The Girl With A Mind for Math

The Story of Raye Montague

I Can Be Kind

I Can Raise MY Hand To Share

I Can Listen Quietly

Objectives-I will Be Able to

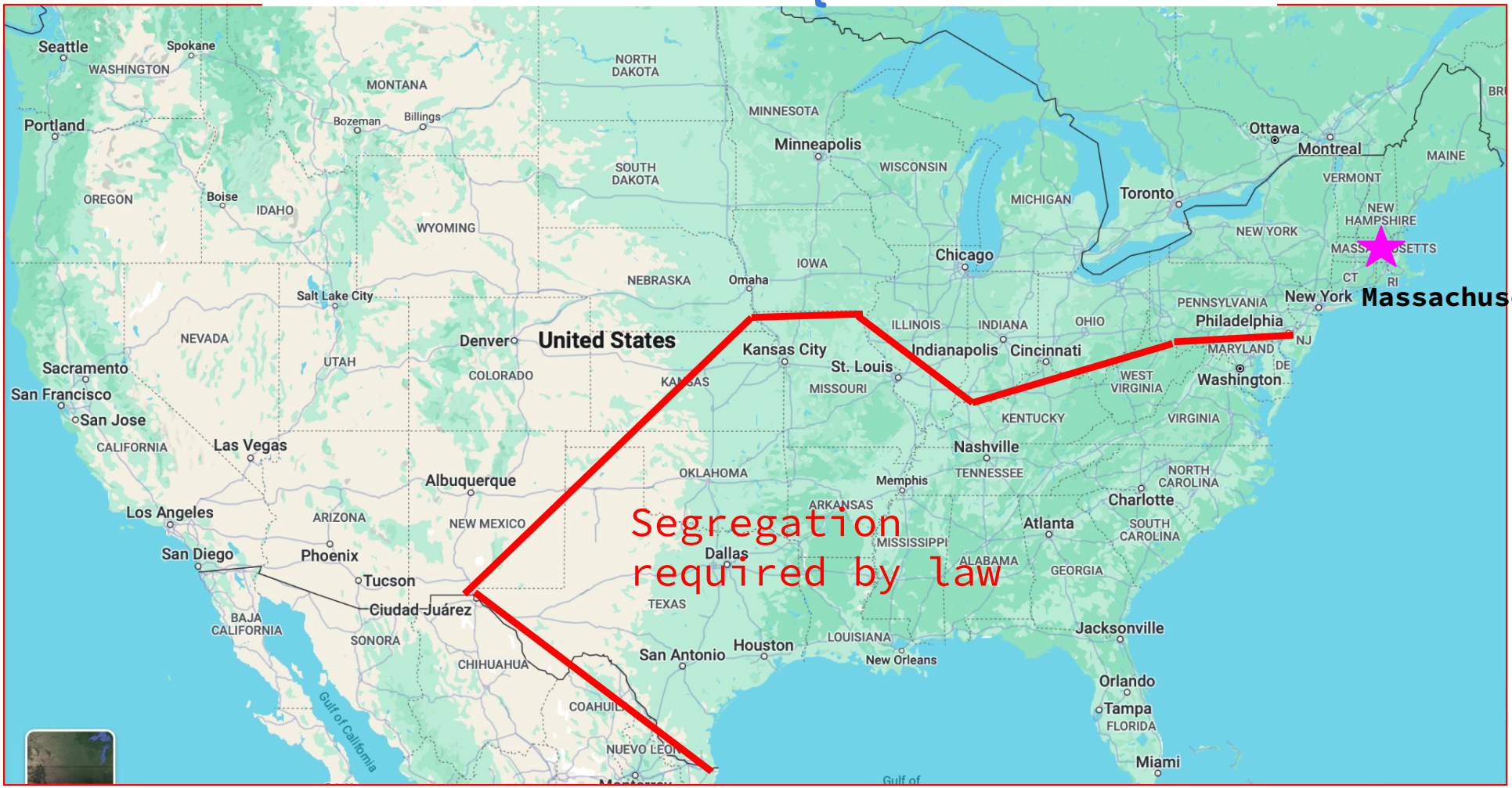
- **Define Self-Advocacy and Persistence**
- **Understand the importance of self-advocacy and persistence**
- **Practice persistence and problem solving**

