Course Companion

AP Psychology

Every topic handout in one volume

全部专题讲义合集

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Biological Bases of Behavior

AP Psychology

Nature and Nurture

Why it matters. In 1848 an explosion drove an iron rod more than a metre long through the head of Phineas Gage, a Vermont railroad foreman. He survived, could walk and talk, and remembered his life - but friends said he was "no longer Gage": once careful and polite, he became impulsive and rude. The rod had destroyed much of his frontal lobes. Gage's case was one of the first clues that particular parts of the brain support particular parts of who we are, and this unit is about those links between biology and behavior.



Heredity and environment interact

Psychology studies **behavior** 行为 (what a person does) and **mental processes** 心理过程 (what a person thinks and feels). Unit 1 asks where these come from in the body.

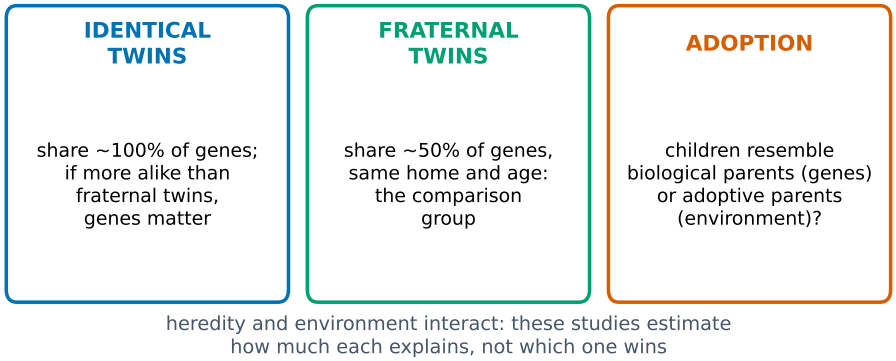
Heredity and environmental factors interact to shape behavior and mental processes. **Heredity** 遗传 is what a person inherits from their parents. **Environment** 环境 is everything that happens around them. Neither one acts alone.

- **Nature and nurture** 先天与后天 interact. For example, inherited tendencies and nutrition can both influence height.
- The **evolutionary perspective** 进化论视角 asks how inherited tendencies may relate to survival and reproductive success. A plausible story about an advantage is not, by itself, proof of a particular behavior's origin.
- **Twin and adoption studies** 双生子与收养研究 compare patterns of similarity across relatedness and upbringing. Similarity between identical twins raised apart can support an inherited contribution, but it does not cleanly separate all inherited and environmental influences.

Worked interaction: phenylketonuria (PKU). About one baby in 10,000 inherits two copies of a gene that cannot break down phenylalanine, an amino acid in ordinary food. Before 1960 most of these children developed severe intellectual disability. In 1963 Robert Guthrie's heel-prick blood test let hospitals find PKU at birth, and a low-

phenylalanine diet from the first weeks now lets these children grow up with typical intelligence. The gene did not change; the environment did. Heredity set a risk, the diet decided the outcome. That is what "nature and nurture interact" means: the effect of a gene can depend on the environment it meets.

Evaluate a twin-study conclusion. In 1979 identical twins Jim Lewis and Jim Springer met for the first time since they were adopted into different Ohio families as babies. Both bit their nails, smoked the same brand of cigarettes and had each named a son James. Thomas Bouchard's Minnesota Study of Twins Reared Apart then tested over 100 separated twin pairs. In 1990 it reported that the IQ scores of identical twins raised apart correlated at about 0.7, not far below identical twins raised together, and estimated that about 70% of the IQ differences in the sample were linked to genetic differences. This supports a large inherited contribution *in that sample*. It is not proof that IQ is fixed: the twins shared a womb, adoption agencies often placed children in similar homes, and the PKU case shows that an environment can change what a gene does.



Twin and adoption studies help investigate inherited and environmental contributions

The Nervous System

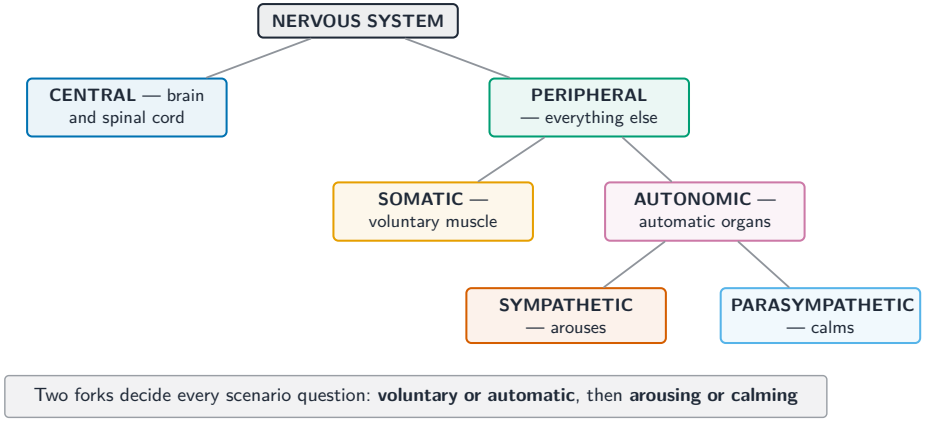
The **nervous system** 神经系统 carries information around the body. It has two main parts.

The **central nervous system (CNS)** 中枢神经系统 is the brain and the **spinal cord** 脊髓. It interacts with every process in the body.

The **peripheral nervous system (PNS)** 周围神经系统 relays messages between the CNS and the rest of the body. It divides again:

- The **somatic nervous system** 躯体神经系统 controls **voluntary** 随意的 movement, such as raising your hand.
- The **autonomic nervous system** 自主神经系统 controls **involuntary** 不随意的 processes, such as heartbeat and digestion. It has two branches that work against each other: the **sympathetic nervous system** 交感神经系统 prepares the body for action (the "fight or flight" response), and the **parasympathetic nervous system** 副交感神经系统 calms the body down afterwards.

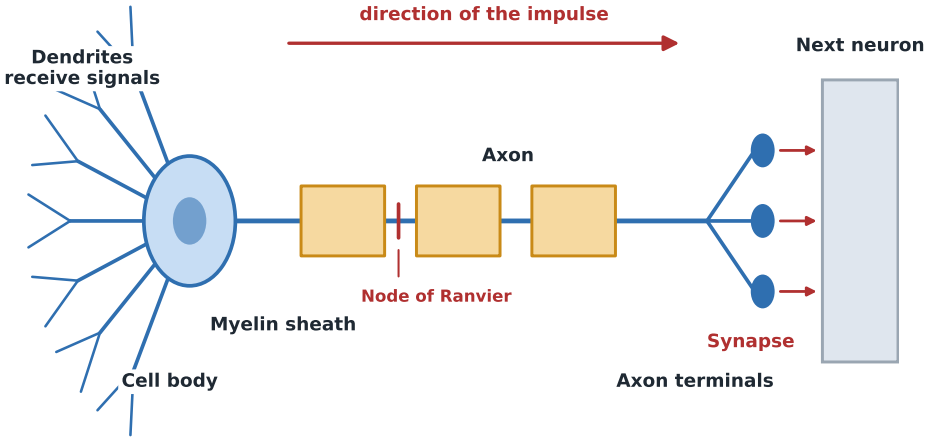
Worked pathway choice. A student deliberately raises a hand, experiences a faster heartbeat before a presentation, and later notices a slowing heart rate during recovery. The deliberate skeletal movement involves the somatic division carrying motor commands. Heartbeat is an autonomic process: the sympathetic branch supports arousal and the parasympathetic branch supports recovery. These are PNS pathways interacting with the CNS. Classify the specific response, not the whole event as only voluntary or automatic. A racing heart alone does not establish one particular emotion.



Two forks decide every scenario question: voluntary or automatic, then arousing or calming

Neurons and How They Fire

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A neuron receives at the dendrites, fires along the axon, and passes the message across the synapse

Two kinds of cell do the work. **Neurons** 神经元 transmit information. **Glial cells** 神经胶质细胞 provide structure, insulation, communication, and waste transport. Together they are the building blocks of all behavior and mental processes.

A neuron has **dendrites** 树突 that receive signals, a **cell body** 细胞体, and an **axon** 轴突 that carries the signal away. Many axons are wrapped in a **myelin sheath** 髓鞘, which speeds the signal up.

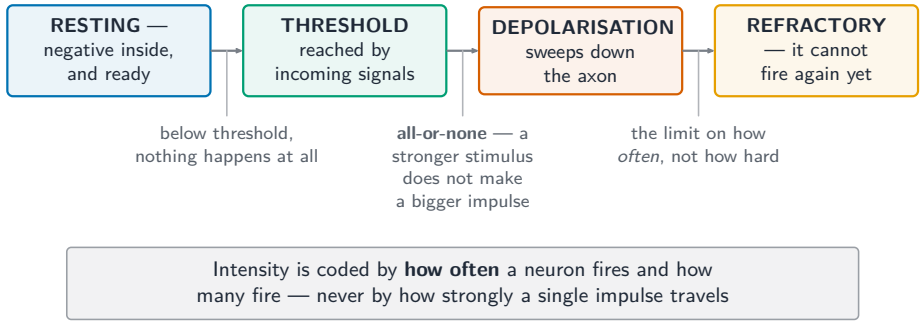
Neural transmission follows a set order:

- At rest the neuron holds a **resting potential** 静息电位, ready but not firing.
- If incoming signals pass the **threshold** 阈限, the neuron **depolarizes** 去极化 and fires.
- Firing follows the **all-or-none principle** 全或无原则: the neuron fires at full strength or not at all. A stronger stimulus makes it fire more often, not harder.
- Straight after firing there is a **refractory period** 不应期: at first the neuron cannot fire again; later in recovery a stronger stimulus may be needed.
- At the **synapse** 突触, the gap between neurons, chemicals cross to the next cell. Leftover chemicals are taken back in a process called **reuptake** 再摄取.

Damage to this process can cause disorders such as **multiple sclerosis** 多发性硬化 or **myasthenia gravis** 重症肌无力.

In the spinal cord, the **reflex arc** 反射弧 shows the system working as a unit. **Sensory neurons** 感觉神经元 carry information in, **interneurons** 中间神经元 connect inside the cord, and **motor neurons** 运动神经元 carry the command out - a withdrawal can be initiated through spinal circuits before conscious awareness, while signals also travel toward the brain.

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Intensity is coded by how often a neuron fires, never by how strongly one impulse travels

Neurotransmitters, Hormones, and Drugs

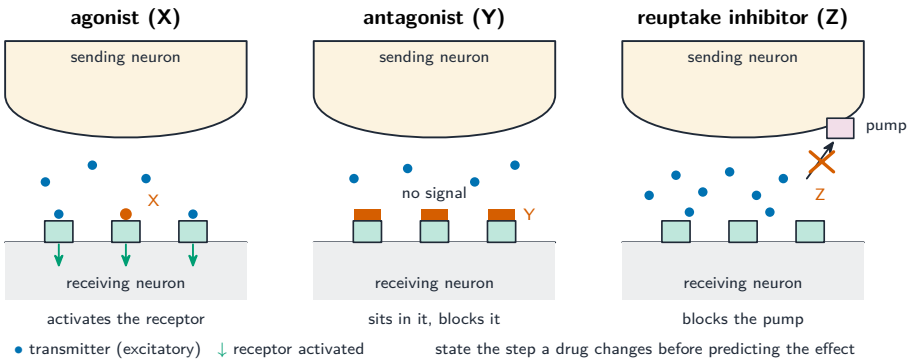
Neurotransmitters 神经递质 are the chemicals that cross the synapse. Each has its own job, and the effect can depend on where in the nervous system it acts. A message is either **excitatory** 兴奋性的 (making firing more likely) or **inhibitory** 抑制性的 (making firing less likely).

Only these are examinable: **dopamine** 多巴胺 (reward and movement), **serotonin** 血清素 (mood and sleep), **norepinephrine** 去甲肾上腺素 (alertness), **glutamate** 谷氨酸 (the main excitatory transmitter), **GABA** γ-氨基丁酸 (the main inhibitory transmitter), **endorphins** 内啡肽 (pain relief), **substance P** P 物质 (pain signalling), and **acetylcholine** 乙酰胆碱 (muscle movement and memory).

Hormones 激素 travel through the blood and can influence the brain as well as other organs. Their route differs from communication across a synapse; blood-borne does not mean unable to affect behavior. Again only five are examinable: **adrenaline** 肾上腺素, **leptin** 瘦素 (reduces hunger), **ghrelin** 胃饥饿素 (increases hunger), **melatonin** 褪黑素 (sleep), and **oxytocin** 催产素 (bonding).

Psychoactive drugs 精神药物 can change behavior by acting on neurotransmission. Three mechanisms taught in the course are:

- An **agonist** 激动剂 activates or supports a transmitter's effect. In an introductory excitatory-signal example, this encourages firing.
- An **antagonist** 拮抗剂 blocks a transmitter's action. With that excitatory signal, blocking it reduces its contribution to firing.
- A **reuptake inhibitor** 再摄取抑制剂 blocks reabsorption, leaving more transmitter in the synapse.



Agonist, antagonist, reuptake inhibitor: each acts at a different step of the same synapse

Worked synapse comparison. The figure shows one excitatory synapse and three real drugs. **Nicotine** acts like X: it binds to acetylcholine receptors and activates them, so it is an agonist. **Curare**, the arrow poison of South American hunters, acts like Y: it sits in the acetylcholine receptors on muscle without activating them, so the muscle cannot respond and the animal is paralysed. It is an antagonist. **Fluoxetine** (Prozac, approved in the USA in 1987) acts like Z: it blocks the pump that takes serotonin back into the sending neuron, so serotonin stays longer in the synapse. It is a selective serotonin reuptake inhibitor (SSRI). Always name the step the drug changes before you predict its effect.

The effect also depends on the transmitter. Alcohol and sleeping pills such as diazepam boost the effect of GABA, the main inhibitory transmitter, so they increase inhibition and slow the brain down. So "agonist" does not mean "stimulant": name the transmitter and the receptor first.

Drug categories: **stimulants** 兴奋剂 (caffeine, cocaine) increase neural activity; **depressants** 抑制剂 (alcohol) decrease it; **hallucinogens** 致幻剂 (marijuana) distort perception; **opioids** 阿片类药物 (heroin) relieve pain. Repeated use can lead to **tolerance** 耐受性, where more is needed for the same effect, and to **addiction** 成瘾, with **withdrawal** 戒断反应 symptoms when use stops.

The Brain

The brain is studied from the bottom up, because the lower structures handle the most basic jobs.

- The **brain stem** 脑干, including the **medulla** 延髓, controls breathing and heart rate.
- The **reticular activating system** 网状激活系统 controls alertness and arousal.

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- The **cerebellum** 小脑 controls coordination, balance, and some **procedural learning** 程序性学习.
- The **limbic system** 边缘系统 sits beneath the cerebral cortex and includes the **thalamus** 丘脑 (a relay station for the senses), the **hypothalamus** 下丘脑 (hunger, thirst, temperature), the **pituitary gland** 脑垂体, the **hippocampus** 海马体 (forming new memories: after surgeons removed most of both of Henry Molaison's hippocampi in 1953 to stop his seizures, he could not form new long-term memories for the rest of his life), and the **amygdala** 杏仁核 (fear and emotion).

The **cerebral cortex** 大脑皮层 is divided into two **hemispheres** 半球 and four lobes: the **occipital lobes** 枕叶 process vision at the rear; the **temporal lobes** 颞叶 process hearing and language at the sides; the **parietal lobes** 顶叶 hold the **somatosensory cortex** 体感皮层 for touch; and the **frontal lobes** 额叶 handle higher-order thinking and **executive function** 执行功能.

Language sits mainly in the left hemisphere: **Broca's area** 布罗卡区 for speech production and **Wernicke's area** 韦尼克区 for comprehension.

Split-brain research 裂脑研究, done on patients whose **corpus callosum** 胼胝体 was cut to treat severe epilepsy, shows the two hemispheres can work independently. In Roger Sperry and Michael Gazzaniga's tests in the 1960s, a patient shown a word to the right hemisphere alone could not say it, but could pick out the object with the left hand. Sperry won the 1981 Nobel Prize for this work. Researchers present information to one **visual field** 视野 at a time, because each field is processed by the opposite hemisphere.

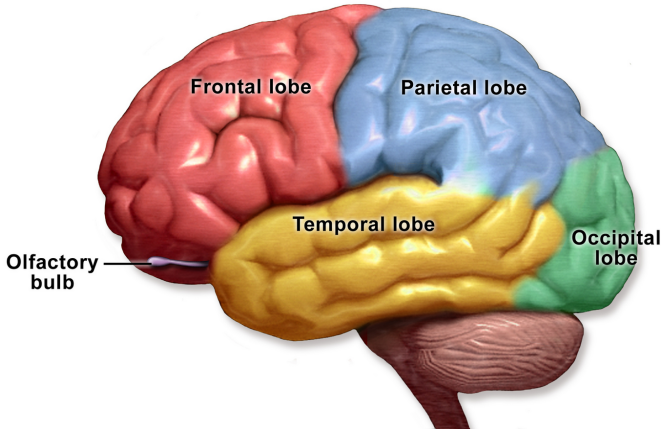
Brain plasticity 大脑可塑性 is the brain's ability to rewire itself and form new connections, which supports recovery after damage. Research methods include **EEG** 脑电图 and **fMRI** 功能性磁共振成像 scans, case studies, and **lesioning** 损毁法.

Worked method choice. To identify rapid electrical patterns distinguishing sleep stages, choose EEG: scalp electrodes record electrical patterns with fine timing, although locating a precise source is more limited. To compare where blood-oxygen signals change during a memory task and a comparison task, choose fMRI: it commonly tracks regional blood-oxygen changes associated with activity. It gives useful spatial detail but measures an indirect, slower-changing signal rather than each neuron's firing. A regional change during a task does not, by itself, establish that the region is necessary for the task or reveal exact thoughts. Match the research aim to the signal and state a limitation.

REGION	WHAT IT DOES	DAMAGE LOOKS LIKE
brainstem and medulla	breathing, heart rate, arousal	life-threatening — these are not optional
cerebellum	balance, and smooth learned movement	clumsy, uncoordinated movement
hippocampus	forming new long-term memories	old memories intact, no new ones
amygdala	fear, and emotional salience	blunted fear, poor threat learning
frontal lobe	planning, judgement, inhibition	impulsivity and personality change

Scenario questions arrive as the **third** column. Learn the table in that direction and the retrieval matches the question

Scenario questions arrive as the third column - learn the table in that direction



The four lobes of the cerebral cortex

Consciousness and Sleep

Consciousness 意识 is awareness of internal and external events, and it varies in level.

