

Cognition

AP Psychology

Perception

Unit 1 ended with **sensation**, the detection of a stimulus. **Perception** 知觉 is what the brain does next: it organises and interprets that information. The same signal can be perceived in more than one way.

Two directions of processing work together:

- **Bottom-up processing** 自下而上加工 starts from the raw sensory information and builds upwards.
- **Top-down processing** 自上而下加工 starts from what you already expect and know.

Internal filters shape perception. A **schema** 图式 is a mental framework built from past experience. A **perceptual set** 知觉定势 is a readiness to see something in a particular way. External filters matter too: **context** 情境 and cultural expectations change what people report seeing.

Gestalt psychology 格式塔心理学 described how the brain groups parts into wholes: **closure** 闭合 (filling in gaps), **figure and ground** 图形与背景 (separating an object from its background), **proximity** 邻近性 (grouping things that are close), and **similarity** 相似性 (grouping things that look alike).

Attention 注意 sits between sensation and perception. It is limited, so some information is lost:

- **Selective attention** 选择性注意 focuses on one input. The **cocktail party effect** 鸡尾酒会效应 is hearing your own name across a noisy room.
- **Inattentional blindness** 无意视盲 is failing to see something visible because attention was elsewhere; **change blindness** 变化盲视 is failing to notice that something has changed.

Depth, Constancy, and Movement

To perceive a three-dimensional world from a flat retinal image, the brain uses **depth cues** 深度线索.

Binocular cues 双眼线索 need both eyes. **Retinal disparity** 视网膜像差 is the small difference between the two images; the greater the difference, the closer the object. **Convergence** 辐辏 is the inward turn of the eyes for near objects.

Monocular cues 单眼线索 work with one eye: **relative clarity** 相对清晰度, **relative size** 相对大小, **texture gradient** 纹理梯度, **linear perspective** 线条透视, and **interposition** 遮挡 (a nearer object blocks a further one).

Perceptual constancy 知觉恒常性 keeps an object looking the same even when its retinal image changes - a door stays rectangular as it swings open. The brain can also perceive **apparent movement** 似动 when nothing actually moves, which is why a series of still frames looks like a film.

BINOCULAR — needs both eyes

retinal disparity — the two images differ

convergence — how far the eyes turn inward
both fail beyond a few metres

MONOCULAR — one eye is enough

interposition — what blocks what

relative size, texture gradient

linear perspective, motion parallax
these are what a flat picture uses

The test is mechanical: **cover one eye**. Whatever still works is monocular, and that is the half a painting can use

Thinking and Problem-Solving

Concepts 概念 are the basis of thought, and a **prototype** 原型 is the best example of a concept. People build and change schemas through **assimilation** 同化 (fitting new information into an existing schema) and **accommodation** 顺应 (changing the schema to fit new information).

Two ways to solve a problem:

- An **algorithm** 算法 tries every possible solution and is guaranteed to work, but is slow.
- A **heuristic** 启发式 is a mental shortcut. It is fast but can lead to error - the **representativeness heuristic** 代表性启发式 judges by how well something matches a prototype, and the **availability heuristic** 可得性启发式 judges by how easily examples come to mind.

Thinking can also get stuck. A **mental set** 心向 is the tendency to repeat a solution that worked before. **Functional fixedness** 功能固着 is seeing an object only in its usual use. The **gambler's fallacy** 赌徒谬误 (believing a run must end) and the **sunk-cost fallacy** 沉没成本谬误 (continuing because of what is already spent) both hinder good decisions.

