Pearson Edexcel Level 1/Level 2 (9–1) GCSE Psychology

Topic Guide 1

Development – How did you develop?

CONTENTS

Development – How did you develop?

Specification requirements

This topic is a compulsory topic and will be examined in Paper 1.

Candidates are expected to demonstrate and apply the knowledge, understanding and skills described in the content.

To demonstrate their **knowledge**, candidates should undertake a range of activities, including the ability to recall, describe and define, as appropriate.

To demonstrate their **understanding**, candidates should explain ideas and use their knowledge to apply, analyse, interpret and evaluate, as appropriate.

Candidates will be expected to demonstrate their understanding of the interrelationships between the core areas of psychology and **issues and debates** within them.

Candidates may be asked to consider the following issues when **evaluating** studies:
- validity
- reliability
- generalisability
- ethics
- objectivity
- subjectivity.

Candidates may be required to **apply** their understanding – for example by responding to scenarios that are drawn from the topic area and/or associated research – and in doing this they should use psychological concepts, theories and/or research from within their studies of development.

Opportunities for practical activities

Candidates should gain hands-on experience of carrying out ethical, investigative activities to aid their understanding of this subject. To help centres identify opportunities for carrying out these activities, studies that can be replicated have been marked with an asterisk.

Research methods are delivered in Topic 11. However, as a way to aid candidates in evaluating the studies, centres can encourage them to consider the methodology of the key studies as they progress through each individual topic. For example, candidates could consider the reliability of using a questionnaire when studying motivation and parent praise in **Gunderson et al. (2013)** (1.2.2).

Although candidates will not be directly assessed on these activities, the experience they gain will give them a better understanding of this subject and may enhance their examination performance.

Guidance

1.1 Content

1.1.1 Understand early brain development, including the development of the:

a. forebrain
b. midbrain
c. hindbrain
d. cerebellum
e. medulla

The early development of the brain, including the brain regions, is a core area of the development topic.

Candidates may benefit from starting their learning with a basic diagram to locate and label the brain regions, from which they can define the functions of these key areas in order to understand how the brain regions may link to developmental skills and learning.

Being able to understand the development of brain regions will aid candidates in their ability to connect the neuropsychological aspects of early development. Candidates should know that the **forebrain** (1.1.1a), **midbrain** (1.1.1b) and **hindbrain** (1.1.1c) develop in the pre-natal stages, starting with the neural tube. It would benefit candidates to understand that the **forebrain** (1.1.1a) is located at the front of the brain and will develop responsibility for a range of processes, including higher order functions of human beings. The **midbrain** (1.1.1b) is more closely linked with sensory information, sleep and simple movement, but it would benefit candidates to understand that these two brain regions overlap in functionality. The **hindbrain** (1.1.1c) is located at the very back of the brain and is directly connected to the spinal cord. Candidates may find it interesting to discuss the concept of the hindbrain or 'reptilian brain' being the oldest part of the human brain and controlling most basic human functions – for example, heart rate, co-ordination and facial expressions.

Candidates should be able to identify the location of the **cerebellum** (1.1.1d) and explain the functions of this region of the brain. It may be useful to discuss how the cerebellum manages motor commands sent to/from the nervous system – for example, balance and the acquisition of motor skills such as crawling, walking, running, and hopping. They should also be able to identify the location of the **medulla** (1.1.1e) and the functions of this brain region, such as the autonomic nervous system's control of bodily function.

The brain regions could be applied to the development of human skills, such as learning to walk, thinking or communication. Candidates could determine which brain region would be responsible for these developmental skills.

Application of these concepts to stimulus materials would benefit candidates. Centres could develop scenarios and examples from which candidates can identify the key features of early brain development that are evident and describe them in relation to the key concepts.

Bethany is in the first month of pregnancy, known as the embryonic stage. Katherine reads a magazine article that says a human brain will have already started to develop in this early stage of pregnancy. What early brain development would be expected in the first month of pregnancy?