The sleep/wake cycle is a **circadian rhythm** 昼夜节律 of about 24 hours. **Jet lag** 时差反应 and shift work disrupt it.

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Sleep stages are identified by **EEG** patterns. **NREM sleep** 非快速眼动睡眠 covers stages 1 to 3; **hypnagogic sensations** 入睡幻觉 occur as you fall asleep. **REM sleep** 快速眼动睡眠 is called **paradoxical sleep** 异相睡眠 because the brain looks awake while the body is most relaxed, and most dreaming happens here.

Two examinable theories explain dreams: **activation-synthesis theory** 激活-综合理论 (the brain interprets random activity) and **consolidation theory** 巩固理论 (dreams reflect memory processing). Sleep itself is explained by **memory consolidation** 记忆巩固 and **restoration** 恢复 theories.

Note: the psychoanalytic theory of dreams is outside the exam's scope.

Sleep disorders disrupt waking behavior and health: **insomnia** 失眠, **narcolepsy** 发作性睡病, **sleep apnea** 睡眠呼吸暂停, **somnambulism** 梦游 (sleepwalking), and **REM sleep behavior disorder** 快速眼动睡眠行为障碍.



A participant wired for polysomnography - this is what measuring sleep stages actually looks like

Sensation

Sensation 感觉 is detecting information from the environment and **transducing** 转导 it into neural signals the brain can use. Detection needs a certain **absolute threshold** 绝对阈限.



The eye is the first stage of vision: the iris sets how much light reaches the retina, where receptors transduce it into neural signals



Trichromatic at the cones, opponent later

- The **just-noticeable difference** 最小可觉差 is the smallest change a person can detect.
- **Sensory adaptation** 感觉适应 is reduced sensitivity to an unchanging stimulus - you stop noticing a smell.
- **Sensory interaction** 感觉相互作用 means the senses work together. **Synesthesia** 联觉 is when one sense triggers another.

Vision. Light is focused onto the **retina** 视网膜 by the **lens** 晶状体 changing shape, a process called **visual accommodation** 视觉调节. A mismatch between the eye's length and its optical focusing power can cause **nearsightedness** 近视 or **farsightedness** 远视. **Rods** 视杆细胞 lie in the periphery and detect shape and movement in low light. **Cones** 视锥细胞 are most concentrated in the **fovea** 中央凹 and detect colour and detail. Colour vision needs two theories: **trichromatic theory** 三色理论 (blue, green and red cones) and **opponent-process theory** 对立过程理论, which explains **afterimages** 后像. Damage to the fusiform face area, on the underside of

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the brain where the occipital and temporal lobes meet, can cause **prosopagnosia** 面孔失认症, or face blindness.

Hearing. Sound is air movement; wavelength gives **pitch** 音高 and amplitude gives **loudness** 响度. Pitch perception is explained by **place theory** 位置理论, **volley theory** 齐射理论, and **frequency theory** 频率理论. **Sound localization** 声源定位 tells us where a sound comes from. Hearing loss may be **conduction deafness** 传导性耳聋 or **sensorineural deafness** 感音神经性耳聋.

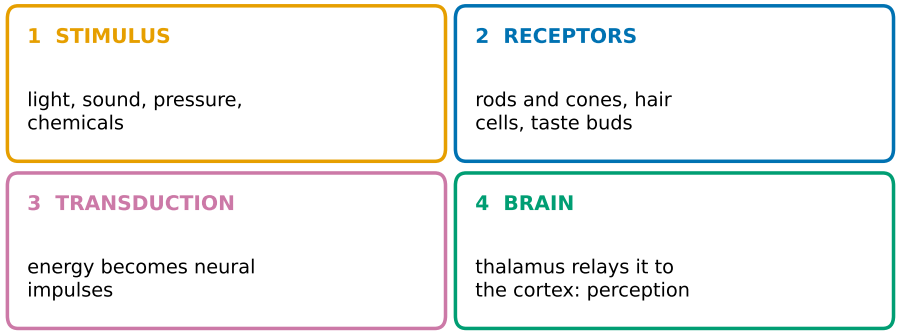
The chemical senses. Olfaction 嗅觉 is the only sense not relayed first through the thalamus. **Gustation** 味觉 covers sweet, sour, salty, bitter, **umami** 鲜味, and **oleogustus** 脂味. The two interact: without smell, taste is muted.

Touch, pain, and body position. Skin receptors transduce touch; "hot" comes from warm and cold receptors firing together. Pain is processed in body and brain, and **gate control theory** 闸门控制理论 explains why attention changes how much it hurts; **phantom limb** 幻肢 sensations show the brain's role. The **vestibular sense** 前庭觉 controls balance through the **semicircular canals** 半规管, and **kinesthesis** 动觉 is the sense of body movement.

Worked evidence-based generalization (2025 AP Psychology Set 1 Article Analysis). The study recruited 127 students at one large university for course credit. They were aged 18–39, with a mean age of 21.21; 69% were women and 31% men. Consider how far the findings can be extended to adults aged 65 and over.

One supported response is: the findings may not extend to adults aged 65 and over because all participants were university students aged 18–39. The study provides no direct participant evidence about that older population. A large sample does not fix this: 127 students are still 127 students. Random assignment to misinformation conditions helps compare the experimental groups; it does not turn a university sample into a representative sample of all adults.

The official Part E criterion requires a generalization claim supported by specific, relevant participant evidence. Name the population, select a participant feature and explain the link. An unexplained label such as "biased" or a statement about sample size is insufficient.

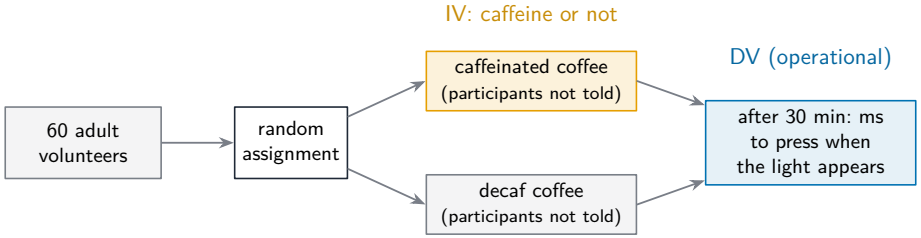


absolute threshold: the weakest stimulus detected 50% of the time

Sensation: receptors transduce energy into neural signals that travel to the brain

Worked example: analysing a study

The article-analysis question gives a short study summary and asks about its method, its variables and what it can conclude.



caffeine group 25 ms faster on average, p = 0.02

IV, random assignment, operational DV

Researchers randomly assigned 60 adult volunteers to drink either a caffeinated or a decaffeinated coffee, without telling them which. Thirty minutes later, each person's reaction time was measured as the milliseconds taken to press a button when a light appeared. The caffeine group responded 25 ms faster on average ($p = 0.02$).

(a) Identify the research method, and explain how you know.

(b) Identify the operational definition of the dependent variable.

(c) Explain ONE feature of the design that supports a cause-and-effect conclusion.

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(d) Explain how caffeine's effect relates to neurotransmission.

Model answer.

- (a) An experiment: the researchers manipulated the independent variable (caffeine or not) and randomly assigned participants.
- (b) Reaction time: the milliseconds taken to press the button after the light appeared.
- (c) Random assignment helps balance other differences, such as sleep or habits, across groups, and keeping participants unaware of their condition (single-blind) reduced expectation effects.
- (d) Caffeine blocks receptors for adenosine, a neurotransmitter that promotes drowsiness, so neural activity stays higher and responses are faster.

Exam tips

- Learn only the listed **neurotransmitters** and **hormones**; the exam will not ask about others, and the endocrine glands are out of scope apart from the pituitary.
- Keep **sensation** separate from perception: sensation is detecting and transducing, perception is interpreting (Unit 2).
- The **all-or-none principle** means intensity is coded by how *often* a neuron fires, never by how strongly.
- Match structure to job before you write: hippocampus forms memories, amygdala handles fear, cerebellum coordinates movement.
- **Sympathetic** arouses, **parasympathetic** calms. If a question describes a racing heart, name the sympathetic branch.
- Say what a scan can and cannot show. **EEG** records rapid electrical patterns; **fMRI** commonly tracks regional blood-oxygen changes associated with activity.

Common mistakes.

- Writing that a stronger stimulus makes a neuron fire "harder". Firing is all-or-none; intensity changes how often neurons fire and how many fire.
- Mixing up neurotransmitters (fast, across a synapse) and hormones (slower, through the blood).
- Saying the parasympathetic system "stops" the body. It calms and restores; both branches are active all the time.
- Repeating the myth that people use only 10 per cent of their brain. Scans show activity throughout the brain.
- Calling a correlation in a brain scan a cause. An fMRI shows activity linked with a task, not that the region alone produces it.

Practice - concept application. Read the scenario, then explain how each term relates to it. Each answer needs the term's meaning **and** a link to a specific detail.

Lena is learning to ride a bicycle on a dark country road. She can just

make out the faint glow of a distant streetlight. When a dog suddenly barks, her heart races and her palms sweat; a few minutes later she has calmed down. After falling and scraping her knee, she is surprised that it hurts less than she expected. Late at night, despite the excitement, she feels very sleepy at her usual bedtime. Explain how each of the following relates to Lena's experience: (a) absolute threshold, (b) the sympathetic and parasympathetic nervous systems, (c) cerebellum, (d) kinesthesis, (e) endorphins, (f) circadian rhythm.

Answers.

- (a) The absolute threshold is the minimum stimulation detected half the time; the faint distant streetlight is near Lena's threshold for light.
- (b) The sympathetic system raised her heart rate and made her sweat when the dog barked; the parasympathetic system then calmed her body down.
- (c) The cerebellum coordinates balance and smooth movement, so it helps Lena keep the bicycle upright and steer.
- (d) Kinesthesis senses the position and movement of her body parts, telling Lena where her legs are on the pedals without looking.
- (e) Endorphins are natural pain-reducing neurotransmitters released under stress, which can explain why her scraped knee hurt less than expected.
- (f) Her circadian rhythm, the body's roughly 24-hour cycle, makes her sleepy at her usual bedtime even after an exciting evening.

Vocabulary card meanings

mental processes: Activities of the mind such as perceiving, remembering, and deciding. Nature and nurture: The joint influence of inherited traits and of experience. Twin and adoption studies: Research that compares relatives reared together or apart to separate heredity from environment. peripheral nervous system (PNS): The nerves outside the brain and spinal cord. somatic nervous system: The division that carries commands to skeletal muscles and also brings sensory signals in from the body. voluntary: Done under conscious command, as with moving an arm. autonomic nervous system: The division that runs organs without a person deciding each action. involuntary: Happening without a conscious decision, as with heartbeat. sympathetic nervous system: The division that prepares the body for urgent action. parasympathetic nervous system: The division that calms the body and restores energy. Neurons: Nerve cells that carry signals through the nervous system. dendrites: Branching fibres that receive signals into a nerve cell. resting potential: The voltage difference across a nerve-cell membrane while the cell is not firing. depolarizes: Makes the inside of the membrane less negative, which lets a nerve impulse start. all-or-none principle: A nerve cell either fires a full impulse or does not fire at all. refractory period: A short interval after one firing when another firing is impossible, or possible only with a stronger stimulus. multiple sclerosis: A disease in which the insulating sheath around nerve fibres is damaged. myasthenia gravis: A disease in which signals fail to make muscles

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contract with normal strength. Sensory neurons: Nerve cells that carry information in from the sense organs. interneurons: Nerve cells that connect other nerve cells, especially in the spinal cord and brain. motor neurons: Nerve cells that carry commands out to muscles and glands. excitatory: Making the next nerve cell more likely to fire. inhibitory: Making the next nerve cell less likely to fire. dopamine: A chemical messenger linked with reward, movement, and attention. serotonin: A chemical messenger linked with mood, sleep, and appetite. norepinephrine: A chemical messenger that raises alertness and helps the stress response. glutamate: The main chemical messenger that excites nerve cells in the brain. GABA: The main chemical messenger that quiets nerve signals in the brain. endorphins: Natural chemicals that reduce pain and can produce a feeling of well-being. substance P: A chemical messenger involved in sending pain signals. leptin: A hormone from fat tissue that signals fullness to the brain. ghrelin: A hormone from the stomach that signals hunger. melatonin: A hormone that helps set the daily sleep-wake rhythm. oxytocin: A hormone linked with bonding, birth, and trust. agonist: A drug that mimics a messenger and turns its receptor on. antagonist: A drug that blocks a receptor so the usual messenger cannot act. reuptake inhibitor: A drug that keeps a messenger in the gap between nerve cells for longer. stimulants: Drugs that speed up neural activity and bodily arousal. depressants: Drugs that slow neural activity and bodily arousal. hallucinogens: Drugs that distort perception and can produce sensations with no outside source. opioids: Drugs, related to opium, that relieve pain and can be highly addictive. occipital lobes: The rear parts of the brain that first process vision. temporal lobes: The side parts of the brain involved in hearing and in some memory. parietal lobes: The upper side parts of the brain that process touch and spatial layout. somatosensory cortex: The strip of brain that maps touch from different body parts. frontal lobes: The front parts of the brain used for planning, speech, and self-control. executive function: Mental skills for planning, switching tasks, and holding back impulses. Broca's area: A region, usually on the left, needed to produce fluent speech. Wernicke's area: A region, usually on the left, needed to understand speech. visual field: The whole area a person can see at one moment without moving the eyes. lesioning: Destroying or damaging a small brain area in order to study its job. NREM sleep: Stages of sleep in which the eyes do not move rapidly, during which dreams can still occur. hypnagogic sensations: Brief vivid feelings, such as falling, as a person is drifting into sleep. paradoxical sleep: A sleep stage in which the brain is active but most muscles are paralysed. activation-synthesis theory: The idea that dreams are the brain's attempt to make a story from random activity. memory consolidation: The stabilising of a new memory so that it lasts. restoration: The idea that sleep repairs the body and replenishes energy. insomnia: Ongoing difficulty falling asleep or staying asleep. narcolepsy: A disorder of sudden, uncontrollable sleep attacks. sleep apnea: A disorder in which breathing repeatedly stops during sleep. somnambulism: Walking about while still asleep. REM sleep behavior disorder: A condition in which the usual muscle paralysis of dreaming sleep fails. transducing: Converting one form of energy, such as light, into nerve signals. absolute threshold: The smallest stimulus detected about half the time. Sensory

adaptation: Reduced sensitivity after constant, unchanging stimulation. Synesthesia: A condition in which one sense triggers an experience in another, such as seeing sound. lens: The clear structure in the eye that bends incoming light. nearsightedness: Seeing nearby objects more clearly than distant ones. farsightedness: Seeing distant objects more clearly than nearby ones. fovea: The small central pit of the retina where vision is sharpest. afterimages: Sensations that linger after the original stimulus has gone. prosopagnosia: An inability to recognise familiar faces. place theory: The idea that pitch depends on which part of the inner ear is stimulated. volley theory: The idea that groups of auditory nerve cells fire in rotation to code pitch. frequency theory: The idea that pitch depends on how fast auditory nerve cells fire. Sound localization: Judging where a sound comes from, using differences between the two ears. conduction deafness: Hearing loss from a problem in the outer or middle ear's mechanical path. sensorineural deafness: Hearing loss from damage to the inner ear or the auditory nerve. Gustation: The sense of taste. umami: The savoury taste associated with glutamate in foods. oleogustus: A proposed taste quality for fatty acids. gate control theory: The idea that signals from the spinal cord can open or close the path for pain. phantom limb: The feeling that a missing limb is still present, sometimes with pain. semicircular canals: Fluid-filled loops in the inner ear that sense rotation of the head.

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Cognition

AP Psychology

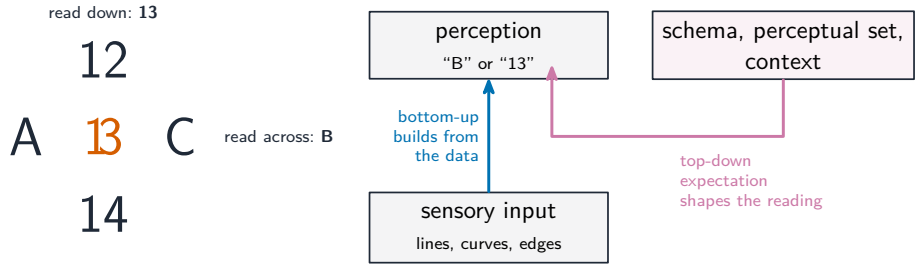
Perception

Why it matters. In two 1974 experiments, Elizabeth Loftus and John Palmer showed students car-crash films and asked about speed using words such as "smashed" or "hit". Students who heard "smashed" gave higher speed estimates. In the second experiment, a week later they were more likely to report broken glass that was never in the film. Memory is not a recording; it is rebuilt each time, and this unit explains how perception, memory and thinking can be both remarkably good and systematically wrong.

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.



One mark, two readings: the data come up from the senses, the expectation comes down from what you 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.

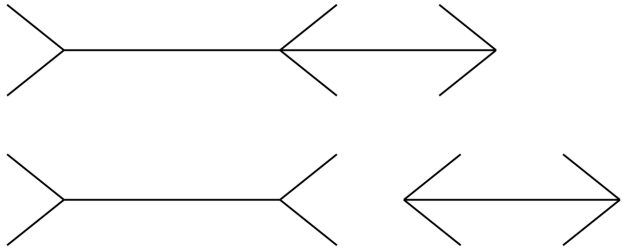
Gestalt psychology 格式塔心理学 described how the brain groups parts into wholes: **closure** 闭合 (filling in gaps), **figure and ground** 图形与背景 (separating an object from its background), **proximity** 邻近性 (grouping things that are close), and **similarity** 相似性 (grouping things that look alike).

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.



