

Unit 03: The Biological Aspects of Psychology

Directions: As an introduction to the unit, this is a quote to give you the chance to think about the concepts we are about to discuss. Determine which letter from the choices above is the correct one and fits into the spaces below. When you are finished fill in the quote below.

A quote from Carl Sagen:

T	D		E		F	I	E		S		D						
E	H	E	W	E	A	H	N	L	G	O	O	I	K		M		
U	S	C	L	B	R	W	E	E	N	I	I	T	L	S	E	U	S

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There is nothing so practical as a good theory.

DISCOVERING PSYCHOLOGY

THE BEHAVING BRAIN

Directions: This will be due at the end of this film. You are to answer the following questions. The concepts are presented chronologically during the film.

1. About how many neurons does an average brain have?
2. What are the two types of synaptic junctures?
3. What is the basic idea behind the new Neuro Science?
4. What is the purpose and or function of the brain stem?
5. What is the purpose and or function of the cerebellum?
6. What is the purpose and or function of the limbic system?
7. What is the purpose and or function of the amygdula?
8. What is the purpose and or function of the hippocampus?
9. What is the purpose and or function of the hypothalamus?
10. What is the purpose and or function of the thalamus?
11. What is the purpose and or function of the cerebrum?
12. What is the purpose and or function of the corpus callosum?
13. What is an E.E.G.?
14. What is a basic definition for the word "neurometrics"?
15. What is the black box theory?
16. How does scopolamine affect the synaptic juncture and in this case memory?
17. How does physostigmine affect the synaptic juncture and in this case memory?

DISCOVERING PSYCHOLOGY

THE RESPONSIVE BRAIN

Directions: This will be due at the end of this film. You are to answer the following questions. The concepts are presented chronologically during the film.

1. The film suggests that the brain is reciprocal. What does that mean?
2. What does research seem to suggest about the differences between people who are "touchers" and people who are "not touchers"?
3. In a recent study about premature infants, what variable was found to help the babies grow faster and have greater cognitive ability later in life?
4. How is the production of O.D.C. an enzyme effected by mothers touch?
5. As a result of studies involving O.D.C. research in rats, what do we believe about mother's touch?
6. What can be done to reverse the deprivation in touch deprived rats?
7. What is psychosocial dwarfism, and what do we believe is its cause?
8. How is the hypothalamus effected by attention and touch?
9. How tall did children who were therapeutically touched grow in one year?
10. What is the relationship between glucocorticoids a hormone and the hippocampus?
11. As a result of this research, what do we know about "handled animals" and the stress response?
12. In the African Cyclit Fish Studies, what happens to the male fish's ability to reproduce if it is not social successful and or dominant?
13. In the baboon studies, what happens to baboons who become social successful?
14. What seems to the be the logical conclusion drawn from each of these studies?

The Biological Aspects of Psychology
An Overview of the Physiological Influences on Behavior

What are the major physiological components, concepts and issues regarding behavior?

You should be able to describe the basic structure of the nervous system.

Essential Details

The central nervous system is made up of the brain and the spinal cord.

The brain is composed of the hindbrain, midbrain, forebrain, sensory, motor and association cortex.

The spinal cord not only acts as a relay to and from the brain but functions independently when needed.

The peripheral system is made up of efferent neurons (leaving) and afferent (entering) the spinal cord.

The peripheral nervous system is made up of the autonomic (automatic) and the somatic nervous system.

The autonomic system is divided between the sympathetic and parasympathetic systems.

The sympathetic system prepares us for fight and flight while the parasympathetic calms us.

The somatic (body) system receives information from about the environment from our sensory systems.

You should be able to describe the basic communication process of the nervous system.

Essential Details

The neuron is the basic building block or cell of the entire nervous system.

The soma or cell body acts like most any cell and keeps the cell alive.

The dendrite receives information from other cells at the point of the synapse.

The axon sends information to other neurons using a process known as the sodium potassium pump.

The myelin is fatty tissue that insulates the axon and promotes the speed of the action potential.

The synapse is the space between the neurons where neurotransmitters are passed back and forth.

Neurotransmitters fit into receptor sites like keys fit into locks in the receiving dendrite.

Common neurotransmitters are acetylcholine, gaba, norephinephren, serotonin, dopamine and endorphin...

You should be able to identify the major elements of the brain and describe the functions of each.

Essential Details

The hindbrain contains the medulla, brain stem, RAS, pons and cerebellum.

The hindbrain is responsible for reflexive and automatic behavior.

The midbrain is actually only the top inch of the brain stem and contains the corpus callosum.

The midbrain is responsible for transferring chemical information from one area to another.

The corpus callosum for example specifically relays information from one side of the brain to the other.

