**INSTRUCTOR GUIDE TEMPLATE**

**ACTIVITY TITLE: Stroop Test**

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| \***Theme**: | Attention and information processing |
| \***Objective**(s):  *(What key learning do you want students to come away with?)* | * Learn what the Stroop effect is * Understand how reaction time relates to the Stroop effect * Introduce interference as a possible explanation for the Stroop effect * Think creatively about how variations in this task would affect reaction time |

**LESSON OUTLINE:**

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| **1. Introduction:**  *Plan a script of what you will say to start.*  *- What will this be about? Why’s it interesting?*  *(Hook)* | Have you ever tried to pat your head with one hand and rub your belly with another? For those of you who have, is this an easy or a difficult task? Most people find this difficult because your brain has to control your arms very differently to make separate movements. Today, we will learn about how our brains control various pieces of information at the same time through the famous Stroop test. |

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| **2. Building Background:**  *List questions you can use to immediately engage your audience and prepare their thinking for your activity.*  *-What prior knowledge might they have about/related to your topic?*  *-What prior knowledge (background) do they need for your activity?* | Participants should be able to read in English for this task.  Have you ever heard of the Stroop effect? (If someone has, tell them to not describe the task until everyone is done.) This effect was discovered by J. Ridley Stroop in 1935, and has been used by scientists many times to measure how our brain processes information. Your goal in this activity is to name colors in a list as quickly as possible without making mistakes.  Do you know what reaction time is? It is the time it takes to complete a task. In this case, we will be measuring how long it takes you to name all the colors in the list. |

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| **3. Lesson & Activity:**  *Outline the key components of your lesson.*  **Plan/Note**:  - key ideas/ vocabulary  - scaffolds  - images/media  - extension questions  \*Consider how to best deliver your content!  \*Plan interactive components that encourage active thinking in your students. | Tell your first participant that their task is to say out loud the color of the word that is written in each flashcard, avoiding mistakes and reading out loud as quickly as possible. Give the participant the card set #1 (color/word match), and time how long it takes the participant to name the colors in this card set (this will be the **reaction time**). You can write down how long it took them to read out loud this card set in a piece of paper to later compare the reaction times.  Next, give the volunteer card set #2 (color/word mismatch) and tell them that the instructions remain the same: they should name the color of the ink the word is written in as quickly as possible and avoiding mistakes. (For example, if the word RED is written in green ink, they should say GREEN instead of RED.) Write down the reaction time. You will notice that the participant will take longer to name the colors in this set, since they will become distracted by the word itself as they read the color of the ink.  Ask participants which card set they found harder to read. Did they fight an urge to read the word out loud instead of naming the color of the ink?  Compare the participant’s reaction time to card set #1 to set #2. The latter should have taken longer. You can start a discussion by asking participants why they think it takes longer to name the colors in set #2 than in set #1. Introduce the idea of **interference**, which is when conflicting information is presented to us as we perform a task. What was the interference in this case? When we are asked to name the color of the word instead of reading the word, our automatic impulse to read the word interferes with naming the color of the ink.  Note: It’s more fun if the participant does not know what the punchline of the experiment is, so try not to reveal it beforehand. It’s easy to cheat at this by squinting your eyes, which will prevent you from reading the word. Make sure people are not squinting their eyes! |

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| **4. Wrap Up:**  *- Review key ideas*  *- Share takeaways and final thoughts*  *- Discuss connections to other questions and ideas. Extensions.*  *- Ask: Who could you teach what you learned here today?*  *- Ask/Suggest: What can I do to learn more?* | Ask the participants what they think would happen to the reaction times if you were testing a young child who did not know how to read or if you tested someone who could not read English. Would a young child have a hard time naming the color of the ink if they did not know how to read the words yet? Would a non-English speaker have a hard time naming the color of the ink? Perhaps interference would not occur in these scenarios because reading the words in English would not happen automatically.  To extend the discussion, you can ask participants what they think would happen if the printed words were not color words. What would happen if the printed words were words of everyday objects, such as ‘bus,’ ‘apple,’ or ‘pencil’? What would happen to reaction time if the printed words were nonsense, such as ‘asdf’?  Encourage participants to think about their answers in terms of reaction times and possible interferences. |

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| **MATERIALS NEEDED: *\*\*(please list all items and quantities necessary for preparation)*** |
| * Stroop test cards (4 sets: color/word match, color/word mismatch, words only, colors only) * Timers * Paper and pencil to keep track of reaction times |

\*\*attach any printouts to end of document here

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| **SKILLS AND BADGES:** |
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**NOTES:**

-provide list of badges/skills earned by activity

-Provide any extra resources if necessary