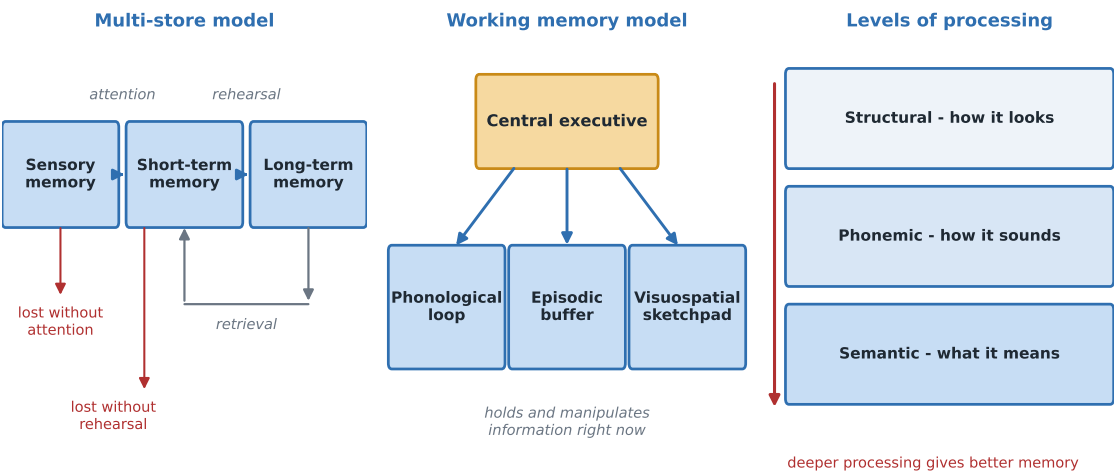
Executive functions 执行功能 let people generate, organise, plan, and carry out

goals. **Creativity** 创造力 involves **divergent thinking** 发散思维 (generating many ideas) rather than **convergent thinking** 聚合思维 (narrowing to one answer).

THE SHORTCUT	WHAT IT SUBSTITUTES	SOUNDS LIKE
AVAILABILITY	how easily an example comes to mind, for how common it is	"Plane crashes are everywhere — I saw two on the news."
REPRESENTATIVENESS	how typical it seems, for how likely it is	"He is quiet and reads a lot, so he must be a librarian."
ANCHORING	the first number heard, for a considered estimate	"It was listed at 900, so 700 is a bargain."
CONFIRMATION BIAS	evidence that agrees, for all the evidence	"Everything I have read supports it."

Every one of them swaps a **hard** question for an easy one.
Naming the swap is what identifies the heuristic in a scenario

Memory Systems



The three examinable memory models: information flows through stores, is actively held in working memory, and is remembered better when processed deeply

Memory is divided by how information is processed.

Explicit memory 外显记忆 can be described to others. It splits into **episodic memory** 情景记忆 (personal events) and **semantic memory** 语义记忆 (facts). **Implicit memory** 内隐记忆 is harder to describe, and includes **procedural memory** 程序性记忆 (skills such as riding a bike). **Prospective memory** 前瞻记忆 is remembering to do something later.

Long-term potentiation 长时程增强 is the biological basis: synaptic connections grow stronger with repeated use.

Three models are examinable:

- The **multi-store model** 多重存储模型 proposes **sensory memory** 感觉记忆 (including **iconic** 图像记忆 and **echoic** 声像记忆 stores), **short-term memory** 短时记忆, and **long-term memory** 长时记忆.
- The **working memory model** 工作记忆模型 treats the middle stage as active, not a waiting room. It has a **phonological loop** 语音回路, a **visuospatial sketchpad** 视空间模板, and a **central executive** 中央执行系统.
- The **levels of processing model** 加工水平模型 says deeper processing gives better memory: **shallow** processing of appearance, then sound, then **deep** processing of meaning.

Encoding and Storing

Encoding 编码 gets information into memory, and how you encode changes how well you remember.

- **Mnemonic devices** 记忆术 such as the **method of loci** 位置法 aid encoding.
- **Chunking** 组块 groups items into meaningful units, which raises how much short-term memory can hold.
- The **spacing effect** 间隔效应 shows that spreading study over time beats **massed practice** 集中练习 (cramming).
- The **serial position effect** 系列位置效应 means items at the start (**primacy** 首因效应) and end (**recency** 近因效应) of a list are remembered best.

Storage differs by system. **Maintenance rehearsal** 保持性复述 repeats information to hold it; **elaborative rehearsal** 精细复述 links it to what you already know and works better.

A few people show **highly superior autobiographical memory** 超常自传体记忆, which suggests biological differences. Storage can also be impaired: **Alzheimer's disease** 阿尔茨海默病 and **infantile amnesia** 婴儿期遗忘 both limit what can be stored or recovered.

