

# I can TRAIN MY BRAIN.

"I like to learn. That's an art and a science."

⚡ Katherine Johnson

When students understand that our brains change as we grow, a whole new world of possibilities and potential opens up.

## ★ Reading Passage: Katherine Johnson

A mathematical genius, Katherine Johnson helped send the first men to the moon.

## ★ Short-Answer Activity: Brain Training

As they reflect on what they learned about Katherine Johnson, students will also be introduced to the idea that our brains are "muscles" that can change and grow. Then they will answer comprehension questions and share their responses with classmates.

## ★ Small-Group Activity: Rock or Tree?

As a class, discuss the definitions of *fixed* and *growth mindsets*, comparing *fixed* to a rock and *growth* to a tree. Then place students into pairs to complete the activity.

## ★ Whole-Class Activity: Your Brain Is a Muscle

Watch the short YouTube video "Growth Mindset for Students," episode 1, from ClassDojo. Talk with the class about the question posed at the end of the video. Then ask them to complete the activity.

## ★ Journal Prompt: I Can Train My Brain

Students will reflect on what they have learned about having a growth mindset and how it may help them going forward.

## ★ Growing Beyond

As a class, read *Counting on Katherine: How Katherine Johnson Put Astronauts on the Moon* by Helaine Becker. Ask students to write and draw about something they would like to train their brains to do.

Name: \_\_\_\_\_ Date: \_\_\_\_\_

..... **KATHERINE JOHNSON** .....

What does math have to do with going to the moon?  
Katherine Johnson knows the answer.

When Katherine was young, she loved to count. "I counted everything," she said. "The steps, the dishes, the stars in the sky."

Katherine had a love for math. She worked hard in school, and she went to college early.

When she was done, she had a degree in math.  
She went to work for NASA.

Katherine was what was called a "human computer." Before we had computers, human beings had to do all of the math.

Katherine was part of the Space Task Group. Her team figured out how to get men on the moon.

Katherine and her team used math to find out how long it would take to get there. They also figured out how fast the rocket needed to go.

Of course, counting stars is different from sending someone to the stars.

But Katherine trained her brain to do math that was harder and harder. Then one day she helped us all reach the stars!

Name: \_\_\_\_\_ Date: \_\_\_\_\_

## BRAIN TRAINING

Your brain is what helps you learn. And it's just like a muscle! The more you exercise your brain, the stronger it grows.

**Directions:** Answer the questions below. Then share your answers with at least two other students.

1. Katherine always loved to count. What is one thing that you love to do?

\_\_\_\_\_

2. The more you use your brain, the stronger it becomes. Name one thing you could do today to exercise your brain.

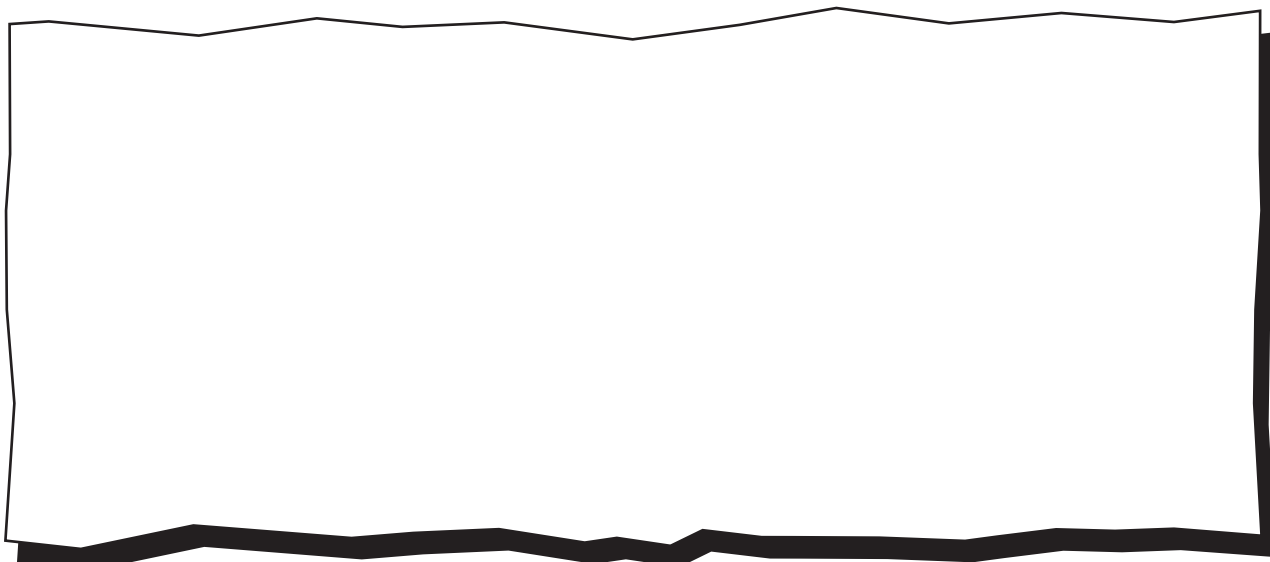
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3. Katherine was called a "human computer" for the work that she did. What do you think was her favorite subject in school?

\_\_\_\_\_

4. When Katherine was a girl, there were no such things as rockets that went into space! What is one thing you can imagine that doesn't exist now but might someday? Draw a picture of it in the box.



Name: \_\_\_\_\_

Date: \_\_\_\_\_

## ..... ROCK OR TREE? .....

A *fixed mindset* is like a rock. It doesn't grow or change. It doesn't get bigger or smaller. It just stays a rock!

"I can't..." and "I'll never..." are *fixed-mindset* sayings.

A *growth mindset* is like a tree. It's always growing and changing. New branches and new leaves appear as it grows.

"I can keep trying!" and "I want to learn!" are *growth-mindset* sayings.

**Directions:** Which of the sayings below are rocks, and which are trees? Pair up with another student. Cut out the sayings at the bottom and place them where they belong.

### Rock (Fixed Mindset)

### Tree (Growth Mindset)

★ I will do my best.

★ This is too hard.

★ I can learn from my mistakes.

★ I can't do this.

★ I can try again!

★ I love to learn!

★ I'm not good at this.

★ I give up.

★ I can't do this YET!

Name: \_\_\_\_\_ Date: \_\_\_\_\_

..... **YOUR BRAIN IS A MUSCLE** .....

In the video, Mojo discovers that the brain is a muscle.

That means that mistakes are like lifting weights! We have to lift weights to make our muscles stronger. So our mistakes can help us get stronger, too.

We also learn by connecting what we already know to new information. That also makes our brains stronger!

**Directions:** What are some other ways you can think of that would help your brain get stronger? List your ideas here.

★ \_\_\_\_\_

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★ \_\_\_\_\_

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Name: \_\_\_\_\_ Date: \_\_\_\_\_

# ..... I CAN TRAIN MY BRAIN .....

Katherine Johnson said, "I'm always interested in learning something new." That is having a growth mindset!

Write your answers to the questions below.

★ Do you have a growth mindset? How do you know? ★

★ What is your favorite thing you have learned about being able to train your brain? ★

★ How will having a growth mindset help you? ★