective. Any conclusions drawn are sound and fully expressed. Relevant terminology is used consistently throughout. The answer demonstrates a high level of substantiated reasoning and is clear, coherent and focused.</td>
</tr>
<tr>
<td>1 Basic</td>
<td>1–2</td>
<td>Analysis and evaluation of Bruner and Minturn’s study is of limited effectiveness or muddled. Any attempts to draw conclusions are not always successful. Relevant terminology is occasionally used. The answer occasionally demonstrates substantiated reasoning, but may lack clarity, coherence, focus and logical structure.</td>
</tr>
<tr>
<td>0</td>
<td></td>
<td>No relevant content</td>
</tr>
</tbody>
</table>

Indicative content

- The participants were all students so their results cannot be generalised to non-students.
- The participants were all volunteers so their behaviour might not have been representative, as they were keen and enthusiastic participants.
- The study has low ecological validity because the task was not very similar to perception in real life, where we are rarely faced with invented ambiguous figures.
- Because the task was not something they would be asked to do in real life, the participants may have behaved in ways that they would not usually do.
- The study was carefully controlled, so it could be replicated, increasing the reliability of their findings.

Credit other relevant content.
Identify one extraneous variable that Bruner and Minturn may have needed to control for in their study.

Explain how they could have controlled the extraneous variable that you have identified.

<table>
<thead>
<tr>
<th>Marks for this question: AO2 = 2 marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 mark for any of the following:</td>
</tr>
<tr>
<td>• Participant’s eye sight.</td>
</tr>
<tr>
<td>• Light levels.</td>
</tr>
<tr>
<td>• Previous experience/knowledge of psychology experiments.</td>
</tr>
<tr>
<td>PLUS</td>
</tr>
<tr>
<td>1 mark for an appropriate way of controlling the identified extraneous variable.</td>
</tr>
<tr>
<td>• Do an eye test before choosing volunteers and only pick those who have the same eye sight abilities.</td>
</tr>
<tr>
<td>• Ensure the light levels are the same for all participants regardless of what time of day they do the study or where they sit in the room.</td>
</tr>
<tr>
<td>• Ask volunteers if they have ever studied psychology or taken part in psychological research before. Only use those who say they haven’t.</td>
</tr>
</tbody>
</table>

Credit other relevant answers.
Section C
Development

13.1 Read the following statements about Piaget’s Theory of Cognitive Development.
Which statement is true? Shade one box.

Marks for this question: AO1 = 1 mark

C

13.2 Read the following statements about Willingham’s Learning Theory.
Which statement is false? Shade one box.

Marks for this question: AO1 = 1 mark

B

14.1 A quarter of the children answered ‘different’.
Convert this fraction into a decimal. Show your workings.

Marks for this question: AO2 = 2 marks

- 0.25 (2 marks)
- 1÷4 (1 mark)
14.2 Explain one conclusion that the teacher could draw from the results of this study. [3 marks]

Marks for this question: AO3 = 3 marks

3 marks: a correct, clear and detailed conclusion.
2 marks: a correct conclusion but with limited explanation
1 mark: a correct conclusion but with no explanation.

Example conclusions:

- The teacher could conclude that 6 olds cannot conserve liquid because all of the 6 year olds in the study incorrectly said that the amount of liquid was different.
- The teacher could conclude that most 7 year olds can conserve liquid because nearly all of the 7 year olds correctly said that the amount of liquid was the same.

