



Multisensory Learning

An All Inclusive Approach

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What is Multisensory Learning?



What is Multisensory Learning?

- MSL is the acquisition of knowledge that occurs through the use of multiple senses.
- Due to the engagement of multiple senses, multisensory learning demands attention and focus in a way that uni-sensory teaching cannot.
- Contrary to common belief, MSL is NOT just for lower grades! This all-inclusive approach can be used with all ages and all types of learners.

What are the characteristics of multisensory learning?

- Involves more than one sense
- Activates more areas of the brain
- Allows learners to understand new information in more than one way
- Inclusive of more than one style of learning

What does the research say?

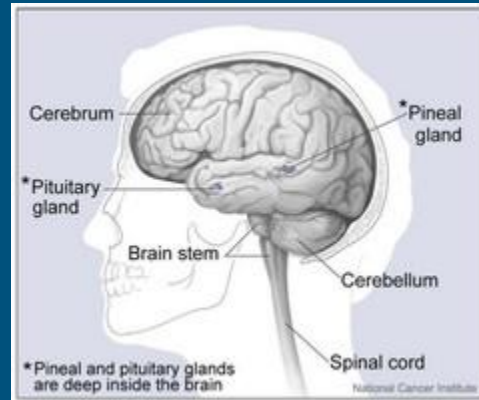
- When multiple senses are being used, more neural pathways are stimulated (Christie, 2000). Consequently, these multisensory learning experiences are encoded through a large network of neurons (Goswami, 2008; Lacey & Lawson, 2013).
- This increase in neuron firing increases neuroplasticity, allowing students to make new connections (Shams & Seitz, 2008).

What does the research say?

- Multisensory presentations generated 50% more creative solutions to problems compared to uni-sensory learning (Medina, 2014). Students are better able to generalize across contexts. This encourages critical thinking as opposed to regurgitation.
- Multisensory approaches can result in dopamine release, which positively impacts motivation, working memory, spatial learning and memory, and episodic memory (Warren, 2021).

Let's understand further...

What is Neuroscience?



Neuroscience, as defined by Merriam-Webster, is a branch (such as neurophysiology) of the life sciences that deals with the anatomy, physiology, biochemistry, or molecular biology of nerves and nervous tissue and especially with their relation to behavior and learning.

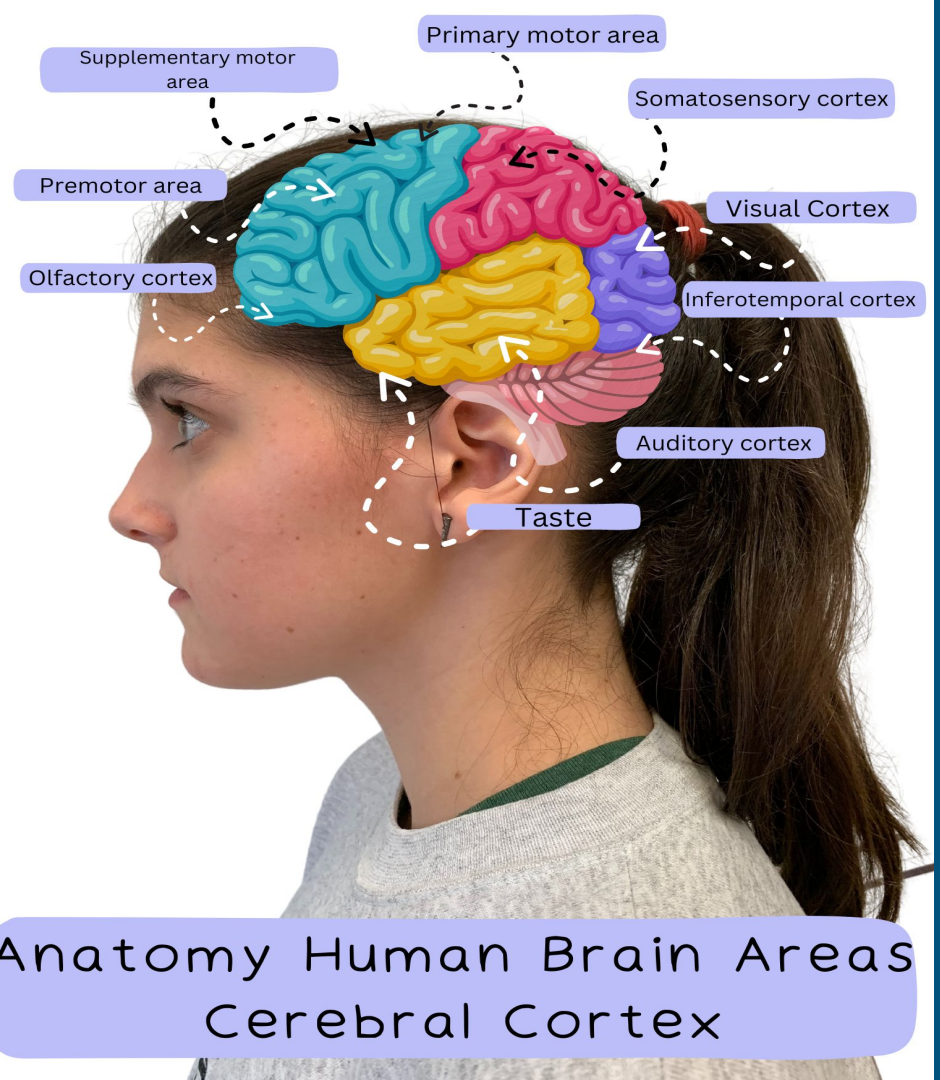
Bottom line, it's everything that encompasses the brain, spinal cord, and the nervous system network.

