MALLI

Mathematics and Language, Literacy Integration In Dual Language Settings

Cooperating Teacher Professional Development

April 25, 2020

Marco Bravo
Santa Clara University

Introductions

- In the 'Chat box'
  - Name
  - State
  - School
  - Grade level or Position held at school
  - First thing you will do when the shelter in place is lifted OR *something you learned to do during the shelter in place*

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Theory of Change

INPUT

Proximal Outcomes:
Pre-Service Teacher/Parent Practice

Intermediate Outcomes:
Student Math, Language, Literacy Learning

Distal Outcomes:
-Increased number of teachers trained to integrate

-Emergent Bilingual Learning

MALLI Pre-Service Teacher Education: Integrated Language, Literacy & Mathematics Model

Cooperating Teacher Bilingual Development

Pre-Service Teacher Bilingual Development

Parent Math/language teaching Efficacy

Sharpen language, Literacy & Mathematics knowledge

40 Trained Bilingual PST & 40 Cooperating Teachers

Grade level language, Literacy & Mathematics proficiency

Problem

- STEM Opportunity gap for Emergent Bilinguals in CA & TX
- Math teacher shortage with Emergent Bilingual knowledge
- Absence of parent integration w/ Math & EB Pedagogy

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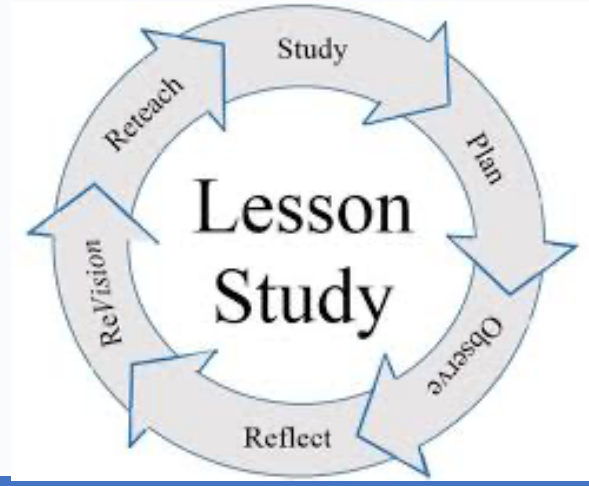
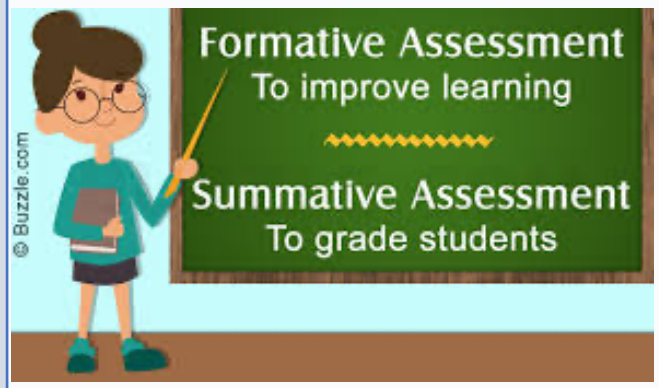


Lesson Study



Formative Assessment

Mentoring PST

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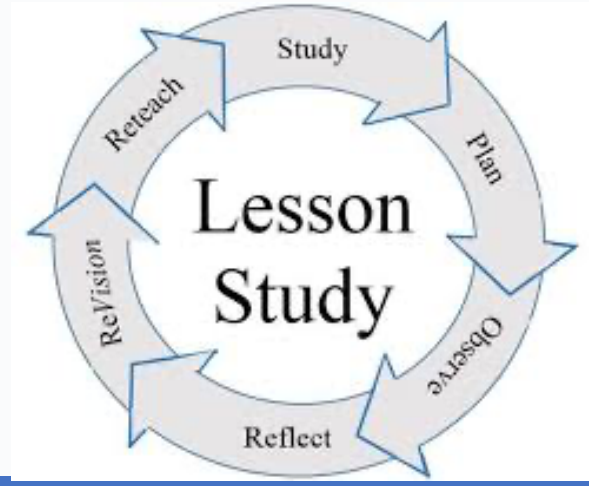

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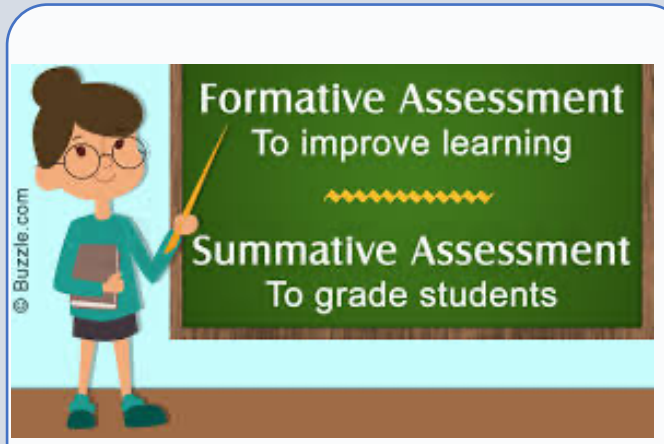