The Müller-Lyer illusion: the shafts are the same length, but the arrow fins make one look longer



An Ames-style room: its slanted walls and floor look square from the viewpoint, so depth cues mislead and a person in it looks the wrong size

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

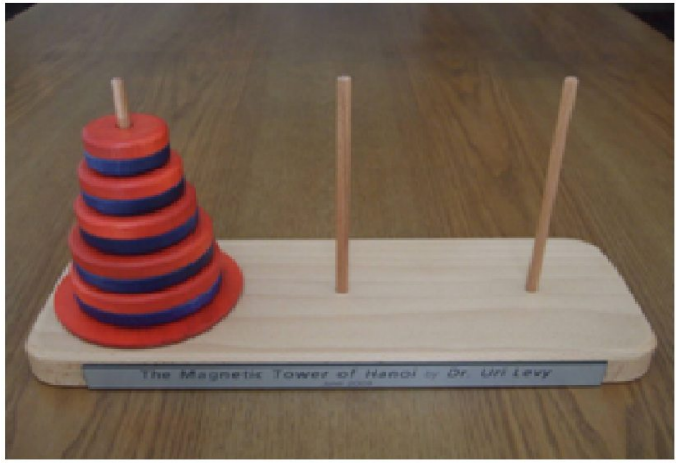
The test is mechanical: **cover one eye**. Whatever still works is monocular, and that is the half a painting can use

Cover one eye: whatever still works is monocular

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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).



The Tower of Hanoi: a classic problem-solving task where breaking the goal into subgoals finds the solution

Two ways to solve a problem:

- An **algorithm** 算法 is a systematic procedure. The course contrasts searching possible solutions until a correct one is found with using a shortcut. Exhaustive search succeeds when the possibilities can all be checked, a solution exists within them, and the checker works. Algorithms are not always exhaustive or 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.

Worked search comparison. A classroom puzzle has eight possible answers, A–H, exactly one correct answer and a reliable checker. Testing A, then B and continuing in order systematically covers the possibilities. Starting with D because similar puzzles used D is a heuristic: it may save time but may mislead. The guarantee of the systematic search depends on the finite set, the included solution and the checker.

Worked judgement comparison. Judging cycling accidents to be common because vivid crash reports come easily to mind illustrates availability: ease of recall alone does not establish frequency. Assuming a quiet person who likes books must be a librarian illustrates representativeness: resemblance to a prototype replaces consideration of other relevant information. Identify the cue used, rather than assuming every shortcut gives a wrong answer.

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).

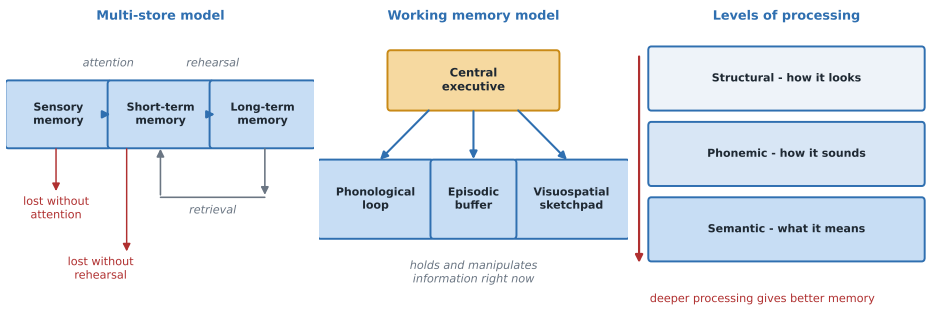
THE SHORTCUT	WHAT IT SUBSTITUTES	SOUNDS LIKE
AVAILABILITY	how easily an example comes to mind, for how common it is	*"Plane crashes are everywhere — I saw two on the news."*
REPRESENTATIVENESS	how typical it seems, for how likely it is	*"He is quiet and reads a lot, so he must be a librarian."*
ANCHORING	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

Every shortcut swaps a hard question for an easy one

Memory Systems

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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.

Worked model comparison. Noor briefly sees route directions, repeats the street names while planning turns, and recalls the route the next day. The multi-store model helps distinguish sensory, short-term and long-term demands. The working memory model explains active processing: the phonological loop supports the names, the visuospatial sketchpad supports the mental route, and the central executive coordinates attention. The levels of processing model predicts a benefit from connecting a street name's meaning to a familiar place, compared with only noticing its shape or sound. These are model applications, not proof that a memory moves through literal boxes.

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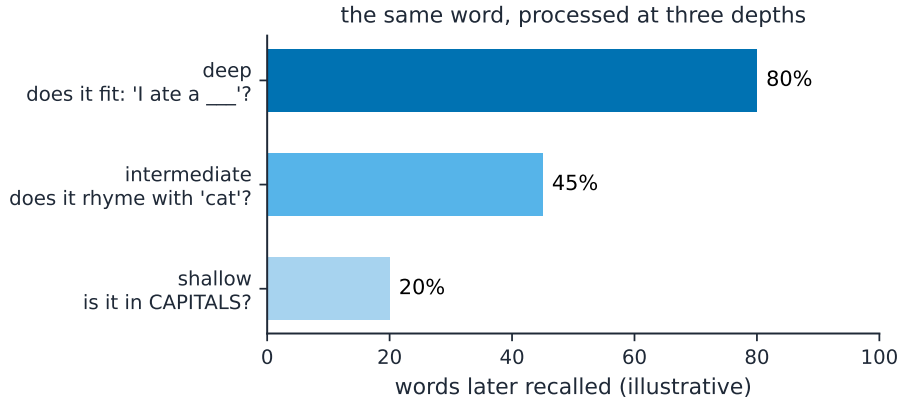
Encoding and Storing

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

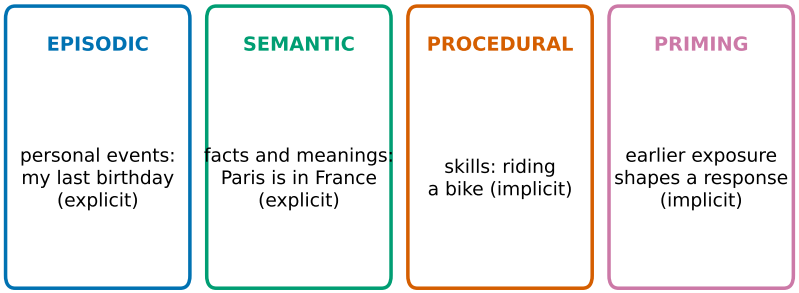
- **Mnemonic devices** 记忆术 such as the **method of loci** 位置法 aid encoding.
- **Chunking** 组块 groups items into meaningful units, which raises how much short-term memory can hold.
- The **spacing effect** 间隔效应 shows that spreading study over time beats **massed practice** 集中练习 (cramming).
- The **serial 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.



Deeper processing of meaning gives better recall



Long-term memory systems: explicit (episodic, semantic) and implicit (procedural, priming)

Retrieving and Forgetting

Retrieval takes two forms: **recall** 回忆 (generating remembered information rather than choosing it among alternatives) and **recognition** 再认 (identifying it among options). Recognition is often easier, which is why a multiple-choice question feels easier than an essay.



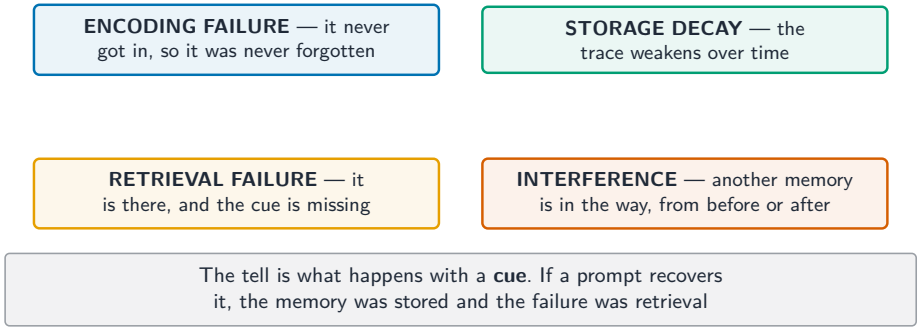
Hermann Ebbinghaus memorised lists of nonsense syllables and retested himself, giving the first forgetting curve

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.

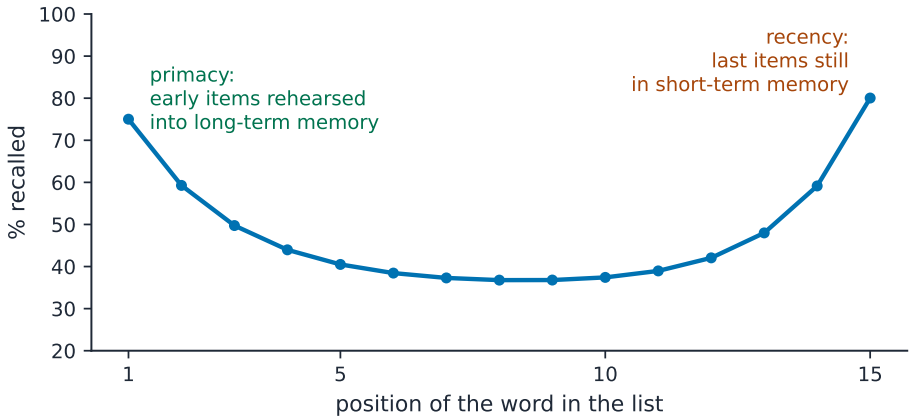
Memory is also **reconstructive** 重构的, not a recording. The **misinformation effect** 错误信息效应 occurs when later information changes what a person remembers. **Source amnesia** 来源遗忘 is remembering the information but not where it came from.

> **Worked example: 2025 Article Analysis Question, Part F.** After viewing a video, participants received summaries with different amounts of misinformation. Mean correct responses were 74% in the low-misinformation group and 63% in the high group; mean misled responses were 19% and 30%, respectively. An original worked response is: "Participants in the high-misinformation group chose misleading answers on 30% of responses, compared with 19% in the low group. This supports the misinformation effect because more later misleading detail was reflected in participants' reports of the earlier video." The difference is 11 percentage points. The misled category specifically identifies answers matching the later false details. The official criterion requires an accurately interpreted specific finding linked to the concept; a definition alone or an unexplained number is insufficient for both points. A relevant qualitative finding can also supply evidence.



Four different failures, all reported as forgetting - the tell is what a cue does

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The serial position effect: the first and last items in a list are recalled best

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 holds up and can keep growing).

Early tests produced an **intelligence quotient (IQ)** 智商 by dividing mental age by chronological age and multiplying by 100 (mental age 12 at age 10 gives $12 \div 10 \times 100 = 120$). Modern scores are compared with a **normal curve** 正态曲线 of the population.

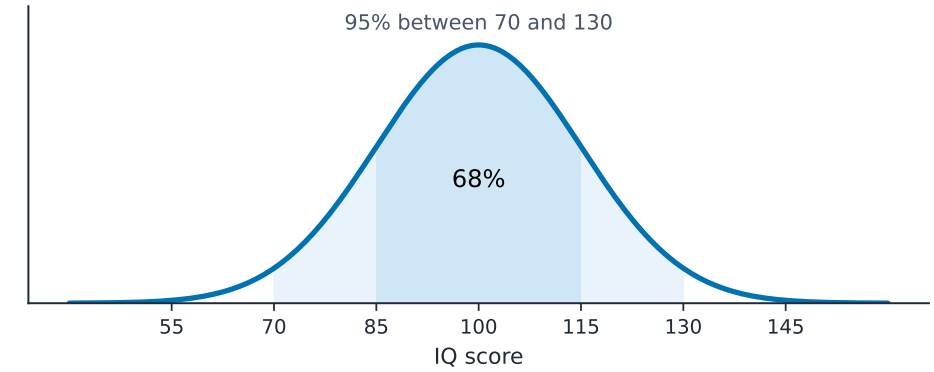
Any psychological assessment must meet **psychometric principles** 心理测量学原则:

- **Standardization** 标准化 - the test is administered and scored using consistent procedures and conditions. Norm-based interpretation additionally uses an appropriate 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.

Worked testing comparison. A proposed spatial-reasoning test uses the same instructions, time and conditions for everyone: this supports standardization. Similar results across occasions support test-retest reliability; agreement between comparable halves supports split-half reliability. If its items mainly measure vocabulary, it has a construct-validity problem for spatial reasoning despite consistent scores. To assess predictive validity for later spatial-design course performance, compare scores with an appropriate, independently measured course outcome. Repeating the test tomorrow does not answer that prediction question. Judge validity for the stated construct or use.

The course describes general increases in **IQ** scores over time across much of the world (the **Flynn effect** 弗林效应), linked to societal factors such as nutrition, health care and socioeconomic conditions. 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.

Achievement and mindset. An **achievement test** 成就测验 measures what someone has already learned (an end-of-unit chemistry exam); an **aptitude test** 能力倾向测验 tries to predict how well someone will learn or perform in future (a test used to select pilots). People's beliefs about intelligence also matter. A student with a **fixed mindset** 固定型思维 believes intelligence is set from birth, so a low mark seems to show a limit, and effort seems pointless. A student with a **growth mindset** 成长型思维 believes ability can grow with practice and good strategies, so a low mark is a signal to change how they study. These beliefs can affect academic achievement, for example how long a student keeps working on a hard problem; when you apply this idea, say **how** the belief changes behaviour, and avoid claiming that mindset alone decides results.



Intelligence test scores are standardised to a normal curve with mean 100 and SD 15

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Worked example: analysing a study

The article-analysis question gives a short study summary and asks about its method, its variables and what it can conclude.

> *A teacher asked 40 students to study a list of 20 words. Half were told to count the letters in each word; the other half were told to think about each word's meaning. In a surprise test an hour later, the 'meaning' group recalled 12 words on average and the 'letters' group 6.*
> (a) Identify the independent variable.
> (b) Explain the result using levels of processing.
> (c) Identify ONE limitation of this study.

Model answer.

- (a) The type of processing during study: counting letters (shallow) or thinking about meaning (deep).
- (b) Thinking about meaning is deep, semantic processing, which creates more connections in memory than shallow, structural processing, so the words are recalled better.
- (c) The sample of 40 students from one class may not represent other ages or groups, so the results may not generalise.

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.
- Use a specific finding and explain how it supports or refutes the concept. A relevant qualitative result can also supply evidence.

Common mistakes.

- Treating memory as a video recording. Recall is reconstructive and can be changed by later information (the misinformation effect).
- Mixing up proactive interference (old learning disrupts new) and retroactive interference (new learning disrupts old).
- Calling any shortcut an algorithm. An algorithm follows a systematic procedure; a heuristic is a quick rule of thumb that can fail.

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- Confusing reliability (consistent results) with validity (measuring what it claims to).
- Listing a monocular cue when the question needs two eyes: retinal disparity and convergence are binocular cues.

Practice - concept application.

> Sam is studying for a history test in the school library. He groups twelve dates into four sets of three to remember them, and later scores best on the questions he studied in the library where the test is held. After hearing on the news about two plane crashes, he decides to take the train to his grandmother's house, believing it is much safer. When his bicycle chain falls off on the way to the station, he doesn't think of using a pen to lever it back on, because he thinks of a pen only as something to write with. Explain how each of the following relates to Sam: (a) chunking, (b) context-dependent memory, (c) availability heuristic, (d) functional fixedness.

Answers.

- (a) Chunking groups items into meaningful units; organising twelve dates into four groups lets Sam hold more in memory.
- (b) Context-dependent memory means recall is better in the setting where learning happened, so studying in the test room helped him.
- (c) The availability heuristic judges how likely an event is by how easily examples come to mind; vivid news of crashes made flying seem more dangerous than it is.
- (d) Functional fixedness is the tendency to see objects only in their usual use, which stopped Sam from using the pen as a lever.

Vocabulary card meanings

Gestalt psychology: A school that studies how the mind organises parts into wholes. Selective attention: Focusing on one stream of information and filtering others. cocktail party effect: Noticing one's own name in a noisy room one was not consciously following. Inattentional blindness: Failing to see a visible object because attention is on something else. change blindness: Failing to notice a change in a scene. depth cues: Clues the visual system uses to judge how far away things are. relative clarity: A depth clue in which hazier objects seem farther away. relative size: A depth clue in which the object casting a smaller image seems farther, if the two are known to be similar. Perceptual constancy: Seeing an object's size, shape, or colour as stable despite a changing image. representativeness heuristic: Judging probability by how much a case resembles a typical example. availability heuristic: Judging probability by how easily examples come to mind. Functional fixedness: Seeing an object only in its usual use, which blocks a new solution. Executive functions: The set of skills for planning, updating, and inhibiting. convergent thinking: Narrowing possibilities toward a single correct answer. Explicit memory: Memory one can consciously declare, such as facts and events. episodic memory: Memory for personal events, tied to a time and place.

semantic memory: Memory for facts and meanings, apart from the moment they were learned. Implicit memory: Memory shown in performance, without conscious recollection. procedural memory: Memory for how to carry out skills, such as riding a bicycle. Prospective memory: Remembering to do something in the future. short-term memory: A limited store that holds information briefly unless it is rehearsed. long-term memory: A store that can hold information for a very long time. phonological loop: The working-memory part that rehearses sounds and words. visuospatial sketchpad: The working-memory part that holds images and locations. central executive: The working-memory part that directs attention and coordinates the other parts. massed practice: Cramming practice into one unbroken session. primacy: Better memory for items at the beginning of a list. recency: Better memory for items at the end of a list. elaborative rehearsal: Remembering by linking new material to meaning one already has. infantile amnesia: The lack of conscious memories from the first few years of life. recall: Bringing information back with few or no cues present. state-dependent memory: Easier remembering when the body's state matches the state at learning. mood-congruent memory: Easier remembering of material that matches one's current mood. Encoding failure: Never storing the information, so it cannot later be found. Retrieval failure: Having stored information but being unable to get it out. tip-of-the-tongue phenomenon: Feeling one knows a word while being unable to produce it. reconstructive: Rebuilding a memory from fragments, which can introduce errors. intelligence: The capacity to learn, reason, and solve new problems. Spearman's g: A proposed general mental ability that underlies performance on many tasks. fluid intelligence: The ability to solve new problems without relying on stored knowledge. crystallised intelligence: Knowledge and skills accumulated through experience and education. intelligence quotient (IQ): A score that compares mental-test performance with an age group. normal curve: A symmetrical, bell-shaped distribution of scores. psychometric principles: The measurement rules used to build and judge psychological tests. Standardization: Giving a test in a uniform way and comparing scores with a reference group. Construct validity: Evidence that a test really measures the concept it claims to measure. predictive validity: Evidence that a test score forecasts a later outcome. test-retest reliability: The degree to which a test gives similar scores when repeated. split-half reliability: The agreement between two halves of the same test. Flynn effect: The rise in average intelligence-test scores across generations. stereotype threat: Worse performance when a person fears confirming a negative group stereotype.