So, who are the individuals credited with originating the idea behind multisensory learning?

Any ideas?

- American Psychologists - Cleland & Clark, 1966
 - Sensory Cafeterias were rooms set up to expose individuals with hyperactivity, autism or developmental cognitive impairments to stimulate the senses.
 - Years ago, this was only offered to people with mental disabilities.
 - Today, multisensory learning helps every age group and in multiple settings such as hospitals, nursing homes, rehabilitation centers and schools
- Maria Montessori
- Anna Gillingham and Dr. Samuel Orton, 1930's
- John Dewey, Jean Piaget, Howard Gardner

The Brain



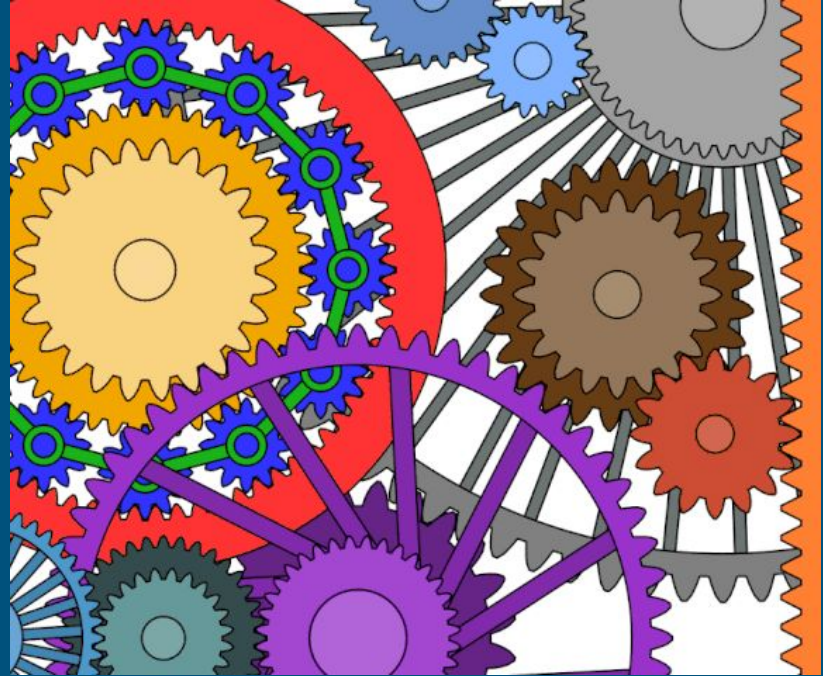
Anatomy Human Brain Areas
Cerebral Cortex

How this all works:

[Neuroscience: The Neuron](#)

[How Neurons communicate](#)

[Lobes & Landmarks of the brain](#)



Any Runners in the group?

“The Runner’s High”

What causes it?

- Endorphins

And what else....?



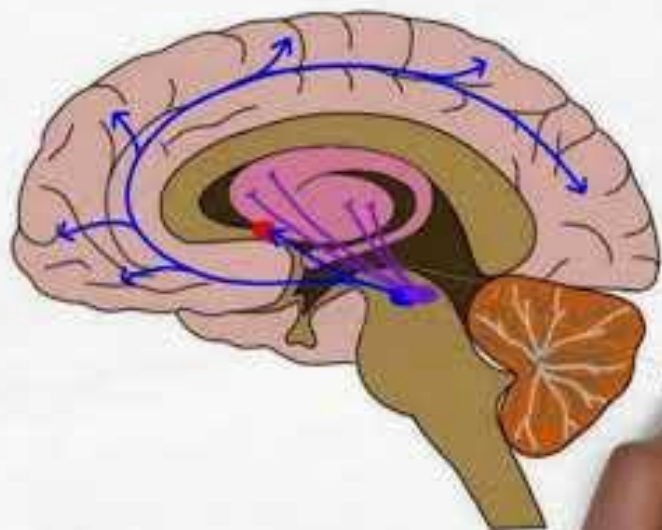
Dopamine!

