Biological Bases of Behavior

AP Psychology · Vocabulary in context

Word	Example
behavior /bɪ'heɪvjə/	The limit describes the **behavior** of f(x) near x = 2. f(x) x = 2
mental processes /'mentl 'prəʊsesɪz/	Thinking and remembering are **mental processes**.
Heredity /hə'redɪti/	**Heredity** passes eye colour from parents to children.
Environment /en'vaɪrənmənt/	The **environment** includes family, school and friends.
Nature and nurture /'neɪtʃə ænd 'nɜ:tʃə/	**Nature and nurture** both shape who we are.
evolutionary perspective /ɪvə'lu:ʃənəri pə'spektɪv/	The **evolutionary perspective** asks how a behaviour helped our ancestors survive.
Twin and adoption studies /twɪn ænd ə'dɒpʃn 'stʌdiz/	**Twin and adoption studies** help separate genes from upbringing.
nervous system /'nɜ:vəs 'sɪstəm/	The **nervous system** carries fast messages.
central nervous system (CNS) /'sentrəl 'nɜ:vəs 'sɪstəm/	The brain and spinal cord form the **central nervous system (CNS)**.
spinal cord /'spaɪnl kɔ:d/	The **spinal cord** runs down inside your backbone.
peripheral nervous system (PNS) /pə'rɪfərəl 'nɜ:vəs 'sɪstəm/	Nerves in your arms and legs are part of the **peripheral nervous system (PNS)**.
somatic nervous system /sə'mætɪk 'nɜ:vəs 'sɪstəm/	The **somatic nervous system** controls the muscles you choose to move.

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voluntary /'vɒləntəri/	Waving is a **voluntary** movement.
autonomic nervous system /ɔ:tə'nɒmɪk 'nɜ:vəs 'sɪstəm/	The **autonomic nervous system** controls things like heartbeat, without you thinking.
involuntary /ɪn'vɒləntəri/	Your heartbeat is **involuntary**.
sympathetic nervous system /ˌsɪmpə'θetɪk 'nɜ:vəs 'sɪstəm/	The **sympathetic nervous system** prepares the body for "fight or flight". "fight or flight"
parasympathetic nervous system /ˌpærəˌsɪmpə'θetɪk 'nɜ:vəs 'sɪstəm/	The **parasympathetic nervous system** calms the body after stress.
Neurons /'nju:rɒnz/	**Neurons** carry messages around the body.
Glial cells /'glaɪəl selz/	**Glial cells** support and protect neurons.
dendrites /'dendraɪts/	**Dendrites** receive messages from other neurons.
cell body /sel 'bɒdi/	The neuron's **cell body** contains its nucleus.
axon /'æksɒn/	An **axon** carries signals away from the cell body.
myelin sheath /'maɪɪlɪn ʃi:θ/	The **myelin sheath** covers the axon and makes impulses travel faster.
resting potential /'restɪŋ pə'tenʃl/	At **resting potential**, the inside of the neurone is about −70 mV. −70 mV
threshold /'θreʃəʊld/	A neuron fires when the signal reaches its **threshold**.
depolarizes /di:'pəʊlə:raɪzɪz/	When a neuron **depolarizes**, the inside becomes less negative.

Word	Example
all-or-none principle /ɔːl ɔː nɒn ˈprɪnsɪpl/	The **all-or-none principle** says a neuron fires fully or not at all.
refractory period /rɪˈfræktəri ˈpɪərɪəd/	During the **refractory period**, the neurone cannot fire again.
synapse /ˈsɪnæps/	A **synapse** is a small gap between two nerve cells.
reuptake /riːˈʌpteɪk/	**Reuptake** takes the chemical messenger back into the nerve cell.
multiple sclerosis /ˈmʌltɪpl sklәˈrəʊsɪs/	**Multiple sclerosis** damages the covering of nerve fibres.
myasthenia gravis /ˌmaɪəsˈθiːnɪə ˈgrævɪs/	**Myasthenia gravis** makes muscles weak and tired.
reflex arc /ˈriːfleks ɑːk/	A **reflex arc** goes from the receptor to the muscle without thinking.
Sensory neurons /ˈsensəri ˈnjuːrɒnz/	**Sensory neurons** carry messages from the senses to the brain.
interneurons /ˌɪntəˈnjuːrɒnz/	**Interneurons** link sensory and motor neurons.
motor neurons /ˈməʊtə ˈnjuːrɒnz/	**Motor neurons** carry messages to the muscles.
Neurotransmitters /ˈnjuːrətrænsmɪtəz/	**Neurotransmitters** carry signals across the gap between neurons.
excitatory /ekˈsɪtətəri/	An **excitatory** signal makes a neuron more likely to fire.

