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VIDEO GUIDE · UNIT 1 · TOPIC 1.4

Brain Research

Watch the lesson

Name _____ Class _____ Date _____

NOTES: FILL IN THE BLANKS WHILE YOU WATCH

1. A _____ is an in-depth study of one person, often someone with an unusual brain condition or damage; findings may not apply to everyone.
2. In animal research, _____ destroys tissue in a specific brain area; the resulting changes in behavior show what that area normally does.
3. An _____ (electroencephalogram) uses electrodes on the scalp to measure the brain's electrical activity; it detects changes within milliseconds but can't pinpoint where they occur, and it is used to study sleep stages.
4. An _____ (functional magnetic resonance imaging) shows which brain areas are more active during a task by detecting changes in blood flow; it shows where activity occurs but takes a few seconds to detect changes.

CHECK YOUR UNDERSTANDING

1. Researchers want to test whether a small region of the hypothalamus is necessary for normal eating behavior in rats. Which method would most directly test this?

(A) Lesioning the region and observing changes in eating

(B) Recording an EEG while the rats eat

(C) Conducting a case study of one human with hypothalamus damage

(D) Scanning the rats with fMRI while they eat

2. An EEG shows a burst of electrical activity right after a participant hears a loud tone. Why can't the researcher conclude exactly which brain region produced it?

(A) EEG is too slow to detect the burst

(B) EEG measures blood flow, not electrical activity

(C) EEG requires destroying brain tissue

(D) EEG records from the scalp, so it can't pinpoint where activity comes from

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3. An fMRI study finds a region more active while people listen to music. Why is fMRI a poor choice for pinpointing the exact moment that activity begins?

(A) fMRI can't show where activity occurs

(B) The blood flow changes it detects take a few seconds

(C) fMRI damages the tissue it measures

(D) fMRI can only study one person at a time

NOTES

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