What's the scoop on dopamine and the brain?

- Often called the “feel good brain chemical” because it sends messages between nerve cells
- Higher levels of dopamine may protect nerve cells from damage
- Dopamine is key for
 - Laughter
 - Play
 - Exercise
 - Sunlight
 - Sleep



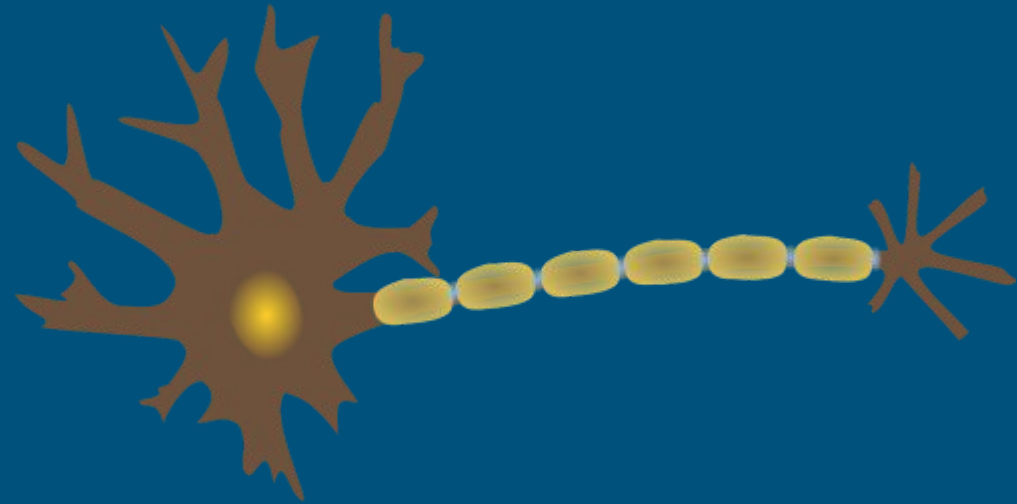
DOPAMINE PATHWAYS



Dopamine (continued)

- It gives us that feeling of happiness and is needed to allow us to plan and think
- Assists working memory
- Aids in remembering the past and other experiences
- Listening to music increases the dopamine activity

Let's create a circuit to see how all these things come together and help us to learn!



A meme featuring a man with glasses and a light blue shirt in the foreground, looking serious. In the background, another man in a light blue shirt is seen from behind, sitting at a desk. The text is overlaid on the image.

LIFE IS SHORT...

FALSE.

IT'S THE LONGEST THING YOU DO.



Learn your RULES

So, what just happened?

- We just created a circuit.
- You **see** the photo of Dwight, from The Office
 - BEEP - Your **visual cortex** is activated
- You **see and hear** Dwight sing “Learn your Rules”
 - BEEP BEEP - **visual & auditory cortexes** are activated. They connect.
- If you join Dwight, **use your hands and sing along** (BEEP BEEP BEEP)
Now the somatosensory cortex is activated.
- The neurons are firing together and at the same time the wiring created a Dwight circuit in your brain.

- When teachers teach in ways that use visual and kinesthetic pathways, question what is presented, and engage students in discussion, memory is improved.
- Studies have shown that auditory alone is not effective for deeper learning and critical thinking.



Benefits

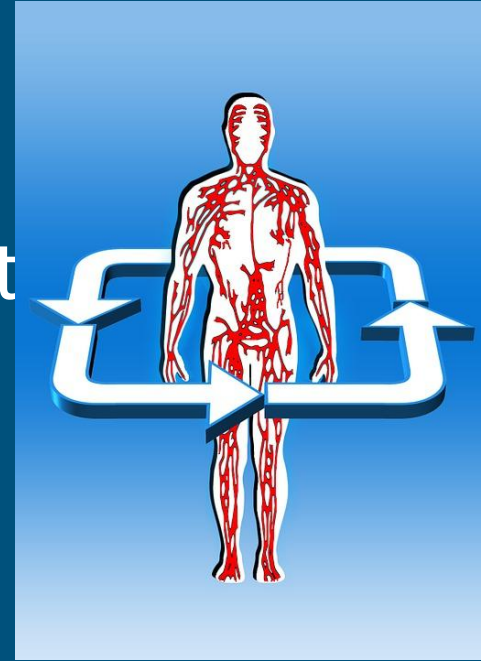
- There are many benefits from using a multisensory approach to learning!
- For one, it makes learning FUN!
- Students learn through experiences and it helps them think more critically instead of regurgitation of facts that they will most likely not remember down the road.

