

# KIDS DAY 2021

*Inspiring the next generation of scientists and engineers*

## Brains in Action Handout

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### Try the Stroop Task!

This is a classic cognitive psychology experiment, first created by J. Ridley Stroop in the 1930s. It demonstrates how **interference** between different types of information can slow down information processing. Here's how to do this experiment:

- 1) Read the words in the list below. Time how long it takes you to read the whole list.
- 2) Name the font color of each word. Time how long it takes you to name all of the colors.

RED	BLUE	YELLOW
YELLOW	GREEN	ORANGE
BLUE	RED	BLUE
GREEN	PINK	RED
GREEN	ORANGE	RED
PINK	GREEN	GREEN
BLUE	YELLOW	BLUE
RED	GREEN	PINK
ORANGE	BLUE	BLUE
YELLOW	PINK	GREEN

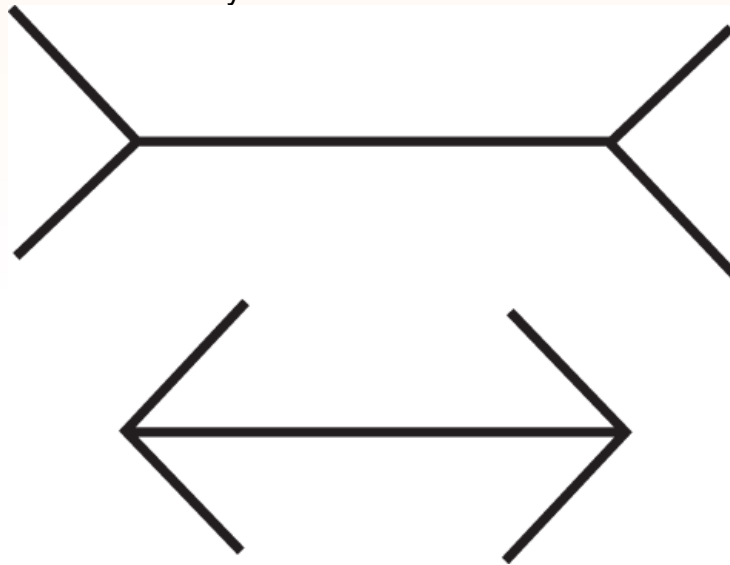
People can usually read the words much faster than they can name the colors of the words, because the conflict between the meaning of the word and the color of the word causes problems! If you can read the language that the words are written in, your brain will access the meaning of those words very quickly, faster than you can name the color of the word. You have to make an extra effort to ignore the meaning of the word and that makes it harder to name the colors.

Other things to try:

- Try holding the paper sideways or upside down. Can you name the colors faster when the words are harder to read?
- Try making your own Stroop tasks. If you use nonsense words or color words from a language you don't read, the effect should go away. You can also try this with pictures. For example, you can draw a cat and write "dog" on top of your drawing. See what happens if you ask people to name the pictures or read the words.
- Try this with a young child who knows their colors but doesn't know how to read yet. They should have no trouble with naming the colors!

### Visual Illusions

You can't always believe your eyes! Our brains take a lot of shortcuts when processing the information coming in from your eyes, ears, and other senses. Normally this helps us to navigate the world more easily, but sometimes it can cause illusions or biases. The example below is called the Müller-Lyer illusion, created by Franz Müller-Lyer in 1889. Which line looks longer to you? Try measuring the lines to see if you're correct!



### Color Vision

The retina of your eye has cells that respond to different colors (different wavelengths of light). Those cells compete with one another so that when you see something red, the cells that respond to red are excited and the cells that respond to green are inhibited. The Sandia Thunderbird logo below has its colors reversed. Try staring at it for 20-30 seconds, then look at a blank white wall or paper. You'll see an after image with the logo in its original colors. This happens because the cells that were responding to the reversed colors are tired, and the cells that they were inhibiting will start firing again!



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