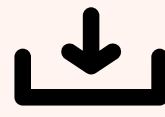




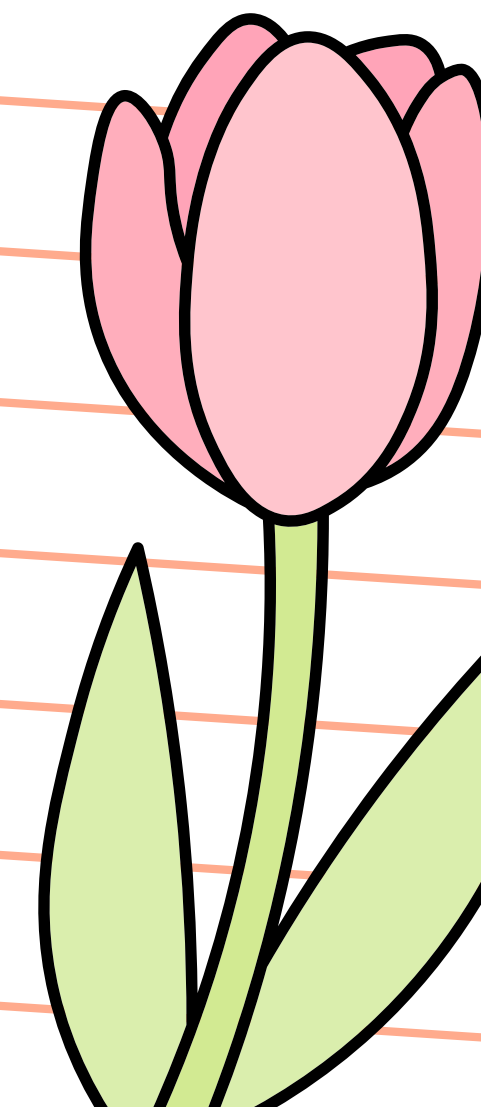
# CULTURALLY RESPONSIVE MATHEMATICS

By Kristie & Tanya



# LAND ACKNOWLEDGMENT

We would like to acknowledge that we are guests on this land as multi-ancestral settlers. This great city is located on the unceded territory of the T'Kemplups te Secwepemc people where they traditionally led a nomadic lifestyle, moving place to place following seasons and food availability. It is our great privilege to call Kamloops our home where we learn, work, live, and play.



# WHAT DOES CULTURE HAVE TO DO WITH MATH?

Consider this question from a middle school standardized test:

**It costs \$1.50 each way to ride the bus between home and work. A weekly pass is \$16.00. Which is the better deal, paying the daily fare or buying the weekly pass?**

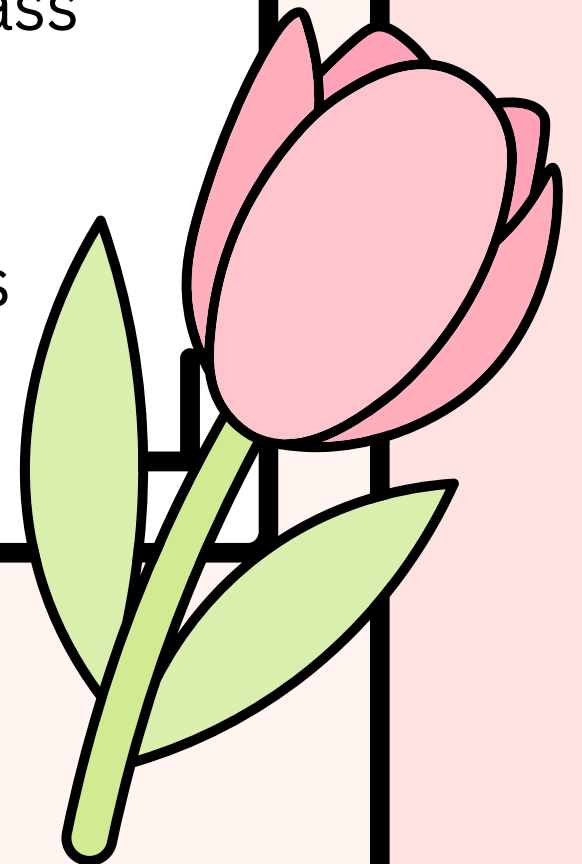
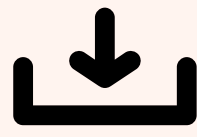
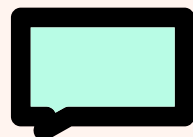
Correct answer:

If taking the bus to and from work in a day, that's 2 rides a day for a total of \$3/day

Times this by 5 work days in a week for a total of  $\$3 \times 5 = \$15$ .