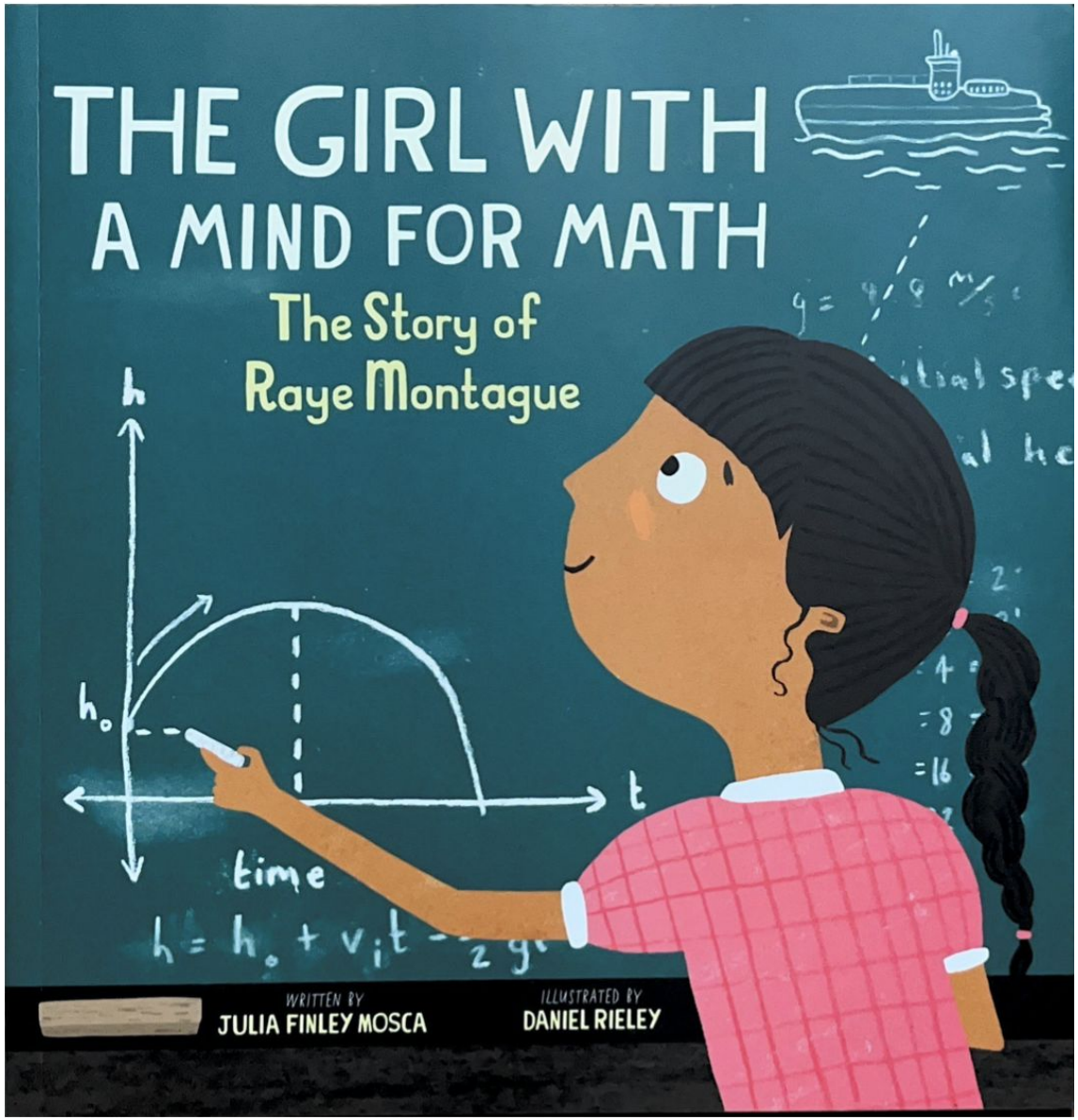
Vocabulary words

- **Segregation:** Laws and policies to keep people separated based on a characteristic or difference.
- **Self-Advocacy:** Speaking up for yourself so you can get your needs met.
- **Engineer:** A person who uses science and technology to design and build things. There are many different types of engineers and they can work on building boats, cars, bridges, skyscrapers, computers and more!
- **Headstrong:** Very determined to do what you want without listening to others.
    - **Persistent:** Determine to achieve your goals, even if it's not easy.