Formative Assessment

Mentoring PST

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The Formative Assessment Process

A process	A one-time thing
Planned	Unplanned
Using evidence to make instructional adjustments and/or verifying learning	Moving on or spending more time on a topic regardless of evidence
Involves giving specific student feedback that is turned into student action	Grading

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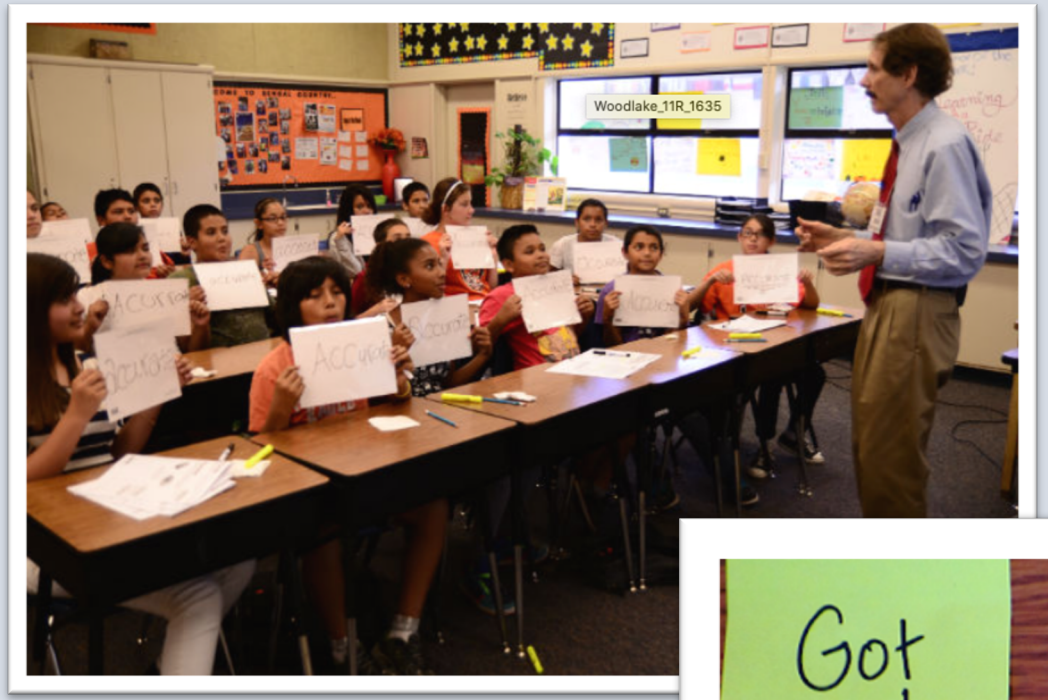