Explanations of brain development can be evaluated by using supporting evidence – for example, candidates could use brain scan images that highlight brain areas functioning

from stimuli such as language, pain and movement. Candidates can also judge how useful the explanation is, such as whether there is an application to society. Some candidates may benefit from being extended by drawing on the concepts delivered in the 'issues and debates' content, where themes such as reductionism or nature versus nurture could be used to evaluate explanations.

1.1.2 Understand the role of education and intelligence, including Piaget's Theory of Cognitive Development, and the four stages of cognitive development, including strengths and weaknesses of the theory:

- **a. sensorimotor**
- **b. pre-operational**
- **c. concrete operational**
- **d. formal operational**
- **e. schemata/schemas**
- **f. assimilation**
- **g. accommodation**
- **h. equilibrium**

The role of education and intelligence could provide an overarching concept for candidates to be able to make links between Piaget's Theory of Cognitive Development and a suitable application, such as classroom learning, play or even the age–stage links to the 'key stages' in the education system in England and Wales. Each of Piaget's stages is considered to be a stage in the development of intelligence and candidates can make this link when learning each one. Candidates may benefit from discussing and determining what they understand by the terms 'education' and 'intelligence' before they engage in the content.

This content includes Piaget's Theory of Cognitive Development, along with the strengths and weaknesses of this theory. Candidates would benefit from being able to understand each stage of cognitive development and the developmental skills shown by children in each of these stages. It may be beneficial to reinforce the connection to education and intelligence here, to demonstrate that, according to Piaget, a child would need to reach a specific stage in order to learn a specific skill. For example, abstract thinking could not take place in the **pre-operational stage** (1.1.2b) and therefore education at this stage would not be about abstract concepts or theoretical ideas.

Centres may wish to encourage candidates to consider the issues and debates section and the development of **morality** (1.3.1) whilst learning about cognitive development and to begin to connect cognitive development with **pre-conventional, conventional** and **post-conventional stages of morality** (1.3.1b). Alternatively, this can be delivered independently at the end of the topic.

Candidates could construct a table to show the developmental processes and skills associated with each stage. It may benefit candidates to understand that the stages are seen by Piaget to be universal and hierarchical, and that children require interactions with the environment to progress through each stage in sequence. Centres may wish to embed the concept of **schema** (1.1.2e) in their delivery of the stages, although this can be taught distinctly.

The **sensorimotor stage** (1.1.2a) considers development from birth to 2 years and is based around senses and motor skills. Candidates should know the core features, such as object permanence. Secondly, the **pre-operational stage** (1.1.2b) is between 2 years and 7 years, and considers concepts such as centration, egocentrism, transductive reasoning, animism and conservation. Centres may wish to deliver **Piaget and Inhelder (1956) Three mountains task** (1.2.1) to highlight egocentrism at this stage.
The **concrete operational stage** (1.1.2c) includes the child's ability to decentre and think logically and rationally about physical (not hypothetical) objects. According to Piaget, this occurs between the age of 7 years and 11 years. Finally, from 11 years

onwards children reach the **formal operational stage** (1.1.2d) where they are able to manipulate hypothetical ideas and consider what could happen. This is known as hypothetico-deductive reasoning.

Application of these concepts to stimulus materials would benefit candidates. Centres could develop scenarios and examples from which candidates can identify the key features from the theory of cognitive development that are evident and describe them in relation to the key concepts.

Nicole's family have two pet cats. One day, when Nicole is in the park with her mum, she points to a dog and says 'cat'. Why might Nicole think that the dog is a cat?