It would cost \$15/week with the daily fare which is less than the cost of the weekly pass (\$16/week) so the daily fare is the better deal.

In an urban US school with predominantly African-American students, most students got this question wrong. **Why?**



# WHAT IS CULTURALLY RESPONSIVE MATH?

This is a method of teaching by creating a learning community in which all students are contributing members through collaboration, reasoning, & applying past knowledge. It takes into account differences in culture, language, & diversity for an inclusive learning environment where everyone is equitable.

There are 4 highlights:

- It makes the math relatable to real-life experience (i.e. place-based learning)
- It supports deep & critical thinking
- It offers a shared authority/power by building collaboration & inclusivity
- It engages & incorporates identities to include past knowledge, communication, and makes every students' input valued

## RESEARCH SHOWS...

- Success in math is tied to opportunities to learn meaningful mathematics (not innate intelligence)
- Effective teachers cultivate mathematics abilities of all students
- In order to teach math equitably, teachers need to take into account individual students' identities and ways of knowing.

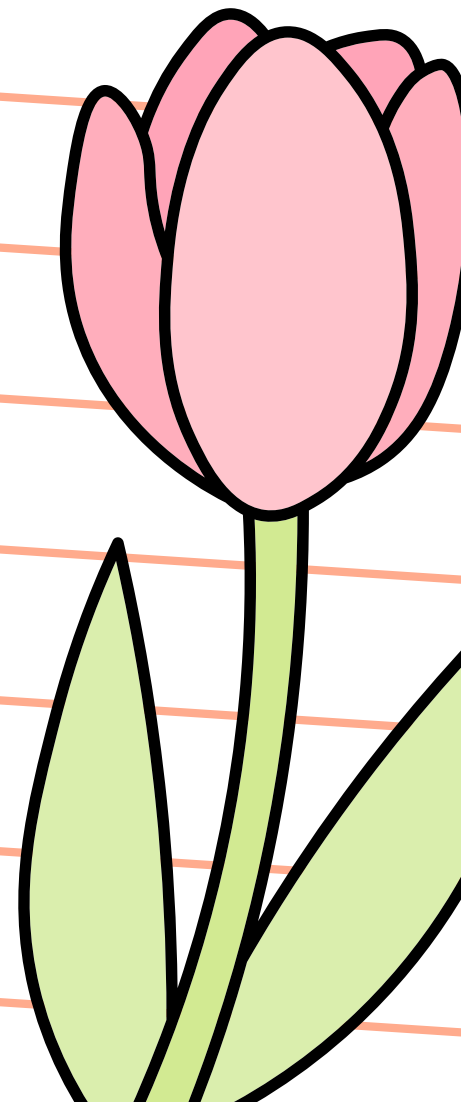


# AN EXAMPLE OF WHAT CAN HAPPEN IN A CULTURALLY RESPONSIVE MATH CLASS...

## Kaktovik Iñupiaq Numerals

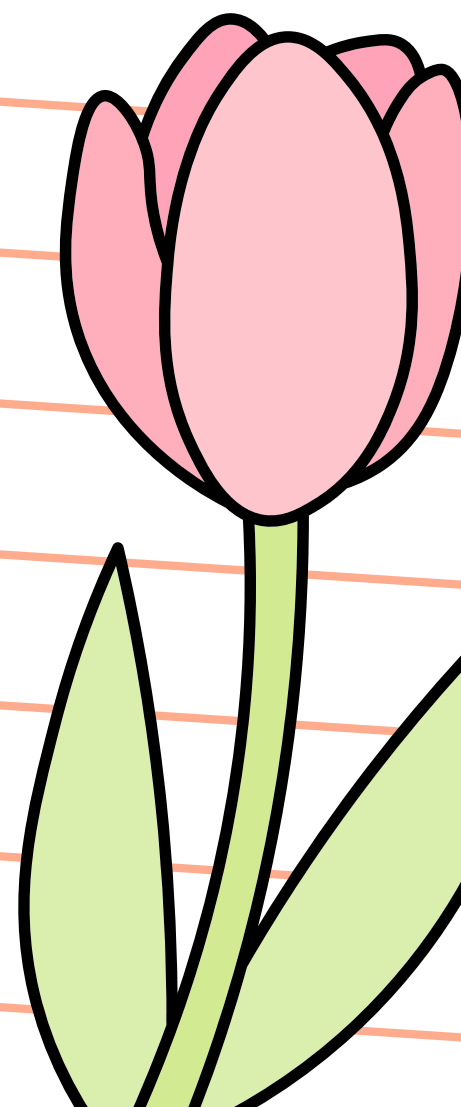
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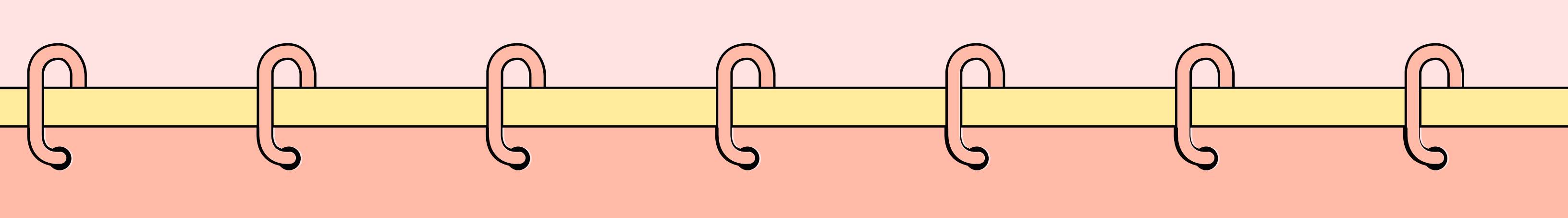
Let's see how intuitive calculations can be with this number system.



# WHEN CAN TEACHERS USE CULTURALLY RESPONSIVE MATHEMATICS?

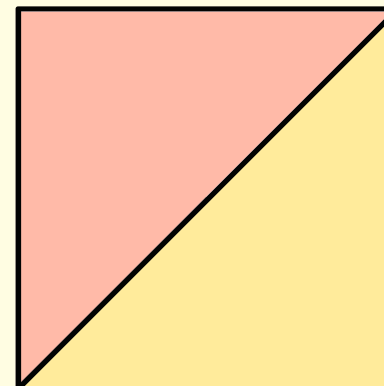
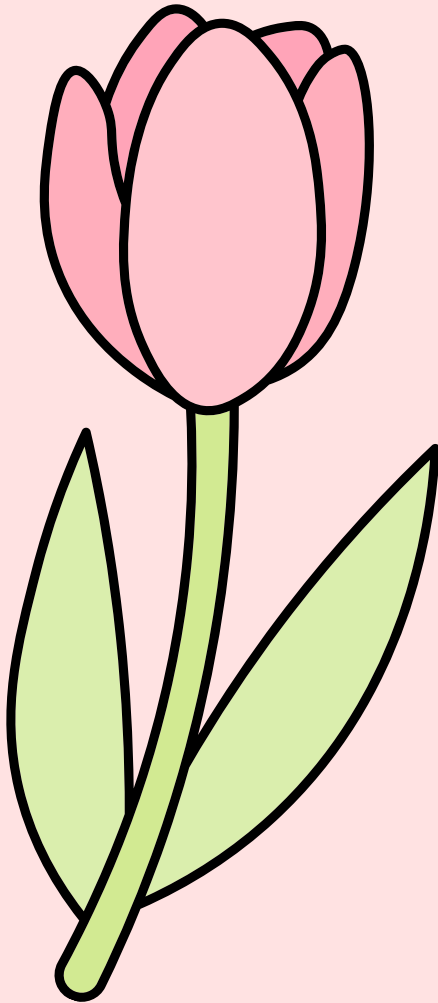
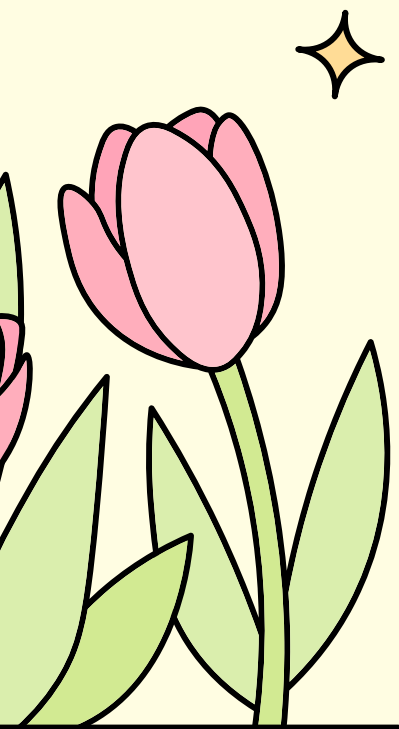
- When there is trusting relationships built
- When they want to utilize real-world connections & relatable situations
- When there is an imbalance of ability in the group
- When the teacher recognizes that all students have the ability to participate in math learning





