## Multitasking Mania!

**Lesson 6: Multitasking, the Brain, and Career Pathways**

**Problem Statement:**

Your task is to create both a computer-based task and non-computer-based task that helps employees evaluate the effectiveness of multitasking and helps them plan their work efficiently.

**Lesson Overview:**

Students are working on a project that requires them to design a computer program to help evaluate the effectiveness of multitasking in the workplace. Now we they will discuss the practical applications of skills they have acquired during the project. First, students will learn about *how* the brain multitasks. They will complete a worksheet helping them describe the brain’s smallest processing unit: the neuron. Next they will watch a video that describes in more general terms how the brain multitasks. Finally, students will engage in a discussion about how researchers figured out all that we know about the brain, and what a career in science might be like.

**Learning objectives:**

* Students will be able to: Describe a neuron
* Students will be able to: Identify brain regions involved in multitasking
* Students will be able to: Describe a career as a scientist

**Lesson standards (NGSS, CCSS, CTE):**

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| --- | --- |
| [CCSS.ELA-LITERACY.RI.6.7](http://www.corestandards.org/ELA-Literacy/RI/6/7/) | Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue. |

**Soft skills (21st Century Skills):**

* Learning and Innovation
* Life and Career

**Locally and/or personally relevant for students:**

* Videos show diverse people, which can provide positive examples for groups of people underrepresented in STEM career pathways
* Neuroscience research is a growing field that will become bigger in coming years as we better understand how to treat neurological disease
* Research careers use behavioral studies like those used in the multitasking project

**Connections to Career and Educational Pathways:**

* Introduction videos show what it is to do research, and what careers in neuroscience research look like.

**Materials:**

* TV screen or projector for playing videos

**Lesson preparation:**

* Watching videos in advance (~15 minutes)
* Performing the neuron worksheet in advance (~15 minutes)
* Identifying and setting up concepts that might not be familiar to students

**Time required:** 45 minutes

* 5 minutes: Introduction
* 20 minutes: Neuron Worksheet
* 5 minutes: Video on Multitasking and the brain
* 5 minutes: Discussion of how a neuroscientist would measure how the brain multitasks
* 5 minutes: Video on what it is to be a research scientist
* 5 minutes: Video on research done at the Allen Institute

**Grouping of students for instruction:**

Students will be put into groups (3-5) to complete their neuron worksheet. All of the blank answers on the worksheet should be able to be filled in based on clues in the surrounding text

**Instruction:**

**Understanding the Problem**

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| **Teacher** | **Student** |
| Give a brief introduction to the brain and ask “What is a neuron?” | Do a think/pair/share about their prior understanding and experience with the brain and neurons |

1. When the discussion about neurons is complete, have students break up into groups of 3-4 and complete the worksheet: Lesson 6 Neuron\_Multitasking\_WS
2. After students have completed the worksheet, show the following video: How the brain multitasks: <https://www.youtube.com/watch?v=hEPCTFuuqgY>

**Understanding the Problem**

|  |  |
| --- | --- |
| **Teacher** | **Student** |
| Encourage the students to think about how the knowledge from the video was acquired. Guide them to the idea that scientists in the lab did studies that show how the brain works | Do a think/pair/share abou several questions:  Who does brain research?  What are the people like who do brain research?  Why is this work important |

1. To introduce the concept of scientists and what is a career in research, show the video “Wondrous World with Dr. Z”: <https://www.youtube.com/watch?v=yndSzl1tj9s>
2. To show real life researchers in action and pictures of neurons obtained in the lab, watch overview of neuroscience research at the Allen Institute:

<https://www.youtube.com/watch?v=TUoCQTwewVo>

**Accommodations:** As needed, support groups during testing.

**Extensions:** N/A

**Assessment:** Students should complete their worksheets with the correct answers and be able to describe what a scientist does

**References/Resources:**N/A