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Development and Learning

AP Psychology

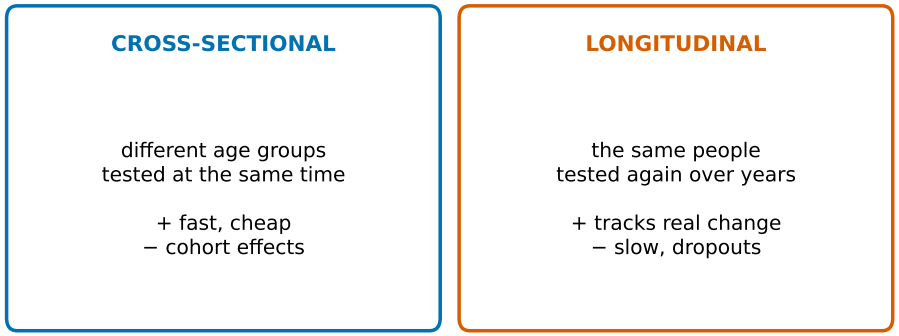
Studying Development

Why it matters. In 1920 John Watson and Rosalie Rayner conditioned an eleven-month-old baby, "Little Albert", afraid of a white rat by striking a loud steel bar every time he touched it. Soon he cried at the rat alone - and at a rabbit, a dog and a fur coat. The study would be forbidden today, but it showed that fears can be learned, and it raised questions this unit returns to again and again: how much of who we become is learned, and how much grows from within?

Developmental psychology 发展心理学 studies how people change across the lifespan. Ask how change happens, how stable a feature is, and how inherited characteristics interact with experience (**nature and nurture** 先天与后天).

- Is change **continuous** 连续的 (gradual and smooth) or **discontinuous** 不连续的 (in stages)?
- Is a trait **stable** 稳定的 across life, or does it change?

Researchers answer these with two designs. A **cross-sectional study** 横断研究 compares different age groups at one time - fast, but differences may come from the groups' different generations. A **longitudinal study** 纵向研究 follows the same people over years - slower, and can show change within people. A **cohort effect** 同辈群体效应 is a difference linked to a generation's experiences rather than age alone. Longitudinal research can be affected by participant dropout and repeated testing; following people does not by itself prove what caused a change.



Cross-sectional and longitudinal designs for studying development

Physical Development

Development before birth can be disrupted by **teratogens** 致畸物 (harmful agents such as alcohol), maternal illness, genetic mutations, and hormonal or environmental factors.



A newborn's grasp reflex: an inborn, automatic response present from birth

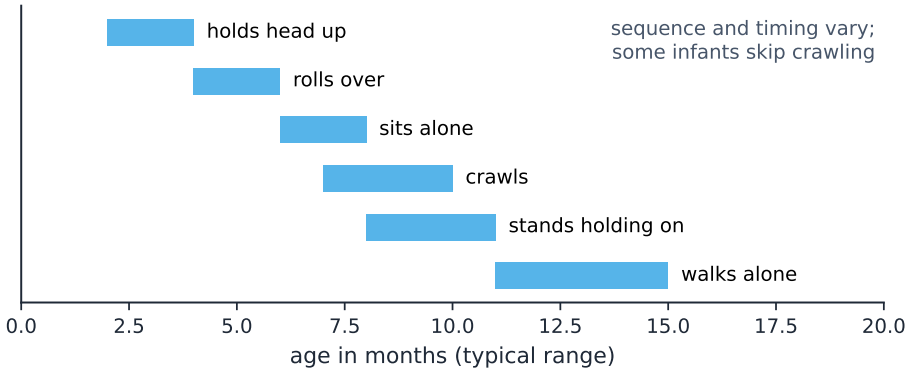
Infant physical development often follows a similar general order, but timing varies. **Gross motor skills** 大肌肉动作技能 use large muscle groups, as in walking; **fine motor skills** 精细动作技能 use smaller coordinated movements, as in grasping a pencil. Newborns show **reflexes** 反射 that provide evidence about development, such as the **rooting reflex** 觅食反射 (turning towards a touch on the cheek). The **visual cliff** 视崖 apparatus provides evidence about early depth perception. Avoidance of its apparent drop is not proof that fear of heights is entirely innate; experience and the task also matter.

A **critical period** 关键期 is a limited window when particular input is necessary for typical development of a function; a **sensitive period** 敏感期 is a time of heightened responsiveness in which later learning can still occur. Some animals show **imprinting** 印刻, an early attachment-like following response during a limited developmental window. Do not equate it with every human attachment.

Adolescence 青春期 brings the **adolescent growth spurt** 青春期发育突增 and **puberty** 青春发育期, including **primary sex characteristics** 第一性征 (reproductive organs and their development) and **secondary sex characteristics** 第二性征 (such as voice changes and body hair). **Menarche** 初潮 is the first menstrual period; **spermarche** 首次遗精 refers to the first ejaculation. Adulthood spans most of life. Mobility, flexibility, reaction time and sensory acuity can change at different rates; decline is not identical for every person or ability. **Menopause** 更年期 marks the end of menstrual cycling and reproductive change, not the end of learning or social

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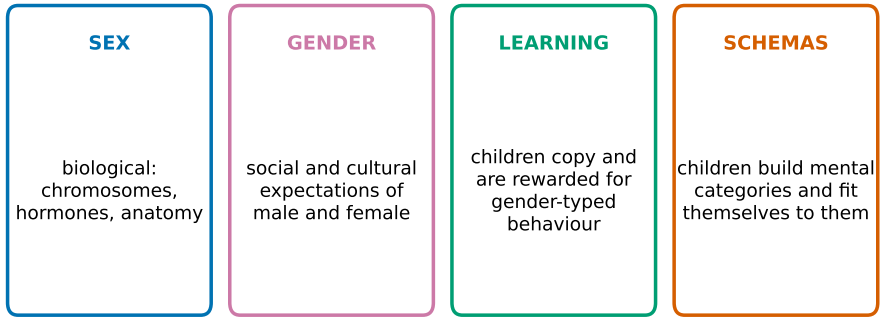
development.



Motor milestones show a typical sequence; order and timing can vary

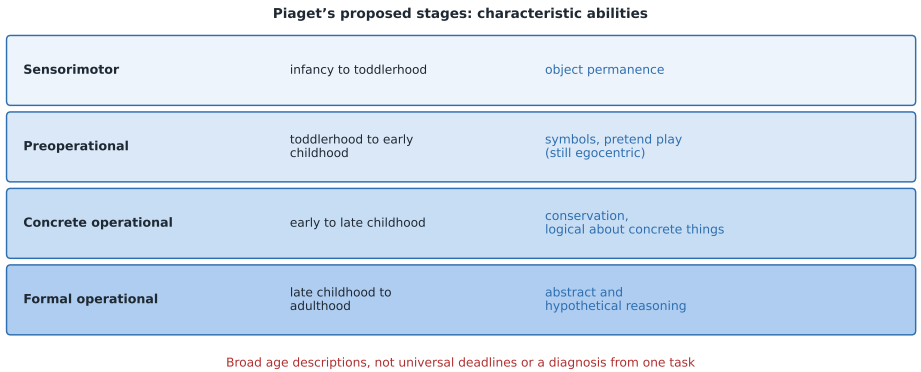
Gender and Sexual Orientation

Sex 生理性别 refers to biological characteristics, while **gender** 社会性别 includes social roles and expectations as well as identity. Sex, gender identity, gender roles and sexual orientation are distinct concepts. **Gender roles** 性别角色 are learned through **socialization** 社会化: family, school, peers, and media all teach what behaviour is expected. **Sexual orientation** 性取向 describes a person's enduring pattern of attraction. For example, different encouragement from adults can shape opportunities to practise a skill. A group difference alone does not establish a biological cause. Do not infer a person's identity or orientation from clothing, toys or one behaviour.



Sex, gender, and two explanations of how gender roles are learned

Cognitive Development



Piaget's proposed sequence, with characteristic changes in reasoning

Piaget 皮亚杰 proposed that children build **schemas** 图式, mental frameworks for organising experience. **Assimilation** 同化 fits new experience into an existing schema; **accommodation** 顺应 changes the schema when it does not fit. His theory includes four stages; their broad age descriptions are not precise deadlines for every child:

- **Sensorimotor stage** 感知运动阶段 (infancy to toddlerhood): the child learns through senses and action, and develops **object permanence** 客体永久性 - knowing an object still exists when hidden.
- **Preoperational stage** 前运算阶段 (toddlerhood to early childhood): the child uses symbols and pretend play but shows **egocentrism** 自我中心 (difficulty taking another view) and has difficulty with **conservation** 守恒 (quantity staying the same when shape changes) and **reversibility** 可逆性 (mentally reversing an action). **Animism** 泛灵论 attributes life-like qualities to objects. **Theory of mind** 心智理论, understanding that other people can have different beliefs and knowledge, begins developing during this period. Egocentrism describes difficulty taking another perspective, not simply selfishness.
- **Concrete operational stage** 具体运算阶段 (early to late childhood): the child reasons logically about concrete things and gains conservation.
- **Formal operational stage** 形式运算阶段 (late childhood onward): abstract and reasoning becomes possible. Piaget did not propose that every person achieves it in all situations.

Vygotsky 维果茨基 saw children as social learners. The **zone of proximal development** 最近发展区 is the gap between what a child can do alone and what they can do with help; **scaffolding** 支架 is temporary, adjusted support that helps the learner perform a task and is reduced as independence grows. Piaget also recognised experience, and Vygotsky's account does not say solitary learning is impossible.

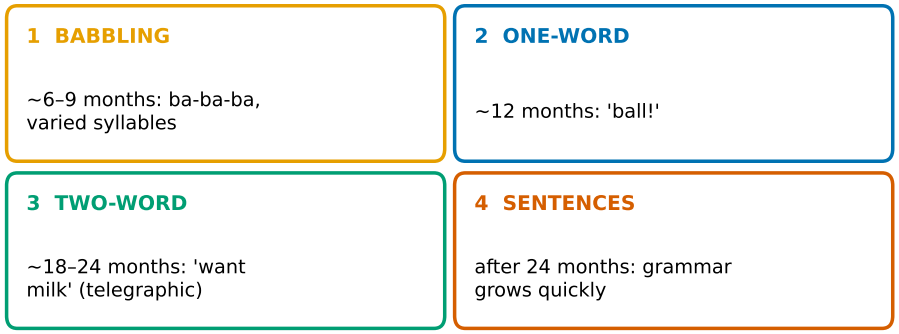
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Adult cognition changes too, and here the fluid/crystallised split from Unit 2 returns: fluid reasoning tends to decline on average while crystallised knowledge is relatively stable through much of adulthood. Individual trajectories vary. **Dementia** 痴呆 involves cognitive impairment beyond typical ageing; a classroom vignette or one forgotten item cannot establish a diagnosis.

Language Development

Language 语言 is a shared system of arbitrary symbols used to communicate. **Phonemes** 音素 are distinctive sound units; **morphemes** 语素 are the smallest meaningful units, such as a word or a meaningful ending. **Semantics** 语义 concerns meaning; **syntax** 句法 concerns word order, within **grammar** 语法. Rule-governed combinations let people generate new messages. Vocal development includes **cooing** 咕咕声, **babbling** 咿呀语, the **one-word stage** 单词阶段, and **telegraphic speech** 电报式语言, with nonverbal **gestures** 手势 developing alongside these (short combinations that often omit function words). Timing varies, and gestures continue alongside speech; they are not abandoned when speaking starts.

Children generalise rules before they master exceptions, which produces **overgeneralization** 过度规则化 - saying "goed" instead of "went". This is evidence that they are learning rules, not just copying.



Stages of language development in the first years

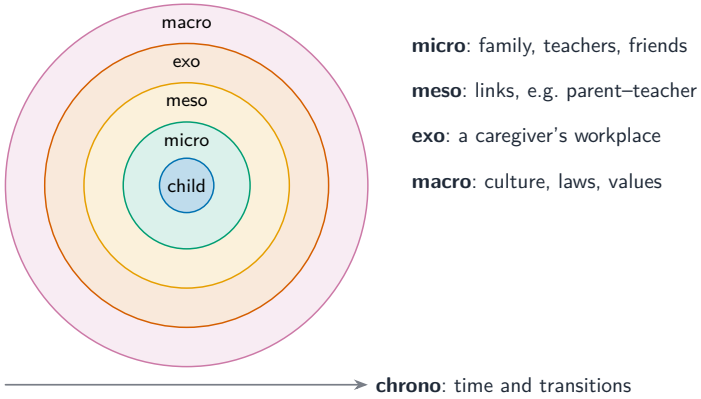
Social and Emotional Development

Ecological systems theory 生态系统理论 describes development as interacting environments over time. The **microsystem** 微系统 involves direct contacts; the **mesosystem** 中间系统 involves links between them, such as parent–teacher cooperation. The **exosystem** 外系统 includes indirect influences, such as a caregiver's

workplace. The **macrosystem** 宏系统 involves broader cultural conditions; the **chronosystem** 时间系统 concerns time, life transitions and changing circumstances.

	explored	not explored
committed	**achievement** chose after trying options	**foreclosure** took on a path unexamined
not committed	**moratorium** still exploring	**diffusion** little of either

Identity status: explored? committed?



Ecological systems around one child

Research identifies **parenting styles** 教养方式: **authoritarian** 专制型 (high demands, low warmth), **authoritative** 权威型 (high demands, high warmth), and **permissive** 放任型 (low demands, high warmth). Cultural context affects how practices relate to outcomes; these categories do not make a single parenting choice determine a child's future.

Attachment 依恋 is the emotional bond between infant and caregiver, studied with the **strange situation** 陌生情境 procedure. Patterns across separation and reunion inform classification. **Temperament** 气质, relatively characteristic emotional reactivity, also relates to attachment. Styles include **secure attachment** 安全型依恋 and insecure forms (**avoidant** 回避型, **anxious** 焦虑型, **disorganized** 混乱型). **Separation anxiety** 分离焦虑 is heightened distress when away from a caregiver. Monkey studies highlighted **contact comfort** 接触安慰 when infants preferred a soft surrogate while feeding from another. This challenged food-only explanations of attachment; it

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did not show food is unnecessary or that animal results transfer without limits to humans.

Peer relationships develop through **parallel play** 平行游戏 and **pretend play** 假装游戏 in childhood, and adolescents often rely more on peers as they age. An **imaginary audience** 假想观众 is a belief that others are especially focused on oneself; a **personal fable** 个人神话 is a belief in the uniqueness of one's experience, sometimes including invulnerability. These are distinct from early-childhood perspective-taking errors.

Erikson 埃里克森 proposed a stage theory of **psychosocial development** 心理社会发展, in which each stage poses a conflict to resolve - the adolescent stage being **identity versus role confusion** 同一性与角色混乱. Across Erikson's theory, conflicts concern trust versus mistrust; autonomy versus shame and doubt; initiative versus guilt; industry versus inferiority; identity versus role confusion; intimacy versus isolation; generativity versus stagnation; integrity versus despair. These are theoretical developmental tasks, not diagnoses or a guarantee of one fixed outcome. A **social clock** 社会时钟 describes culturally shaped expectations about life-event timing; **emerging adulthood** 成年初显期 is a transition recognised in some social contexts. Supportive adult relationships can develop in families and other close networks. **Adverse childhood experiences (ACEs)** 童年不良经历 can influence later relationships and health, with context and support affecting outcomes; they do not make a future outcome inevitable. Identity formation can involve exploration and commitment: **achievement** 同一性达成 follows exploration and commitment; **moratorium** 同一性延缓 involves exploration without commitment; **foreclosure** 同一性早闭 involves commitment without exploration; **diffusion** 同一性弥散 involves little of either. These processes can concern occupational, religious, racial/ethnic, gender, sexual and family identities.

STYLE	ON SEPARATION	AT REUNION
SECURE	may show distress	seeks contact, is comforted, returns to exploring
ANXIOUS (resistant)	highly distressed	seeks contact *and* resists it; not comforted
AVOIDANT	little distress shown	ignores or avoids the caregiver
DISORGANISED	variable	no consistent strategy — approach and fear together

Interpret separation and **reunion** together. One reaction is not a permanent label; context and temperament also matter

Interpret separation and reunion patterns together; one observation is insufficient for a permanent attachment label

Classical Conditioning

The **behavioral perspective** 行为主义视角 traditionally emphasised observable behaviour and conditioning, often excluding mental processes from its explanations. Later learning accounts also consider cognition.

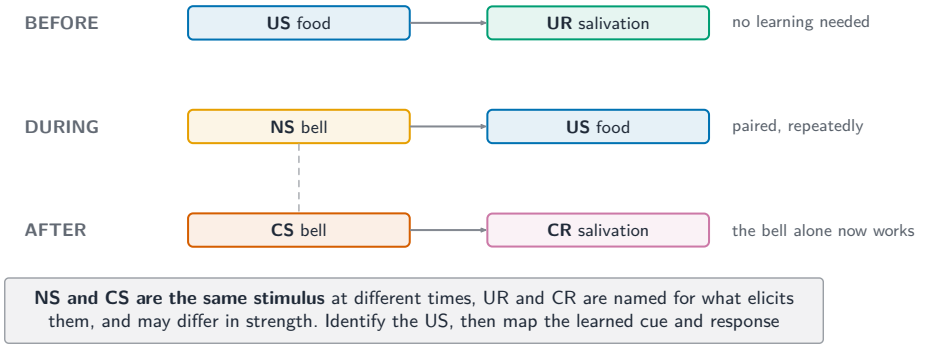


One of Pavlov's dogs, preserved in the Pavlov Museum: a fistula collected saliva so conditioned responses could be measured

Classical conditioning 经典条件作用 associates one stimulus with another:

- An **unconditioned stimulus (UCS)** 无条件刺激 naturally produces an **unconditioned response (UCR)** 无条件反应 - food causes salivation.
- A **neutral stimulus** 中性刺激 paired with the UCS becomes a **conditioned stimulus (CS)** 条件刺激, producing a **conditioned response (CR)** 条件反应.
- **Acquisition** 习得 depends on the order and timing of the pairing.
- **Extinction** 消退 occurs when the CS is no longer paired with the UCS; **spontaneous recovery** 自发恢复 is the return of a reduced or extinguished CR after a rest interval when the CS is presented again, without a new UCS pairing. Extinction is not necessarily erasure of all prior learning.
- **Generalization** 泛化 is responding to similar stimuli; **stimulus discrimination** 刺激辨别 is learning to respond differently to relevant stimuli, rather than requiring a stimulus to be physically identical every time.
- In **higher-order conditioning** 高级条件作用 a learned CS can support conditioning to another cue without directly pairing that new cue with the original UCS; it is not thereby an originally unlearned stimulus.