The forebrain is made up of the limbic system, thalamus, hypothalamus and both cerebral cortexes.

The limbic system contains the emotion centers of the brain and the amygdala and hippocampus used in memory.

The thalamus receives sensory information from the body and directs it to areas of the brain.

The biological aspect of psychology is foundational to a full understanding of behavior.

Unit 03: The Biological Aspects of Psychology

Directions: Each week in Advanced Placement Psychology, there will be three quizzes. Each quiz is worth 10 test points. This sheet will be turned in at the end of the week.

Quiz 01 (02 Points Each)

1. _____
2. _____
3. _____
4. _____
5. _____

Total Points _____

Quiz 02 (02 Points Each)

1. _____
2. _____
3. _____
4. _____
5. _____

Total Points _____

Quiz 03 (02 Points Each)

1. _____
2. _____
3. _____
4. _____
5. _____

Total Points _____

Grand Total _____

The Biological Aspects of Psychology

Directions: Answer each of the following questions. Explain the significance of each answer.

What is acetylcholine?

What is an action potential?

What are the adrenal glands?

What is adrenaline?

What does afferent mean?

What is aphasia?

What is the association cortex?

What is the autonomic nervous system?

What is an axon?

What is a biochemical abnormality?

What does brain dominance mean?

What is the brainstem?

What is Broca's area?

What is the central nervous system?

What is the cerebellum?

What is the cerebral cortex?

What are the cerebral hemispheres?

What is the cerebrum?

What is the corpus callosum?

What is a CT scan?

What is deep lesioning?

What are dendrites?

What is dopamine?

What does efferent mean?

What is an electroencephalograph (EEG)?

What is the endocrine system?

What are endorphins?

What does EPSP stand for?

What is an fMRI scan?

What is the forebrain?

What is the frontal lobe?

What is a frontal lobotomy?

What is functional MRI?

What is gaba?

What is handedness?

What are hormones?

What is hyperthyroidism?

What is hypopituitary dwarfism?

What is the hypothalamus?

What is an ion?

What does IPSP stand for?

What is lateralization?

What is the limbic system?

What are lobes (cerebral cortex)?

What does localization of function mean?

What is the medulla?

What is melatonin?

What is the midbrain?

What is the motor cortex?

What is a motor neuron?

What is an MRI scan?

What is myelin?

What is negative after-potential?

What is a nerve?

What are neurons?

What are neurotransmitters?

What are the occipital lobes?

What is the parasympathetic system?

What are the parietal lobes?

What is the peripheral nervous system?

What is a PET scan?

What does plasticity mean?

What is positron emission tomography?

What is the primary auditory area?

What is the primary visual area?

What are receptor sites?

What is a reflex?

What does resting potential mean?

What is the reticular activating system (RAS)?

What is Reuptake?

What is a soma?

What is the somatic system?

What is the somatosensory area?

What is a split-brain operation or commissurotomy?

What is the sympathetic system?

What is a synapse?

