Using Strategies, Technology, English, and Math (STEM) to Support EL Students

Belinda De Torres
Stephanie Erickson
Song Ye
Anna Kwak, Ed.D.
Background

Center Middle School

Newcomers

<table>
<thead>
<tr>
<th>Language Code</th>
<th>Language Name</th>
<th>Total</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Spanish</td>
<td>141</td>
<td>97.24%</td>
</tr>
<tr>
<td>07</td>
<td>Mandarin (Putonghua)</td>
<td>2</td>
<td>1.38%</td>
</tr>
<tr>
<td>02</td>
<td>Vietnamese</td>
<td>1</td>
<td>0.69%</td>
</tr>
<tr>
<td>05</td>
<td>Filipino (Pilipino or Tagalog)</td>
<td>1</td>
<td>0.69%</td>
</tr>
</tbody>
</table>

Total Enrollment: 436
Strategies (Structure)

- **Groups**
  - Groups of 2
  - Groups of 4
● Bilingual aids
  ○ small groups
  ○ one-on-one.

● EL Student in close proximity to each other
  ○ Level 1 Clusters
  ○ Level 2 and 3
  ○ Level 3 with RFEP
Technology

Google Translate- Desktops

IPad- Google translate App.

Red Dot- Video Recording

https://videorecorder.kwiius.com/

Google Classroom- Upload work and videos of students talking about the mathematical content.

CPM Ebooks- ebooks.cpm.org
1. Step 2: **Combine** the coefficients.
2. 5h + 11g + 1h - 8g.
3. (5 + 1)h + (11 - 8)g.
4. 6h + 3g.
5. Step 1: Organize your **like terms**.
6. 5x + 8x + 10x^2 - 7x^2 - 4x.
7. Step 2: **Combine** the coefficients. (5 + 8 - 4)x + (10 - 7)x^2 + 3x^2 Related Links: Combining Like Terms Worksheets. Combining Like Terms Quiz. Algebraic Expressions.

**Combining Like Terms - SoftSchools**
www.softschools.com/math/topics/combining_like_terms/
Google Translate: App for Ipad and Cell Phones

- Download google translate on a phone or Ipad (districts can download it on any Ipad for free)
- Students can 1) translate a word or phrase or 2) take a picture and highlight the part that needs to be translated
- Students need to communicate to make mathematical progress. They also need to be accountable for the information presented in class.
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Red Dot- Video App

- Get EL students talking with General ED Student

- One more **modality** to show understanding of the **content**

- Additional opportunity to **hear**, **see** and **experience** the mathematical content.

https://videorecorder.kwius.com/
Red Dot - Video App

- Get EL students talking with General ED Student

- One more modality to show understanding of the content

- Additional opportunity to hear, see and experience the mathematical content. https://videorecorder.kwius.com/
Steps to using Red Dot and Google Classroom.

1) Create assignment

1) Student records

1) Videos save to their google drive

1) Open assignment in Google Classroom

1) Upload from Google Drive
Create Assignment
Student Records- Red Dot
Go back to their Google Classroom
7.1.2 Scaling Factors Red Dot video

Stephanie Erickson   Mar 20   Add class comment

Upload link here

Your work
Files you add or create can be viewed and edited by your teacher

Mark as done or attach work to turn in

Add   Create

Add private comment...
7.1.2 Scaling Factors Red Dot video

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Mark as done or attach work to turn in

Add  + Create

Google Drive
Link
File
Videos save to their google drive
Students turn in assignment

7.1.2 Scaling Factors Red Dot video

Stephanie Erickson  Mar 20  Add class comment

Upload link here

Your work
Files you add or create can be viewed and edited by your teacher

Alex Mejia 7.1.2 Jonathan Flores
Video

Add  Create

TURN IN

Add private comment...
Google Classroom-

We use google classroom to submit red dot videos and easily grade work submitted in groups or pairs.
English

- Ch vocabulary (Eng/ Sp) chart on tables
- Ch vocabulary chart for HW
- Sentence starters
- Choral read
- Use vocabulary frequently
Chapter Vocabulary Chart for the Tables

- One on each team table
- English/ Spanish
- By chapter
Chapter vocabulary chart for Homework

- Student work
- word/ definition/ diagram (example)
- Options
  - on google doc/ paper
  - write/ print/ email
Sentence starters...

