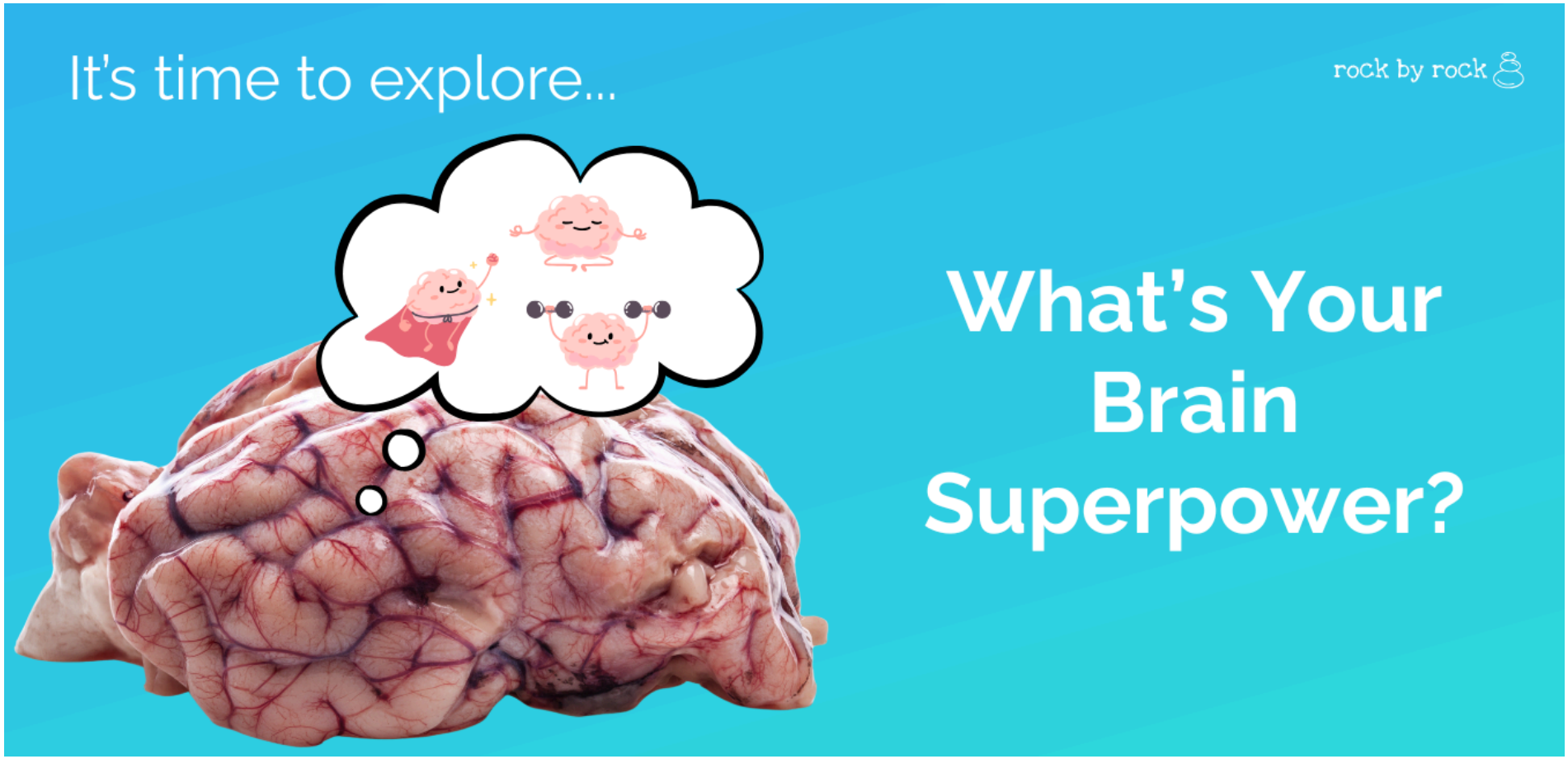
3.15: WHAT'S YOUR BRAIN SUPERPOWER?



Introduction

What if your brain had a secret superpower? Every brain works differently—and that's part of what makes science (and life!) interesting. Today, you'll try out a series of short memory and learning challenges that tap into different ways your brain works. After each one, you'll reflect on how it felt—what came easily and what stretched your brain.
Later, we'll find out more about how certain genes might help people learn new things more quickly, remember details more easily, or stay focused for longer. Then we'll consider the impacts of using genetic engineering to edit these genes.

Investigating Memory and Learning

Materials:
- Timer

Directions: Complete each of the activities below, and record your result in the data table. Take a short break between each activity.