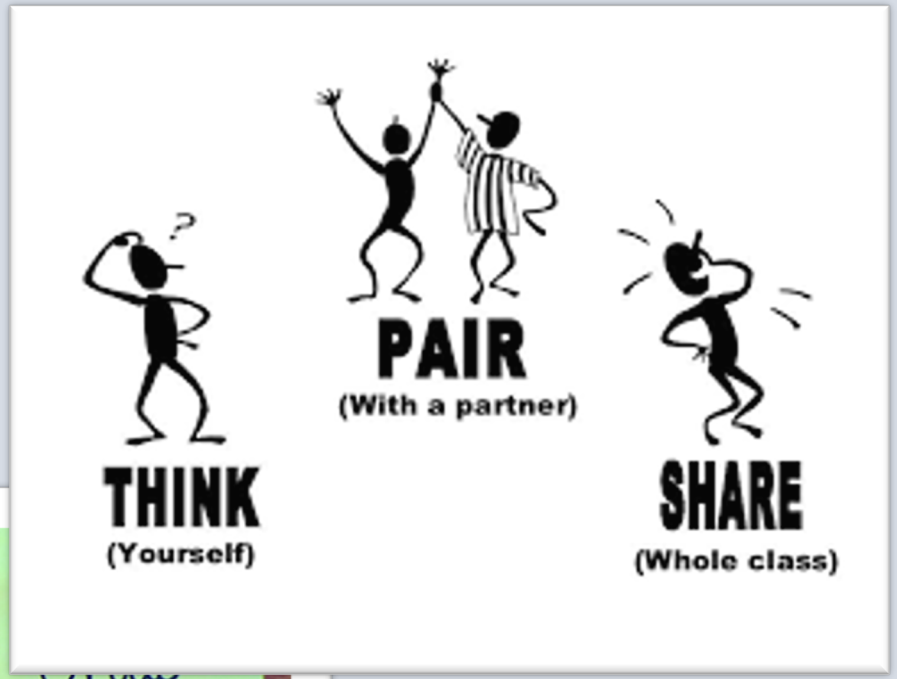

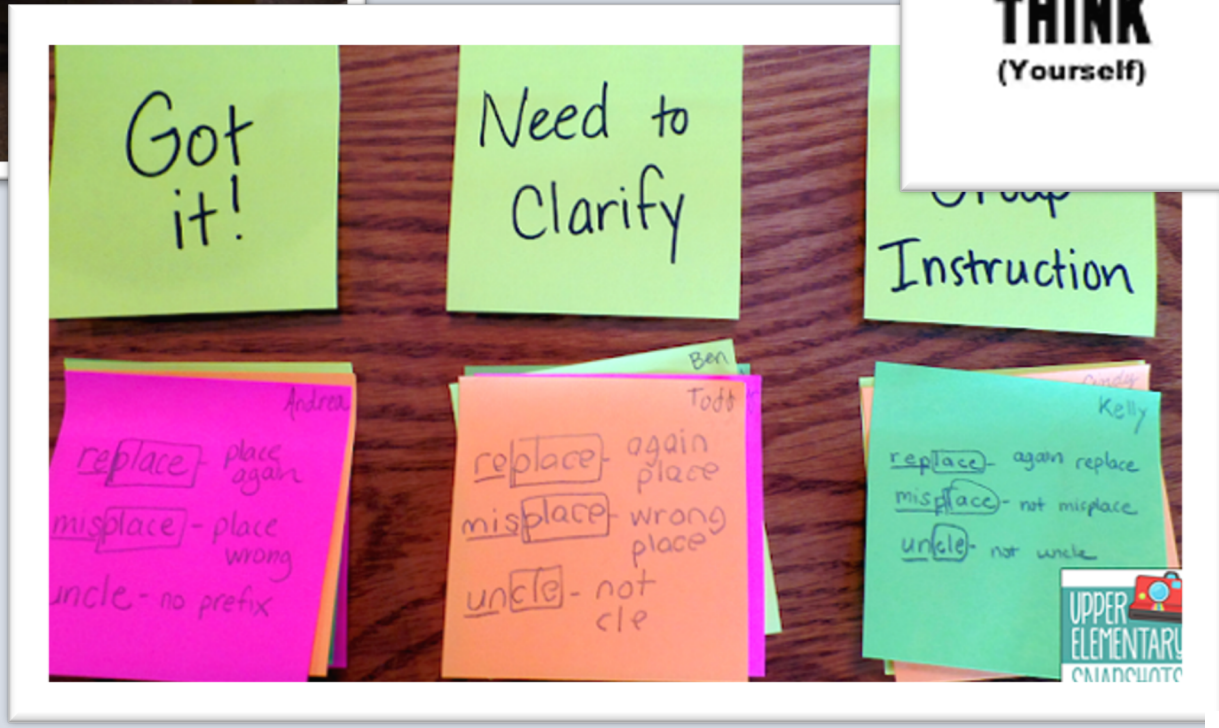

Are these formative assessments?

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PRIMER GRADO: ESCRITURA MATEMATICA

Direcciones: Usa la casilla para mostrar tu trabajo de matemáticas. En las líneas de abajo, explica tu respuesta.

Tú tienes 3 crayones azules, 4 crayones rojos, y 6 crayones amarillos.

A. ¿Cuántos crayones tienes en total? Haz un dibujo que te ayude a solucionar el problema.

B Utiliza palabras para explicarle a tu amigo cómo encontraste tu respuesta.

