

Grade Level 4-12

Lesson Length
1 class period with
extensions

Purpose: To demonstrate that learning takes practice – seeing our own synaptic plasticity.

Standards Alignment

Next Generation Science Standards

3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

MS-ETS1-4. Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

MS-LS1-3. Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.

MS-LS1-8. Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.

Framework for K-12 Science Education: Science & Engineering Practices 1,3,6,8

National Science Standards – Project 2061: Atlas of Science Literacy reference

- a) Behavior/Heredity and experience shape behavior – learning from experience (p.97, Atlas Vol. 1)

Research on student learning: “No relevant research available on Benchmarks.” (p. 96, Atlas Vol. 1)

Materials

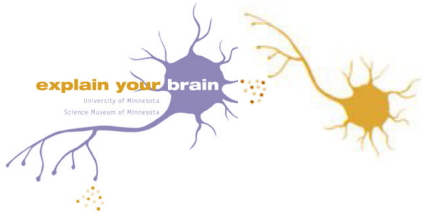
- a scrap piece of paper
- Pen, pencil, and/or markers of at least 3 different colors

Preparation

On a scrap piece of paper, write at least 6 BIG B’s using your darkest marker.

In Zoom

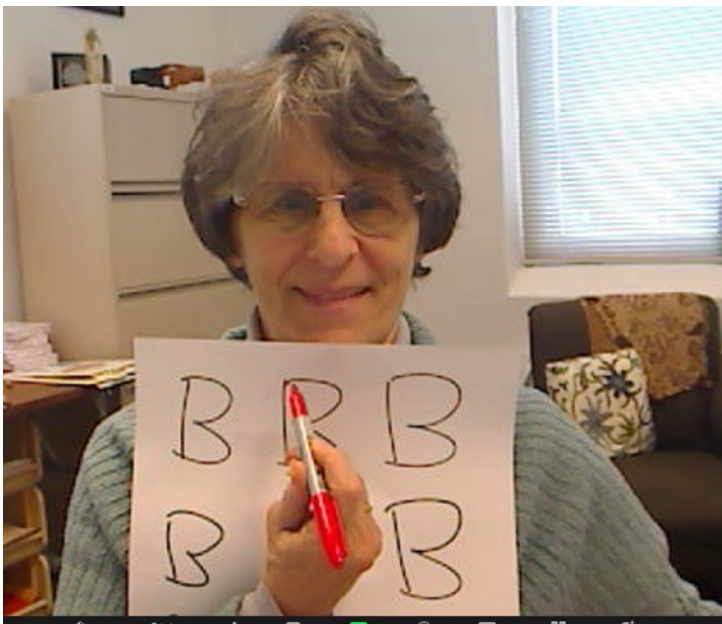
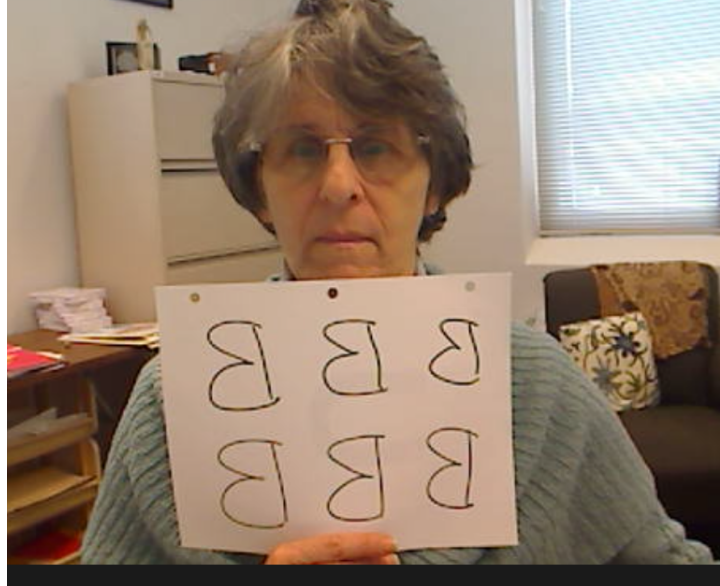
- Pin your own image so you are seeing yourself bigger than others on the screen.
- Turn off Virtual Backgrounds.
- In Video Settings, make sure you CHECK Mirror My Video.



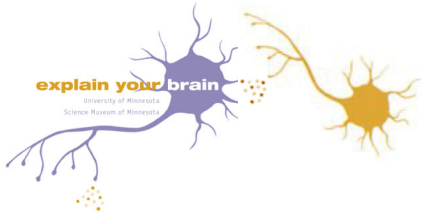
Teacher Guide Mirror Image

Synaptic Plasticity Inquiry Experience for Zoom

- Hold up your paper so you can see the Bs in your zoom image



- With a different color, trace over a B.



Teacher Guide

Mirror Image

Synaptic Plasticity Inquiry Experience for Zoom

Discuss

This should have been easy.

Test how quickly we learn

- in Zoom, go to Video Settings.
- Make sure to **Uncheck** Mirror My Video.
- Hold up the sheet of B's again.
- With the 3rd color, now trace over a B.
- Trace over all the Bs.
- What happens as you do this?

When you're done, remember to unpin your video and re-check Mirror My Video

Option

Time how long it takes to trace the first and last B.

Put pairs of students in breakout rooms. Have one student time another as they trace the Bs.

Discuss

What happened as you traced more and more Bs?

What do you think was happening in your brain?

See the discussion questions for the Mirror Image lesson, <http://brainu.org/lesson/mirror-image>. This is essentially the same activity, modified for zoom.

We thank Veronica, a physics teacher from San Francisco, for adapting the Mirror Image lesson to Zoom.