Candidates should also understand the concept of **schema** (1.1.2e) and should be able to define, describe and explain this concept in relation to development and the key features of **assimilation** (1.1.2f), **accommodation** (1.1.2g) and **equilibrium** (1.1.2h). It may benefit candidates to understand that these processes are the foundations or building blocks of intelligence, and that Piaget considered **schema** (1.1.2e) to be the mental structures around which children can build their knowledge and understanding. He considered the process of **assimilation** (1.1.2f) to be where a child can fit their understanding of the world into an existing schema, which means that the child's experiences are in **equilibrium** (1.1.2h). In contrast, **accommodation** (1.1.2g) is when an existing schema requires adaptation, resulting in disequilibrium until the schema has been developed to include the new experience or knowledge. Candidates should be able to link these concepts to education, such as the role of education in providing children with activities and knowledge that can be assimilated and/or accommodated. An example of this would be learning to read using an existing knowledge of phonics to read new words, and thus assimilate new vocabulary.

Application of these concepts to stimulus materials would benefit candidates. Centres could develop scenarios and examples from which candidates can identify the key features from schema that are evident and describe them in relation to the key concepts.

Nicole can recognise her mother's blue car as a 'car' and her father's green car as a 'car'. Her grandmother had a red car, but buys a white car. Which process will Nicole use to understand the change in her grandmother's car?

Nicole's grandfather sells his car and buys a motorbike. Which process will Nicole use to understand the change in her grandfather's vehicle?

Theories can be evaluated through comparisons to other models, theories and explanations, such as whether one explanation may be a more realistic, detailed or comprehensive explanation than another. Supporting evidence can be used where available – for example, the use of **Piaget and Inhelder (1956)** (1.2.1) to provide evidence of egocentrism. Equally, supporting evidence can be used where it shows that the theory or explanation may be inaccurate – for example, **Samuel and Bryant (1984)** who found that conservation occurs earlier than Piaget suggested. Candidates can also judge how useful the theory or explanation is, such as whether there is an application to society. Some candidates may benefit from being extended by drawing on the concepts delivered in the 'issues and debates' content, where themes such as nature versus nurture could be used to evaluate explanations.

1.1.3 Understand the effects of learning on development using Carol Dweck's Mindset Theory, including strengths and weaknesses of the theory:

a. fixed mindset
b. growth mindset
c. ability and effort

Candidates are required to understand and evaluate the strengths and weaknesses of the use of the Mindset Theory of learning on development.

Centres should begin by enabling candidates to define and explain the key terms of **fixed mindset** (1.1.3a), **growth mindset** (1.1.3b) and **ability and effort** (1.1.3c). A **fixed mindset** (1.1.3a) is considered to be when someone believes that their ability is a fixed trait and cannot be developed, whereas a **growth mindset** (1.1.3b) is where someone believes that their basic abilities can be developed through effort, thus the distinction between **ability and effort** (1.1.3c) is made. Candidates could complete a mindset test: there are several available that can be completed online or printed.

Centres may wish to include the study **Gunderson et al. (2013)** (1.2.2) when discussing Dweck's Mindset Theory and the role of praise for effort in learning. It may also benefit candidates to link back to the development of the **brain** (1.1.1) and discuss how learning creates and stabilises neural pathways in the brain. This may help candidates consider how learning and development is interconnected.

Application of these concepts to stimulus materials would benefit candidates. Centres could develop scenarios and examples from which candidates can identify the key features of mindset that are evident and describe them in relation to the key concepts.

Claire did not do as well as she wanted to in her biology test, but her teacher praises her for working hard and trying her best. Claire feels more confident about her learning and works harder for her next test. She achieves a better mark on her second test and her teacher praises her for excellent effort. Why did the teacher praise Claire's effort?

Theories can be evaluated through comparisons to other models, theories and explanations, such as whether one explanation may be a more realistic, detailed or comprehensive explanation than another. Supporting evidence can be used where available – for example, **Gunderson et al. (2013)** (1.2.2) to show the impact of praising effort on mindset. Equally, supporting evidence can be used where it shows that the theory or explanation may be inaccurate – for example, **Bouchard & McGue (1981)** reviewed 111 studies and found correlations between genetic relatedness and IQ, suggesting that intelligence is, at least partly, inherited.

