## Multitasking Mania!

**Lesson 10: Data Collection**

**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 will test their game/experiment on at least four of their classmates and gather data. They will document their experience to help evaluate the effectiveness of their program

**Learning objectives:**

* Gather data on the effectiveness of multitasking versus non-multitasking
* Take notes on the data collection process to document any problems or areas that went well

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

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| Computer Science (CTE) | |
| CTE 2-A-5-6 | Develop programs, both independently and collaboratively, that include sequences with nested loops and multiple branches. [Clarification: At this level, students may use block-based and/or text-based programming languages.] |
| Science (NGSS) | |
| MS-ETS1-1 | Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions. |
| MS-ETS1-2 | Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem. |

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

* Technology literature
* Learning and Innovation1-2
* Life and Career

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

* Many students play video games and use apps that are built on programming
* Many current and future jobs require programming skills

**Connections to Career and Educational Pathways:**

* Introduction video from code.org (shown in Lesson 3) details career opportunities in programming

**Materials:**

* Computers - 1:2 computer:student ratio (one computer per project partners)
* Scratch Teacher Account with Student Scratch Accounts

**Lesson preparation:**

* Knowledge of the Scratch Platform (see appendix for more information)

**Time required:** 45 minutes

**Grouping of students for instruction:**

Students will be working with their same partner(s) from Lessons 8-9.

**Understanding the Problem**

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| **Teacher** | **Student** |
| Remind students of scientific process and the important of following a consistent procedure and gathering reliable data.  Remind them to take careful notes of their experience while collecting data and any changes they make to their strategy | * Outline the steps of data collection before they run their program * Prepare a table on notebook paper for collecting data during the experiment. * Take notes on any troubles with the program or adjustments made for data collection |

**Exploring the Problem**

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| **Teacher** | **Student** |
| Assign pairs of students to work together as a starting point (i.e. Pair A test their game on Pair B and then vice-versa so that each pair has collected data from two different “test subjects”). | Conduct their experiment (both multitasking and non-multitasking) on another pair of students and then serve as the “test subjects” for that pair. Capture data from the experiment in your table. |
| As students finish testing on the original pair there were assigned, switch so that everyone is now working with a new pair (i.e. Test Subjects #3 and #4). | Continue running your experiment so you have at least data from four test subjects. |

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

**Extensions:** N/A

**Assessment:** Students should have data from an least four test subjects.

**References/Resources:**N/A