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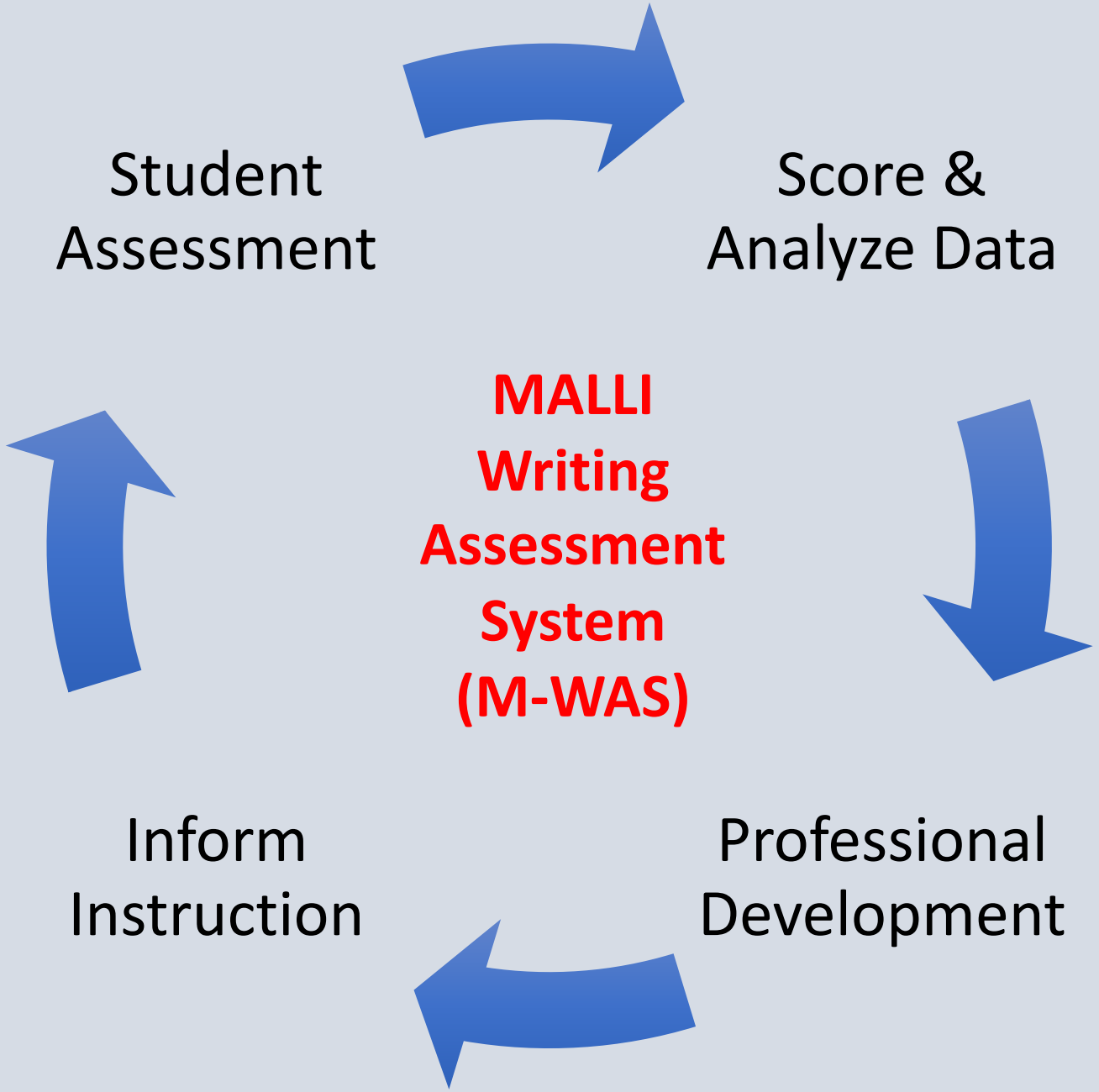

