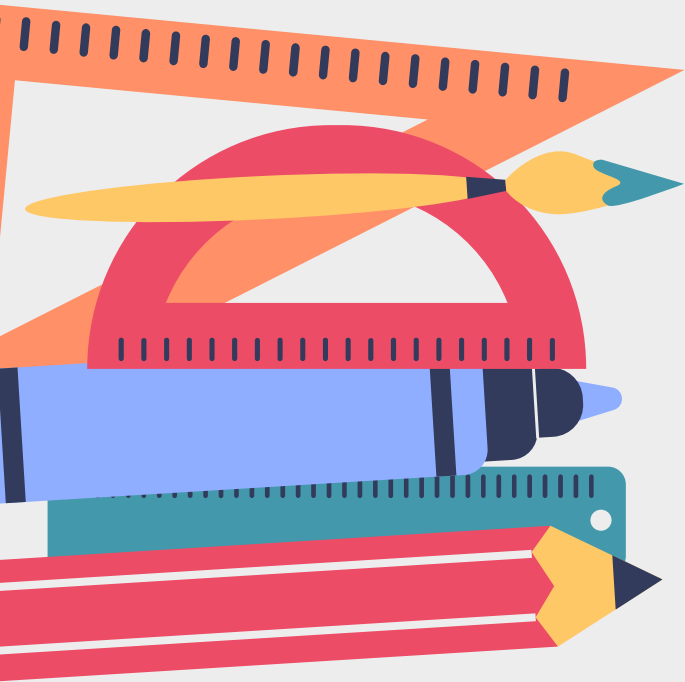




OKLAHOMA

SCHOOL FOR THE DEAF

November 8, 2022



Fluency & Terminology

Kelsey Jones & Levi Mathis

GAME PLAN



Introduction



**XTRAMATH
Fluency**



**Bilingualism in
Word Problem
Solving**



**Questions
or
Comments?**





01

Introductions

Levi Mathis

- Hearing
- Bachelors in Ma
- Masters in Spec
- Introduced to D
- Athletic Di



KELSEY JONES

- Bachelors in Deaf Education from the University of Science and Arts of Oklahoma
- Started teaching career in 2017
- Currently teaching 5th - 8th Grade Science
- Middle School Robotics & Math Team Coach
- Outdoor enthusiast
- Love to travel: Been to 25 states, Canada, and Brazil
- Dog lover and with my partner for 4 years



“Get the fundamentals down and the level of everything you do will rise.”

—MICHAEL JORDAN



02

XTRAMATH Fluency Program

What is holding us back?

Language deprivation is a crisis our students face everyday. Not teaching fluency only adds to the disadvantage they start out with...



Fluency Process Goals

What do I do
to solve?

Correct
responses.

Less than 3
seconds.



Strategies



Accuracy



Rate

What we need?

Time

5- 20 Minutes
Daily

Effort

We need
programs that
work for us!

Level

We haven't
introduced that
yet...

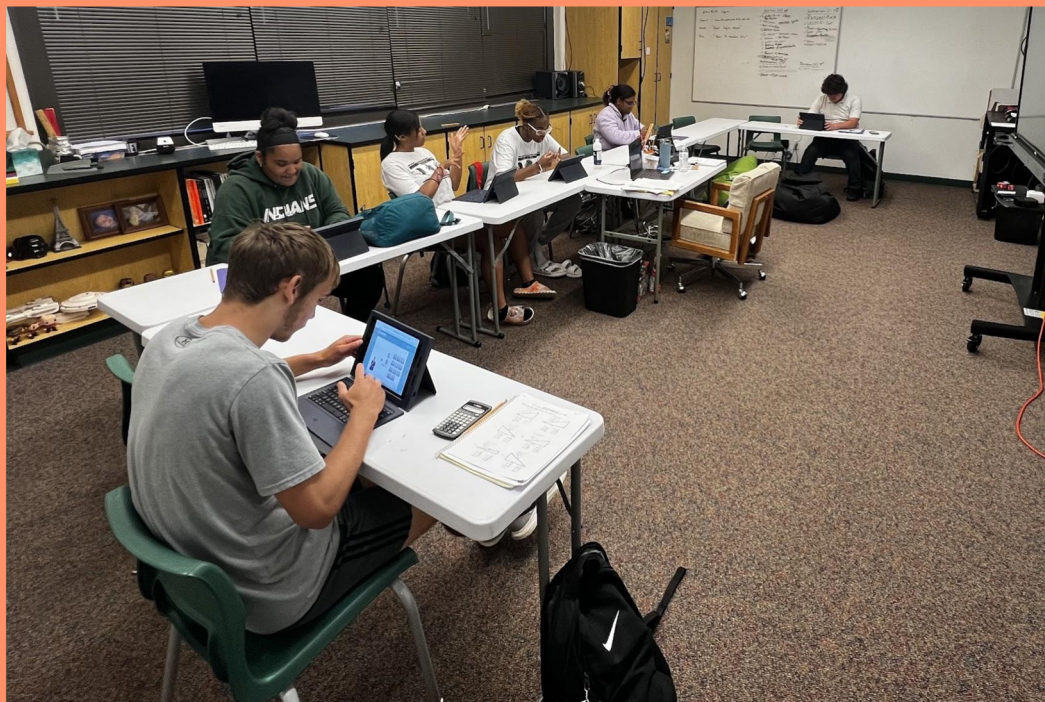
Engage

The program
has to have
interest for our
students.