Retrieving and Forgetting

Retrieval takes two forms: **recall** 回忆 (producing information without cues) and **recognition** 再认 (identifying it among options). Recognition is easier, which is why a multiple-choice question feels easier than an essay.

Retrieval improves with matching conditions. **Context-dependent memory** 情境依存记忆 works better in the same place; **state-dependent memory** 状态依存记忆 works better in the same physical state; **mood-congruent memory** 心境一致性记忆 recalls material matching your current mood. Practising retrieval helps too - the **testing effect** 测试效应 shows that testing yourself beats rereading.

Forgetting has several causes. The **forgetting curve** 遗忘曲线 shows loss is fastest right after learning. **Encoding failure** 编码失败 means it never got in. **Interference** 干扰 can be **proactive** 前摄干扰 (old learning blocks new) or **retroactive** 倒摄干扰 (new blocks old). **Retrieval failure** 提取失败 includes the **tip-of-the-tongue phenomenon** 舌尖现象.

Memory is also **reconstructive** 重构的, not a recording. The **misinformation effect** 错误信息效应 occurs when later information changes what a person remembers. **Source amnesia** 来源遗忘 is remembering the information but not where it came from.

Worked example (a real AP exam question). The 2025 Article Analysis Question presented a study in which participants read a summary containing 20%, 50% or 80% misleading sentences, then answered questions about a video. Correct responses fell from 74% (low misinformation) to 63% (high). One part asked students to “*Explain how at least one of the research findings supports or refutes the misinformation effect.*” A full-mark answer states the finding **and** connects it to the concept: “*Participants in the high misinformation condition answered 63% correctly compared with 74% in the low condition. Because exposure to more misleading detail lowered accuracy, the finding supports the misinformation effect, in which information received after an event changes the memory of it.*” Notice the shape: quote the data, then name the concept the data supports. A restated definition with no number does not answer **Explain**.

ENCODING FAILURE — it never got in, so it was never forgotten

STORAGE DECAY — the trace weakens over time

RETRIEVAL FAILURE — it is there, and the cue is missing

INTERFERENCE — another memory is in the way, from before or after

The tell is what happens with a **cue**. If a prompt recovers it, the memory was stored and the failure was retrieval

Intelligence and Testing

Psychologists still disagree about how to define **intelligence** 智力. **Spearman's g** 一般智力因素 proposes one general ability; other theories propose several, including **fluid intelligence** 流体智力 (reasoning with novel problems, which declines with age) and **crystallised intelligence** 晶体智力 (accumulated knowledge, which does not).

Early tests produced an **intelligence quotient (IQ)** 智商 by dividing mental age by chronological age. Modern scores are compared with a **normal curve** 正态曲线 of the population.

Any psychological assessment must meet **psychometric principles** 心理测量学原则:

- **Standardization** 标准化 - the test is given under consistent procedures and scored against a comparison group.
- **Validity** 效度 - it measures what it claims to. **Construct validity** 构念效度 and **predictive validity** 预测效度 are both examinable.
- **Reliability** 信度 - it gives similar results each time, checked by **test-retest reliability** 重测信度 and **split-half reliability** 分半信度.

IQ scores have risen worldwide over generations (the **Flynn effect** 弗林效应), which points to societal rather than biological causes. Scores vary more *within* groups than *between* them, and **stereotype threat** 刻板印象威胁 can lower performance when a person fears confirming a negative stereotype about their group.

Exam tips

- Keep **sensation** and **perception** apart: detecting is sensation, interpreting is perception.

- **Bottom-up** starts with the stimulus; **top-down** starts with expectation. Say which the scenario shows.
- Learn the interference pair by direction: **proactive** means old material acts forward onto new.
- For **encoding** questions, name a specific strategy - chunking, spacing, elaborative rehearsal - not “studying harder”.
- On testing questions, separate **reliability** from **validity**. A test can be reliable and still measure the wrong thing.
- When data are given, quote a figure before naming the concept. Findings-based parts award the link between the number and the term.