# WHERE CAN TEACHERS USE CULTURALLY RESPONSIVE MATHEMATICS?

- In the classroom where there are students can collaborate together with different ways of thinking and reasoning in mathematics processes
- In a learning environment where students have value placed on their way of thinking and processing
- Where students feel that they have a sense of identity in the classroom



# WHAT ARE SOME CHALLENGES THAT MAY OCCUR?

- When language barriers exist
- The students are new to each other (unfamiliar)
- When schools have a Eurocentric political ideology
- Standardized curriculums and standardized tests
  - for example, many Alaskan schools abandoned the Kaktovik number system (despite its success) in the early 2000s out of fear of being shut down under the US government's No Child Left Behind program

# CONCLUSION

- Math IS cultural!
- A teacher's job is to create space for students to bring their culture to the classroom - not to teach students their culture
- Culturally responsive teaching does not require bringing in materials from other cultures. However, if using materials from another culture, include the context so that culture is credited for their mathematical brilliance

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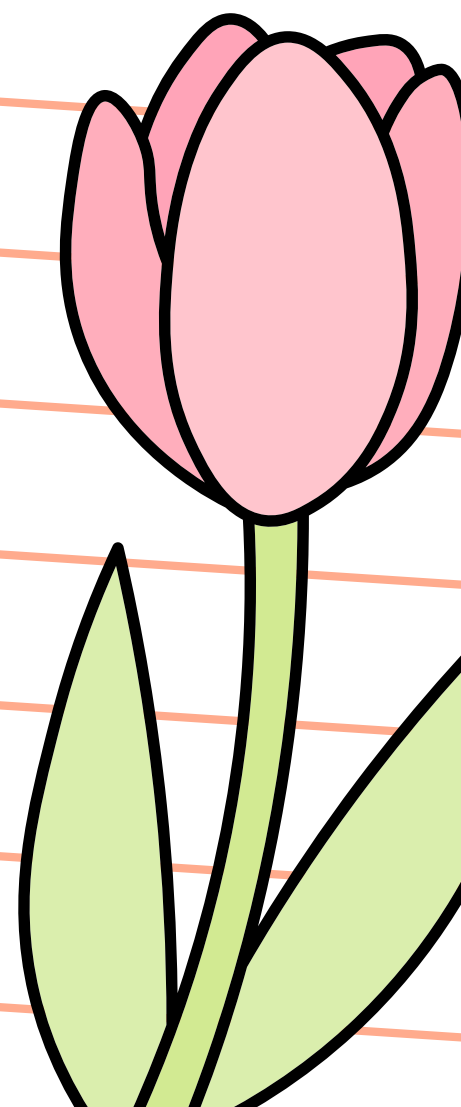
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**THANK YOU!**