Benefits

- Reaches ALL students
- Activates the brain
- Demands attention
- Increases engagement
- Gives ownership of learning
- Creates a collaborative environment
- Challenges students
- Provokes curiosity
- Reduces redundancy
- Can reduce anxiety
- Increases motivation
- Increases ability to solve real world problems
- Natural chunking of lessons and assignments

How do I integrate multisensory learning into my classroom?

- After about 15-20 minutes, students tune out.
- The body gets sleepy from no movement because the blood is not flowing throughout
- Get them UP and MOVING! Even a minute or two increases the blood flow and oxygen to the brain!



A few ideas to build brain connections:

- Go outside or within the classroom and walk, talk and learn.
- Use GoNoodle or other brain breaks, energy breaks, sing & clap, etc.
- Have them work on memorizing poems or other things by walking while they say what they are trying to remember

BRAIN BREAK

Stand up
and
play
along!



Jot down

3 THINGS YOU COULD
TEACH YOUR STUDENTS
BY USING
“APPLES ON A STICK”



DID YOU THINK
OF ANY OF
THESE IDEAS?



1. VOCABULARY
2. REMEMBERING COUNTRIES, STATES,
CAPITALS, CITIES
3. POETRY

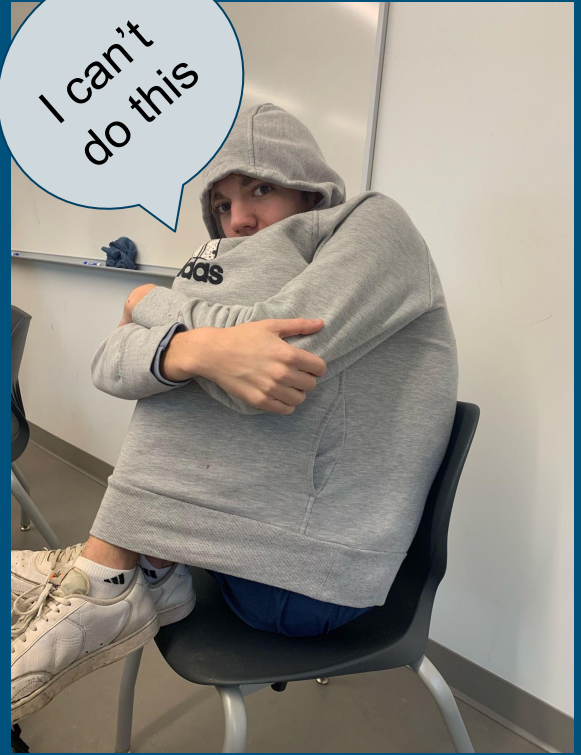
Let's hear some of the ideas you thought of!

I've got this!



This or
That?

