SimplyPsychology

Mark scheme — A-level Psychology 7182/3

# Paper 3 · Section B option · Cognition and Development

A-level topic mock · 2026 · Maximum mark: 48

**Cognition and Development is an A-level Paper 3 option** (AQA spec 4.3.4). Indicative content is not exhaustive; credit any other valid points. Levels-based questions (Q10 and Q11) require holistic judgement using the descriptors. Specialist vocabulary (schema, assimilation, accommodation, equilibration, object permanence, conservation, egocentrism, class inclusion, zone of proximal development, scaffolding, violation of expectation, perspective-taking, theory of mind, false belief, mirror neuron system) follows AQA's 2025 *Subject specific vocabulary*. *Theory of mind as an explanation of autism has been removed from the 2025 spec — credit responses that refer to ToM in general but not specifically as an explanation of autism.*

## B Cognition and Development

### 0 1

AO1 · 1 mark · multiple choice

> *Which one of the following best describes assimilation in Piaget's theory?*

**Answer: B — Incorporating new information into an existing schema.**

A = accommodation; C = equilibration; D = object permanence.

### 0 2

AO1 · 1 mark · multiple choice

> *Which one of the following best describes the zone of proximal development?*

**Answer: C — The gap between what a child can do alone and what they can do with help from a more knowledgeable other.**

A and B describe Piagetian concepts (sensorimotor / pre-operational); D describes the mirror neuron system.

## 0 3

AO1 · 1 mark multiple choice

> *Which one of the following best describes the correct answer in the Sally-Anne task?*

**Answer: C — The child must say where Sally will look for the marble, based on Sally's belief.**

The correct response is to say Sally will look in the basket (where she *thinks* the marble is) — not in the box (where it actually is). A and B test the child's knowledge but not Sally's false belief; D is not what the task assesses.

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## 0 4

AO1 · 3 marks short answer

> *Outline what is meant by accommodation and equilibration.*

**Marks for this question: AO1 = 3 marks**

- **1 mark** for **accommodation**: when an existing schema cannot account for new information, the schema must be changed or a new one created. The child modifies their existing knowledge.
- **1 mark** for **equilibration**: the drive to maintain mental balance. When new information cannot be assimilated, the child experiences disequilibrium — a state of cognitive discomfort. The drive to restore equilibrium motivates accommodation.
- **1 mark** for showing the relationship between them: equilibration is the motivational engine that drives accommodation when assimilation fails. The cycle: equilibrium → new information → disequilibrium → accommodation → equilibrium.

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## 0 5

AO2 · 4 marks application

> *Use Piaget's concepts of assimilation and accommodation to explain Yuki's behaviour.*

**Marks for this question: AO2 = 4 marks**

- **4 marks** — Clear, coherent explanation engaging effectively with the stem; uses both *assimilation* AND *accommodation* accurately; links to specific features of Yuki's case.
- **3 marks** — Clear engagement but one concept less well developed.
- **2 marks** — Concepts defined accurately but limited application.
- **1 mark** — Brief, partial answer.

**Indicative content**:

- **Assimilation**: Yuki has an existing schema for "bird" (animals that fly through the air). When she sees the butterfly, she *assimilates* it into her bird schema, calling it a "bird". This makes sense — the new experience fits her existing knowledge.
- **Disequilibrium**: when her father corrects her ("That's a butterfly, not a bird. Butterflies have very thin wings and they are insects"), Yuki experiences cognitive disequilibrium — her bird schema can no longer easily account for the new information. The drive to restore equilibrium motivates her to change her thinking.
- **Accommodation**: Yuki then *accommodates* the new information by either modifying her bird schema (to exclude butterflies) AND/OR creating a new schema for "butterfly" (with thin wings, an insect). When she sees the second butterfly and correctly labels it, this shows accommodation has succeeded — she has a new, refined understanding.