Candidates can also judge how useful the theory or explanation is, such as whether there is an application to society. For example, teaching strategies in the education system can be developed to focus on praise for effort and less on ability and performance. Some candidates may benefit from being extended by drawing on the concepts delivered in the 'issues and debates' content, where themes such as nature versus nurture could be used to evaluate explanations.

1.1.4 Understand the effects of learning on development using Daniel Willingham's Learning Theory, including strengths and weaknesses of the theory:

- **a. factual knowledge precedes skill**
- **b. the importance of practice and effort**
- **c. strategies to support cognitive development**
- **d. strategies to support physical development**
- **e. strategies to support social development**

Candidates are required to understand and evaluate the strengths and weaknesses of the use of Willingham's Learning Theory on learning development.

Understanding the core concept that **factual knowledge precedes skill** (1.1.4a) will help candidates underpin their learning about this theory. The concept proposes that students need facts to think well in school, and that these facts then inform their thinking, with past knowledge being a factor that increases the speed at which more knowledge can be acquired. There is some similarity to growth mindset in that Willingham argues that intelligence is malleable and stresses the **importance of practice and effort** (1.1.4b) in order to improve learning and to develop skills.

Willingham's Learning Theory provides practical, applied ideas for the teaching and education of children. Within his theory he discusses strategies to support **cognitive** (1.1.4c), **physical** (1.1.4d) and **social development** (1.1.4e). Candidates may benefit from developing their understanding that the role of education is entwined with theories of learning and cognition. These strategies are broken down by educational stages in the American education system, however, this has age cross-over with many educational systems. The implications of developmental stages and classroom practice are highlighted by Willingham, and candidates would benefit from knowing examples of the suggested strategies appropriate to each stage of development.

Application of these concepts to stimulus materials would benefit candidates. Centres could develop scenarios and examples from which candidates can identify the key features from Willingham's Learning Theory that are evident and describe them in relation to the key concepts.

Sarah teaches children aged 8 years old. She is planning an activity to help her students learn the importance of healthy eating. Sarah has decided to create a series of food-choice dilemmas where the students need to make choices between healthy and unhealthy food and to explain their decisions. Her head teacher says this is too complicated. How can two strategies suggested by Willingham help Sarah plan an appropriate activity?

Theories can be evaluated through comparisons to other models, theories and explanations. For example, **Willingham's Learning Theory** (1.1.4) suggests that children think differently at different ages, which can be supported with **Piaget's stages of cognitive development** (1.1.2). Candidates can consider whether one explanation may be a more realistic, detailed or comprehensive explanation than another. Supporting evidence can be used where available. Equally, supporting evidence can be used where it shows that the theory or explanation may be inaccurate. Candidates can also judge how useful the theory or explanation is, such as whether there is an application to society. Some candidates may benefit from being extended by drawing on the concepts delivered in the 'issues and debates' content, where themes such as how psychology has changed over time could be used to evaluate explanations.

1.2 Studies

Candidates should understand the aims, procedures and findings (results and conclusions), and strengths and weaknesses of:

1.2.1 Piaget and Inhelder (1956) Three mountains task
1.2.2 Gunderson et al. (2013) Parent Praise to 1- to 3-Year-Olds Predicts Children's Motivational Frameworks 5 Years Later

Study One

Piaget and Inhelder (1956) Three mountains task.