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Word	Example
inhibitory /ɪnˈhɪbɪtəri/	An **inhibitory** signal makes a neuron less likely to fire.
dopamine /ˈdɒpəmiːn/	**Dopamine** is a neurotransmitter involved in controlling movement.
serotonin /ˌserəˈtəʊnɪn/	Low **serotonin** is linked to depression.
norepinephrine /ˈnɔːpaɪnfriːn/	**Norepinephrine** makes you more alert.
glutamate /ˈgluːtəmeɪt/	**Glutamate** is the main neurotransmitter that excites neurons.
GABA /ˈgɑːbə/	**GABA** calms the brain down.
endorphins /enˈdɔːfɪnz/	**Endorphins** reduce pain after exercise.
substance P /ˈsʌbstəns piː/	**Substance P** carries pain signals.
acetylcholine /ˈæsɪtɪlkəliːn/	**Acetylcholine** carries the signal across the gap between two neurones.
Hormones /ˈhɔːməʊnz/	**Hormones** travel in the blood.
adrenaline /əˈdrenəlɪn/	**Adrenaline** makes your heart beat faster when you are scared.
leptin /ˈleptɪn/	**Leptin** tells the brain you are full.
ghrelin /ˈgʒiːhrelɪn/	**Ghrelin** makes you feel hungry.
melatonin /ˈmelətɒnɪn/	**Melatonin** makes you sleepy at night.
oxytocin /ˌɒksɪˈtɒsɪn/	**Oxytocin** is a hormone linked to trust.

Word	Example
Psychoactive drugs /ˌsaɪkəʊˈæktɪv drʌgz/	Caffeine and alcohol are **psychoactive drugs**.
agonist /ˈægənɪst/	An **agonist** copies a neurotransmitter and makes it work more.
antagonist /ænˈtægənɪst/	An **antagonist** blocks a neurotransmitter.
reuptake inhibitor /riːˈʌpteɪk ɪnˈhɪbɪtə/	A **reuptake inhibitor** keeps more serotonin in the gap.
stimulants /ˈstɪmjʊlənts/	Caffeine and nicotine are **stimulants**.
depressants /dɪˈpresənts/	Alcohol is one of the **depressants**.
hallucinogens /həˈluːsɪnədʒnz/	LSD is one of the **hallucinogens**. LSD
opioids /ˈəʊpɪɔɪdz/	Morphine and heroin are **opioids**.
tolerance /ˈtɒlərəns/	With **tolerance**, the same dose has less effect over time.
addiction /əˈdɪkʃn/	**Addiction** makes a person keep using a drug despite harm.
withdrawal /wɪθˈdrɔːl/	**Withdrawal** causes headaches when a coffee drinker stops.
brain stem /breɪn stem/	The **brain stem** controls breathing and heartbeat.
medulla /ˈmedʌlə/	The **medulla** controls heartbeat and breathing.
reticular activating system /reˈtɪkjʊlə ˈæktɪveɪtɪŋ ˈsɪstəm/	The **reticular activating system** keeps you awake and alert.