Emotional responses can be conditioned, and **taste aversion** 味觉厌恶 shows that some associations are learned in a single trial and illustrates **biological preparedness** 生物准备性: some associations are more readily learned than others. **Counterconditioning** 对抗条件作用 pairs a cue with a response incompatible with the previously learned response; this is a learning principle, not a classroom treatment instruction. **Habituation** 习惯化 is a diminished response to a repeated stimulus.



NS and CS are the same stimulus at different times - identify the US first

Operant Conditioning

Operant conditioning 操作性条件作用 associates a behaviour with its consequence.

- **Reinforcement** 强化 increases a behaviour; **punishment** 惩罚 decreases it.
- **Positive** 正 means something is added; **negative** 负 means something is removed. So **negative reinforcement** 负强化 increases behaviour by removing something unpleasant - it is not punishment.
- A **primary reinforcer** 原级强化物 satisfies a biological need; a **secondary reinforcer** 次级强化物 (money) is learned.
- **Shaping** 塑造 rewards **successive approximations** 逐步接近 of a target behaviour.

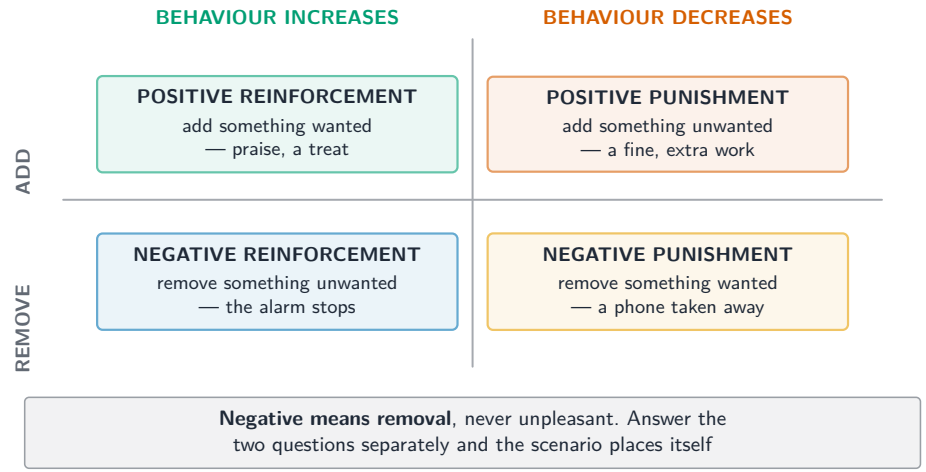
Reinforcement schedules 强化程式 change how strong and persistent learning is. **Continuous reinforcement** 连续强化 rewards every response and produces fast learning but fast extinction. **Partial reinforcement** 部分强化 comes in four kinds - **fixed-ratio** 固定比率, **variable-ratio** 变动比率, **fixed-interval** 固定时距, and **variable-interval** 变动时距 - Ratio schedules depend on response counts; interval schedules reinforce the first qualifying response after time has elapsed. Fixed means predictable, variable means changing. Variable-ratio schedules commonly produce high, steady responding and resistance to extinction; this is not a universal ranking independent of the procedure and values used.

The **law of effect** 效果律 relates consequences to the future likelihood of behaviour. Reinforcers and punishers are identified by their observed effect, not the adult's intention. **Instinctive drift** 本能漂移 occurs when species-typical behaviour interferes with a trained response. Operant discrimination and generalisation concern respond-

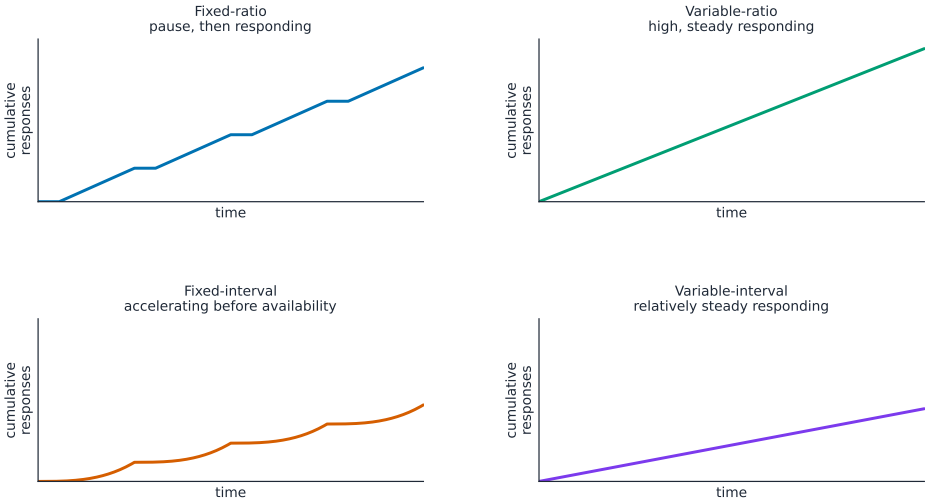
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ing differently, or similarly, across situations.

Superstitious behavior 迷信行为 arises when a consequence reinforces an unrelated action. **Learned helplessness** 习得性无助 develops when an organism repeatedly cannot escape an aversive event and stops trying.



Negative means removal, never unpleasant - answer the two questions separately



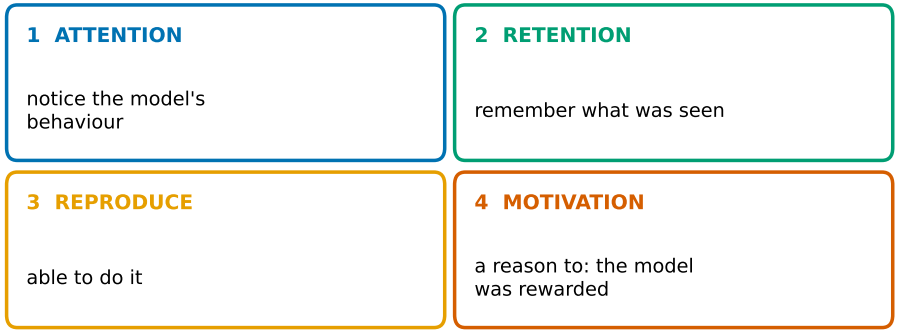
Teaching curves on common axes, not measured study data; steeper sections indicate faster responding

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Observational and Cognitive Learning

Not all learning needs direct experience. **Social learning theory** 社会学习理论 shows that behaviour can be learned by **observation** 观察 and **modeling** 榜样示范 - the basis of the Bobo doll findings on imitated aggression.

Insight learning 顿悟学习 is a sudden solution rather than an overt sequence of rewarded approximations; it need not imply no previous experience of any kind. **Latent learning** 潜伏学习 is learning that occurs without reinforcement and stays hidden until there is a reason to show it, demonstrated by rats forming a **cognitive map** 认知地图 of a maze.



Bandura's four steps of observational learning

Worked practice

All following tasks are original. Attempt before reading each worked check.

Developmental design. Researchers test 20-, 40- and 60-year-olds once on an unfamiliar digital task. Older groups score lower. Identify the design and explain why the result alone does not establish within-person cognitive decline.

Check. This is cross-sectional: different ages are compared at one time. Differences in technology experience across cohorts could contribute. Following the same people would reveal within-person change, but attrition and practice effects would still need attention.

Schemas and perspective. A two-year-old who knows the family dog calls every four-legged animal at the zoo "doggy". A few weeks later she says "horse" and "cow" for the right animals. On a video call she holds a drawing up facing herself and asks her grandmother, "Can you see it?" Explain assimilation, accommodation and egocentrism using separate details.

Check. Fitting the zoo animals into her "doggy" schema is assimilation. Building new categories for horse and cow is accommodation. Assuming her grandmother sees what she sees is egocentrism, the preoperational difficulty Piaget showed with his three-mountains task: it is about perspective, not selfishness.

Classical conditioning. A harmless tone repeatedly precedes a puff of air that naturally causes blinking. Later the tone alone causes blinking. Identify UCS, UCR, CS and CR. Repeated tones without air reduce blinking; after a rest, the tone again elicits some blinking. Explain these two changes.

Check. Air puff is UCS, blinking to air is UCR, the learned tone is CS, and blinking to the tone is CR. Reduced responding without air is extinction; return after rest without renewed air pairing is spontaneous recovery. UCR and CR share a response category but need not have identical strength or timing.

Operant consequences. In a car, fastening a seatbelt stops a buzzer and future prompt fastening increases. Separately, a learner loses game time after interrupting and future interruption decreases. Classify both using the event added/removed and observed change in behaviour.

Check. Stopping the buzzer is removal plus increased fastening: negative reinforcement. Removing game time with decreased interruption is negative punishment. Always check the behaviour: a consequence counts as reinforcement or punishment only by what it does to future behaviour.

Schedule comparison. A reward follows every fifth correct response in A; the first correct response after five minutes in B; and a changing number of correct responses averaging five in C. Identify schedules and explain why persistent responding alone would not establish C.

Check. A is fixed-ratio, B fixed-interval and C variable-ratio. The programmed contingency determines the label. Persistence without information about response count, time and predictability is insufficient.

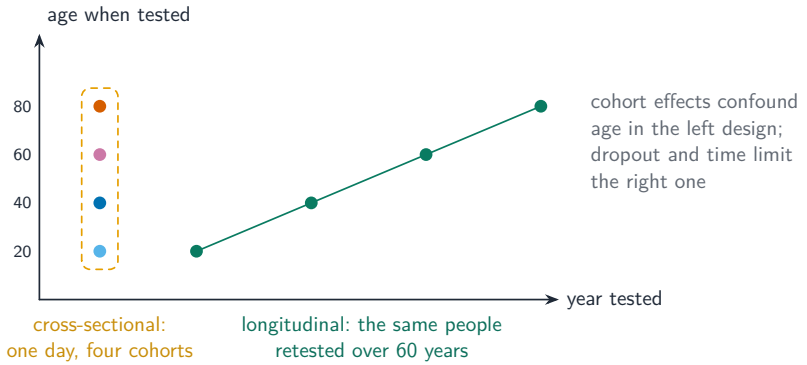
Evidence and discrimination. Task data: after training that rewards a response to a blue signal but not a yellow signal, mean responses in equal 60-second test periods are 8 for blue and 2 for yellow. Explain how the result supports discrimination and give a limit.

Check. More responding to the rewarded cue than the other cue is consistent with learned discrimination. The difference in means is 6 responses, but these means alone do not establish statistical significance, prove every individual discriminated or exclude every alternative explanation. This is not actual study data.

Worked example: analysing a study

The article-analysis question gives a short study summary and asks about its method, its variables and what it can conclude.

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Cross-sectional or longitudinal

To study how memory changes with age, researchers tested 200 people aged 20, 40, 60 and 80 on the same day, measuring how many items of a shopping list each person could recall.

(a) Identify the research design.

(b) Describe ONE disadvantage of this design.

(c) Explain how a longitudinal design would answer the question differently.

Model answer.

- (a) A cross-sectional design: different age groups were tested at the same time.
- (b) Cohort effects: older and younger groups grew up with different schooling and experiences, so differences may reflect generation rather than age.
- (c) It would test the same people repeatedly as they aged, which removes cohort differences, though it takes years and participants may drop out.

Exam tips

Use the scenario's relevant detail and explain the concept–detail connection. A definition alone does not show application: answer the specific question asked. For evidence questions, use a specific result and explain why it supports or qualifies the claim. Distinguish age from cohort, participation from formal labels, learning from its visible performance, and intended consequences from observed changes in behaviour. Identify a reinforcement schedule from its contingency, not a gambling-like mood or persistence alone.

Common mistakes.

- Calling negative reinforcement punishment. Negative reinforcement **removes** something unpleasant to **increase** a behavior.

- Mixing up the stimuli: the neutral stimulus becomes the conditioned stimulus only after pairing with the unconditioned stimulus.
- Treating Piaget's stage ages as fixed rules. Children move through the stages in order, but at different speeds.
- Confusing authoritative parenting (high warmth and high control) with authoritarian (low warmth, high control).
- Describing a cross-sectional study as following the same people over time. That is a longitudinal study.

Practice - concept application.

> Mia, age 2, calls every four-legged animal at the zoo a "dog". When her father hides her toy under a blanket, she lifts the blanket to find it. Mia's father explains rules to her, listens to her, and gives reasons when he says no. Her older brother, Leo, buckles his seatbelt as soon as he gets in the car so that the loud warning beeping stops. Leo also learned to tie his shoes by watching his friend, and he can find a shortcut through a park he has walked in only for fun. Explain how each of the following relates to the scenario: (a) assimilation, (b) object permanence, (c) authoritative parenting, (d) negative reinforcement, (e) observational learning, (f) cognitive map.

Answers.

- (a) Assimilation fits new experiences into an existing schema; Mia fits every four-legged animal into her schema for "dog".
- (b) Object permanence is knowing objects exist when out of sight; Mia searches under the blanket because she knows the toy is still there.
- (c) Authoritative parenting combines warmth with clear rules and explanations, as Mia's father does.
- (d) Negative reinforcement increases a behavior by removing an unpleasant stimulus; buckling up stops the beeping, so Leo buckles up quickly.
- (e) Observational learning is learning by watching a model; Leo learned to tie his shoes by watching his friend.
- (f) A cognitive map is a mental representation of a place and can form without explicit reinforcement; Leo's knowledge of the park from walking for fun lets him find a shortcut.

Sources and demand grounding

Scope: local AP Psychology CED topics 3.1–3.9, PDF pages 81–95, with College Board's October 2025 clarifications, including spontaneous recovery. Excluded prenatal stage names, psychosexual stage theory, language pragmatics and named timing subtypes of conditioning are not added.

The local 2024 set 1 Q1 and official guidelines were read to verify the older Gavin scenario's concept-application demands. This is a legacy-format example, not the current exam format. Local 2025 set 2 AAQ and its official guidelines were spot-checked for operational definitions, data interpretation, generalisability and evidence-based explanation of stimulus discrimination. Original practice targets these skills without reproducing a whole exam. College Board's released-exam page notes that older materials do not completely align with the revised exam. Historical papers, bank entries and syllabus files were not changed.

Vocabulary card meanings

discontinuous: Developing in distinct stages rather than by smooth gradual change. teratogens: Agents such as certain drugs or infections that can harm a developing embryo. sensitive period: A window of time when experience has an especially strong effect on development. Adolescence: The transition from childhood to adulthood, including puberty. primary sex characteristics: The reproductive organs present at birth and maturing at puberty. secondary sex characteristics: Body features, such as body hair, that appear at puberty but are not the reproductive organs themselves. menopause: The end of menstrual cycles, usually in midlife. gender: Social roles and identity related to being a woman, a man, or another category. Gender roles: Behaviours a culture expects of people of a given gender identity. socialization: Learning the behaviours and values of one's society. Sexual orientation: The pattern of emotional and sexual attraction to other people. Sensorimotor stage: Piaget's first stage, when infants know the world through senses and actions. object permanence: Understanding that things continue to exist when they are out of sight. Preoperational stage: Piaget's stage of symbolic play before logical mental operations. egocentrism: Difficulty seeing a situation from someone else's point of view. Concrete operational stage: Piaget's stage of logical thought about real, tangible things. Formal operational stage: Piaget's stage of abstract, reasoning. scaffolding: Temporary support from a more skilled person, reduced as skill grows. Dementia: A loss of mental ability, severe enough to interfere with daily life. gestures: Hand or body movements used to communicate. cooing: The soft vowel sounds infants make in the early months. overgeneralization: Applying a language rule too widely, as in saying goed. strange situation: A laboratory procedure that observes how an infant responds to separations and reunions. secure attachment: A pattern in which an infant seeks the caregiver and is comforted on return. avoidant: An attachment pattern of emotional distance from the caregiver. anxious: An attachment pattern of clinginess and worry about the caregiver. disorganized: An attachment pattern of confused, contradictory behaviour toward the caregiver. Separation anxiety: Distress when a familiar caregiver leaves. contact comfort: The soothing effect of soft physical touch, beyond food alone. parallel play: Children playing beside each other without truly playing together. pretend play: Play in which a child treats objects or roles as something else. Erikson: The theorist who framed personality growth as social crises across the lifespan. psychosocial development: Growth through social challenges, from trust in infancy to integrity in old age. identity versus role confusion: The adolescent task of forming a stable sense of self. Adverse childhood experiences (ACEs): Potentially traumatic events in

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childhood, such as abuse or household dysfunction, linked with later risk. behavioral perspective: An approach that explains actions through learning from the environment. Classical conditioning: Learning to link a neutral signal with another stimulus that already brings a response. unconditioned stimulus (UCS): A stimulus that naturally triggers a response, with no learning required. unconditioned response (UCR): The automatic response to a stimulus that needs no learning. conditioned stimulus (CS): A previously neutral signal that, after learning, triggers a response. conditioned response (CR): The learned response to a signal that was once neutral. Generalization: Responding to stimuli that resemble the one that was learned. stimulus discrimination: Learning to respond to one stimulus and not to similar others. higher-order conditioning: Using an already learned signal to teach a response to a further signal. taste aversion: A learned dislike of a food that was followed by illness. Operant conditioning: Learning in which behaviour is strengthened or weakened by its consequences. Reinforcement: A consequence that makes a behaviour more likely to be repeated. negative reinforcement: Removing something unpleasant so that a behaviour becomes more likely. Reinforcement schedules: Rules for how often a consequence follows a behaviour. Partial reinforcement: Rewarding a behaviour only some of the times it occurs. fixed-ratio: A reward after a set number of responses. variable-ratio: A reward after a changing number of responses. fixed-interval: A reward for the first response after a set amount of time. variable-interval: A reward for the first response after a changing amount of time. Superstitious behavior: Repeating a behaviour because a reward happened to follow it by chance. modeling: Learning by watching and copying another person. cognitive map: A mental layout of a place, which can guide later movement. Gross motor skills: Large movements that use the whole body, such as running. fine motor skills: Small, precise movements, such as writing or buttoning. imprinting: A rapid attachment some young animals form to the first moving object they see. spermarche: A boy's first ejaculation. A nocturnal emission can be that event, but it is not the only form. reversibility: Understanding that an operation can be undone, returning to the start. Animism: A young child's belief that objects such as toys have feelings. Theory of mind: Understanding that other people have beliefs and desires of their own. Phonemes: The smallest speech sounds that distinguish one word from another. Temperament: Inborn tendencies in reactivity and self-regulation. personal fable: An adolescent belief that one's own experiences are unique and that one is specially protected. social clock: A culture's expected timing for events such as leaving home or marrying. achievement: An identity status of exploring options and then making a commitment. foreclosure: An identity status of committing to a path without having explored it. Counterconditioning: Replacing an unwanted response by pairing the trigger with a new, incompatible response. law of effect: The principle that responses followed by satisfying results are more likely to recur. Instinctive drift: Learned behaviour sliding back toward an animal's inborn patterns.