I can't
do this



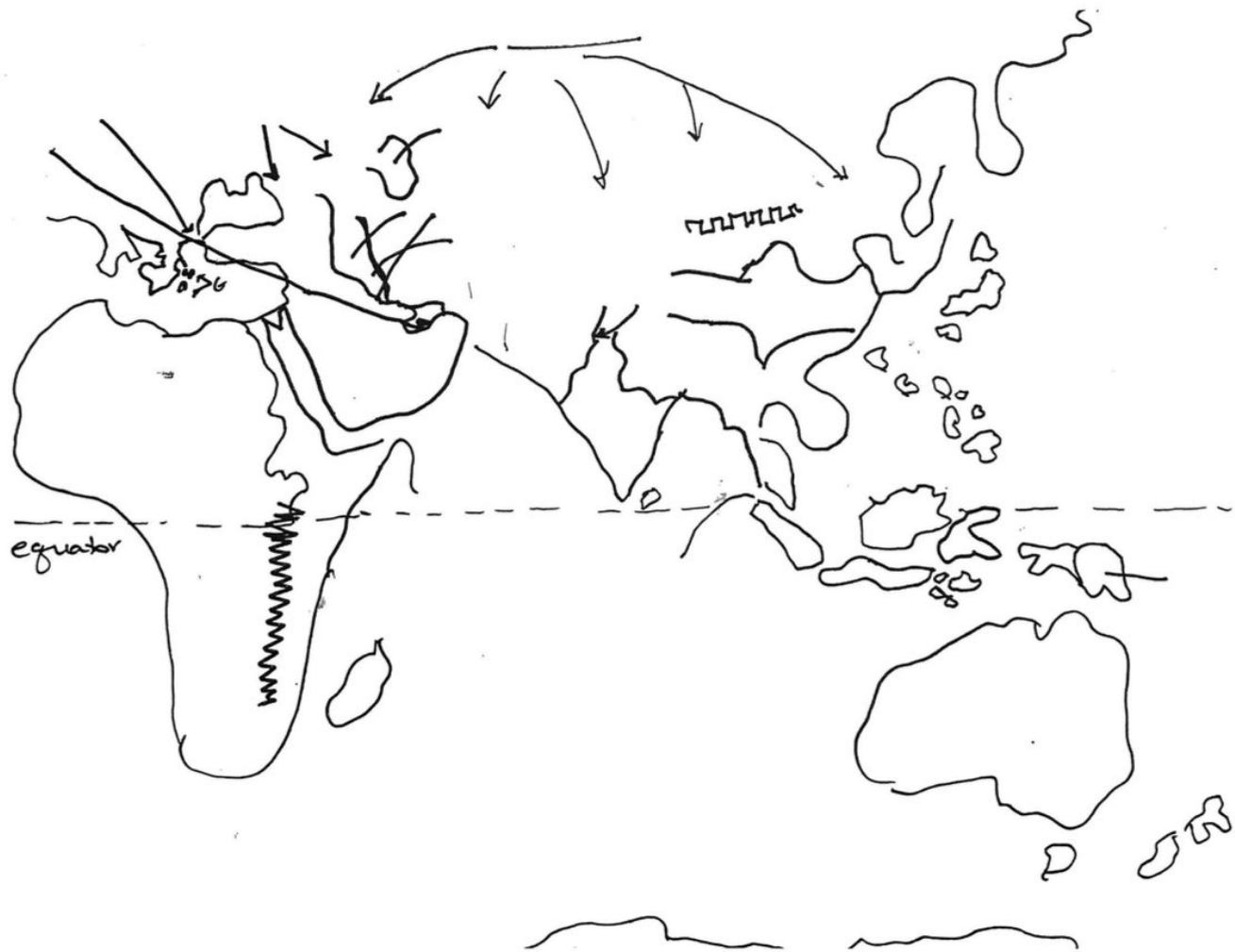
Get ready here are the visuals to spark ideas!

