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Neurotransmitter movement

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Agent Sheet Lesson Plan

Name: Samuel Ibezim

Grade level(s)/Subject taught: Living Environment 12 Grade.

Objectives:

Students will be able to observe the movement of neurotransmitter molecules across axon terminal membrane into synaptic cleft.

Essential Question:

Describe what happens when a neuron is stimulated by another neuron.

Standard:

4-1.2j Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.
Key Idea 1. Living things are both similar to and different from each other and from nonliving things.
Process Strand: Problem Solving
Performance Indicator:
1.2: Describe and explain the structures and functions of the human body at different organizational levels (e.g. systems, tissues, cells, organelles).
Major Understandings: 1.2j Receptor molecules play an important role in the interactions between cells. Two primary agents of cellular communications are hormones and chemicals produced by nerve cells. If nerve or hormone signals are blocked, cellular communication is disrupted and the organisms stability is affected.

Materials:
LCD projector with Agent sheet software
Computer workstation (1 per two students)

Opening:

Students will have completed a diagram of the Synapse and be able to label the parts prior to the lesson. Class book Biology Prentice Hall Miller and Levine Page 900. Figure 35-8.

Mini-Lesson:

1. Perform a mini laboratory excise showing the movement of molecules from the area of high concentration to area of lower concentration. (Osmosis)
   Encourage students to describe in a short sentence their observation.
2. Teach the students to recognize that when an agent impulse reaches the end of the agent axons of neurons, another agent called neuron-transmitters are released into the synaptic cleft across the axon membrane.
3. Show a Powerpoint diagram of The Synapse.

Classwork:

Group of two students will use the modeling and simulation to observe the movement of molecules Acetylcholine through the Axon terminal membrane. The teacher goes around to help groups trigger and manipulate the agent.

Performance Criteria: Mastery Non-Mastery Retest Pass

1. Student understands the basic structure of the Synapse by drawing and labeling.
2. Students identify the main agents. Axon, impulse, neurotransmitters.
3. Student is able to describe what happens to the impulse when it is stimulated.
4. Student can identify neurotransmitters crossing the Axon terminal membrane.

Student has no more than 3 non-mastery checks w/out retest pass Yes No