- To model how to write a complete sentences.... even in Math!
6-53. Alana was also working with dilations. She wondered, "What would happen if I multiplied each coordinate of a shape by \( \frac{1}{3} \)?"
Use of Vocabulary

- Daily objective
- Reflections
- Methods & Meanings

Use repeated exposure to new words in multiple oral and written contexts and allow sufficient practice sessions. Researchers estimate that it could take as many as 17 exposures for a student to learn a new word.
Math

Modified

1. Homework
   ■ Support basic skills

2. English and Spanish Classwork
Student Resources

Graph notebooks

Manipulatives
  ○ Algebra tiles
Student Cases
Leticia

Background

- Born in Mexico
- Newcomer Program: Year 2
- Fluent in Spanish
- Chapter 8
  - Hesitates to share in English
  - Writes in simple English sentences.
  - Writes in Spanish if she needs to explain in detail.
| 3-100 | Para las siguientes ecuaciones, resuelva para la variable dada usando los movimientos legales. **Graba tu trabajo y comprueba la solución**, si es posible. Si no, explíca por qué no.

   a. \[ \frac{75c - 300}{50} + \frac{300}{2.5c + 200} = 200 \]
   \[ \frac{t300 + 300}{50} = \frac{500}{25} \]
   \[ c = 10 \]

   b. \[ \frac{26y - 4 - 11y}{14} = 15y + 6 \]
   \[ \frac{26y - 4 - 11y}{14} = \frac{14y}{14} + 6 \]
   \[ y - 40 = 6 \]
   \[ y = 46 \]

| Reflect | Una solución a una ecuación es **a value of a variable which makes statement true**.
Una ecuación no tiene solución cuando **no value makes statement true**.
Una ecuación tiene infinitas soluciones cuando **All values make statement true**.
Una ecuación tiene una solución cuando **only one value makes the...**.
Jailine

Background

- Born in Los Angeles, CA.
- Went to Mexico (under a year old) and schooled there
- Newcomer Program: Year 1
- Beginning wrote in Spanish
- By chapter 3 - uses Spanish worksheet but tries to write in English
7-57. IS SEEING BELIEVING?

Did you know that a bank will pay you money (called interest) when you place your money in a savings account? The amount you receive is a portion of the amount you deposit. The interest rate often varies with each bank.

Thomas and Ryan have each invested the same amount of money in different bank accounts that earn simple interest. Simple interest means the same amount of interest is added for each time period. In this case, the interest is added each week. Thomas and Ryan decided to compare their rate of earnings by graphing how much interest each of them has earned over time. Their graphs are shown below.

a. When you look at the graphs, which investment seems to be growing fastest? Explain how you decided.

Ryan is growing fastest because the line is bigger.

b. The tables for Thomas's and Ryan's accounts are shown at right. Which table reflects Thomas's interest? Which one reflects Ryan's interest? How do you know?

Because the first table is the Thomas because is growing 0.60 per 1 week, and second table is Ryan because is growing 0.50 per week.
Juan

Background
- Born in a remote village in San Juan, Guatemala
- Newcomer Program: Year 1
- No writing background

Chapter 8 - uses Spanish worksheet
- Independent work is modified
- Group work is Spanish worksheet with aide assistant
- Homework is modified
Juan’s Work

Write the Rule:
\[ y = mx + b \]
\[ y = 3x + 5 \]

Verifique su solución algebraicamente: use la equation para verificar la solución de la table.

<table>
<thead>
<tr>
<th>bunny</th>
<th>explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>3x + 5</td>
<td>original</td>
</tr>
<tr>
<td>3(x + 5)</td>
<td>multiply</td>
</tr>
<tr>
<td>3x + 5</td>
<td>add</td>
</tr>
<tr>
<td>38</td>
<td></td>
</tr>
</tbody>
</table>

Analysis:
1) ¿Cuánto pesa el conejito al principio?
   Es 5
2) ¿Cuánto pesa el conejito en 2 años?
   17
3) ¿Cuánto pesa el conejito en cinco años?
   20
4) ¿Qué tan rápido gana peso el conejito?
   36
5) ¿Cuándo el conejito pesa 38 libras?
   11
6) En la regla anterior, ¿qué representa x? ¿Qué representa y?
   \[ y = 3x + 5 \]
“Mathematics knows no races or geographic boundaries; for mathematics, the cultural world is one country.”

David Hilbert