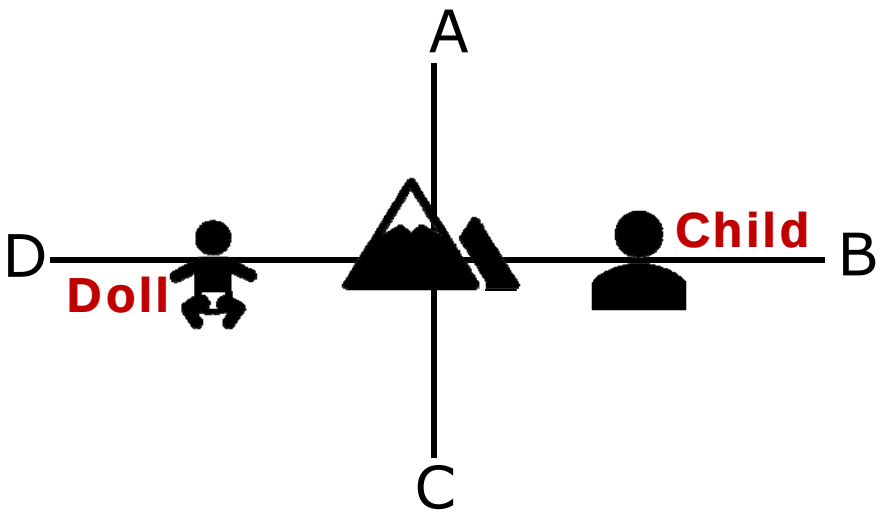
Aim(s)

To study the perspectives of children and investigate relationships between the child's viewpoint and their perception of the viewpoint of others.

Procedure

Sample – 100 children were used:
- 21 were aged between 4 and 6 years old
- 30 were aged between 6 and 8 years old
- 33 were aged between 8 and 9 years old
- 16 were aged between 9 and 12 years old.

A metre square model was made to represent three mountains. There are four different viewpoints – A, B, C and D – and a doll is moved around the mountain model to each of the positions.



The child is given 10 pictures of the mountains taken from various positions around the model. They also have three pieces of board, shaped and coloured to match each mountain in the model of the three mountains, which they can move and arrange to represent the model.

In trial one, the child is seated in position A and asked to arrange the boards to represent the mountains they can see in the model from position A. Next the doll is placed in position C and the child is asked to arrange the boards to represent what the doll can see. The procedure is repeated with the doll being moved to position B and then D.

This procedure is again repeated with the child moving to position B, and the doll being placed in positions A, C and D. The procedure continues until the child has viewed the model from all four of the positions – A, B, C and D.

In these tests, the child is also asked to reconstruct their boards from one of their previous viewpoints; for example, when seated in position C they may be asked to recreate what they could see when they were in position A.

Following this test, a second trial is conducted. The child and doll are again moved around the mountains in the same manner, but the child is asked to select the viewpoint of the doll from ten photographs presented to them at the same time.

Finally, a third trial is conducted whereby the child selects a picture and decides where to place the doll on the model in order to be able to see the view that matches the picture.

Results

4 to 6 year olds

Trial one: the children rearrange the boards but the outcome is their own viewpoint of the three mountains. Children towards 6 years old show an attempt to represent the dolls, but often revert to their own perspective. The children were usually able to recollect and reproduce their previous viewpoints from memory.

Trial two: the children select the picture that represents their own viewpoint of the three mountains, or appear to randomly select any image of the model.

Trial three: the doll is mostly placed anywhere on the model, or not moved from where it is already placed.

7 to 12 year olds

The children aged 7 to 9 years attempt to reflect the viewpoint of the doll, but this is not consistent.

Between 9 and 12 years old, the children demonstrate a mastery in the skill of viewing the model from the viewpoint of the doll.

Conclusions

Children in stage 2 (pre-operational) fail to see the viewpoint of the doll, instead regarding their own point of view as the only one possible. Piaget and Inhelder suggest that this is due to the egocentrism of children in stage 2.

While the children are able to replicate their previous viewpoints from memory, they appear unable to predict other viewpoints of the mountains. Piaget and Inhelder suggest that this is due to the reasoning skills of children in stage 2.

Children in stage 3 (concrete operational) begin to show understanding of other people's viewpoints. At the younger age, the children were seen to select a picture from their own perspective but to turn this towards the doll so that the image could be seen by the doll. This indicated the start of an ability to understand that the doll has a different viewpoint.

By the end of this stage, children could alter their boards and select pictures that represented the doll, demonstrating that egocentrism had subsided.

Candidates may be asked to consider the following issues when **evaluating** studies:

- validity
- reliability
- generalisability
- ethics
- objectivity
- subjectivity.