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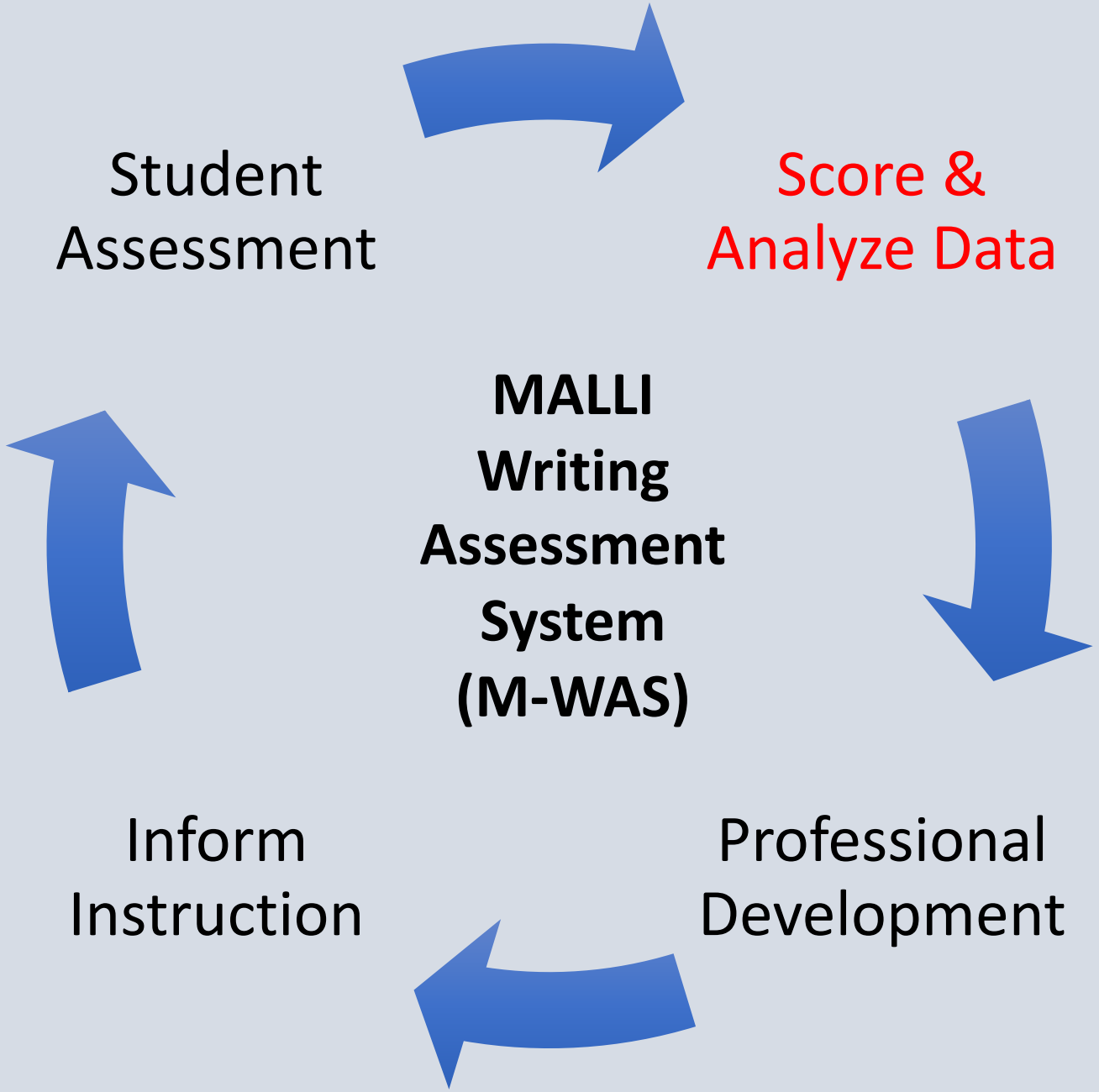

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Spanish/English Writing Prompts

PRIMER GRADO: ESCRITURA MATEMATICA

Direcciones: Usa la casilla para mostrar tu trabajo de matemáticas. En las líneas de abajo, explica tu respuesta.

Tú tienes 3 crayones azules, 4 crayones rojos, y 6 crayones amarillos.

A. ¿Cuántos crayones tienes en total? Haz un dibujo que te ayude a solucionar el problema.

B Utiliza palabras para explicarle a tu amigo cómo encontraste tu respuesta.

1ST GRADE MATH WRITING PROMPT

Directions: Use the box to show your math work. In the lines below, explain your answer with words.

You are coloring a picture for art class. You have extra crayons that you would like to share with your classmates. You have 3 blue crayons, 4 red crayons, and 6 yellow crayons.

How many crayons do you have in all? Draw a picture to help you solve the problem.

Explain to your friend how you found out the number of crayons you have in all.

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Sample Responses

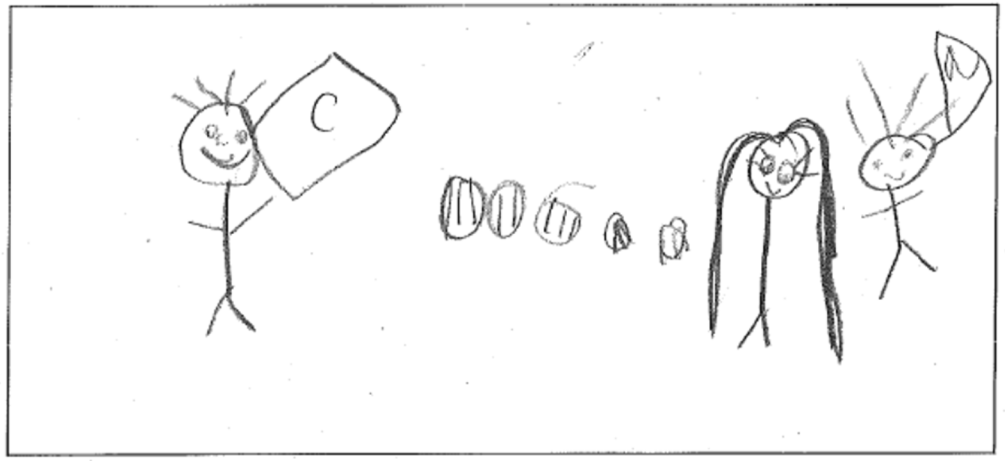
Ximena

KINDER: ESCRITURA MATEMATICA

Direcciones: Usa el espacio de abajo para mostrar tu trabajo de matemáticas.
En las líneas de abajo, explica tu respuesta.