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Word	Example
cerebellum /ˌserɪˈbeləm/	The **cerebellum** coordinates balance and movement.
procedural learning /prəˈsiːdʒərəl ˈlɜːnɪŋ/	Learning to ride a bike is **procedural learning**.
limbic system /ˈlɪmbɪk ˈsɪstəm/	The **limbic system** handles emotions and memory.
thalamus /ˈθæləməs/	The **thalamus** passes sense messages to the right parts of the brain.
hypothalamus /ˌhaɪpəʊˈθæləməs/	The **hypothalamus** in the brain checks the water level of the blood.
pituitary gland /pɪˈtjuːɪtəri glænd/	The **pituitary gland** controls other glands.
hippocampus /ˈhɪpəkæmpəs/	The **hippocampus** helps form new memories.
amygdala /əˈmɪgdələ/	The **amygdala** is linked to fear.
cerebral cortex /ˈserɪbrəl ˈkɔːteks/	The **cerebral cortex** controls memory and language.
hemispheres /ˈhemɪsfɪəz/	The brain has two **hemispheres**, left and right.
occipital lobes /ˈɒksɪpɪtl ləʊbz/	The **occipital lobes** handle vision.
temporal lobes /ˈtempərəl ləʊbz/	The **temporal lobes** handle hearing.
parietal lobes /ˈpæraɪətl ləʊbz/	The **parietal lobes** handle touch and space.
somatosensory cortex /ˈsɒmətəʊsənsəri ˈkɔːteks/	The **somatosensory cortex** feels touch from each part of the body.
frontal lobes /ˈfrʌntl ləʊbz/	The **frontal lobes** help us plan and make decisions.

Word	Example
executive function /eg'zekju:tɪv 'fʌŋkʃn/	**Executive function** helps you plan and stay focused.
Broca's area /'brəʊkəz 'eərɪə/	Damage to **Broca's area** makes speaking difficult.
Wernicke's area /'wɜ:nɪks 'eərɪə/	Damage to **Wernicke's area** makes understanding language difficult.
Split-brain research /splɪt breɪn rɪ'sɜ:tʃ/	**Split-brain research** studies people whose brain halves were separated.
corpus callosum /'kɔ:pəs 'kælɒsəm/	The **corpus callosum** connects the two halves of the brain.
visual field /'vɪʒu:əl fi:ld/	Your **visual field** is everything you can see without moving your eyes.
Brain plasticity /breɪn plæ'stɪsɪti/	**Brain plasticity** lets the brain rewire after an injury.
EEG /ˌi: i: 'dʒi:/	An **EEG** records the brain's electrical activity.
fMRI /ef ˌeˌmɑ:'raɪ/	An **fMRI** scan shows which brain areas are active.
lesioning /'li:ʒənɪŋ/	**Lesioning** studies what happens when a brain area is damaged.
Consciousness /'kɒnʃəsnəs/	**Consciousness** is being aware of yourself and your surroundings.
circadian rhythm /sɜ:'keɪdɪən 'rɪðəm/	Your **circadian rhythm** makes you sleepy at night.
Jet lag /dʒet læg/	**Jet lag** makes you tired after a long flight.

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Word	Example
NREM sleep /ˌen'rem sli:p/	Deep sleep happens during **NREM sleep**.
hypnagogic sensations /ˌhɪpnə'gɒgɪk sen'seɪʃnz/	**Hypnagogic sensations**, like a feeling of falling, happen as you fall asleep.
REM sleep /rem sli:p/	Most dreams happen in **REM sleep**.
paradoxical sleep /ˌpærə'dɒksɪkl sli:p/	REM sleep is called **paradoxical sleep**: the brain is active but the body is still. REM
activation-synthesis theory /ˌæktɪ'veɪʃn 'sɪnθəsɪs 'θɪəri/	**Activation-synthesis theory** says dreams are the brain making sense of random signals.
consolidation theory /kənˌsɒlɪ'deɪʃn 'θɪəri/	**Consolidation theory** says sleep helps store memories.
memory consolidation /'meməri kənˌsɒlɪ'deɪʃn/	Sleep helps **memory consolidation**.
restoration /ˌrestə'reɪʃn/	The **restoration** theory says sleep lets the body repair itself.
insomnia /ɪn'sɒmnɪə/	People with **insomnia** find it hard to fall asleep.
narcolepsy /'nɑ:kəʊlepsi/	People with **narcolepsy** suddenly fall asleep during the day.
sleep apnea /sli:p əp'nɪə/	With **sleep apnea**, breathing stops many times in the night.
somnambulism /sɒm'næmbju:lɪzəm/	**Somnambulism** is sleepwalking.