*Top-band answers will use the terms accurately AND link to the specific features of the stem (calling the butterfly a "bird", her father's correction, then correctly labelling the second butterfly).*

## 0 6

AO1 · 4 marks short answer

> *Outline Vygotsky's theory. Refer to the zone of proximal development and scaffolding.*

**Marks for this question: AO1 = 4 marks**

- **1 mark** for the core idea: Vygotsky proposed that cognitive development is driven by **social interaction**, particularly with more knowledgeable others (MKOs). Language and culture are central.
- **1 mark** for accurate description of the **zone of proximal development (ZPD)**: the gap between what a child can do alone and what they can do with help from a more knowledgeable other (MKO).
- **1 mark** for accurate description of **scaffolding**: temporary, adjustable support provided by an MKO within the ZPD. As the child becomes more competent, the scaffolding is gradually removed.
- **1 mark** for additional detail — credit reference to Wood, Bruner and Ross (1976) and their scaffolding techniques (recruitment, reducing degrees of freedom, demonstration, etc.); OR reference to cultural tools and inner speech.

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## 0 7

AO1 · 3 marks short answer

> *Briefly outline violation-of-expectation research in Baillargeon's work.*

**Marks for this question: AO1 = 3 marks**

- **1 mark** for the core principle: infants **look longer at events that surprise them**. Researchers exploit this to test what infants know about the physical world.
- **1 mark** for the procedure: show a familiarisation event, then two test events — one **expected** (consistent with physical laws) and one **unexpected** (violates physical laws). If infants look longer at the unexpected event, they had relevant physical knowledge.
- **1 mark** for a specific example: Baillargeon and Graber's (1987) "drawbridge" study — 5-month-olds looked significantly longer when a screen appeared to rotate through a solid block than when it stopped at the block. This shows they had object permanence at 5 months — much earlier than Piaget's 8-month estimate.

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## 0 8

AO1 · 3 marks short answer

> *Outline Selman's levels of perspective-taking. Refer to at least three levels.*

**Marks for this question: AO1 = 3 marks**

- **1 mark** for outlining the theory: Selman (1980) proposed that perspective-taking develops in **five stages**, used to assess how children understand others' viewpoints. Tested using social dilemmas like the Holly dilemma.
- **2 marks** for describing at least three levels accurately:
  - **Level 0 — Undifferentiated/egocentric** (3–6): can't separate own perspective from others'.
  - **Level 1 — Social-informational** (6–8): recognises others have different views — but only because they have different information.
  - **Level 2 — Self-reflective/reciprocal** (8–10): can see their own perspective as others might.
  - **Level 3 — Mutual/third-person** (10–12): can take a third-person perspective on their own and others' interactions.
  - **Level 4 — Societal** (12+): recognises perspectives are shaped by broader social and cultural factors.

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## 0 9

AO1 · 4 marks short answer

> *Briefly outline the role of the mirror neuron system in social cognition.*

**Marks for this question: AO1 = 4 marks**

- **1 mark** for definition: **mirror neurons** are neurons that fire BOTH when an individual performs an action AND when they observe someone else performing the same action. Discovered by Rizzolatti et al. (1996) in macaque monkeys; subsequently identified in humans via fMRI.
- **3 marks** for outlining roles in social cognition (1 mark each, up to 3):
  - **Imitation** — mirror neurons may underlie the capacity to imitate observed actions (foundation of social learning).
  - **Understanding intentions** — Iacoboni et al. (2005) found mirror-system activity differed when an action had clearer intentions, suggesting mirror neurons support intention-reading.
  - **Empathy** — observing others' emotional expressions may activate the same neural circuits as experiencing those emotions, supporting empathic understanding.
  - **Theory of mind** — Gallese and Goldman (1998) proposed mirror neurons help us simulate others' mental states.
  - **Language acquisition** — Rizzolatti and Arbib (1998) proposed human language evolved from the mirror neuron system via imitation of mouth movements.