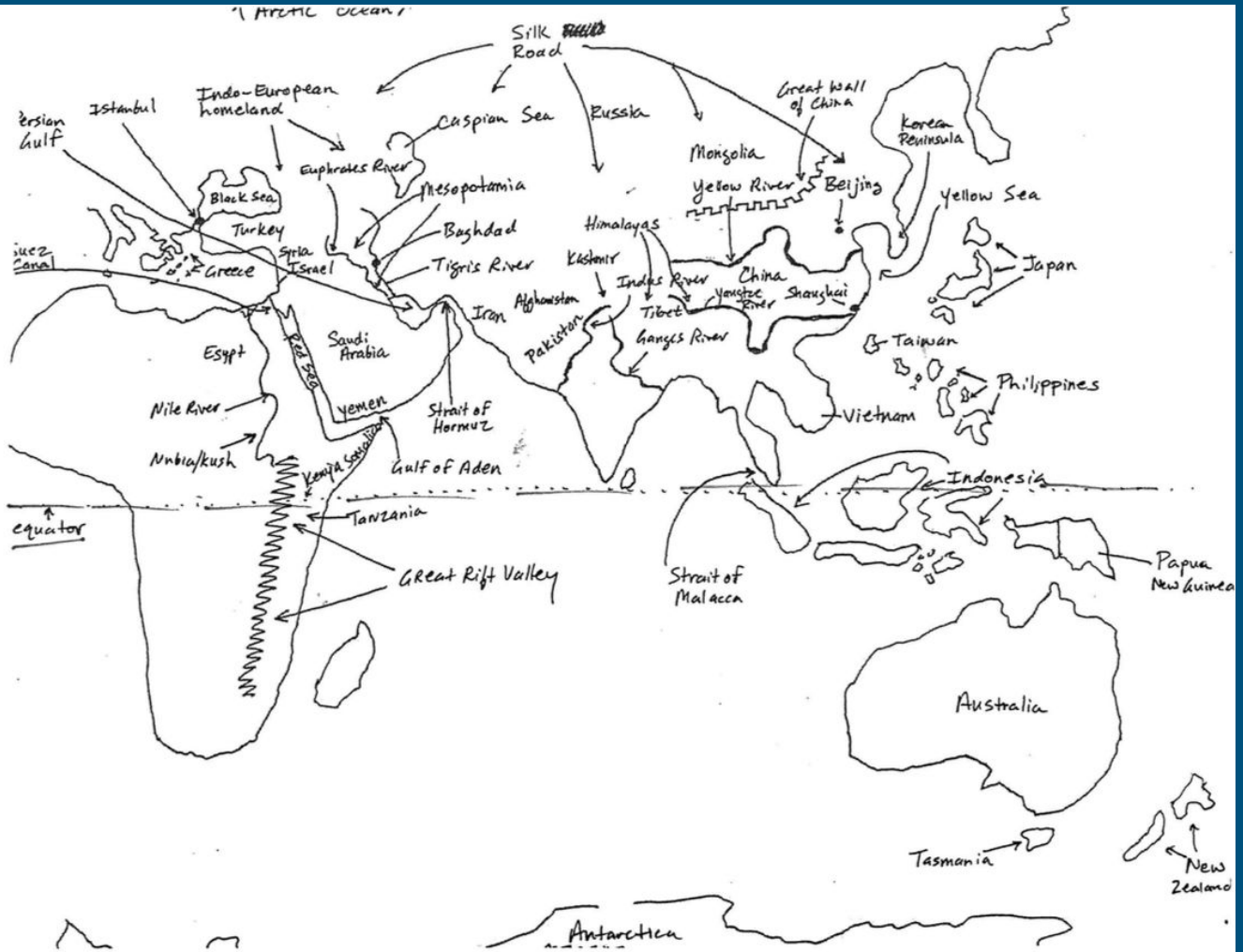


A map of the Great African Rift Valley









How many particles of chalk does it take to write your name on the sidewalk?



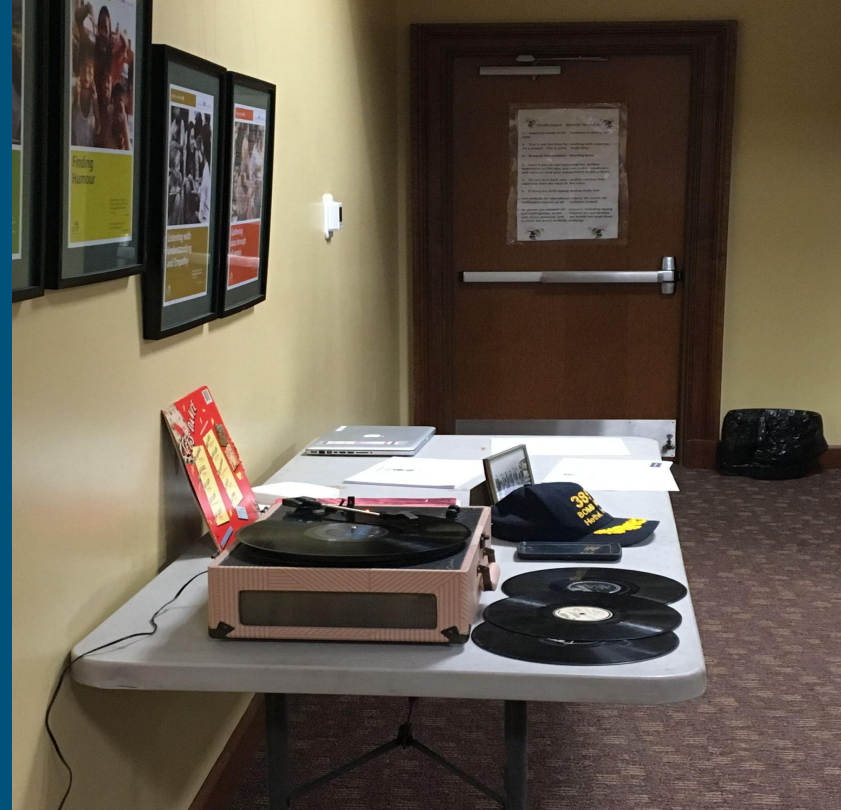
Students army crawled into “foxholes” to read about Vietnam in the book *The Things They Carried*.