Little Rock, Arkansa & Washington D.C.

Segregation required by law




THE GIRL WITH A MIND FOR MATH
The Story of Raye Montague
h
h_o
t
time
$h = h_o + v_i t - \frac{1}{2} g t^2$
WRITTEN BY
JULIA FINLEY MOSCA
ILLUSTRATED BY
DANIEL RIELEY

READ BOOK

What did you think?

Think-Pair-Share:

What kind of things have you done or would you do if someone was treating you unfairly?

Brain Break: Friction & Focus

The scientific method

Ask a question and think of the possible answer (hypothesis)

Test idea

Doesn't work

Fail

The scientific method

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The scientific method

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Test idea

Fail

Test idea

Fail

Test idea

Fail

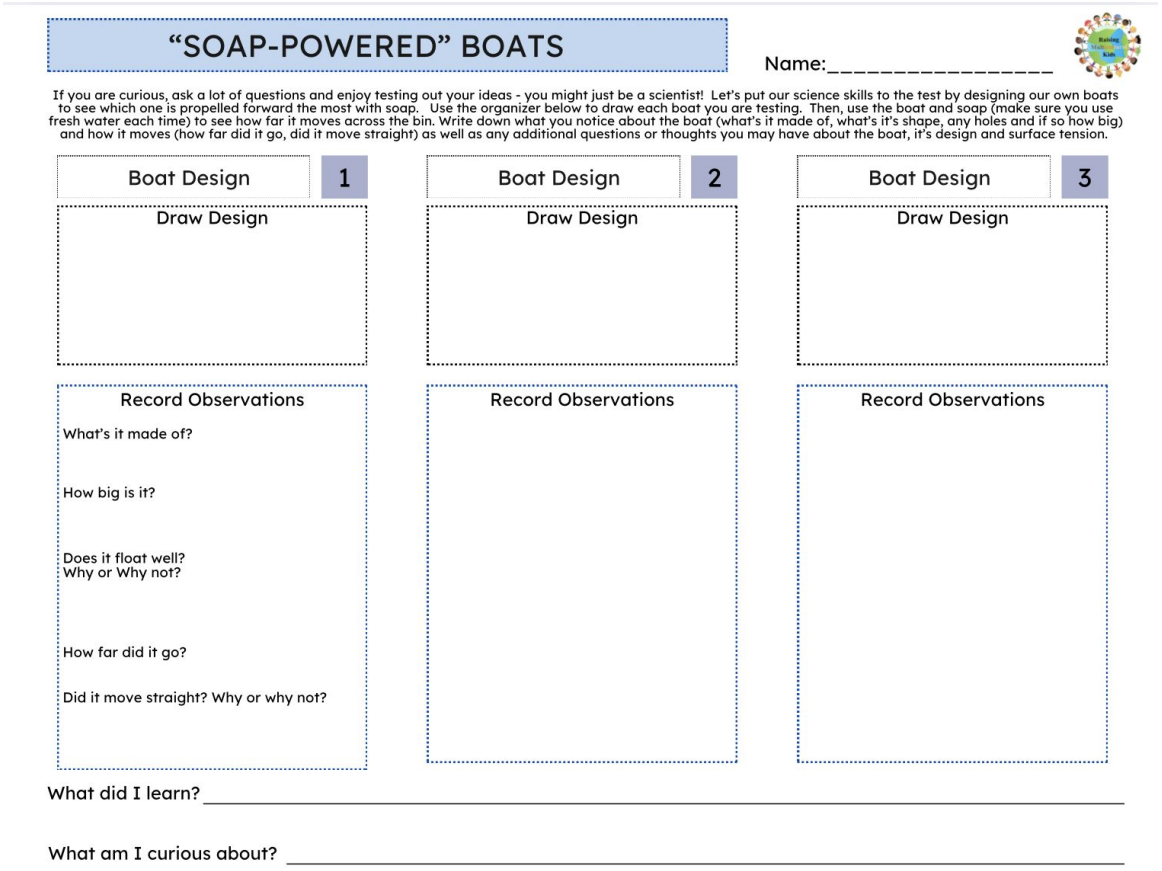
Test idea

Success

Fun Activity Time: Soap powered boats

Teachers Boat

1. Put name on worksheet
2. Draw Teacher's boat
3. Describe it under "Record Observations"
4. Teacher does experiment
5. Record what happens under "Record Observations"