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Social Psychology and Personality

AP Psychology

Explaining Behaviour: Attribution

Why it matters. In 1964 a young woman named Kitty Genovese was murdered outside her apartment in New York, and a newspaper reported that 38 neighbours watched and did nothing. Later research showed that report was exaggerated - fewer people saw the attack, and some did call for help - but the story inspired experiments showing that people really are less likely to help when others are present. This unit is about the invisible pressure of other people on what we think, feel and do, and about the motives and traits that make each of us different.

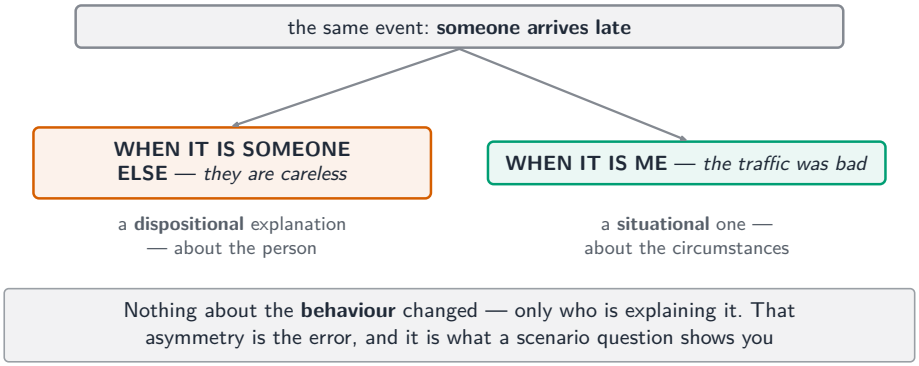
Social psychology 社会心理学 studies how people think about, influence, and relate to others. It begins with **attribution** 归因 - how we explain behaviour.

An explanation is either **dispositional** 内归因 (about the person's personality) or **situational** 外归因 (about the circumstances). People are not even-handed about which they choose:

- The **fundamental attribution error** 基本归因错误 is over-using dispositional explanations for *other* people's behaviour.
- The **actor-observer bias** 行动者-观察者偏差 is explaining your own behaviour situationally while explaining others' dispositionally.
- The **self-serving bias** 自利偏差 credits success to yourself and blames failure on the situation.
- The **just-world phenomenon** 公正世界现象 is the belief that people get what they deserve.

A person's **explanatory style** 解释风格 can be **optimistic** 乐观的 or **pessimistic** 悲观的, and this shapes how they respond to setbacks.

Person perception has its own effects. The **mere exposure effect** 单纯曝光效应 means repeated contact increases liking. A **self-fulfilling prophecy** 自我实现预言 occurs when expectations cause the behaviour that confirms them. **Social comparison** 社会比较 is judging yourself against others, either **upward** 向上比较 or **downward** 向下比较.



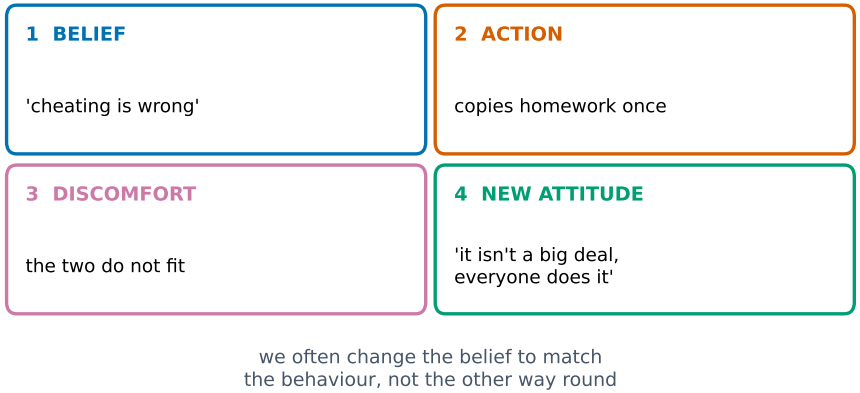
Nothing about the behaviour changed - only who is explaining it

Attitudes and Attitude Change

A **stereotype** 刻板印象 is a generalised idea about a group; it reduces mental effort but can be inaccurate and harmful. **Prejudice** 偏见 is an attitude, and **discrimination** 歧视 is the behaviour. **Implicit attitudes** 内隐态度 are held without full awareness.

Attitudes resist change. **Belief perseverance** 信念固着 keeps a belief alive even after the evidence for it is discredited. **Confirmation bias** 确认偏差 is seeking evidence that fits what you already believe.

Cognitive dissonance 认知失调 is the discomfort felt when actions and attitudes conflict. Because the action has already happened, people often resolve it by changing the *attitude* - which is why doing something can change what a person believes.

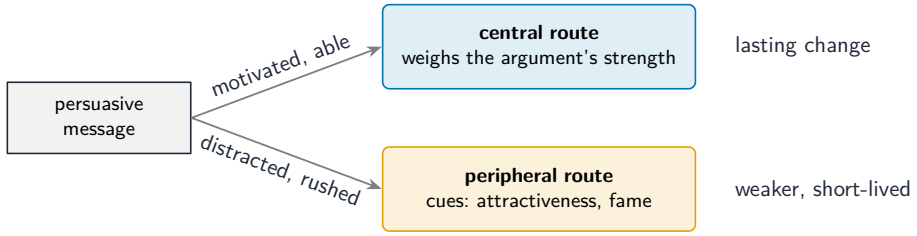


Cognitive dissonance: when behaviour and belief clash, the attitude often shifts

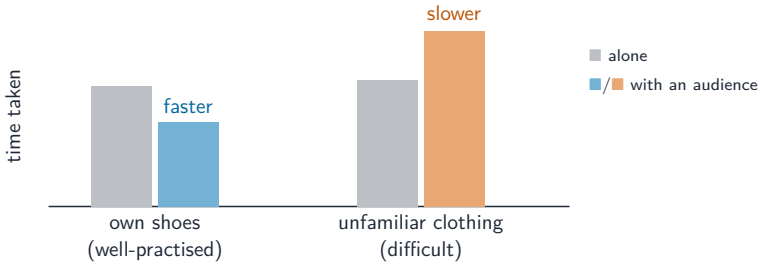
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Social Situations

Social norms 社会规范 define the behaviour a group expects. Behaviour changes when others are present:



Two routes to persuasion



Social facilitation depends on the task

- **Conformity** 从众 is adjusting behaviour to match a group. It rises with group size (up to a point), unanimity, and ambiguity, and falls when even one other person dissents.
- **Obedience** 服从 is following an instruction from an authority. It rises with the authority's perceived legitimacy and closeness, and falls when the victim is close or the authority is distant.
- **Normative social influence** 规范性社会影响 is conforming to be accepted; **informational social influence** 信息性社会影响 is conforming because you think others know better.

Persuasion 说服 has two routes in the **elaboration likelihood model** 精细加工可能性模型: the **central route** 中心路径 uses the strength of the argument, and the **peripheral route** 边缘路径 uses cues such as attractiveness. Sequential techniques matter too: the **foot-in-the-door** 登门槛效应 technique starts with a small request, while the **door-in-the-face** 留面子效应 technique starts with an unreasonable one.

Group settings change behaviour further. **Social facilitation** 社会助长 improves per-

formance on simple or well-practised tasks when others watch, but harms performance on difficult ones. **Social loafing** 社会惰化 is reduced individual effort in a group. **Deindividuation** 去个体化 is loss of self-awareness in a crowd. **Group polarization** 群体极化 pushes a group's average view further in its original direction, and **groupthink** 群体思维 is the suppression of dissent to keep harmony.

Individualism 个人主义 and **collectivism** 集体主义 shape all of these, and **multiculturalism** 多元文化主义 describes societies holding several traditions together. The **false consensus effect** 虚假一致效应 is overestimating how many people agree with you. **Superordinate goals** 超级目标 - shared aims that need cooperation - reduce hostility between groups.

Altruism 利他行为 is selfless helping, though **prosocial behavior** 亲社会行为 may also bring benefit to the helper. The **bystander effect** 旁观者效应 shows people are less likely to help as the number of onlookers rises, because of **diffusion of responsibility** 责任分散.

> **Worked example: evidence and a course concept.** In the 2025 Evidence-Based Question, Source 1 studied 45 male undergraduates. Researchers compared an attentive audience with working alone. Participants completed their own-shoe tasks faster with an audience, but took longer on unfamiliar clothing tasks with an audience. A strong response is: "An audience can improve well-learned performance but impair difficult, unfamiliar performance. Participants completed their own-shoe tasks faster with an attentive audience, but took longer on unfamiliar clothing tasks than when alone (Source 1). Social facilitation explains the opposite changes by task difficulty and familiarity, supporting a conditional claim rather than a rule that others always help." The official B(ii) criterion distinguishes explaining the evidence from applying a course concept to explain how it supports the claim. This practises Part A and B; a full EBQ also needs evidence from a different source and a different concept in Part C.

Group-pressure comparison. In Solomon Asch's line studies (1951), a student sat with seven confederates who all named the same wrong line. On those critical trials participants gave the wrong answer about 37% of the time, and three in four conformed at least once. Many said afterwards that they had seen the right answer but did not want to stand out: that is normative social influence. When Asch made the lines closer in length, conformity rose, because people who are unsure trust the group: that is informational social influence. When one confederate broke the unanimity and gave the right answer, conformity fell to about 5%. Obedience is different. In Stanley Milgram's study (1963), 26 of 40 men (65%) followed an experimenter's instructions all the way to the 450-volt switch. A peer group creates conformity; an authority figure creates obedience. Ask about the motive and the source of the pressure, because the same visible action can have more than one explanation.

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CONFORMITY — matching a group	**OBEDIENCE** — following an authority
rises with group size, up to a point	rises with the authority's legitimacy
rises when the group is unanimous	rises with distance from the consequence
falls sharply with one ally who dissents	**falls** when someone else refuses first
rises when the answer is ambiguous	falls when responsibility is made personal

A dissenter can reduce group pressure. The effect depends on the setting; these conditions do not guarantee a particular response

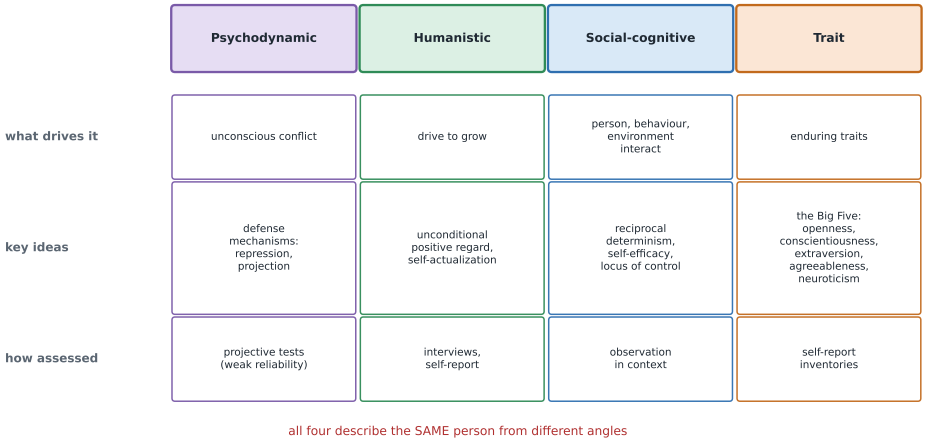
Conditions that can affect conformity and obedience

Personality: Psychodynamic and Humanistic

Personality 人格 is a person's characteristic pattern of thinking, feeling, and behaving. Four approaches are examinable.



Freud's consulting room and couch, now a museum: psychodynamic therapy used free association to explore unconscious conflict



Four approaches to personality, each with a different driver and a different way of measuring it

The **psychodynamic** 精神动力学 approach holds that **unconscious** 无意识 processes drive personality. **Ego defense mechanisms** 自我防御机制 protect the person from anxiety, and the examinable set is **denial** 否认, **displacement** 转移, **projection** 投射, **rationalization** 合理化, **reaction formation** 反向形成, **regression** 退行, **repression** 压抑, and **sublimation** 升华. It assesses personality with **projective tests** 投射测验, which present an ambiguous stimulus; these have weak **reliability** and **validity**.

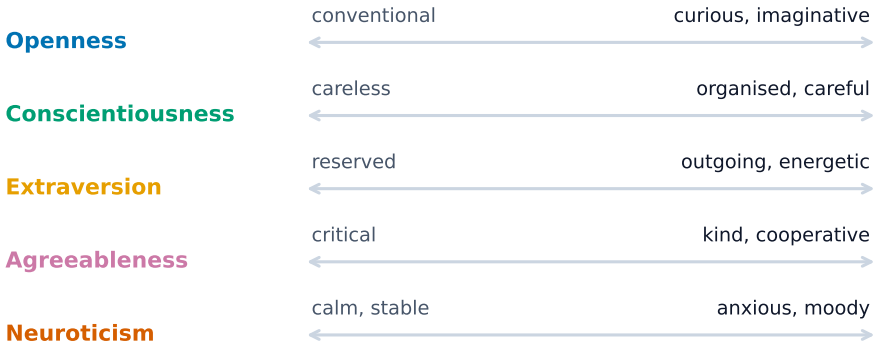
The **humanistic** 人本主义 approach focuses on growth. It emphasises **unconditional positive regard** 无条件积极关注 and **self-actualization** 自我实现 - becoming the fullest version of oneself.

Personality: Social-Cognitive and Trait

The **social-cognitive** 社会认知 approach explains personality through **reciprocal determinism** 交互决定论: the person, their behaviour, and the environment each influence the other two. **Self-efficacy** 自我效能感 - belief in one's own ability to succeed at a task - is central, as is **locus of control** 控制点, which is **internal** 内控 or **external** 外控.

Trait theories 特质理论 describe personality as enduring characteristics. The **Big Five** 大五人格 traits are **openness to experience** 开放性, **conscientiousness** 尽责性, **extraversion** 外向性, **agreeableness** 宜人性, and **neuroticism** 神经质. Traits are measured with self-report inventories, which are more reliable than projective tests.

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The Big Five personality traits, each a scale between two poles

Motivation

Several theories explain what drives behaviour:

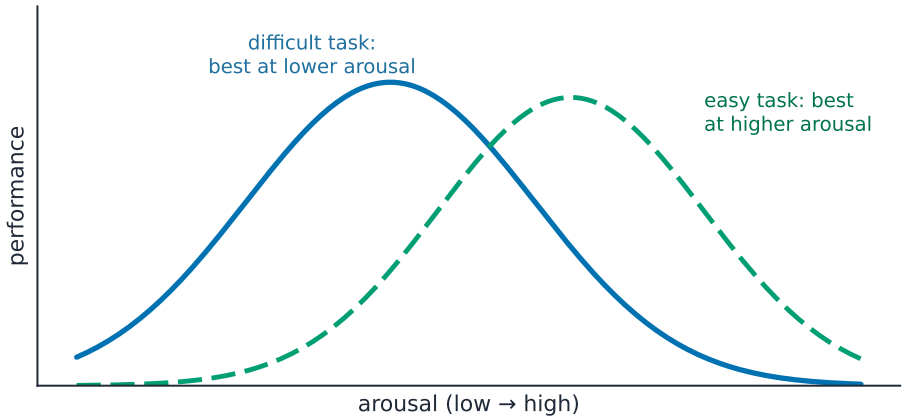
- **Drive-reduction theory** 驱力减少理论 says behaviour reduces a physical need to restore **homeostasis** 内稳态.
- **Arousal theory** 唤醒理论 says people seek an optimal level of arousal; the **Yerkes-Dodson law** 耶克斯-多德森定律 links performance to arousal. The optimal level depends on the task: difficult or unfamiliar tasks generally require lower arousal than easy, well-learned tasks. Increasing arousal does not always improve performance.
- **Self-determination theory** 自我决定理论 separates **intrinsic motivation** 内在动机 (from within) from **extrinsic motivation** 外在动机 (from reward), and **incentive theory** 诱因理论 focuses on the pull of rewards.
- **Instincts** 本能 are innate fixed patterns, in many non-human animals. The course says humans do not seem to show these patterns; this does not deny innate capacities or reflexes.
- **Lewin's motivational conflicts** 勒温的动机冲突理论 names three: **approach-approach** 双趋冲突, **approach-avoidance** 趋避冲突, and **avoidance-avoidance** 双避冲突.
- **Sensation-seeking theory** 感觉寻求理论 explains differences in the need for novelty.

Worked motivation comparison. Jia drinks after a long run because she is thirsty: drive reduction explains reducing a physical need and restoring homeostasis. She chooses a new puzzle because her usual game feels dull: arousal theory explains seeking suitable stimulation. A promised reward for a school task illustrates incentives and extrinsic motivation. Enjoying the puzzle itself illustrates intrinsic motivation. The

same activity can have both motives; identify the stated reason rather than assuming one theory explains every action.

Worked conflicts. Choosing between two enjoyable events at the same time is approach-approach. Choosing between an unpleasant chore now and missing an outing later is avoidance-avoidance. One performance that offers an exciting opportunity but also possible embarrassment is approach-avoidance: the same option has an attraction and a cost. Identify the options before classifying the conflict.

Eating shows physical and mental processes interacting. **Ghrelin** and **leptin** signal hunger and fullness to the hypothalamus, while external factors - the sight of food, the time of day, a shared meal - change how much people eat.

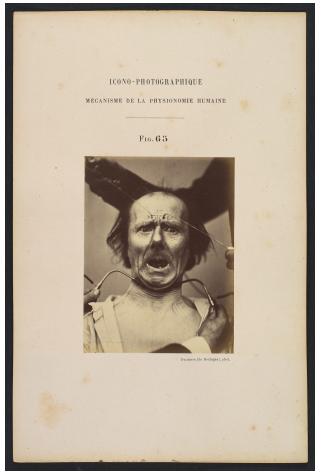


The Yerkes-Dodson law: performance peaks at moderate arousal, lower for difficult tasks

Emotion

Emotion 情绪, also called **affect** 情感, combines physical arousal, expressive behaviour, and conscious experience. The exam requires comparison of physiological and cognitive experiences in succession or simultaneously, and accounts requiring a cognitive label. Specific historical theory names are outside the AP Psychology Exam scope. As optional historical context, the **James-Lange theory** 詹姆斯-兰格理论 (the body responds first, and emotion is the reading of that response), the **Cannon-Bard theory** 坎农-巴德理论 (arousal and emotion occur at once), and the **Schachter-Singer two-factor theory** 沙赫特-辛格两因素理论 (arousal plus a **cognitive label** 认知标签). **Broaden-and-build theory** 拓展-建构理论 proposes that positive emotions widen thinking and build lasting resources.