Information for centres

It is recommended that, wherever possible, centres combine the use of the summary of studies resource with the original study. However, where studies are not freely available or easily accessible, the summary resource is designed to help provide key starting points to enable teachers to deliver the content.

Study Two

Gunderson et al. (2013) Parent Praise to 1- to 3-Year-Olds Predicts Children's Motivational Frameworks 5 Years Later.

Aim(s)

Gunderson et al. investigated the use of praise by parents of children aged 14 months to 48 months old. They looked at the category of praise that parents gave their children and what type of praise was most used. They also looked at whether person praise or process praise can be a predictor of motivational frameworks five years later.

Procedure

Sample: 53 children from Chicago (29 boys, 24 girls) taken from a larger sample of 63 families who had been taking part in a study of language development. The sample represented the demographics of Chicago (income, race, ethnicity).

Participants (children and parents) were visited at home every four months from when the child was 14 months old as part of the original study. This meant that the data gathered was double-blind as neither the families nor researcher or transcriber at the time were aware that their interactions would later be studied for praise.

The video recordings from the language study lasted 90 minutes, and Gunderson et al. used the interactions recorded at 14 months, 26 months and 38 months old. The speech from the video recordings was also transcribed by the original researchers.

Parent praise was measured by coding the transcripts of the interactions. Distinctions were made between explicit praise (words such as 'good', 'nice', 'great') or implicit praise (by affirming actions 'you got it'). These were then categorised in one of three types of praise as shown in **Table 1**.

Category	Examples
Process praise Emphasises the effort of the child	'You must have tried hard' 'Good job drawing'
Person praise Implies a child has a fixed quality	'Good girl' ''You're so smart'
Other praise Often general positive praise	'Good' 'Wow!'

Table 1

The coding was tested for reliability on 20% of the transcribed scripts, where the coding was also completed independently by a minimum of two further coders. There was a kappa value of .81 indicating high agreement between coders, so inter-coder reliability is considered high.

When the children reached 7 to 8 years old, they took part in two verbal questionnaires about their motivational framework, which were completed 3 months apart. Each of these questionnaires was part of a larger cognitive assessment lasting 2 hours.

The questionnaires each had similar content and consisted of 11 and 13 items respectively. The results were combined to give an overall score for each child. They aimed to test the domains of intelligence (18 items) and sociomoral attributes (6 items). These questionnaires were adapted from Heyman and Dweck (1998).

Intelligence domain items included 5 point Likert-scaled questions such as:

"Imagine a kid who thinks that a person is a certain amount of smart, and they stay pretty much the same. How much do you agree with this kid?"

Sociomoral domain items included yes/no questions such as:
"Imagine a girl who gets in trouble a lot at school. Some people think she will keep getting into a lot of trouble even when she is in high school. Do you think this is right?"

Parents of the children also completed an 8-item questionnaire to test how malleable they considered cognitive ability to be. Items included questions about fixed intelligence, fixed maths ability and other cognitive skills. This was also administered as part of a larger questionnaire assessing their beliefs about academic development.

Results(s)

Use of praise

The results of the coding of praise utterances are shown in **Table 2**. Praise was measured cumulatively using all three visits. The mean percentage score for each category of praise is shown as a percentage of all utterances by the parent, and as a percentage of all praise comments made by the parents.

Category	Mean % as a total of all utterances	Mean % as a total of praise utterances
Process praise	0.59	18.0
Person praise	0.45	16.0
Other praise	1.97	66.0

Table 2

Overall, praise of any type was, on average, 3% of all utterances by parents.

Person praise as a percentage of all praise was significantly less at 38 months old than it was at 14 months old, whereas process praise showed no significant change and other praise was significantly higher at 38 months old than 14 months old.

Boys received more process praise than girls, and girls received more person and other praise than boys.

Motivational frameworks data

Average sociomoral scores correlated with average intelligence scores.

Boys reported marginally more incremental motivational frameworks than girls and, when broken down, this was significantly higher for the intelligence domain but not for the sociomoral domain.

