SN EDUCATOR GUIDE

April 22, 2023

The Fruit Fly Brain in Exquisite Detail

Student Discussion Worksheet

Directions: Before you answer the first question, read "Scientists have mapped an insect brain in greater detail than ever before" from *Science News* online and watch the video "See all of the nerve cells in a larval fruit fly's brain" linked in the article. A version of the article, "The fruit fly brain in exquisite detail," appears in the April 22, 2023 issue of *Science News*.

Next, read "Explainer: What is a neuron?" from *Science News Explores* and answer the remaining questions. Answers to the last question in the second section will be used in a class discussion. Reading "Scientists Say: Neurotransmitters" from *Science News Explores* will help you with question 5 in the first section.

Thinking about nerve parts

1. After watching the video "See all of the nerve cells in a larval fruit fly's brain," discuss what you noticed with a partner. What did you observe? What was interesting or surprising?

2. Read "Explainer: What is a neuron?" and re-watch the video. Use the information from the article to explain what you see in the video. Use correct vocabulary.

3. What questions do you still have about what you're seeing in the video?

4. What is neuroscience? Explain why neurons are the foundation of neuroscientists' work.

5. Based on what you have read, consider how neurons help you sense, respond and learn. Describe a behavior and give a simple explanation of what neurons do.

Studying brains

1. How could studying a larval fruit fly's brain lead to better understanding of the human brain?

2. What tools did scientists featured in the *Science News* article use to study the fruit fly's brain?

3. Search the *Science News* or *Science News Explores* archives for articles about brain studies. Pick one article and explain what tools or methods scientists used in their brain research. An example of a tool is a PET scan; an example of a method might be a behavioral evaluation. More tools are listed in "Explainer: How to read brain activity" from *Science News Explores*.

4. Is the method described in the article used to study human brains, animal brains or both? Research your chosen method and describe what you can learn about the brain using this method. Cite your sources.

5. Share the method you researched with your class. As a class, discuss the different methods of studying the brain and the advantages and disadvantages of each. In what situation would researchers choose to use one method over another?

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