Carlos tiene 3 pelotas y Ángel tiene 2 pelotas. ¿Cuántas pelotas hay en total?

Haz un dibujo que te ayude a resolver el problema.



Explica cómo encontraste tu respuesta.

Yo DIlo

Kimberly

KINDER: ESCRITURA MATEMATICA

Direcciones: Usa el espacio de abajo para mostrar tu trabajo de matemáticas.
En las líneas de abajo, explica tu respuesta.

Carlos tiene 3 pelotas y Ángel tiene 2 pelotas. ¿Cuántas pelotas hay en total?

Haz un dibujo que te ayude a resolver el problema.

Explica cómo encontraste tu respuesta.

Conte
Pelotas

What can we learn from these responses by Ximena and Kimberly?

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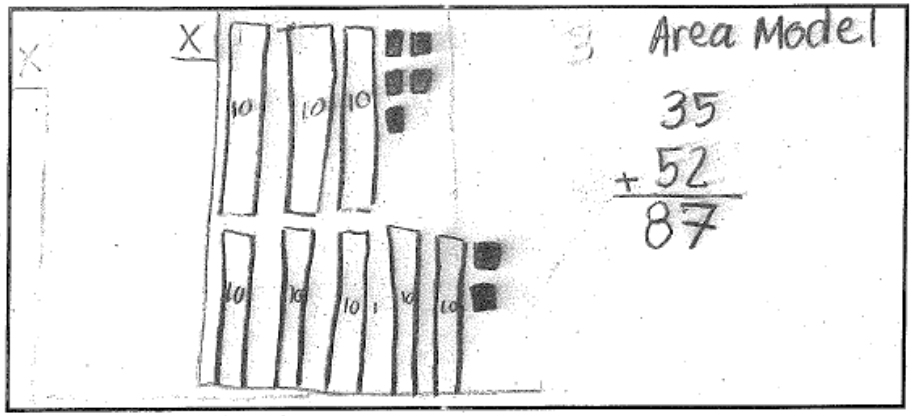
4TH GRADE MATH WRITING PROMPT

Directions: Use the box to show your math work. In the lines below, explain your answer.

Your classroom needs a new carpet. The principal has asked you to find out how much carpet he will need to buy. The size of your classroom is 35 feet by 52 feet. Write an equation to represent the problem and then solve the problem.



Explain to the principal how you found your answer.

How I got my answer was that I did Area Model and I also did Traditional Algorith. Next what I did was that I used Base 10 blocks to help my brain and I did stacking for my adition problem. After that I got the answer. Next what I did was I did two equsations for this Math today and the answer that I got was 87 feet Long. And thats how I got my answer.

What can we learn from this student response? What has the teacher done well to create this type of response? What could this student still need help with?

MATH WRITING RUBRIC

MALLI WRITING ASSESSEMENT RUBRIC (MWAS) MATHEMATICS WRITING RUBRIC				
SCORE	**MATH REASONING**	**MATH COMPUTATION**	**MATH VOCABULARY**	**MATH LITERACY**
4	• The reasoning shows **well-organized and clear** logic for explaining and justifying the correct solution • The reasoning shows understanding of mathematical concepts and operations, or relations to theorems, formulas or postulates	• Mathematical procedures (addition, subtraction, multiplication, and division) are carried out accurately **and efficiently** • Problem solving strategies use concepts and procedures appropriately	Uses various tier 3 (e.g., vertices, associative property, includes units) **and** tier 2 (e.g., digit, quotient, variable,) words with precision and accuracy to describe reasoning and computation	• Visual literacies (e.g., graph, number line) utilized appropriately to represent mathematical reasoning to enhance understanding
3	• The reasoning shows logic for explaining and justifying the solution • The reasoning shows understanding of mathematical concepts and operations to solve problem	• Mathematical procedures (addition, subtraction, multiplication, and division) are carried out accurately. • Problem solving strategies use concepts and procedures appropriately	Uses one tier 3 (e.g., vertices, associative property, includes units) **and** one tier 2 (e.g., digit, quotient, variable,) word with precision and accuracy to describe reasoning and computation	• Visual literacy (e.g., graph, number line) utilized appropriately to represent mathematical computation
2	• The reasoning partially shows some logic for explaining or justifying the solution **OR** • The reasoning shows understanding of mathematical concepts or operations to solve problem	• Mathematical procedures may be inaccurate. • Problem solving strategies uses concepts and procedures are not appropriate	Uses tier 3 (e.g., vertices, associative property, includes units) **or** tier 2 (e.g., digit, quotient, variable, and computation May use words inaccurately	• Visual literacy (e.g., graph, number line) utilized to represent mathematical computation but **incomplete** or utilized **erroneously**
1	• No reasoning included does not explain the solution • The reasoning does not show understanding of mathematical concepts or operations to solve problem	• No computation is included, OR mostly irrelevant computation is included	Uses everyday vocabulary instead of math vocabulary	• Visual literacy (e.g., graph, number line) **NOT** utilized to represent mathematical reasoning or computation