There were few significant correlations between parental scores and the praise type or frequency they used with the children. However, a higher score for malleable cognitive development correlated with higher use of person praise.

Relationships between praise style and motivational frameworks

There was a significant correlation between process praise (as a % of total praise) when children were 14 months to 38 months old and children's incremental (malleable) motivational framework scores at 7 to 8 years old.

There was no significant correlation between person praise and children's entity (fixed ability) motivational framework scores at 7 to 8 years old.

Conclusions

The amount of process praise (effort of the child) that parents gave their children between 14 and 38 months old was a predictor of children's incremental (cognitive traits are malleable, effort is important) motivational frameworks at 7 to 8 years old.

Children whose parents used more process praise were more likely to have beliefs and behaviours associated with an incremental motivational framework, measured in the sociomoral and intelligence domains.

Gunderson et al. also found a gender difference in the types of praise children received. Boys received significantly more process praise than girls, even though, overall, boys and girls received the same amount of praise. This could explain why existing research highlights that girls tend to attribute failures to lack of ability and show decreased persistence and motivation after failure.

Finally, parents with stronger incremental theories were more likely to give person praise. This could be explained as parents who believe that intelligence is malleable believe that the way to make their child smarter is to increase the child's self-esteem by saying how smart they are using person praise.

Candidates may be asked to consider the following issues when **evaluating** studies:

- validity
- reliability
- generalisability
- ethics
- objectivity
- subjectivity.

Information for centres

It is recommended that, wherever possible, centres combine the use of the summary of studies resource with the original study. However, where studies are not freely available or easily accessible, the summary resource is designed to help provide key starting points to enable teachers to deliver the content.

1.3 Issues and debates

1.3.1 Understand morality issues in psychology and the individual, including:
a. the terms 'morality' and 'moral(s)'
b. pre-conventional, conventional and post-conventional stages of morality
c. the use of content, theories and research drawn from cognitive development to explain development of morality

The issues and debates content in each compulsory topic, including research methods, is designed to enable candidates to understand the wider issues in psychology that underpin psychological knowledge and research. These are delivered within specific topic content. Candidates can, however, draw upon issues and debates in their evaluations and extended open essays across each topic area (compulsory and/or optional), and while this is not an expected feature of responses, it may – if appropriate, accurate and relevant – be creditworthy in examinations. For example, if they chose to evaluate a biological explanation of addiction drawing from an accurate understanding of reductionism then this can be an acceptable response.

Issues and debates will be specifically assessed in Paper 1 through an extended open-response question.

Morality and the individual (1.3.1) has been included in this topic because morality is seen to be an aspect of human development that can be connected to cognitive developmental stages, whilst also requiring the input of wider social influences such as norms, values and beliefs, and so can be influenced by processes of socialisation and not just cognition.

Candidates should be able to explore the key terms in this debate, including what is meant by **morality** and what **morals** (1.3.1a) are. From this, they should develop their understanding through the application of the concepts to the content they have learned within this topic.

The use of Kohlberg's development of Piaget's morality highlights to candidates how psychology can develop and change over time. A focus on **pre-conventional, conventional and post-conventional stages of morality** (1.3.1b), and the two stages within each, highlights to candidates the connection between cognitive development and thinking and the development of moral reasoning.

Candidates should be able to use this debate to address **content in topic 1** (1.3.1c). For example, stage one in pre-conventional morality can be considered egocentric, or that there is a requirement for abstract thinking in post-conventional stages of moral development. Equally, concepts such as **factual knowledge precedes skill** (1.1.4a) could link to the need for developed understanding and knowledge of moral and ethical principles before **post-conventional** morality can be achieved, whereas basic facts may be more akin to **conventional** morality.

Resources and references

Studies

1.2.1 Piaget and Inhelder (1956) Three mountains task

Piaget, J., & Inhelder, B. (1956) *The Child's Conception of Space*. London: Routledge & Kegan Paul.