Using items found in nature to eat

Play music of the time period

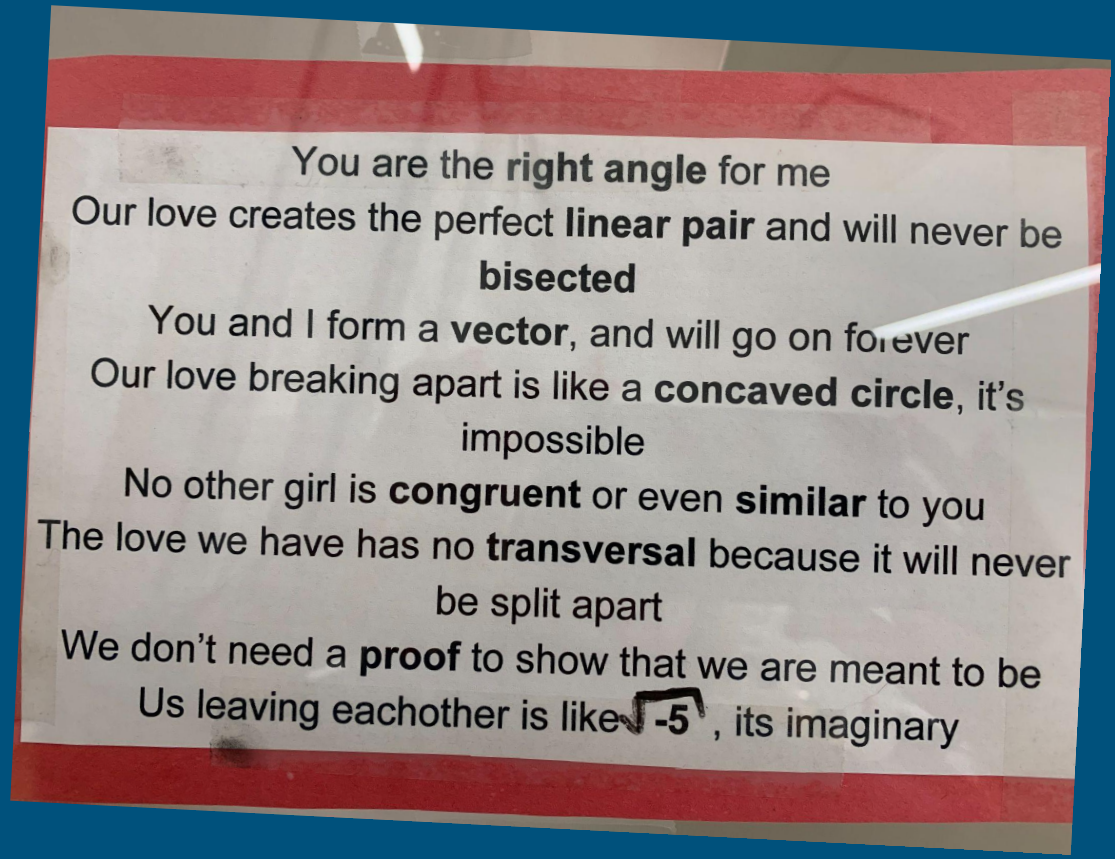
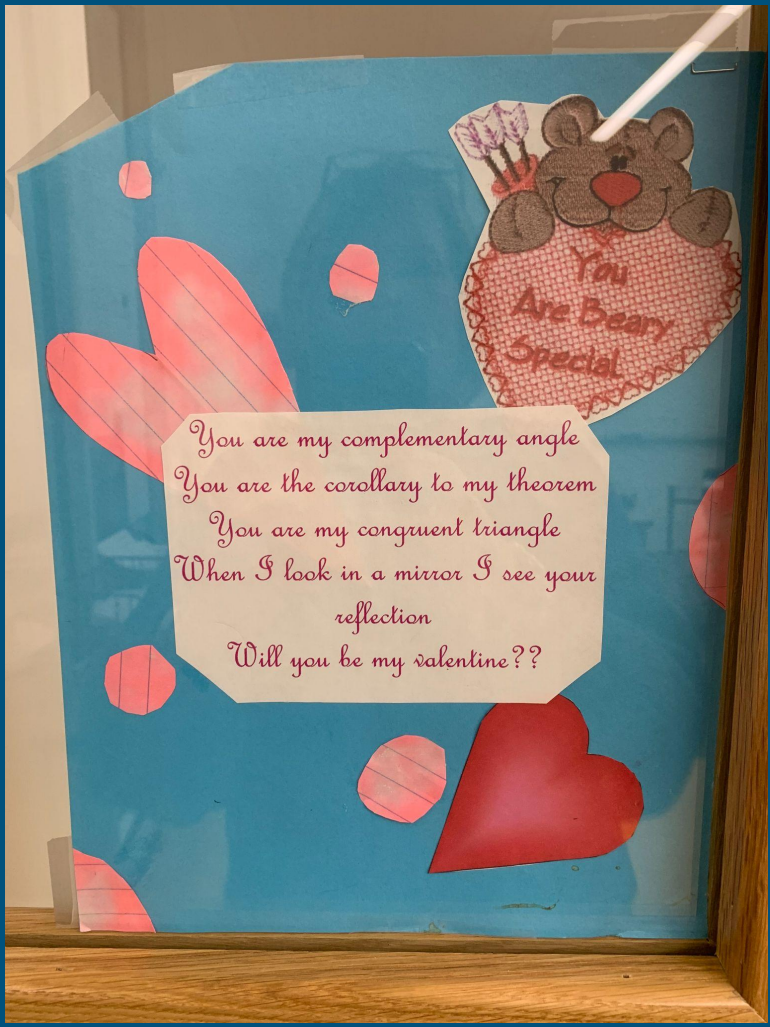