15 Evaluate McGarrigle and Donaldson’s ‘naughty teddy study’. [4 marks]

Marks for this question: AO3 = 4 marks

<table>
<thead>
<tr>
<th>Level</th>
<th>Marks</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Clear</td>
<td>3–4</td>
<td>Analysis and evaluation of McGarrigle and Donaldson’s study is effective. Any conclusions drawn are sound and fully expressed. Relevant terminology is used consistently throughout. The answer demonstrates a high level of substantiated reasoning and is clear, coherent and focused.</td>
</tr>
<tr>
<td>1 Basic</td>
<td>1–2</td>
<td>Analysis and evaluation of McGarrigle and Donaldson’s study is of limited effectiveness or muddled. Any attempts to draw conclusions are not always successful. Relevant terminology is occasionally used. The answer occasionally demonstrates substantiated reasoning, but may lack clarity, coherence, focus and logical structure.</td>
</tr>
<tr>
<td>0</td>
<td>No relevant content</td>
<td></td>
</tr>
</tbody>
</table>

Possible content

- The older participants all came from the same primary school, whereas the younger children came from nursery schools all over Scotland. There may be extraneous variables related to the ways in which the children are educated that may be affecting the validity of the findings.
- 30% of children still failed to conserve when ‘Naughty Teddy’ made the change. This shows that even when the change to the counters is made accidentally, a large percentage of children are still unable to do conservation of number until the age of 7.
- The study was replicated by another psychologist who found that although more children could conserve when ‘Naughty Teddy’ was used, the results were not as high as McGarrigle and Donaldson had found.

Credit other relevant content.
You have been asked to conduct a study to investigate at what age children can see things from another person’s point of view.

You need to include:

- a description of the task you would use
- an appropriate hypothesis for your study
- the name an ethical consideration you will need to deal with in your study.

[5 marks]

Marks for this question: AO2 = 5 marks

Up to 2 marks for the description of an appropriate task.

2 marks: a clear and accurate description
1 mark: a limited or muddled description

Example

Ask 3 year olds and 10 year olds to do a task that requires them to see things from another person’s point of view, such as the task used by Hughes in the ‘policeman doll study’.

PLUS

Up to 2 marks for identification of an appropriate hypothesis.

For 2 marks: there must be both conditions of the IV and a clear DV which makes the statement operational.
1 mark: the hypothesis lacks clarity.

Examples

- Children who are 3 will not be able to complete the task successfully but children who are 10 will. (1 mark)

- Children who are 3 will not be able to complete the task as they cannot see things from another person’s point of view, but children who are 10 will be able to complete the task as they can see things from another person’s point of view. (2 marks)

PLUS

1 mark for a relevant ethical consideration.

Examples:
- Informed consent
- Parental consent
- Not causing harm

Credit other relevant answers.
17  Briefly describe the structures and functions of the brain and suggest what roles nature and nurture might have in the early development of these structures.

[9 marks]

Marks for this question: AO1 = 4 marks, AO3 = 5 marks

<table>
<thead>
<tr>
<th>Level</th>
<th>Marks</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3 Detailed</strong></td>
<td>7 - 9</td>
<td>AO1: Relevant knowledge and understanding of the structures and functions of the brain is accurate with detail. AO3: Analysis and evaluation of the roles nature and nurture might have in the early development of these structures is effective. Any conclusions drawn are sound and fully expressed. Relevant terminology is used consistently throughout. The answer demonstrates a high level of substantiated reasoning is clear, coherent and focused.</td>
</tr>
<tr>
<td><strong>2 Clear</strong></td>
<td>4 - 6</td>
<td>AO1: Relevant knowledge and understanding of the structures and functions of the brain is present but there are occasional inaccuracies/omissions. AO3: There may be some effective analysis and evaluation of the roles nature and nurture might have in the early development of these structures. There may be an attempt to draw conclusions. Relevant terminology is usually used. The answer frequently demonstrates substantiated reasoning, and is clear, generally coherent and focused although structure may lack some logic.</td>
</tr>
<tr>
<td><strong>1 Basic</strong></td>
<td>1 - 3</td>
<td>AO1: Knowledge and understanding of the structures and functions of the brain is present but limited. AO3: Analysis and evaluation of the roles nature and nurture might have in the early development of these structures is of limited effectiveness or may be absent. Any attempts to draw conclusions are not always successful or present. Relevant terminology is occasionally used. The answer occasionally demonstrates substantiated reasoning, but may lack clarity, coherence, focus and logical structure.</td>
</tr>
<tr>
<td><strong>0</strong></td>
<td>No relevant content</td>
<td></td>
</tr>
</tbody>
</table>

Examiners are reminded that AO1 and AO3 are regarded as interdependent. When deciding on a mark in instances where there is an attempt at more than one assessment objective all attempts should be considered together using the best fit approach. In doing so, examiners should bear in mind the relative weightings of the assessment objectives.