1.2.2 Gunderson et al. (2013) Parent Praise to 1- to 3-Year-Olds Predicts Children's Motivational Frameworks 5 Years Later

https://goldin-meadow-lab.uchicago.edu/sites/goldin-meadow-lab.uchicago.edu/files/uploads/PDFs/2013%20gunderson%20praise%20paper.pdf

https://www.researchgate.net/publication/235519011_Parent_Praise_to_1-_to_3-Year-Olds_Predicts_Children%27s_Motivational_Frameworks_5_Years_Later

http://europepmc.org/articles/PMC3655123

Resources for development

Sources suggested here are additional guidance for centres to aid with teaching resources and ideas. These are not compulsory components and centres should select delivery content as appropriate to their candidates. Centres can draw upon any research evidence to support evaluations and explanations of topic areas. This list is not exhaustive.

Early development, including brain development and Piaget
http://www.g-w.com/pdf/sampchap/9781590708132_ch04.pdf

Cognitive development
Samuel, J., and Bryant, P. (1984) Asking only one question in the conservation experiment. *Journal of Child Psychology and Psychiatry*; 25: 315–18.
http://penfound.org/psychology/originals/samuel.pdf

Mindset
http://www.mindsetonline.com/whatisit/about/index.html

Tests of mindset
http://mindsetonline.com/testyourmindset/step1.php
http://growthmindseteaz.org/Testintelligence.html
http://www.edpartnerships.org/sites/default/files/events/2016/02/Mindset%20Quiz.pdf

Mindset and learning
https://www.theguardian.com/education/2016/may/10/growth-mindset-research-uk-schools-sats

Learning and neural pathways video clip
http://learningandtheadolescentmind.org/resources_02_learning.html

Intelligence is hereditary
Bouchard T. J., & McGue M. (1981) Familial studies of intelligence: a review. *Science*; 212: 1055–1059.
https://www.researchgate.net/profile/Thomas_Bouchard2/publication/16004169_Familial_Studies_of_Intelligence_A_Review/links/00b4953a73b719bf4b000000.pdf

Willingham's Learning Theory

Willingham, D. (2010) *Why Don't Students Like School?: A Cognitive Scientist Answers Questions About How the Mind Works and What It Means for the Classroom*. San Francisco: Jossey-Bass.
http://teachingasleadership.org/sites/default/files/Related-Readings/LT_2011.pdf

Teacher resource sharing

Further suggested resources can be found in the 'Getting Started' publication, where a scheme of work has been provided.

http://www.psychlotron.org.uk
http://www.psychteacher.co.uk
http://www.resourcd.com

Teacher and student resource sites

http://www.simplypsychology.org/ – this website gives an overview of many of the key areas.

https://www.psychologytoday.com/ – this is an online magazine (with an option to subscribe) that brings psychological theories into modern, contemporary issues.

https://play.google.com/store/search?q=psychology%20free%20books&c=books&hl=en – this site has a number of free short books about key areas of psychology.

http://www.open.edu/openlearn/body-mind/psychology – The 'OpenLearn' programme offers freely accessible resources provided by the Open University.

http://allpsych.com/ – a useful site with books, articles and summaries of some of the key concepts.

https://www.youtube.com/playlist?list=PL8dPuuaLjXtOPRKzVLY0jJY-uHOH9KVU6 – Psychology 'Crash Course' is a YouTube channel that provides 40 short overviews of psychological issues.

http://www.bbc.co.uk/programmes/b008cy1j – 'BBC Mind Changers' is a series of radio episodes (that can also be downloaded) about key psychologists, their work and the development of psychology over time.

http://www.bbc.co.uk/programmes/b006qxx9 – 'BBC In the Mind' is a series of radio episodes that focus on the human mind using the application of psychological concepts and theories.

**All weblinks included here have been checked as active at publication, however the nature of online resources is that they can be removed or replaced by webhosting services and so it cannot be guaranteed that these sites will remain available throughout the life of the qualification.*