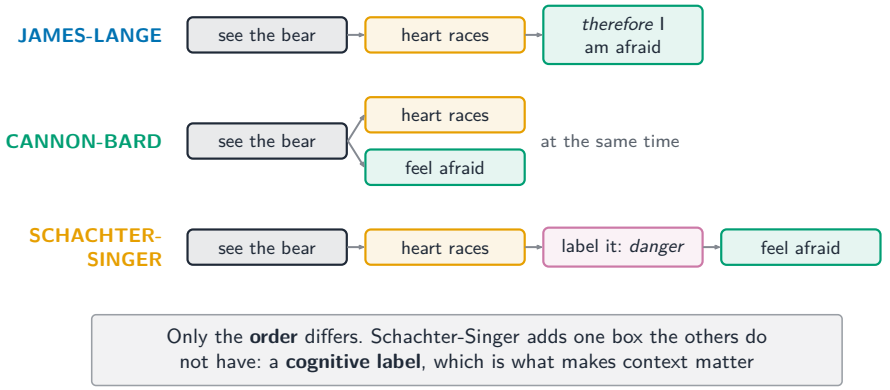
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From Duchenne's 1862 study: electrical stimulation of facial muscles produced expressions, an early test of how faces signal emotion

Worked emotion comparison. Sam notices a racing heart on entering a room. Interpreting the setting as dangerous accompanies fear; interpreting it as a celebration accompanies excitement. In a cognitive-label account, context supplies an interpretation of arousal. A successive account instead proposes bodily changes before experienced emotion, while a simultaneous account proposes arousal and conscious emotion together. These cases compare the proposed mechanisms; they are not experimental evidence proving one account.

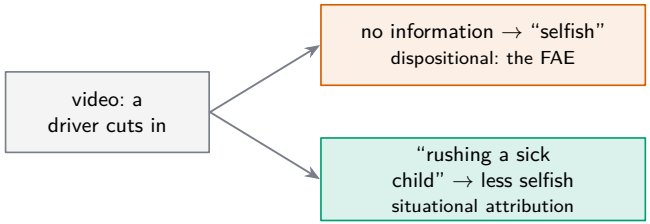
Some facial expressions are recognised across cultures, but **display rules** 表达规则 - a culture's norms for showing emotion - and the events that trigger emotion both vary.



Three theories, three orderings of the same three events

Worked example: analysing a study

The article-analysis question gives a short study summary and asks about its method, its variables and what it can conclude.



Situational information counters the FAE

> *Participants watched a video of a driver who cut in front of another car. Half were told the driver was rushing a sick child to hospital; half were given no information. Afterwards, the 'no information' group rated the driver as more selfish.*
>
> (a) Identify the concept that explains the 'no information' group's judgement.
>
> (b) Explain how the extra information changed the attribution.
>
> (c) Identify ONE ethical requirement for this study.

Model answer.

- (a) The fundamental attribution error: explaining someone's behaviour by their character while underestimating the situation.
- (b) Knowing about the emergency gave a situational explanation, so participants attributed the behaviour to the situation rather than to the driver's selfishness.
- (c) Informed consent before taking part and confidentiality of participants' ratings. Debriefing after any deception is an additional safeguard, not a substitute for consent.

Exam tips

- **Fundamental attribution error** applies to explaining *others*. For your own behaviour, distinguish actor-observer explanations from self-serving explanations of success or failure.
- **Social facilitation** improves *simple* tasks and harms difficult ones. Say which kind of task the scenario describes.
- Separate **conformity** (matching a group) from **obedience** (following an authority).

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- For **cognitive dissonance**, name the conflict and say which side changed - usually the attitude, because the behaviour already happened.
- Learn the **Big Five** as a set; questions often ask you to place a described person on one named trait.
- For emotion, compare succession, simultaneous responses and cognitive labelling. Specific historical theory names are outside the exam scope.

Common mistakes.

- Saying the fundamental attribution error means blaming oneself. It is overestimating **dispositional** causes of **other people's** behavior.
- Confusing conformity (matching a group) with obedience (following an authority's direct order).
- Mixing up foot-in-the-door (small request first) and door-in-the-face (large request first).
- Calling all motivation intrinsic or extrinsic. Read the scenario: is the reward the activity itself or something outside it?
- Using everyday meanings for the Big Five: "neuroticism" means emotional instability, not a mental disorder.

Practice - concept application.

> Priya joins a new school club. When another member arrives late, Priya decides he must be lazy, without knowing his bus broke down. At the first meeting everyone votes for a fundraising plan she privately thinks is weak, and she votes for it too so as not to look difficult. The club leader first asks her to sign a petition, and a week later asks her to spend Saturday collecting signatures; she agrees. Priya practises the piano for hours simply because she enjoys it, and she believes her exam results depend on her own effort. Explain how each of the following relates to Priya: (a) fundamental attribution error, (b) normative social influence, (c) foot-in-the-door technique, (d) intrinsic motivation, (e) internal locus of control.

Answers.

- (a) The fundamental attribution error is overestimating personal traits and underestimating the situation; Priya blames the late member's laziness rather than his bus.
- (b) Normative social influence is conforming to be accepted; Priya votes with the group so as not to look difficult.
- (c) The foot-in-the-door technique gets agreement to a small request, making a larger one more likely; signing the petition led her to agree to a whole Saturday.
- (d) Intrinsic motivation is doing an activity for its own sake; Priya practises piano because she enjoys it.
- (e) An internal locus of control is believing outcomes depend on one's own actions; Priya thinks her results depend on her effort.

Vocabulary card meanings

Social psychology: The study of how other people influence thought, feeling, and action. dispositional: Explaining behaviour by the person's traits rather than by the situation. situational: Explaining behaviour by the circumstances rather than by the person's traits. actor-observer bias: Blaming one's own actions on the situation while blaming others' actions on their character. self-serving bias: Taking credit for successes and blaming failures on outside factors. explanatory style: A habitual way of explaining good and bad events. optimistic: Tending to expect favourable outcomes. pessimistic: Tending to expect unfavourable outcomes. upward: Comparing oneself with people who appear to be doing better. downward: Comparing oneself with people who appear to be doing worse. Belief perseverance: Clinging to a belief after the evidence for it has been discredited. Confirmation bias: Seeking and remembering evidence that fits what one already believes. Normative social influence: Conforming in order to be liked or to avoid standing out. informational social influence: Conforming because one takes others as a source of information. Persuasion: Trying to change another person's attitudes or behaviour. elaboration likelihood model: A theory of two routes by which a message can persuade. central route: Persuasion through careful thinking about the arguments. peripheral route: Persuasion through superficial cues, such as attractiveness or slogans. foot-in-the-door: Gaining agreement to a large request by first getting agreement to a small one. door-in-the-face: Gaining agreement to a moderate request by first making one that is refused as too large. Social loafing: Putting in less effort when one works in a group than when working alone. Deindividuation: Losing self-awareness and restraint in a group that provides anonymity. Group polarization: A group's views becoming more extreme after discussion. Superordinate goals: Shared aims that require opposing groups to cooperate. prosocial behavior: Action intended to benefit another person. diffusion of responsibility: Feeling less personal duty to act when many other people are present. psychodynamic: An approach that emphasises unconscious motives and early conflict. unconscious: Mental content that affects a person without that person being aware of it. rationalization: Inventing a respectable reason for a feeling or an act whose real motive is hidden. humanistic: An approach that emphasises growth, free will, and the whole person. self-actualization: The motive to fulfil one's potential. social-cognitive: An approach that combines thinking, behaviour, and the social setting. Self-efficacy: Belief in one's ability to succeed at a specific task. locus of control: Whether a person sees outcomes as due to their own actions or to outside forces. neuroticism: A trait of tending toward anxiety, moodiness, and emotional instability. Yerkes-Dodson law: The finding that the most helpful level of alertness depends on how difficult the task is. intrinsic motivation: Doing something because it is interesting or satisfying in itself. extrinsic motivation: Doing something in order to gain a reward or avoid a punishment. incentive theory: The view that behaviour is pulled by external rewards. Instincts: Inborn, fixed patterns of behaviour. Lewin's motivational conflicts: Situations in which a person is pulled between two or more goals. approach-approach: A conflict between two attractive options. avoidance-avoidance: A conflict between two unattractive options.

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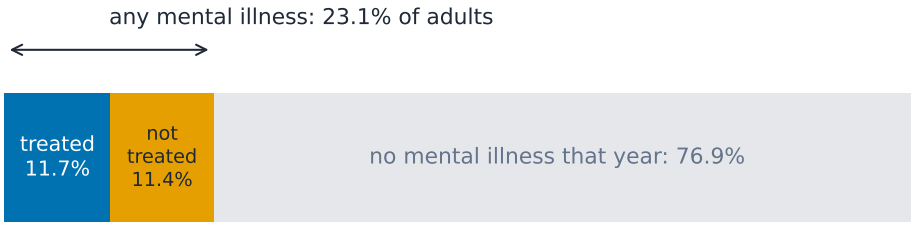
James-Lange theory: A bodily reaction comes first; the feeling is the perception of it. Cannon-Bard theory: Bodily arousal and the feeling occur together. Schachter-Singer two-factor theory: Emotion is arousal plus a cognitive label for it. Broaden-and-build theory: Positive emotions widen thinking and build lasting resources. display rules: Cultural norms for when and how to show emotion.

Mental and Physical Health

AP Psychology

Health Psychology and Stress

Why it matters. In 2022, 23.1% of American adults had a mental illness, according to the National Institute of Mental Health, and 50.6% of those adults received mental health treatment that year. The same unit that explains how stress wears down the body also explains how disorders are diagnosed and which treatments have evidence behind them. Knowing the difference between a myth and a finding here can change how people treat their friends, their families and themselves.



US adults, 2022 (National Institute of Mental Health)

Half of the adults with a mental illness in 2022 received treatment

Health psychology 健康心理学 studies how psychological factors affect physical health.

Stress 压力 is the process by which people appraise and respond to demands. A **stressor** 应激源 is the demand itself. Prolonged stress can affect health and immune regulation. This does not mean every stress response causes illness or that stress is the only cause of a disease.

Stressors are not all alike:

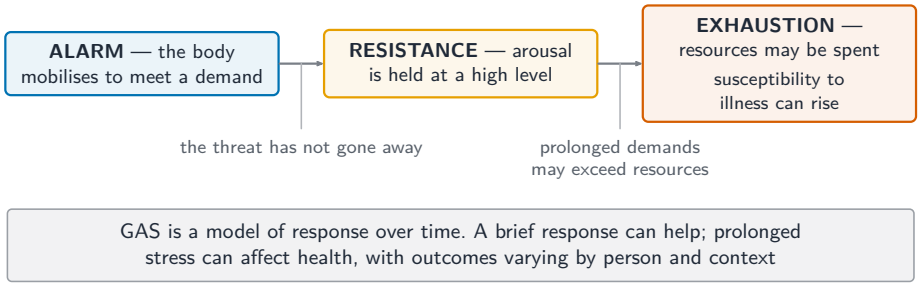
- **Eustress** 良性压力 is motivating; **distress** 消极压力 is debilitating.
- Stressors range from **daily hassles** 日常烦扰 to **significant life changes** 重大生活变化 and **catastrophes** 灾难性事件.

The **general adaptation syndrome (GAS)** 一般适应综合征 describes the body's response in three stages: **alarm** 警觉期 (the sympathetic system mobilises), **resistance** 抵抗期 (the body continues responding to a demand), and **exhaustion** 衰竭期 (resources are spent and vulnerability to illness can rise).

Not everyone responds by fighting or fleeing. **Tend-and-befriend theory** 照料-结盟理论 proposes that some people respond to stress by caring for others and seeking social support.

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Coping takes two broad forms. **Problem-focused coping** 问题聚焦应对 treats the stressor as a problem to be solved and works on the cause; it suits situations a person can control. **Emotion-focused coping** 情绪聚焦应对 manages the emotional reaction instead, which suits situations that cannot be changed.



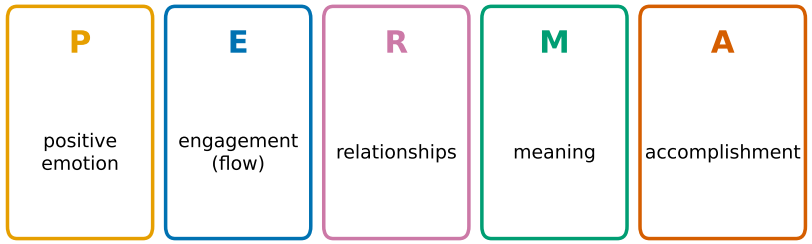
The GAS model traces alarm, resistance and exhaustion; outcomes depend on duration and circumstances

Positive Psychology

Positive psychology 积极心理学 studies what makes life go well rather than what goes wrong. It looks for the factors behind **well-being** 幸福感 and **resilience** 心理韧性.

Three findings are examinable:

- Expressing **gratitude** 感恩 can support **subjective well-being** 主观幸福感. Assess the design and outcome measure before interpreting a study.
- People who use their **signature strengths** 标志性优势 report greater happiness and well-being. A self-report remains a subjective measure; an association alone does not prove causation. The CED groups character strengths around six virtues: wisdom, courage, humanity, justice, temperance and transcendence.
- **Posttraumatic growth** 创伤后成长 is positive psychological change that can follow a struggle with trauma. It is not inevitable and does not mean the trauma was beneficial or distress has ended.



The PERMA elements of wellbeing

Explaining and Classifying Disorders

The course uses three considerations when discussing disordered behaviour: the level of **dysfunction** 功能失调, the person's **personal distress** 个人痛苦, and **deviation from social norms** 偏离社会规范. Because norms differ between cultures and change over time, context matters. These considerations are not a checklist requiring all three, and being unusual alone is not a diagnosis.

Classifying a disorder has both benefits and costs. A diagnosis guides treatment and gives access to support, but a label can also carry **stigma** 污名 and change how a person is treated. Diagnosis requires specialised training and evidence-based criteria. The **DSM** 精神障碍诊断与统计手册 and **ICD** 国际疾病分类 provide classification frameworks; they do not by themselves establish why a particular person developed a disorder.

Most psychologists take an **eclectic approach** 折衷取向, drawing on more than one perspective:

- **Behavioral** 行为主义: disorders come from maladaptive learned associations.
- **Psychodynamic** 精神动力学: from unconscious conflict.
- **Humanistic** 人本主义: from a lack of acceptance and support.
- **Cognitive** 认知: from maladaptive thought patterns.
- **Evolutionary** 进化: considers behavior and mental processes in relation to adaptation and survival.
- **Sociocultural** 社会文化: from the person's social and cultural setting.
- **Biological** 生物学: from physiological and genetic factors.

Two integrating models are examinable. The **biopsychosocial model** 生物心理社会模型 assumes any psychological problem may combine biological, psychological, and social causes. The **diathesis-stress model** 素质-压力模型 proposes an interaction between underlying vulnerability and stressful life experience. The CED emphasises

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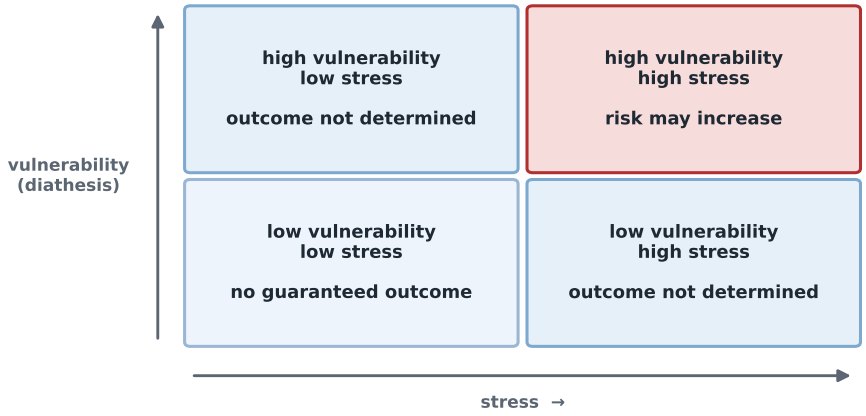
genetic vulnerability. It is a model of risk, not a diagnostic formula or a guarantee that a person with both inputs develops a disorder.

CRITERION	WHAT IT ASKS	CONTEXT AND LIMIT
DEVIANCE	is it unusual in this culture?	an unusual talent is also unusual
DISTRESS	does it cause suffering?	some conditions cause the person none
DYSFUNCTION	does it impair functioning?	assess functioning in context
RISK ASSESSMENT	a separate clinical task	not a fourth diagnostic requirement

Consider distress, dysfunction and cultural context. These are not an all-three checklist; risk assessment is separate

Distress, dysfunction and cultural context inform assessment; risk assessment is a separate issue

Categories of Disorders



Vulnerability and stress interact; the diagram illustrates a model, not measured probabilities or a diagnosis

The CED names a limited set of categories, each with its own features and possible causes.