When an answer only contains content related to one of the skills (AO1/AO3), then the levels descriptors for the award of marks for the skill attempted should be applied to the answer, up to the maximum mark available.
Indicative content

AO1

- The cerebrum is the top layer of the brain. There are two cerebral hemispheres – one on each side of the head – and each hemisphere is divided into four areas known as lobes.
- The frontal lobe controls thought, memory, planning, problem solving, cognitive and social behaviours, and movement such as facial expressions.
- The parietal lobe is responsible for integrating information from other areas to form the basis of complex behaviours, including all behaviour involving the senses. It also has responsibility for language, helping us to form words and thoughts.
- The temporal lobe is responsible for the comprehension and production of spoken language. It is also involved in how we learn and organise information, and responsible for emotions and emotional memory.
- The occipital lobe is where all visual information is processed such as colour, shape and distance.
- The cerebellum is a wrinkled structure at the back of the brain. It is concerned with balance and coordination.

AO3

- ‘Nature’ refers to the idea that development is genetically influenced.
- Evidence that early brain development is affected by nature comes from genetic conditions that result in issues with brain development and from studies that have found that identical twins (who share exactly the same genes), have very similar IQs.
- ‘Nurture’ refers to the idea that development is influenced by environment.
- Brain development begins during the third week of pregnancy and by the sixth month of pregnancy, the brain is fully formed. There is scientific evidence to suggest this early development of the brain can be affected by the environment in the womb and things the mother does to affect this, such as using drugs or drinking alcohol.
- It can be argued that the brain is a product of both genes and the environment and it is very difficult to say which has more of an effect.
Section D

Research Methods

18.1 Identify the independent variable in this study. [1 mark]

Marks for this question: AO2 = 1 mark

1 mark for a clearly identified independent variable.

Examples

- the year group of the students
- whether students are in Year 9 or Year 11

18.2 Identify the dependent variable in this study. [1 mark]

Marks for this question: AO2 = 1 mark

1 mark for a clearly identified dependent variable.

Examples

- the type of mindset the students have
- whether students have a fixed or a growth mindset
- whether students have a growth mindset or not

19.1 Write one question the teacher could include in her questionnaire to find out about students’ attitudes towards learning. [1 mark]

Marks for this question: AO2 = 1 mark

1 mark for any question that is focused on attitudes towards learning.

Example

How do you respond when your teacher tells you what you need to do to improve your work?

Credit other relevant questions.
19.2 Identify and briefly explain the type of data the question you have written for 19.1 is likely to produce. [2 marks]

Marks for this question: AO2 = 2 marks

Examples

- Qualitative data (1 mark) because participants are likely to express their answers to this question in words rather than numerical form (1 mark)
- Primary data (1 mark) because the researcher has collected this information first hand from participants for the purpose of this experiment (1 mark)

Credit other relevant types of data and explanations.

20 Identify one strength and one weakness of using a questionnaire to gather data. [2 marks]

Marks for this question: AO1 = 2 marks

1 mark for any of the following strengths (MAX 1 mark).
- Can gather lots of data
- Can be carried out quite easily / quickly
- Questionnaires are ethical because people know they are filling it in

1 mark for any of the following weaknesses (MAX 1 mark).
- Answers given may not be truthful
- People may give socially desirable answers
- There is no way of checking that the answers are actually true

Credit other relevant answers.
21.1 Describe how the teacher might use random sampling to select 20 students from her Year 9 class. [3 marks]