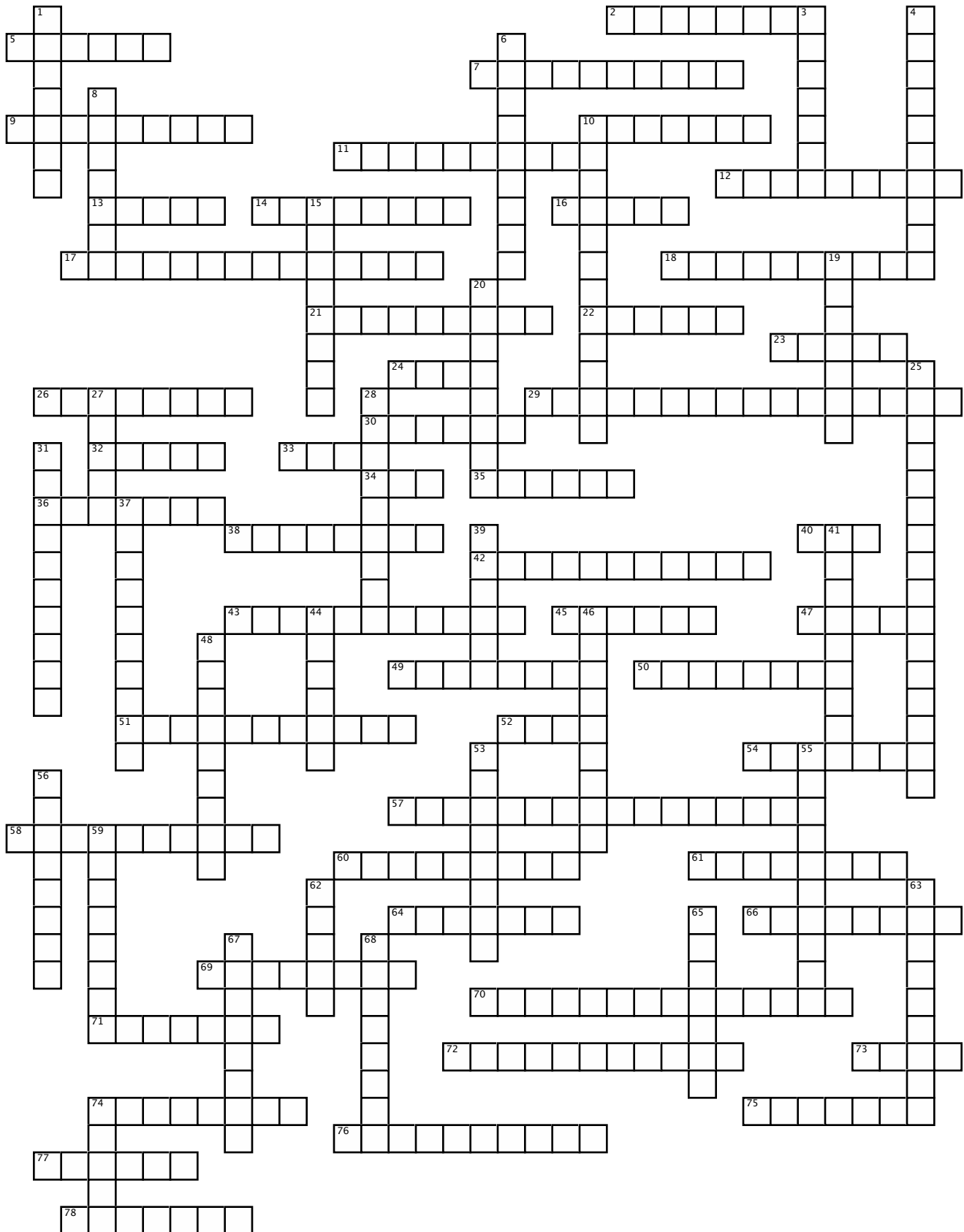
What are the temporal lobes?

What is thalamus?

What does the thyroid gland do?

What is Wernicke's area?

Unit Review Number 03
The Biological Aspects of Psychology



Across

2. The _____ is a structure at the center of the brain that relays sensory information to the cerebral cortex.
5. A _____ is an innate, automatic response to a stimulus; for example, an eye blink, knee jerk, or dilation of the pupil.
7. Reuptake, also called the _____ period is the time needed for neurotransmitters to return to the neuron from which they came.
9. The midbrain is the area of the brain consisting of structures linking the _____ and the brainstem.
10. Melatonin is a _____ produced by the pineal gland in response to cycles of light and dark.
11. The brain's capacity for revising its organization is called _____.
12. The electrical charge that exists between the inside and outside of a neuron at rest is called resting _____.
13. The occipital _____ are portion at the back of the cerebral cortex that includes areas where vision registers in the brain.
14. The primary _____ area is the main area on the temporal lobes where hearing registers.
16. The _____ are the areas on the cortex bordered by major fissures or associated with particular functions.
17. Specialization in the abilities of the brain hemispheres is called _____.
18. IPSP stands for _____ Post Synaptic Potential.
21. The _____ consists of the highest brain areas, including the hypothalamus, thalamus, corpus callosum, and cerebrum.
22. The _____ system consists of interconnected structures in the forebrain that are closely associated with emotional response.
23. A _____ is a bundle of neuron fibers supported by connective tissue; nerves can be seen with the unaided eye; neuron fibers are microscopic projections from single cells.
24. An MRI _____ that records brain activity.
26. A _____ is the destruction of brain tissue in frontal areas of the brain.
29. Gaba is an inhibitory _____.
30. Endorphins are a class of chemicals produced by the pituitary gland that are similar in structure and painkilling effect to _____ drugs such as morphine.
32. Myelin is the fatty layer coating some _____ that increases the rate at which nerve impulses travel along the axon.
33. The brain _____ is the lowest portions of the brain, including the cerebellum, medulla, and reticular formation.
34. An _____ is an electrically charged molecule.
35. The motor _____ is the area on the top of the brain directly associated with control of voluntary movements.