- **Neurodevelopmental disorders** 神经发育障碍 begin during the developmental period. The CED selects ADHD (attention-deficit/hyperactivity disorder) and ASD (autism spectrum disorder); causes may involve environmental, physiological and genetic factors.
- **Schizophrenic spectrum disorders** 精神分裂症谱系障碍 involve **positive symptoms** 阳性症状 - **delusions** 妄想 (false beliefs), **hallucinations** 幻觉 (false perceptions), **disorganized thinking** 思维紊乱 - and **negative symptoms** 阴性症状, reductions in typical functioning such as **flat affect** 情感淡漠. **Catatonia** 紧张症 concerns movement and responsiveness; do not classify every manifestation as a positive symptom.
- **Depressive disorders** 抑郁障碍 involve sad, empty, or irritable mood with related changes in body and thinking that impair functioning. The CED selects major depressive disorder and persistent depressive disorder; a brief sad mood alone is insufficient.
- **Bipolar disorders** 双相障碍 involve episodes of marked mood and activity change. Bipolar I includes **mania** 躁狂; depressive episodes may occur but are not required for its definition. Bipolar II involves hypomanic and depressive episodes. Episodes need not follow a fixed alternating schedule (NIMH).
- **Anxiety disorders** 焦虑障碍 involve excessive fear or anxiety: **specific phobia** 特定恐惧症, **agoraphobia** 广场恐惧症, **panic disorder** 惊恐障碍 with **panic attacks** 惊恐发作, **social anxiety disorder** 社交焦虑障碍, and **generalized anxiety disorder (GAD)** 广泛性焦虑障碍.
- **Obsessive-compulsive and related disorders** 强迫及相关障碍 include OCD and hoarding disorder. In OCD, **obsessions** 强迫思维 are intrusive unwanted thoughts, urges or images, and **compulsions** 强迫行为 are repetitive behaviors or mental acts. They are not interchangeable, and related disorders do not all have an identical symptom pattern.
- **Dissociative disorders** 分离障碍 involve dissociation from consciousness, memory, or identity, and can be associated with trauma or stress. The CED selects dissociative amnesia (with or without fugue) and dissociative identity disorder.
- **Trauma and stressor-related disorders** 创伤及应激相关障碍 follow exposure to trauma or a significant stressor; **posttraumatic stress disorder (PTSD)** 创伤后应激障碍 is the main example.
- **Feeding and eating disorders** 进食障碍 involve altered consumption or absorption of food that impairs health or psychological functioning. The CED selects anorexia nervosa and bulimia nervosa.
- **Personality disorders** 人格障碍 are enduring patterns and fall into three clusters: **Cluster A** the odd or eccentric, **Cluster B** the dramatic or erratic, and **Cluster C** the anxious or fearful.

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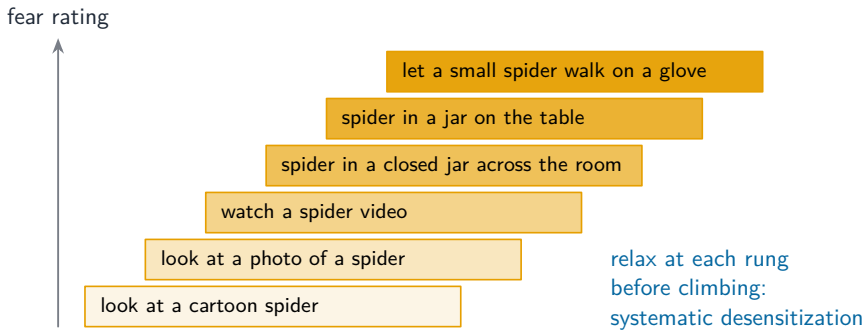
The learning objectives ask for features and possible causes of the selected disorders. Explain the factor relevant to a question instead of attaching the same list to every category. Genetic or physiological vulnerability, learned associations, thinking patterns and social conditions can interact; a brief classroom vignette cannot establish a clinical diagnosis.

Treatment

Meta-analyses 元分析 generally find psychotherapy effective, but outcomes vary with the intervention, condition, person and study. Evidence-based planning, cultural humility and a therapeutic alliance matter. The rise of effective **psychotropic medication** 精神药物治疗 also changed care, reducing long hospital stays in favour of community treatment.



An electroconvulsive therapy machine from about 1960: modern ECT, under anaesthesia, is still used for severe depression that resists other treatment



A fear hierarchy for graduated exposure

psychodynamic	free association, dream interpretation
cognitive	cognitive restructuring of interpretations
behavioral (ABA)	systematic desensitization, token economies
cognitive-behavioral	DBT, REBT: thoughts and behaviour together
humanistic	person-centered: active listening, unconditional regard
biological	medication, TMS, ECT, psychosurgery

response to a treatment does not by itself prove what caused the disorder

Each therapy follows a perspective

Clinicians must follow ethical principles such as avoiding harm, integrity and respect for rights and dignity, including **informed consent** 知情同意, **confidentiality** 保密, and working within their competence.

Therapies follow the perspectives above:

- **Psychodynamic therapies** 精神动力学治疗 use **free association** 自由联想 and dream interpretation to uncover unconscious material.
- **Cognitive therapies** 认知疗法 use **cognitive restructuring** 认知重构 to examine maladaptive interpretations. **Fear hierarchies** 恐惧等级表 organise feared situations by intensity and support graduated exposure.
- **Applied behavior analysis** 应用行为分析 applies conditioning principles, including **systematic desensitization** 系统脱敏 and **token economies** 代币制.

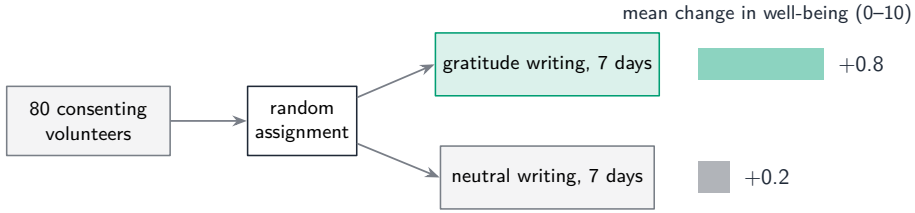
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- **Cognitive-behavioral therapies** 认知行为疗法, such as **dialectical behavior therapy** 辩证行为疗法 and **rational-emotive behavior therapy** 理性情绪行为疗法, combine both.
- **Person-centered therapy** 以人为中心疗法, from the humanistic perspective, uses **active listening** 积极倾听 and unconditional positive regard.

Hypnosis 催眠 is effective for pain and anxiety, but research does **not** support its use to recover memories. Medications include **antidepressants** 抗抑郁药, **antianxiety drugs** 抗焦虑药, **lithium** 锂盐, and **antipsychotics** 抗精神病药. Biological interventions also include **psychosurgery** 精神外科手术 and brain stimulation. **Transcranial magnetic stimulation (TMS)** 经颅磁刺激 is noninvasive magnetic stimulation; **electroconvulsive therapy (ECT)** 电休克治疗 induces controlled seizure activity under anaesthesia. ECT can be considered when other treatments fail or a rapid response is needed; it is not restricted to an absolute last resort (NIMH). Drug and procedure mechanisms, benefits and risks differ; medication response does not by itself prove a disorder's cause.

■ Complete original research practice

This is a teaching study and dataset, not a published experiment or a past-paper extract. Eighty adult volunteers consented to a seven-day writing study. Researchers randomly assigned them to write either gratitude reflections or neutral daily descriptions for ten minutes each day. Participants were told they could withdraw, and reports used participant codes. On a 0–10 self-report well-being scale, the mean change was +0.8 in the gratitude group and +0.2 in the neutral group. No variability, significance test or follow-up data are supplied.



difference 0.6 points; no variability or significance test given, and volunteers self-reported

Random assignment, then compare the means

Attempt: Identify an ethical procedure using the study evidence. Calculate the difference in mean change. Explain what random assignment supports and one limit on the conclusion.

Worked check: Informed consent is evidenced by volunteers consenting before participation; withdrawal rights and coded reporting are also supplied procedures. The difference in mean change is $0.8 - 0.2 = 0.6$ scale points. Random assignment sup-

ports comparing the effect of the writing conditions within this study, but the supplied means alone do not establish statistical significance. Volunteer sampling, self-report and a short follow-up limit wider claims. Do not invent a procedure the paragraph does not report.

Applying concepts to scenarios

Coping task: A student has two demands: a revision timetable they can reorganise and a delayed result they cannot speed up. Propose one problem-focused and one emotion-focused response, explaining the target of each.

Worked check: Reorganising the timetable acts on a controllable source of pressure. Managing the emotional reaction while waiting, for example with a calming routine, targets distress. Use both: act on what you can control, and manage the feeling about what you cannot.

Model task: Two people have similar underlying vulnerability but different stressful experiences and support. Use diathesis-stress and biopsychosocial models to explain why different outcomes are possible.

Worked check: Diathesis-stress considers vulnerability interacting with stress; biopsychosocial reasoning also considers psychological interpretation and social support. These models suggest factors to investigate rather than proving which person will develop a disorder.

Therapy task: In one session, a client tests the prediction "one mistake means everyone rejects me". In another, a clinician uses planned gradual contact with a feared situation. Identify the main technique in each, and explain why a real treatment plan may combine techniques.

Worked check: Testing an interpretation illustrates cognitive restructuring. Planned contact illustrates exposure and behavioral learning; a fear hierarchy can organise its steps. CBT can combine these approaches. Neither vignette establishes one cause of the client's difficulties or a guaranteed treatment outcome.

Group and individual therapy: Individual therapy centres on one client and therapist. Group therapy involves multiple clients and can support shared learning and interaction; confidentiality, participation and individual needs still require attention.

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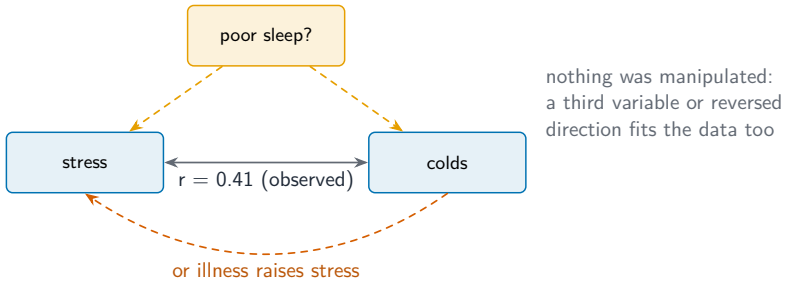
APPROACH	MAIN FOCUS	ILLUSTRATIVE METHOD
PSYCHODYNAMIC	unresolved conflict outside awareness	brings it into awareness and interprets it
HUMANISTIC	a self blocked from growing	acceptance and active listening
BEHAVIOURAL	a learned response	exposure and conditioning
COGNITIVE	the way events are interpreted	tests and replaces the interpretation
BIOMEDICAL	biological processes	medication; brain stimulation

A technique reflects a focus, not proof of cause. Evidence, individual needs and combined approaches shape treatment

Approaches emphasise different mechanisms; treatment choice also needs evidence and individual assessment

Worked example: analysing a study

The article-analysis question gives a short study summary and asks about its method, its variables and what it can conclude.



Correlation leaves other explanations open

Researchers surveyed 500 university students about their daily stress and how often they caught colds during one semester. Students reporting the most stress reported the most colds ($r = 0.41$).

(a) Identify the type of relationship found.

(b) Explain why this study cannot show that stress causes colds.

(c) Explain ONE way stress could affect physical health.

Model answer.

- (a) A moderate positive correlation: as stress rises, reported colds tend to rise.
- (b) It is correlational: no variable was manipulated, so a third variable such as poor sleep might cause both, or being ill might itself raise stress.
- (c) Long-term stress can disrupt stress-hormone and immune regulation, increasing susceptibility to infections. This does not mean every stressed person becomes ill.

Worked example: an evidence-based question. The evidence-based question gives three short study summaries and asks you to argue a claim. It is worth 7 points: a claim (Part A, 1 point), then for each of two sources one point for citing specific evidence and two points for reasoning (Parts B and C).

> *Develop and justify an argument about whether regular exercise helps people with depression.*
>
> *Source 1.* 120 adults with mild to moderate depression were randomly assigned to 12 weeks of three 40-minute brisk walks a week, or to a stretching class of the same length. Depression scores fell by 9 points in the walking group and by 3 points in the stretching group.
>
> *Source 2.* A survey of 2,000 adults found that people who exercised at least three times a week reported fewer depressive symptoms ($r = -0.30$).
>
> *Source 3.* In a 6-week study, students with depression who ran with a partner kept to the plan on 85% of planned days; those who ran alone kept to it on 50%. Mood scores improved most in the partner group.

Model response.

- **(A) Claim.** Regular exercise can reduce the symptoms of mild to moderate depression, especially when people do it with others. The claim takes a side and is specific; "exercise is important for mental health" only describes the topic and would not earn the point.
- **(B)(i) Evidence.** In Source 1, depression scores fell by 9 points after 12 weeks of walking, against 3 points for stretching.
- **(B)(ii) Reasoning. Random assignment** helps balance pre-existing differences, supporting a causal comparison of the walking and stretching conditions. The biopsychosocial approach links bodily activity, psychological experience and social context. The larger symptom reduction after walking is consistent with physical activity contributing to psychological improvement alongside the shared class setting; the study does not identify a neurotransmitter mechanism.
- **(C)(i) Evidence.** In Source 3, students who ran with a partner kept to their plan on 85% of days, against 50% for those who ran alone, and their mood improved most.
- **(C)(ii) Reasoning.** Social support can help people maintain an activity plan. A partner is a possible source of support, consistent with the higher adherence and greater mood improvement in Source 3. Because random assignment is not stated, this study alone does not prove that partnership caused the differences. This is a **different concept** from Part B, as the scoring requires.

Why not Source 2? It is correlational: people who are less depressed may simply find it easier to exercise. You may cite it, but your reasoning must not say it proves that exercise *causes* lower depression. Each Part needs evidence from a **different source**, cited by number, with the numbers or result stated, not "the study showed it works".

Exam tips

- Use the three considerations together - **dysfunction**, **distress**, **deviation** - when a question asks what makes behaviour disordered.
- For **diathesis-stress**, explain interaction and uncertainty. The model does not diagnose or guarantee an outcome.
- Keep **positive** and **negative** symptoms straight: positive means something *added* (hallucinations), negative means something *missing* (flat affect).
- Match therapy to perspective. Free association is psychodynamic; cognitive restructuring is cognitive; systematic desensitization is behavioral.
- **Obsessions** are intrusive thoughts, urges or images; **compulsions** can be repetitive behaviors or mental acts.
- Read the task verb. **Identify** wants a name, **Describe** wants detail, **Explain** wants a reason with evidence.
- In the evidence-based question, cite a **different source** in Parts B and C, quote its result, and use a **different psychological concept** to explain each one.

Common mistakes.

- Confusing schizophrenia with dissociative identity disorder. Schizophrenia involves psychosis (delusions, hallucinations, disorganised thinking), not "split personalities".
- Calling all stress harmful. Eustress is positive stress that can motivate.
- Mixing up the stages of the general adaptation syndrome: alarm, then resistance, then exhaustion.
- Describing problem-focused coping as avoiding the problem. It acts on the cause; emotion-focused coping manages the feelings.
- Treating medication and therapy as rivals. Many disorders are treated best by a combination (an eclectic approach).

Practice - concept application.

> Daniel has a family history of depression and becomes deeply depressed after losing his job. At first his body copes with the stress, but after months he catches one cold after another. He makes a list of companies and applies to two each day. His therapist helps him notice and challenge the thought "I will never be hired by anyone." Daniel's sister, who is terrified of elevators, works with a therapist who has her first imagine an elevator,

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then look at one, then ride one floor while practising relaxation. Explain how each of the following relates to the scenario: (a) diathesis-stress model, (b) general adaptation syndrome, (c) problem-focused coping, (d) cognitive restructuring, (e) fear hierarchy.

Answers.

- (a) The diathesis-stress model proposes that underlying vulnerability interacts with stress to increase risk; Daniel's family history plus losing his job fits this pattern, without proving that either factor guarantees depression.
- (b) In the general adaptation syndrome, prolonged stress moves the body from resistance to exhaustion, weakening the immune system, which explains his repeated colds.
- (c) Problem-focused coping tackles the cause of stress; applying for two jobs a day addresses unemployment directly.
- (d) Cognitive restructuring identifies and challenges irrational thoughts, as when Daniel questions "I will never be hired".
- (e) A fear hierarchy ranks feared situations from least to most frightening for gradual exposure, as in his sister's steps from imagining to riding an elevator.

Sources for this lesson

The course scope is College Board's *AP Psychology Course and Exam Description*, Unit 5, PDF pages 121–134 (`syllabi/ap/ap_psychology_CED.pdf`). Clinical qualifications use APA: stress effects on the body, NIMH: bipolar disorder, NIMH: psychotherapies, NIMH: brain stimulation therapies, and APA: OCD fact sheet. Practice material is explicitly and carries no official scoring claim.

Vocabulary card meanings

daily hassles: Small, frequent annoyances that add to stress. significant life changes: Major events, welcome or not, that demand adjustment. catastrophes: Large-scale disasters that overwhelm many people at once. general adaptation syndrome (GAS): The body's three-stage pattern of responding to prolonged stress. alarm: The first stress stage, in which the body mobilises its resources. dysfunction: A breakdown that interferes with ordinary daily life. personal distress: Suffering felt by the person, used as one sign that a pattern may be a disorder. deviation from social norms: Behaviour that breaks what a culture expects, used cautiously as a sign of disorder. stigma: Social shame attached to a condition, which can stop people seeking help. positive symptoms: Added experiences in schizophrenia, such as hallucinations or delusions. disorganized thinking: Speech and thought that jump and become hard to follow. catatonia: Marked disturbance of movement, from rigid stillness to agitated activity. negative symptoms: Losses in schizophrenia, such as reduced speech or reduced motivation. flat affect: A marked lack of emotional expression. specific phobia: An intense, persistent fear of a particular object or situation. agoraphobia: Fear of situations that might be hard to escape if panic strikes. panic disorder: A disorder of repeated unexpected surges of intense fear. panic attacks: Sudden episodes of overwhelming fear with strong bodily symptoms. social anxiety disorder: Intense fear of being judged in social situations. generalized anxiety disorder (GAD): Excessive, hard-to-control worry about many everyday matters. Meta-analyses: Studies that combine the statistical results of many earlier studies. confidentiality: The duty to keep a client's private information private, with narrow legal exceptions. Psychodynamic therapies: Treatments that explore unconscious conflict and past relationships. Cognitive therapies: Treatments that work on unhelpful thoughts. Applied behavior analysis: Using learning principles to change socially important behaviour. systematic desensitization: Gradually pairing a feared stimulus with relaxation, from mild to strong. token economies: Systems that give tokens for desired behaviour, later exchanged for rewards. Cognitive-behavioral therapies: Treatments that change both thoughts and the behaviours that maintain them. dialectical behavior therapy: A treatment that combines acceptance skills with change, first developed for emotional instability. rational-emotive behavior therapy: A treatment that challenges irrational beliefs thought to cause distress. Person-centered therapy: A humanistic treatment built on empathy, genuineness, and unconditional positive regard. transcranial magnetic stimulation (TMS): A treatment that uses magnetic pulses at the scalp to affect brain activity. electroconvulsive therapy (ECT): A treatment that induces a brief seizure under anaesthesia, used for severe depression. DSM: The American manual that lists diagnostic criteria for mental disorders. ICD: The World Health Organization's classification of diseases, including mental disorders.

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