TIME

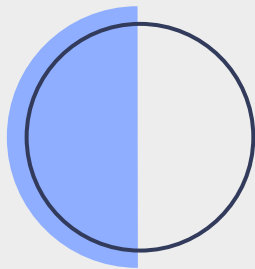
It's flexible and fits your schedule!



EFFORT



Motivation

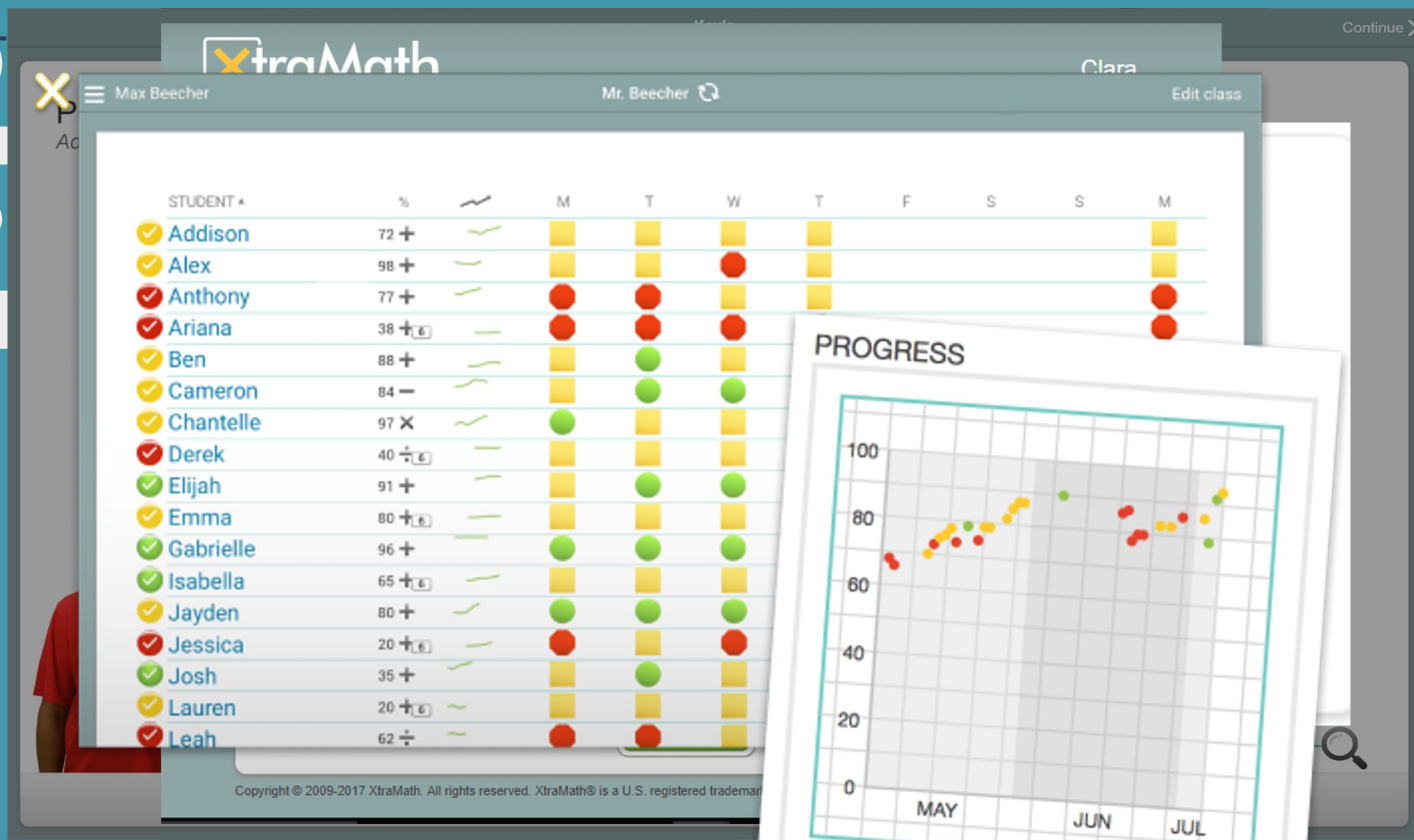


Easy to Use



Results

Motivation/Ease/Results

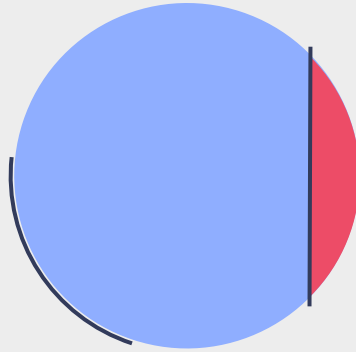


LEVEL - When to start?