MATH WRITING RUBRIC

MALLI WRITING ASSESSEMENT RUBRIC (MWAS) MATHEMATICS WRITING RUBRIC				
SCORE	MATH REASONING	MATH COMPUTATION	MATH VOCABULARY	MATH LITERACY
3	• **Explain how they solved the problem** • **The explanation shows they understand the math concepts**	• **Mathematical procedures (+, -, x, and /) are carried out accurately** • **Problem solving strategies use concepts and procedures appropriately**	**Uses tier 3 (e.g., vertices, associative property, includes units) and tier 2 (e.g., digit, quotient, variable,) word**	**Visual literacy (e.g., graph, number line) utilized appropriately to represent mathematical computation**

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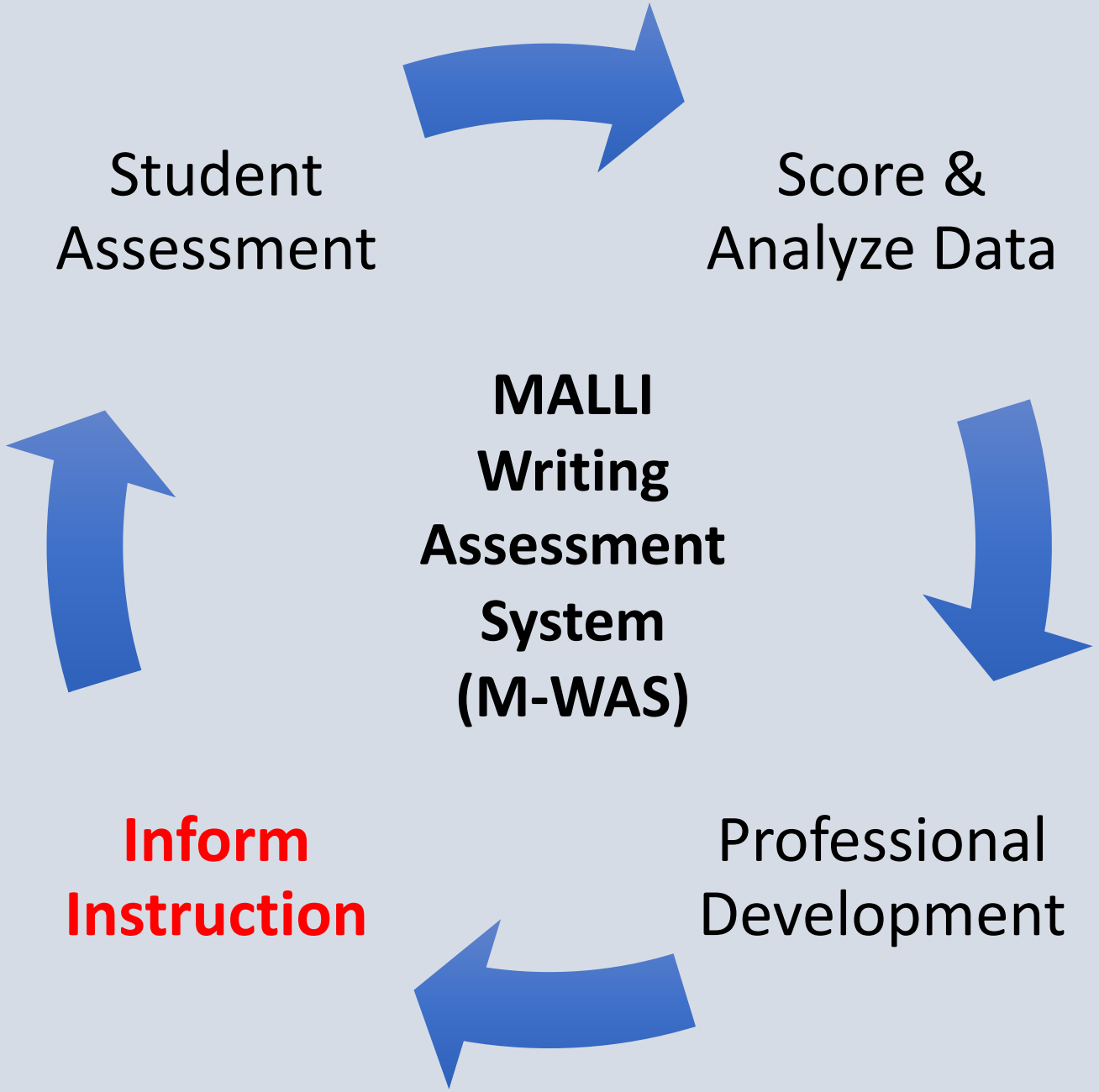
Your Task