Reading *The Crucible* by candlelight





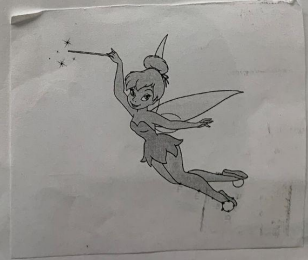
The
Great
Gatsby
~After
reading
the book
~have a
party!



❤️ Math Valentine challenge ❤️

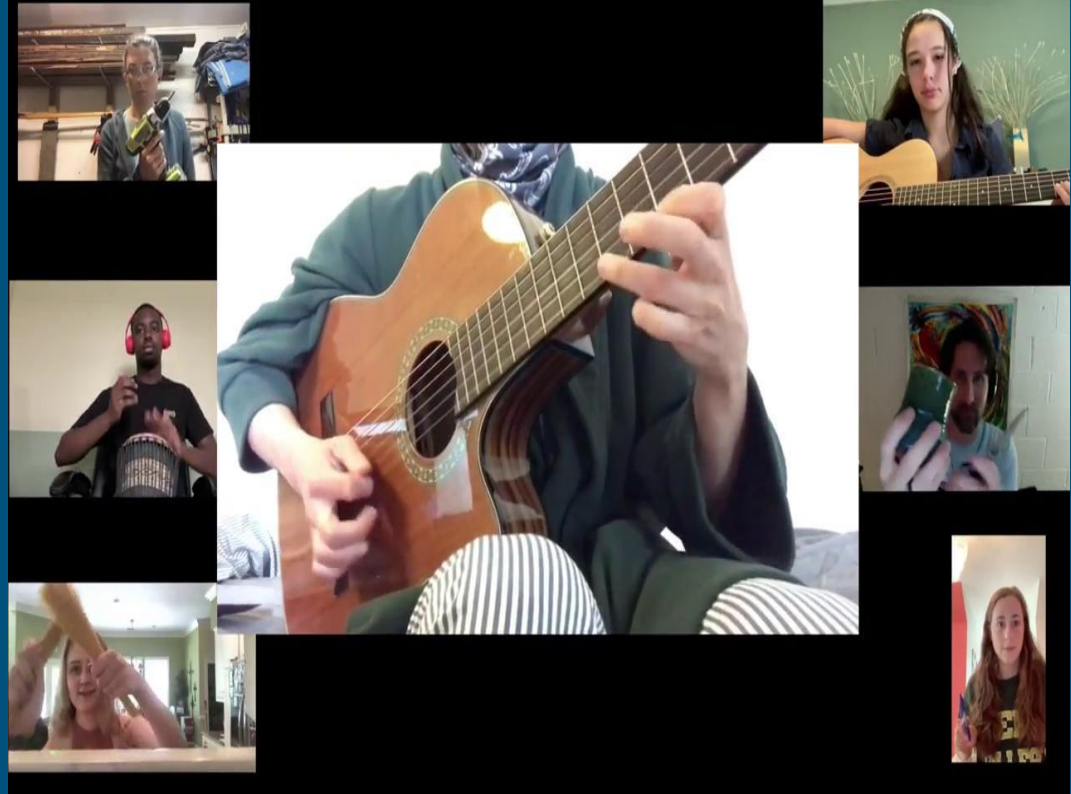


Geometry Ideas!



Music class
during Covid
learning at home!

What a time to
get creative with
teaching and
learning!



Sharing is caring!

- Self Check:
 - Did you feel successful?
 - Did you feel frustrated?
 - If so, how did you struggle?
- What are your three takeaways from these sensory activities?
- What are your favorite sensory ideas you tried or saw today?
- How can you incorporate multisensory learning in your classroom?