Down

1. Receptor sites are areas on the surface of _____ and other cells that are sensitive to neurotransmitters or hormones.
3. The microscopic space, between an axon terminal and another neuron, over which neurotransmitters pass is called the _____.
4. Positron emission _____ consists of imaging of brain activity based on glucose consumption.
6. A part of the _____ formation that activates the cerebral cortex.
8. The _____ is the enlarged stalk at the base of the brain that connects to the spinal cord and controls vital life functions.
10. The _____ is a small area at the base of the brain that regulates many aspects of motivation and emotion, especially hunger, thirst, and sexual behavior.
15. Hypopituitary _____ is a disorder consisting of shortness or smallness caused by too little growth hormone.
19. Hyperthyroidism is a disorder where faster metabolism and excitability is caused by an overactive _____ gland.
20. An fMRI scan is a functional _____ resonance imaging that records brain activity.
25. Dopamine is an important _____ substance found in the brain, especially in the limbic system, an area associated with emotional response.
27. An electroencephalograph is a device designed to detect, amplify, and record electrical activity in the _____.
28. Brain _____ is the concept that one of the hemispheres is stronger than the other.
31. EPSP stand for _____ Post Synaptic Potential.
37. A CT scan is a computed _____ scan; a computer-enhanced X-ray image of the brain.
39. Aphasia is a speech disturbance resulting from _____ to language areas on the temporal lobes of the brain.
41. The _____ system consists of glands whose secretions pass directly into the bloodstream or lymph system.
44. The cerebral _____ is a layer of tissue that forms the outer layer and surface of the cerebrum.
46. An action _____ is a nerve impulse, which is a rapid change in electrical charge across the cell membrane.
48. Deep _____ is the use of an electrode (electrified wire) to destroy small areas deep within the brain.
53. The adrenal glands are endocrine glands whose _____ arouse the body, regulate salt balance, adjust the body to stress, and affect sexual functioning.
55. The _____ is a cauliflower-shaped projection at the base of the brain that controls posture and coordination.

Across

36. Efferent neurons are those that leave the _____ nervous system.
38. Broca's area is the _____ area in the brain related to grammar and pronunciation.
40. The term _____ Scan stands for positron emission tomography; a computer-generated image of brain activity, based on glucose consumption in the brain.
42. All areas of the cerebral cortex that are not specifically sensory or motor in function are called the _____ cortex.
43. A _____ abnormality is a disturbance of the body's chemical systems, especially in brain chemicals or neurotransmitters.
45. The central nervous system consists of the brain and _____ cord.
47. The frontal _____ consist of the areas at the top front of the cerebral cortex that include sites associated with the control of movement, the processing of smell, and higher mental functions.
49. Those neurons that approach the central nervous system are called _____ neurons.
50. Hormones are the glandular secretions that affects bodily functions or _____.
51. The cerebral _____ consist of the right and left halves of the cerebrum.
52. A thin fiber that conducts information away from the cell body of a neuron is called the _____.
54. Dendrites are fibers projecting from nerve cells that _____ information from other neurons and carry it to the cell body.
57. Acetylcholine is a _____ released by neurons to activate muscles.
58. Handedness is a _____ for using the right or left hand in most activities.
60. The _____ nervous system is the part of the neural system that connects the brain with the internal organs and glands.
61. The _____ consists of the two large hemispheres that cover the upper part of the brain.
64. Adrenaline is a hormone produced by the _____ glands that tends, in general, to arouse the body.
66. The corpus _____ is the large bundle of fibers connecting the right and left cerebral hemispheres.
69. The part of the _____ lobes that serves as a receiving area for bodily sensations is called the somatosensory area.
70. The surgical technique in which the corpus callosum is cut, functionally disconnecting the two cerebral hemispheres is called the _____.
71. Motor _____ are those that carry motor commands from the central nervous system to muscles and glands.
72. The _____ system is a branch of the autonomic system responsible for arousing and activating the body at times of stress.
73. The main body of a neuron or other cell is called the _____.

Down

56. The area at the top of the brain that includes sites where bodily sensations register in the brain are the _____ lobes.
59. Localization of _____ is the principle stating that sensations are determined by the area of the brain that is activated.
62. The temporal _____ are areas on each side of the cerebral cortex that include the sites where hearing registers in the brain.
63. The parasympathetic system is a branch of the _____ system responsible for quieting the body and conserving energy.
65. The endocrine gland whose hormones help regulate metabolism is called the _____.
67. MRI stands for _____ resonance imaging; a computer-enhanced three-dimensional representation of the brain or body, based on the body's response to a magnetic field.
68. Wernicke's area is the area of the brain related to _____ comprehension
74. Neurons are individual _____ cells.

Across

74. A drop in electrical charge below the resting potential is called _____ after potential.

75. The _____ system is the system of nerves linking the spinal cord with the body and sense organs.

76. The _____ nervous system consists of all parts of the nervous system lying outside the brain and spinal cord.

77. The primary visual _____ is the main area of the cerebral cortex that processes visual information.

78. Neurotransmitters are any of a number of chemical substances secreted by neurons that alter activity in other _____.