Acquisition

Obtained learning
from our
environment,
making connections
as we navigate day
to day.



Learning

Making connections
from acquisition or
being taught
through instruction
or experiences.



**Early:
Let them
recognize
the patterns**

XtraMath

0 😊

$$\begin{array}{r} 0 \\ + 6 \\ \hline 6 \end{array}$$

7 8 9
4 5 6
1 2 3
0

0

0

ENGAGE





DEMO

Let take a quick look at setup
and class process!



03

Bilingual Approaches in Solving Word Problems

What is Bilingual Education ?

- Bilingual Education is a practice that presents academic content in two separate languages asynchronously.
- Bilingual Education provides access to deaf and hard of hearing students based on their preference and/or most dominant language before being presented in a different language.



Why Bilingual Education ?

- To support ASL and English language acquisition and development
- To consciously separate academic content by providing one language fully (ASL) and then providing written or spoken English or vice versa
- To accommodate each student's language needs and development



Why Use a Bilingual Approach in Math?

- Deaf and hard of hearing students struggle with solving word problems.
- Using a bilingual approach with word problems helps students recognize the importance of math terminology such as “in all”, “less than”, etc.
- If math fluency is mastered and common word problem terminology is understood, solving math problems will be much easier.



Bilingual Strategies

- Chaining
- Sandwich
- Four Steps to Language Development
- PVR - Preview, View, Review



Chaining

- Picture → Fingerspell → ASL → English Print → Fingerspell
- It does not have to be in a specific order.
- It is based on the student's first language.