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## 1 0

AO1, AO3 · 8 marks 8-mark

> *Discuss Baillargeon's explanation of early infant abilities. Refer to at least one strength and one limitation.*

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

| Level | Marks | Descriptor |
|---|---|---|
| 4 | 7–8 | Knowledge of Baillargeon's work and VOE methodology is accurate and well detailed. Evaluation includes at least one strength and one limitation, both effectively explained. Clear, coherent, focused; specialist terminology used effectively. |
| 3 | 5–6 | Knowledge generally accurate; evaluation mostly effective but limited in places. |
| 2 | 3–4 | Some accurate knowledge. Evaluation limited; mainly descriptive. |
| 1 | 1–2 | Knowledge limited; little or no evaluation. |
| 0 | 0 | No relevant content. |

**Indicative AO1 content**:

- **Violation-of-expectation (VOE) method**: exploits the finding that infants look longer at surprising events. Familiarisation event followed by expected/unexpected test events; longer looking at unexpected events indicates relevant knowledge.
- **Baillargeon and Graber (1987) drawbridge study**: 5-month-olds looked longer when a screen rotated through a "solid" block, indicating object permanence at 5 months — much earlier than Piaget's 8-month estimate.
- **Innate physical reasoning system**: Baillargeon proposed infants are born with core principles about how objects behave (object permanence, solidity, continuity, containment, support).
- **Onishi and Baillargeon (2005)**: VOE extended to test theory of mind in 15-month-olds — found implicit understanding of false belief earlier than Sally-Anne suggests.

**Indicative AO3 content**:

- **Strength — challenges Piaget**: clear refutation of Piaget's claim that object permanence develops at 8 months. Forces revision of the sensorimotor stage.
- **Strength — methodological rigour**: looking-time is objective; eliminates motor demands that confounded Piaget's manual-search tasks.
- **Strength — converging evidence**: across many physical domains (solidity, support, containment, occlusion), infants show the same pattern of understanding by 3–6 months.
- **Limitation — looking time interpretation (Bremner 2014)**: longer looking at "impossible" events may reflect novelty or visual oddness rather than genuine understanding. The leap from looking time to "knowledge" can be questioned.
- **Limitation — nativist vs constructivist debate**: Baillargeon interprets findings as evidence of innate knowledge; alternatives propose fast learning from observation. The nature-versus-nurture debate remains open.

- **Limitation — small samples and replication issues**: studies typically use 8–16 infants per condition. Reproducibility in developmental psychology is a current concern.

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## 1 1

AO1, AO2, AO3 · 16 marks 16-mark

> *Discuss Piaget's and Vygotsky's theories. Refer to the case of Sofia and Tomás.*

**Marks for this question: AO1 = 6 marks, AO2 = 4 marks, AO3 = 6 marks**

| Level | Marks | Descriptor |
|---|---|---|
| 4 | 13–16 | Knowledge of BOTH Piaget AND Vygotsky is accurate and well detailed. Application to Sofia AND Tomás is effective and integrated across the stem. Discussion is thorough and effective with strong evaluation. Clear, coherent and focused. |
| 3 | 9–12 | Knowledge evident with some accuracy. Application mostly effective. Discussion mostly effective but limited in places. |
| 2 | 5–8 | Some accurate knowledge of one theory. Application limited and partial. Discussion superficial. |
| 1 | 1–4 | Knowledge limited; little or no application or discussion. |
| 0 | 0 | No relevant content. |

**Indicative AO1 content** — both theories should be covered:

- **Piaget**:
  - Children are active constructors of knowledge.
  - Mechanisms: schemas, assimilation, accommodation, equilibration.
  - Four stages: sensorimotor (0–2), pre-operational (2–7), concrete operational (7–11), formal operational (11+).
  - Key features: object permanence, conservation, egocentrism, class inclusion.
- **Vygotsky**:
  - Cognitive development is fundamentally social.
  - Zone of proximal development (ZPD) — gap between independent and assisted performance.
  - Scaffolding — temporary, adjusted support from a more knowledgeable other (MKO).
  - Wood, Bruner and Ross (1976) scaffolding techniques; cultural tools and inner speech.

