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What Is Psychology?

Biology and Behavior

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Printed in the United States of America.

ISBN: 1-56004-185-4

Product Code: ZP832

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Introduction

This PowerPoint® presentation is designed to offer your students an overview of key events, personalities, and concepts. Created by a classroom teacher, the slide show places a premium on ease of use and succinctness. We developed this title to:

- Engage students with visual elements
- Outline key historical issues
- Make learning clear and relevant
- Provide a customizable template for differentiated instruction

On the slides themselves, bullet points highlight central elements, and numerous images help to provide a visual context for the presentation. Extensive notes for each slide offer detailed information to help elaborate bullet points. Handouts provide a convenient way for students to make connections between the ideas presented, and the culminating quiz provides a convenient way to assess student comprehension.

It is not necessary to cover every bullet point on every slide. One of the real benefits of this medium is the flexibility it affords you. We realize that each class and each student has different needs that require different approaches to teaching. Use this presentation to help customize your teaching. Use the “View” menu in PowerPoint® to sort through the slides visually, to view the presentation as a table of contents, or to see the larger groupings of sections and chapters.

If you want to focus on certain images or make a more detailed exploration of a particular area, you can easily add or delete slides. Simply copy the presentation to your own computer and modify it to create the exact messages that you want to convey. You may also wish to search the Web for additional images, sounds, graphs, timelines, or even video clips to incorporate into the presentation.

We are dedicated to continually improving our products and working with teachers to develop exciting and effective tools for the classroom. We can offer advice on how to maximize the use of the product and share others’ experiences. We would also be happy to work with you on ideas for customizing the presentation.

We value your feedback, so please let us know more about the ways in which you use this product to supplement your lessons; we’re also eager to hear any recommendations you might have for ways in which we can expand the functionality of this product in future editions. We look forward to hearing from you.

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Biology & Behavior

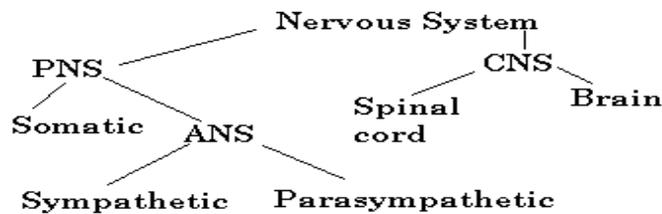


Slide # 1

This presentation will focus on the biological factors that influence our behavior. We will look at how the brain processes information. We will examine the structures of the brain and the roles each part of the brain plays. We will also examine the endocrine system and its effect on our behavior. In addition, there will be a special section on brain injuries and infections.

Your brain weighs about three pounds, but may contain as many as ten billion neurons. It is amazing how well the human brain works, although injury to even a small part of the brain can cause dramatic changes in behavior. Chemical imbalances can also affect behavior, causing depression, mood swings, schizophrenia, or movement disorders and loss of memory. This unit involves a great deal of biological psychology, which is the study of the cells and organs of the body and the physical and chemical changes involved in our behavior and thinking.

Diagram of the Nervous System



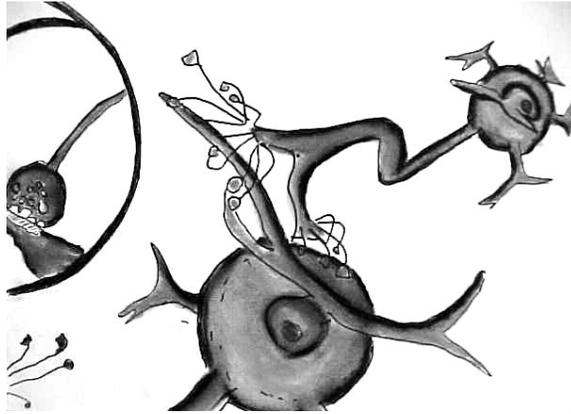
Slide # 2

This is a diagram of the nervous system. You can see that the main divisions separate the central nervous system (CNS) from the peripheral nervous system (PNS). The central nervous system is composed of the brain and spinal cord; the peripheral nervous system is divided into the somatic nervous system, which controls voluntary body movements, and the autonomic nervous system (ANS), which controls involuntary responses. The ANS is then further divided into the sympathetic and parasympathetic systems.

The nerves of the peripheral nervous system conduct information from the bodily organs to the central nervous system (CNS) and send information back to the organs. These neurons in turn branch out from the spinal cord (they are about the thickness of a pencil). Some nerves are so small that they are invisible.

The sympathetic nervous system kicks into gear when there is an emergency. This is the “fight or flight” part of the nervous system—the “on” switch that makes us react to danger. The parasympathetic nervous system returns our body to a normal, relaxed mode.

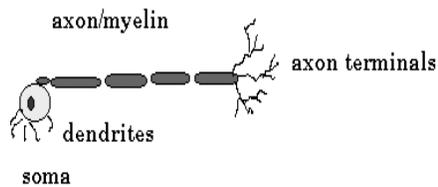
Neurons



Slide # 3

This drawing presents a simplified version of how of neurons connect. The dendrites appear on the cell body, much like a root. The axons are long, branch-like structures that nearly touch the next neuron. The small blue, bell-like structures are the synaptic knobs, which contain neurotransmitters. At the bottom of the drawing you can see an enlarged image of a synaptic knob nearly touching another neuron.

Axons



- Thread-like extensions from the cell body
- Tube-like fibers that carry impulses away from the soma to the dendrites
- Myelin coating

Slide # 4

Bullet # 1 Axons are thread-like extensions that emanate from the soma/cell body.

Bullet # 2 Axon fibers carry impulses away from the cell body toward the dendrites of another neuron.

Bullet # 3 Most axons, especially those found in the brain, are very short (about 1/25th of an inch long). Axons in other parts of the nervous system can be several feet long. Axons in the PNS (peripheral nervous system) are covered with a white, fatty material called myelin that insulates the nerve fiber and speeds transmission of impulses. Myelin is similar to insulation on an electric wire. Axons with myelin are known as “white matter;” axons without myelin are known as “gray matter.” Axon terminals branch out from the ends of the axon, and are positioned opposite the dendrites of a neuron.

Multiple Sclerosis



- MS destroys myelin sheaths of axons
- This can cause erratic and uncoordinated behavior

Slide # 5

Bullets # 1–2 When a person has multiple sclerosis, the disease attacks the myelin coatings of axons. A person's behavior can consequently become erratic and uncoordinated. Famous people with MS include former child star and Disney Mouseketeer Annette Funicello and talk show host Montel Williams.



Slide # 6

This is a photograph of a woman named Susan who has been living with multiple sclerosis for a number of years. MS is a chronic, degenerative disease that attacks the central nervous system with varying degrees of severity. Some patients exhibit mild symptoms, while others become severely disabled. MS progresses relatively slowly compared to other diseases, but it does force people who suffer from it to make a number of major life changes as the physical effects get worse. Some 400,000 people in the US suffer from MS. The impact of the disease is also felt by family members, friends, employers, and caregivers. Every hour, one person in America is diagnosed with MS. Currently, there is no cure.