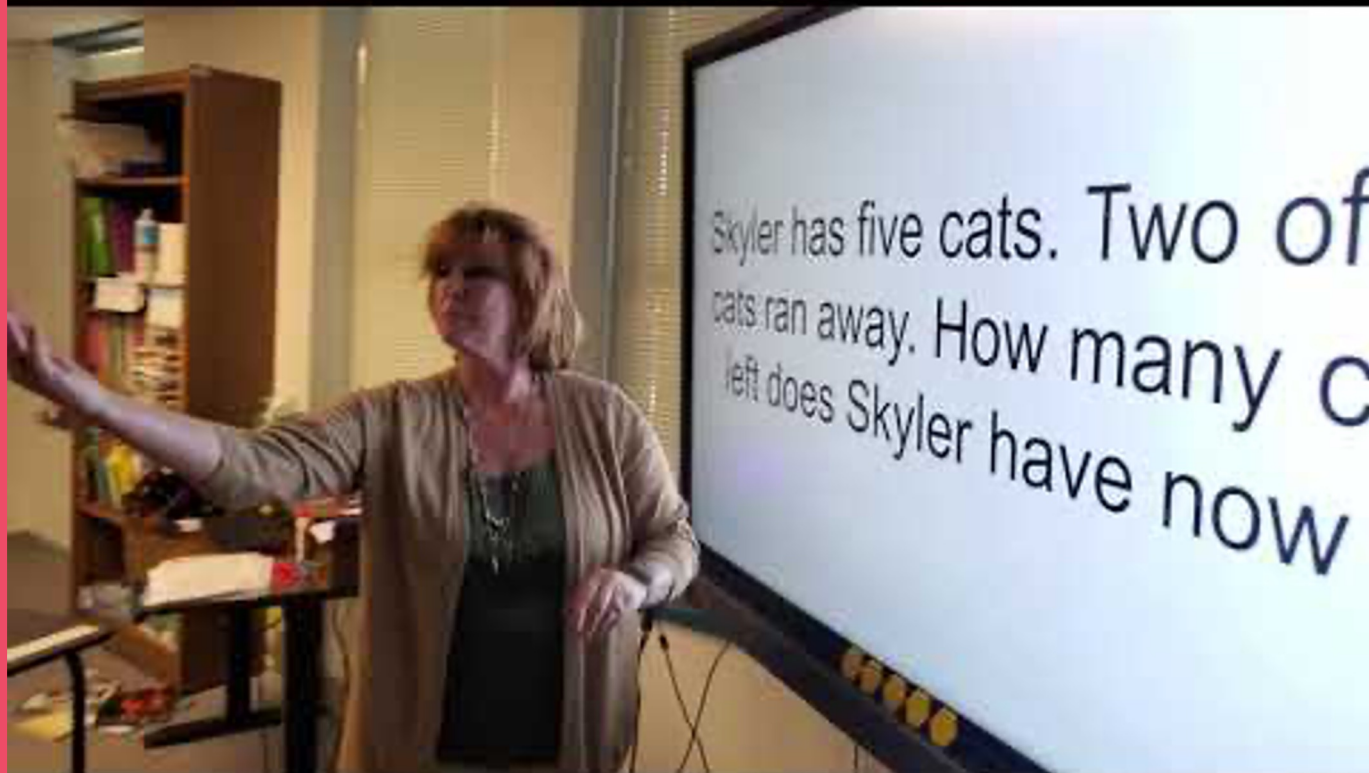




Sandwich

- Picture → Fingerspell → Picture
- Spoken → Picture → Spoken
- ASL → English Print → ASL
- It does not have to be in a specific order.





Four Steps to Language Development

- Step One: Visualize
- Step Two: Role Play
- Step Three: Discuss in ASL
- Step Four: Write / Read English Terminology



Four Steps to Language Development

(Step One: Visualize for addition “in all”)

- Show pictures, videos, and objects of addition
- Allow students to describe what they see, what they have experienced, and what they know.
- Keep asking questions to encourage them to activate prior knowledge. The skill of addition should be mastered before introducing the English math phrase of “in all.”

Four Steps to Language Development

(Step Two: Role Play for addition “in all”)

- Act out situations, characters, events, etc. This will depend on the age/grade of the students. Some high school students will not want to act out. They could use math manipulatives instead.
- Ask questions about what they think will happen. Students do not have to explain, but they should act out/demonstrate with manipulatives what they think will happen.

Four Steps to Language Development

(Step Three: Discuss in ASL)

- Make concept connections.
- Teach different ways to sign the math concepts in ASL.
- Discuss what they just learned from role play. If possible, make a connection to their lives to help them further understand.

Four Steps to Language Development

(Step Four: Write English Terminology)

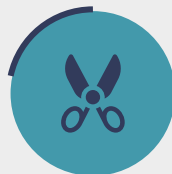
- Add English vocabulary by writing it, asking students to read it, fingerspell the term(s), write it in sentences, say it (when appropriate).

Four Steps to Language Development Video



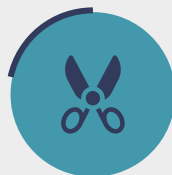
PVR - Preview, View, Review

- PVR uses a student's stronger language to provide contextual support for the weaker language.
- Deaf or hard of hearing students are different than hearing bilinguals:
 - Most deaf or hard of hearing students do not have a complete first language (ASL) especially younger students.
 - They are not learning a “second” language (English).



PVR - Preview, View, Review

- The PVR strategy is not for introducing the math terminology.
- The PVR strategy is great to use AFTER you use other bilingual strategies to introduce the math word problem terminology.



PVR - Preview in First Language

- The teacher gives a brief overview of the content in the students' stronger language.
- Teachers ask questions to activate background knowledge.
- Students ask questions before the lesson.
- Students are not reading in a second language during this preview step.



PVR - View in Second Language

- The students read the content in their second language.
- They explore the content independently.
- They also can explore the content in groups and discuss using their first language.



PVR - Review in First Language

- Teacher and students summarize the key ideas together.
- When they summarize the content, they use their first language in the review part.
- Students could begin to work on their assignments after the PVR strategy.



**PVR -
Preview,
View,
Review
Video**



You will create an activity. You pick one strategy. There will be a word math problem provided. Be sure to emphasize the key word or phrase in your bilingual strategy. Share your idea with us.



Bilingual Strategy Activity



Chaining



Sandwich



Four Steps

Bilingual Strategy Activity

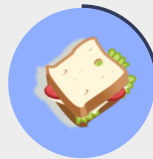
One week, the second grade class got 10 boxes of apples and 13 boxes of oranges.

The next week, they got 25 boxes of apples and 24 boxes of oranges.

How many more boxes of oranges did they get in the second week?



Chaining



Sandwich



Four Steps

Bilingual Strategy Activity

During a normal day, there are 280 planes taking off from an airport. Airports are a lot busier during Christmas. During the Christmas holiday, 336 planes take off every day from the airport.

During the Christmas holiday, the airport is open 12 hours each day. How many planes can take off from an airport each hour?



Chaining

Sandwich

Four Steps

Questions



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Resources



XTRAMATH Fluency

<https://home.xtramath.org/>

<https://www.ncbi.nlm.nih.gov/>

David Davenport - Language
Acquisition of Deaf and Hard
of Hearing Children
Presentation

Bilingualism in Word Problem Solving

- No resources used
- I learned the bilingual and strategies from Dr. Sharon Baker. I am using what she taught us.