Marks for this question: AO2 = 3 marks

- Obtain a list of all the students in the Year 9 class (1 mark)
- A method of random selection, eg selecting names from a hat (1 mark)
- Select 20 names (1 mark)

Credit other relevant methods of selecting a random sample. Answers must relate to this study.
Discuss one strength and one weakness of using random sampling in this study. [6 marks]

Marks for this question: AO2 = 2, AO3 = 4 marks

<table>
<thead>
<tr>
<th>Level</th>
<th>Marks</th>
<th>Description</th>
</tr>
</thead>
</table>
| **3 Detailed** | 5–6 | AO2: Clear application of knowledge and understanding of using random sampling in this experiment.  
AO3: Analysis and evaluation of one strength and one weakness of using random sampling is effective. Any conclusions drawn are sound and fully expressed.  
Relevant terminology is used consistently throughout. The answer demonstrates a high level of substantiated reasoning, is clear, coherent and focused. |
| **2 Clear** | 3–4 | AO2: Reasonable application of knowledge and understanding of using random sampling in this experiment.  
AO3: There may be some effective analysis and evaluation of one strength and one weakness of using random sampling. There may be an attempt to draw conclusions.  
Relevant terminology is usually used. The answer frequently demonstrates substantiated reasoning, and is clear, generally coherent and focused although structure may lack some logic. |
| **1 Basic** | 1–2 | AO2: Limited application of knowledge and understanding of using random sampling in this experiment.  
AO3: Analysis and evaluation of one strength and/or one weakness of using random sampling is of limited effectiveness or may be absent. Any attempts to draw conclusions are not always successful or present.  
Relevant terminology is occasionally used. The answer occasionally demonstrates substantiated reasoning, but may lack clarity, coherence, focus and logical structure. |
| **0** | 0 | No relevant content |

Indicative content

**AO3 and AO2**

- One strength of random sampling is there is no researcher bias in selecting participants, as every participant has an equal chance of being selected. This means the teacher has no choice in who is selected. This means the results indicating the proportion of students in Year 9 and Year 11 with a growth mindset are likely to be representative of the all Year 9 and Year 11 students in her classes.

- One problem with random sampling is that it’s quite time consuming because the teacher has to write down the names of all of the students in her Year 9 and Year 11 classes. This means it will take the teacher longer to obtain a sample of students than if she used a quicker method - such as opportunity sampling.

NOTE: AO2 may be implicit within the evaluations given as it is in the possible content above.

Credit other discussion points.
Use the information in Table 3 to sketch a graph to display the number of students in Year 9 and Year 11 with a fixed or growth mindset.

Provide a suitable title and fully label your graph.

Marks for this question: AO2 = 4 marks

Award 1 mark for each of following.

- Informative title (1 mark)
- Correct labelling of x axis (1 mark)
- Correct labelling of y axis (1 mark)
- Correct plotting of the results (1 mark)

Bar chart to show the number of students in Year 9 and Year 11 with a fixed or growth mindset

Accept a stacked bar chart.
### 23.1
What is the ratio of students with a growth mindset in Year 9 compared to Year 11? Write this ratio in its simplest form.  

**Marks for this question: AO2 = 2 marks**

- 4:3 (2 marks)
- 12:9 (1 mark)

### 23.2
Explain what the results of the study show about the mindset of Year 9 and Year 11 students.

**Marks for this question: AO3 = 3 marks**

**3 marks:** A clear and detailed explanation  
**2 marks:** A limited explanation  
**1 mark:** A muddled explanation

**Examples**

There is a difference in the mindset of Year 9 and Year 11 students because there is a higher proportion of Year 9 students with a growth mindset than Year 11 students with a growth mindset. (3 marks)

The ratio of students with a growth mindset in Year 9 compared to the ratio of students with a growth mindset in Year 11 is 4:3. This means there is a higher proportion of Year 9 students with a growth mindset. (2 marks)

Credit other relevant answers.

**NOTE:** Relevant explanations can be credited even if the ratio in 23.1 is not accurate.