**Indicative AO2 content** — engagement with Sofia and Tomás:

- **Sofia learning to tie laces — Vygotsky's account**:
  - Tying shoelaces is just beyond Sofia's independent ability — squarely in her **ZPD**.
  - Her mother is the **more knowledgeable other (MKO)**.
  - The mother provides **scaffolding**: demonstrating slowly, then prompting verbally ("Now make a loop with one lace"), then waiting for Sofia to do it herself.
  - Critically, the mother **gradually removes the scaffolding** — saying less and less over the following days. This is textbook Vygotsky.

    - Eventually Sofia can do it alone — the social interaction has driven the cognitive change.

- **Tomás and conservation — Piaget's account**:
    - Tomás at age 7 is at the boundary of the **concrete operational stage**.
    - He clearly demonstrates **conservation** — recognising that pouring liquid into a different-shaped glass doesn't change the amount ("They have the same amount, Mum — you just moved it!").
    - A younger pre-operational child (Sofia, at 5) would likely fail this task — saying one glass has more.
    - The contrast between Sofia (5, pre-operational) and Tomás (7, concrete operational) illustrates Piaget's claim that conservation appears around 7.

- **Comparing the two cases**:
    - The Sofia case illustrates Vygotsky's *social* mechanism (cognitive change through scaffolded interaction).
    - The Tomás case illustrates Piaget's *stage*-based account (cognitive abilities emerge at certain ages).
    - Both phenomena are real — they're complementary, not opposed.

**Indicative AO3 content**:

- **Strength of Piaget — schemas and stages are well-evidenced**: the broad developmental sequence has been confirmed across cultures (Dasen 1994 — though ages vary). Educational applications have been major.
- **Strength of Vygotsky — supporting research (Wood, Bruner and Ross 1976)**: mothers who scaffolded most appropriately produced the most learning in their children, directly demonstrating the value of MKO-led adjusted support.
- **Strength of Vygotsky — cross-cultural support (Rogoff et al. 1993)**: scaffolding is universal across four cultures (USA, Turkey, India, Guatemala), even if its style varies.
- **Limitation of Piaget — underestimates children**: Hughes (1975) policeman-and-boy task showed 4-year-olds could decentre; McGarrigle and Donaldson (1974) showed conservation can be demonstrated earlier; Baillargeon (Section 5) showed object permanence appears far earlier than Piaget claimed.
- **Limitation of Piaget — neglects social interaction**: Vygotsky and Bruner argued cognitive development is fundamentally social — Piaget's individualism is incomplete.
- **Limitation of Vygotsky — vague mechanisms**: Vygotsky describes the role of social interaction but does not specify exactly how scaffolding produces internalisation. Piaget's account is more mechanistic.
- **Limitation of Vygotsky — individual differences**: two children given the same scaffolding can show very different outcomes; the theory does not adequately account for this.
- **Complementary not opposed**: contemporary cognitive psychology integrates both — Piaget for stages and discovery, Vygotsky for social mechanisms and scaffolding. The "I do, we do, you do" teaching pattern exemplifies this combination.

*Top-band answers will (1) describe both theories accurately, (2) explicitly map Sofia's case to Vygotsky's ZPD/scaffolding AND Tomás's conservation to Piaget's concrete operational stage, (3) compare and contrast the theories on at least one dimension (e.g. role of social interaction, mechanism of development), (4) include at least two substantial evaluation points covering both theories, and (5) reach a conclusion (typically that the theories are complementary — Piaget describes WHEN cognitive abilities emerge; Vygotsky describes HOW social interaction drives development).*

END OF MARK SCHEME · Maximum mark: 48