Activity 1: Short-Term Memory/Recall
Study the image-word pairs for 30 seconds. Then turn to the data table and write as many words as you can remember without looking back at this page.

Image	Word		Image	Word
	Apple			Ice
	Bike			Shark
	Elephant			Balloon
	Guitar			Cactus
	Donut			Brain

Write as many words as you can remember in the space below without looking back!

Activity 2: Learning Patterns
Look at each pattern below and write what comes next in the pattern. If there's time, try the challenge!

Pattern 1	Red, Blue, Green, Red, Blue, Green, _____, _____, _____
Pattern 2	2, 4, 8, 16, ____, ____, _____
Pattern 3	🟢 🔺 🔴 🔵 🔺 🟡 🟢 🔺 🔴 _____, _____
Pattern 4 *(There are many answers that could work here!)*	Dog, Grape, Eagle, Egg, _____, _____
Challenge	Make your own pattern that hides a secret rule. See if a classmate can crack it.

Activity 3: Attention and Focus

Round 1 (Easier)

Set a 30-second timer. Start the timer, and count how many times the **letter A** appears in the paragraph below. When the timer goes off, record your answer on the line.

> A curious mind always asks questions. Asking questions allows us to dig deeper, gather more data, and see patterns we may have missed before.

Answer: _____

Reset the 30-second timer. Start the timer, and count how many times the **letter E** appears in the paragraph below. When the timer goes off, record your answer on the line.

> Every time we explore something new, our brain creates new connections. These connections help us learn better and remember faster. Even small experiences can lead to big changes in how we think.

Answer: _____

Round 2 (Harder)

Set a 45-second timer. Start the timer, and count only the **letter E**, but **ignore all bolded words**. When the timer goes off, record your answer on the line.

> Every learner **shines** in unique ways. Whether it's exploring **visual** memory, solving puzzles, or staying **calm** under pressure, our brains create new **networks** every day. These **abilities** come from practice, sleep, effort, and sometimes, genetics.

Answer: _____

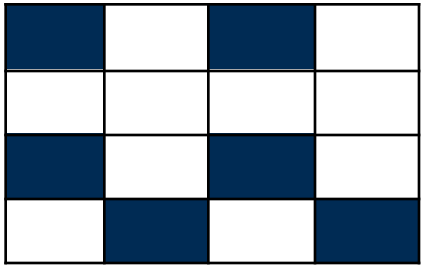
Reset the 45-second timer. Start the timer, and count only the **letter A**, but ignore all underlined words. When the timer goes off, record your answer on the line.

> Every learner **shines** in unique ways. Whether it's exploring **visual** memory, solving puzzles, or staying **calm** under pressure, our brains create new **networks** every day. These **abilities** come from practice, sleep, effort, and sometimes, genetics.

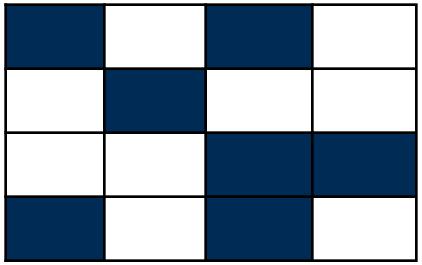
Answer: _____

Activity 4: Spatial Memory
Look at Grid 1 for 10 seconds. Recreate it on a blank grid on the next page without looking back. Repeat for Grid 2.

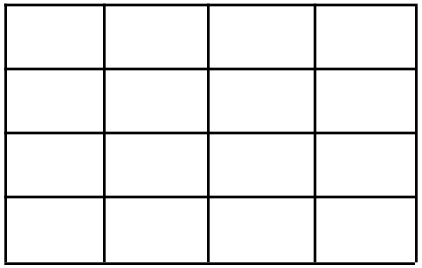
Grid 1:



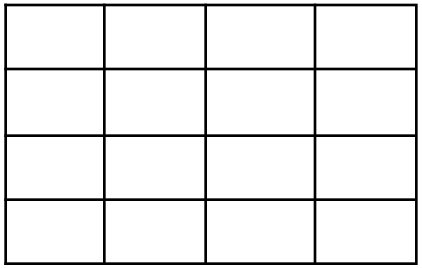
Grid 2:



Grid 1:



Grid 2:



Investigation Reflection

1. Based on the activities above, what do you think is your brain's superpower?
2. You are about to learn about some potential brain-boosting genes. How do you think genes work to improve memory and learning?
3. Besides genes, what other factors might affect how people learn, remember, or focus?
4. Do you think people should be able to have their genes edited to improve memory and learning? Why or why not?