"SOAP-POWERED" BOATS

Name:_____

If you are curious, ask a lot of questions and enjoy testing out your ideas - you might just be a scientist! Let's put our science skills to the test by designing our own boats to see which one is propelled forward the most with soap. Use the organizer below to draw each boat you are testing. Then, use the boat and soap (make sure you use fresh water each time) to see how far it moves across the bin. Write down what you notice about the boat (what's it made of, what's it's shape, any holes and if so how big) and how it moves (how far did it go, did it move straight) as well as any additional questions or thoughts you may have about the boat, it's design and surface tension.

Boat Design 1	Boat Design 2	Boat Design 3
Draw Design	Draw Design	Draw Design
Record Observations What's it made of? How big is it? Does it float well? Why or Why not? How far did it go? Did it move straight? Why or why not?	Record Observations	Record Observations

What did I learn? _____

What am I curious about? _____

Fun Activity Time: Soap powered boats

Materials you need:

- Paper of your choice (must be different than your partners)
- Scissors
- Tray & Water
- Cue Tip
- Soap (share)

Student Boats

1. Find your partner
2. Collect your materials
3. Design and make your boat
4. Draw & describe your boat on your worksheet
5. Clean your space!

Fun Activity Time: Soap powered boats

Ready to test your boat?

One partner at at time!

1. Dip Q-tip in soap
2. Gently place your boat in the water
3. Use Q-tip to place soap in the notch of your boat
4. Watch it move forward!
5. Record your observations
6. Next partner's turn

Clean up!

Fun Activity Time: Soap powered boats

What did you Learn?

What questions do you still have?

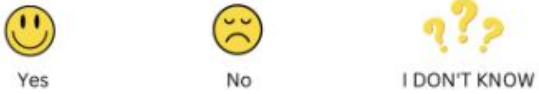
What else are you curious about?

TICKET TO GO

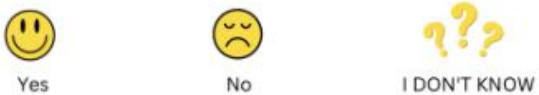
Name: _____ Class: _____

1. What is advocacy?

2. Yes or No. Persistence is when you give up on something that is hard.



3. Yes or No. Asking questions and trying different ways to solve a problem is important in science and life.



Circle the emoji that shows how you feel about the importance of today's book & activity