Word	Example
REM sleep behavior disorder /rem sliːp bɪˈheɪvjə dɪˈsɔːdə/	With **REM sleep behavior disorder**, people act out their dreams.
Sensation /senˈseɪʃn/	**Sensation** is how our senses pick up light, sound and touch.
transducing /trænsˈdjuːsɪŋ/	The ear is **transducing** sound waves into nerve signals.
absolute threshold /ˈæbsəluːt ˈθreʃəʊld/	The **absolute threshold** is the quietest sound you can hear half the time.
just-noticeable difference /dʒʌst ˈnəʊtɪsəbl ˈdɪfrəns/	The **just-noticeable difference** is the smallest change you can notice.
Sensory adaptation /ˈsensəri ˌædæpˈteɪʃn/	**Sensory adaptation** is why you stop smelling your own perfume.
Sensory interaction /ˈsensəri ˌɪntəˈrækʃn/	**Sensory interaction**: food tastes less strong when you have a cold.
Synesthesia /ˌsaɪnɪsˈθiːzɪə/	With **synesthesia**, some people see colours when they hear music.
retina /ˈretɪnə/	The **retina** detects light.
lens /lenz/	The **lens** focuses light onto the back of the eye.
visual accommodation /ˈvɪʒuːəl əˌkɒməˈdeɪʃn/	**Visual accommodation** lets the lens focus on near and far objects.
nearsightedness /ˈnɪəsaɪtɪdnəs/	People with **nearsightedness** cannot see far objects clearly.

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Word	Example
farsightedness /ˈfɑːsaɪtɪdnəs/	People with **farsightedness** cannot see near objects clearly.
Rods /rɒdz/	**Rods** help us see in dim light.
Cones /kəʊnz/	**Cones** help us see colour.
fovea /ˈfəʊvɪə/	The **fovea** gives the sharpest vision.
trichromatic theory /ˌtrɪkrəʊˈmætɪk ˈθɪəri/	The **trichromatic theory** says we have three kinds of cones: red, green and blue.
opponent-process theory /əˈpəʊnənt ˈprəʊses ˈθɪəri/	The **opponent-process theory** says colours work in pairs, like red and green.
afterimages /ˈæftərɪmɪdʒɪz/	Stare at a red dot, then look at a white wall to see green **afterimages**.
prosopagnosia /ˌprɒsəpəgˈnəʊzɪə/	People with **prosopagnosia** cannot recognise faces.
pitch /pɪtʃ/	A small bird sings at a high **pitch**.
loudness /ˈlaʊdnəs/	A bigger amplitude gives more **loudness**.
place theory /pleɪs ˈθɪəri/	**Place theory** says different parts of the ear pick up different pitches.
volley theory /ˈvɒli ˈθɪəri/	**Volley theory** says groups of neurons take turns firing.
frequency theory /ˈfriːkwənsi ˈθɪəri/	**Frequency theory** says nerve firing speed matches the sound's frequency.

Word	Example
Sound localization /saʊnd ˌləʊkəlaɪˈzeɪʃn/	**Sound localization** tells you where a sound comes from.
conduction deafness /kənˈdʌkʃn ˈdefnəs/	**Conduction deafness** happens when sound cannot pass through the middle ear.
sensorineural deafness /ˈsensɔːraɪnjuːrəl ˈdefnəs/	**Sensorineural deafness** comes from damage to the inner ear.
Olfaction /ɒlˈfækʃn/	**Olfaction** is the sense of smell.
Gustation /gʌˈsteɪʃn/	**Gustation** is the sense of taste.
umami /juːˈmɑːmi/	Soy sauce has a strong **umami** taste.
oleogustus /ˈəʊləgʌstəs/	**Oleogustus** is the taste of fat.
gate control theory /geɪt kənˈtrəʊl ˈθɪəri/	**Gate control theory** says rubbing a hurt arm can block pain signals.
phantom limb /ˈfæntəm lɪm/	Some people feel pain in a **phantom limb** after it has been removed.
vestibular sense /veˈstɪbjʊlə sens/	Your **vestibular sense** helps you keep your balance.
semicircular canals /ˌsemɪˈsɜːkjʊlə kəˈnælz/	The **semicircular canals** in the ear sense when you spin.
kinesthesis /ˈkaɪnsθəsɪs/	**Kinesthesis** tells you where your hands are with your eyes closed.

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