

GLOSSARY

Cortex – An area at the back of the brain that filters information received from the eyes and sends it to other parts of the brain.

Hippocampus – A region of the brain that coordinates the storage of new memories.

Long-Term Memory – The brain's system for storing unlimited amounts of information for a long time.

Networks – Systems of lines or structures that cross.

Neurons – Specialized cells that make up the brain, each consisting of a cell body, a nerve fiber called an axon that transmits nerve impulses to other neurons and dendrites which receive nerve impulses from other neurons.

Short-term Memory – The brain's system for remembering a limited amount of information for a short time, usually just long enough for someone to perform an activity like dialing a telephone number that has been looked up. Also known as "working memory."

Ultrasound – Pertaining to the acoustic frequency above the range audible to the human ear, used in medical therapy.

May be reproduced for use in the classroom.

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TMW MEDIA GROUP, INC.

2321 Abbot Kinney Blvd., Venice, CA 90291

(310) 577-8581 Fax (310) 574-0886

Email: sale@tmwmedia.com

Web: www.tmwmedia.com

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Show Me Science

The Wonders of Physiology

Brain, Memory & Sight

K4581DVD

Advanced Teachers Guide

SYNOPSIS:

We can remember the smell of an apple or a math formula. All these memories are stored in the three-pound organ inside our skull called the brain. This program looks at how memories are made - how we remember things and how the human brain makes sense of all the information constantly flowing into it and stored in it. Scientists believe that memories are broken up and stored in complex networks of brain cells and put back together when they are recalled. Discover how learning is linked to memory and how the sense of smell may enhance learning.

CURRICULUM UNITS:

- Biology
- Chemistry
- Cognitive Psychology
- Human Development
- Life Sciences
- Physiology

CAREER OPPORTUNITIES:

- Biologist
- Medical Doctor
- Neurologist
- Neurosurgeon
- Nurse
- Psychologist
- Radiologist

PROGRAM OVERVIEW:

This program begins by demonstrating that the memory of a scene includes more than just what we are aware of seeing – that, unknowingly, we remember more than we are conscious of remembering.

What we remember of a scene is not stored as a complete picture in the brain. Instead, scientists believe details of a scene are stored separately in the brain. Students will learn that a memory is a combination of separate bundles of information stored in the networks of brain cells spread throughout the brain.

ISSUES & CRITICAL THINKING:

After showing the program, ask the class the following:

1. What are the two types of memory and how do they differ?
 - a) What is the part of the brain that co-ordinates how memories are stored?
 - b) With what sense do we acquire most of our information?
 - c) What is the name for a brain cell?
 - d) Name an instrument or machine that helps us see things we cannot see with our eyes only.
2. Ask everybody in the class to recall his or her earliest memory. Discuss how no one had the same memory and why they think they remembered their first memory.
3. Ask students to think of a simple object like a pencil or a comb. Then ask them to make a list of all the separate things (attributes like roundness, sharpness, color etc) that make up the memory of that object. Compare the lists.