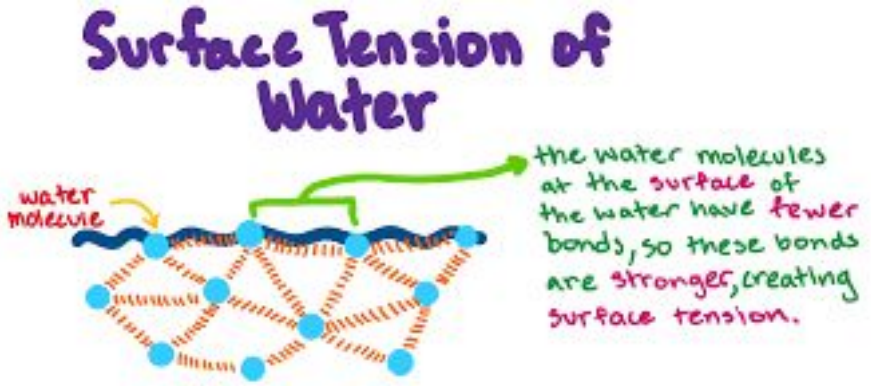
Grade

Surface Tension

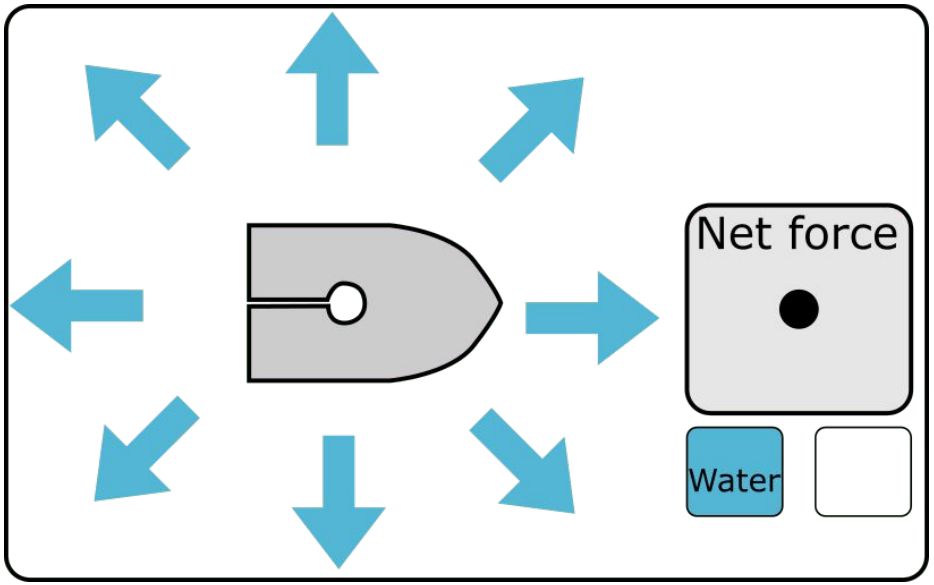
What is it? A property of a liquid's surface that allows it stay together and resist outside forces

How does it work? Water molecules like to 'stick' or bond together, but the molecules at the top don't have water molecules above them to bond with. As a result the top layer bonds more strongly with the molecules directly below it and that creates a thin strong layer at the surface. This layer acts like a barrier that makes it harder to break through the surface of a liquid.

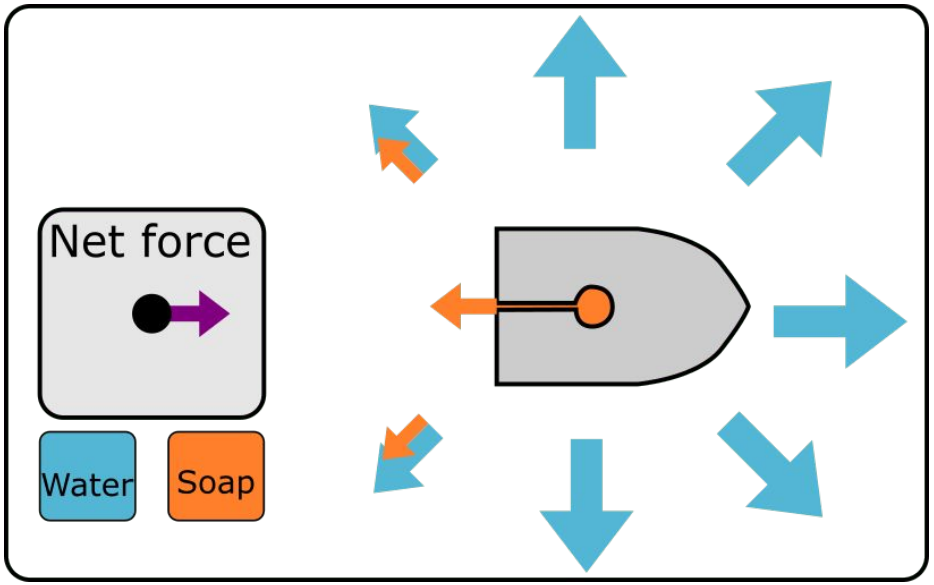
Why does soap change surface tension? It breaks apart the water molecules and by reducing the strength of their bonds and as a result it decreases surface tension.



Surface Tension



The surface tension is the same around the boat. The forces pulling on it are the same all around it so it doesn't move.



The surface tension is less in the back of the boat after adding soap. The forces pulling on it are stronger in the front so it moves forward.

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