Part A

1. With partner, score 5 writing samples with the rubric
2. Identify areas of need according to the rubric



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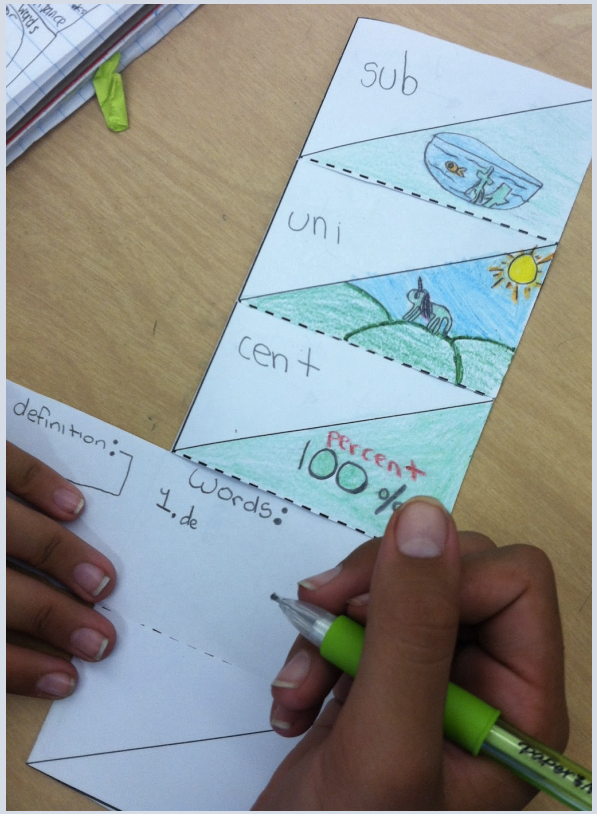
Morfología: Estrategias de enseñanza

- **Plegables:**

  organizadores gráficos multidimensionales que pueden ser usados para asistir a los estudiantes.

  una herramienta kinestésica para organizar y analizar el aprendizaje (Manual: “Flodables” by Dinah Zike).



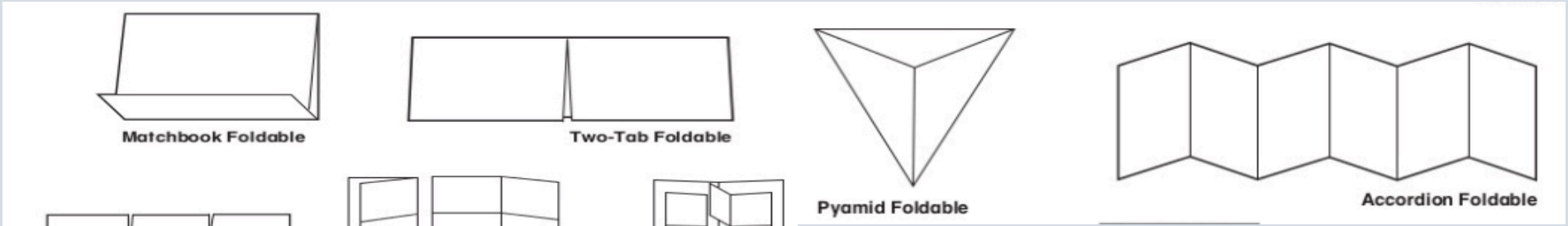


Gráfico 4. ”Foldables!” (Zike, 2012)

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PRECISIÓN CON VOCABULARIO

Explicar que muchas palabras son sinónimos

Dígale que algunas palabras captan mejor lo que hacemos sobre MATEMÁTICAS

Proporcione ejemplos (RESPUESTA / PRODUCTO)

Explique la diferencia: EL PRODUCTO SIGNIFICA RESPUESTA DEL PROBLEMA DE LA MULTIPLICACIÓN

En Grupos y usando los libros de matematicas, identifiquen otras palabras que son sinónimos y agregar a la lista

COTIDIANA	ACADÉMICA
aproximada	Estimar
cruzan	intercepto
problema	Ecuación
proceso	algoritmo

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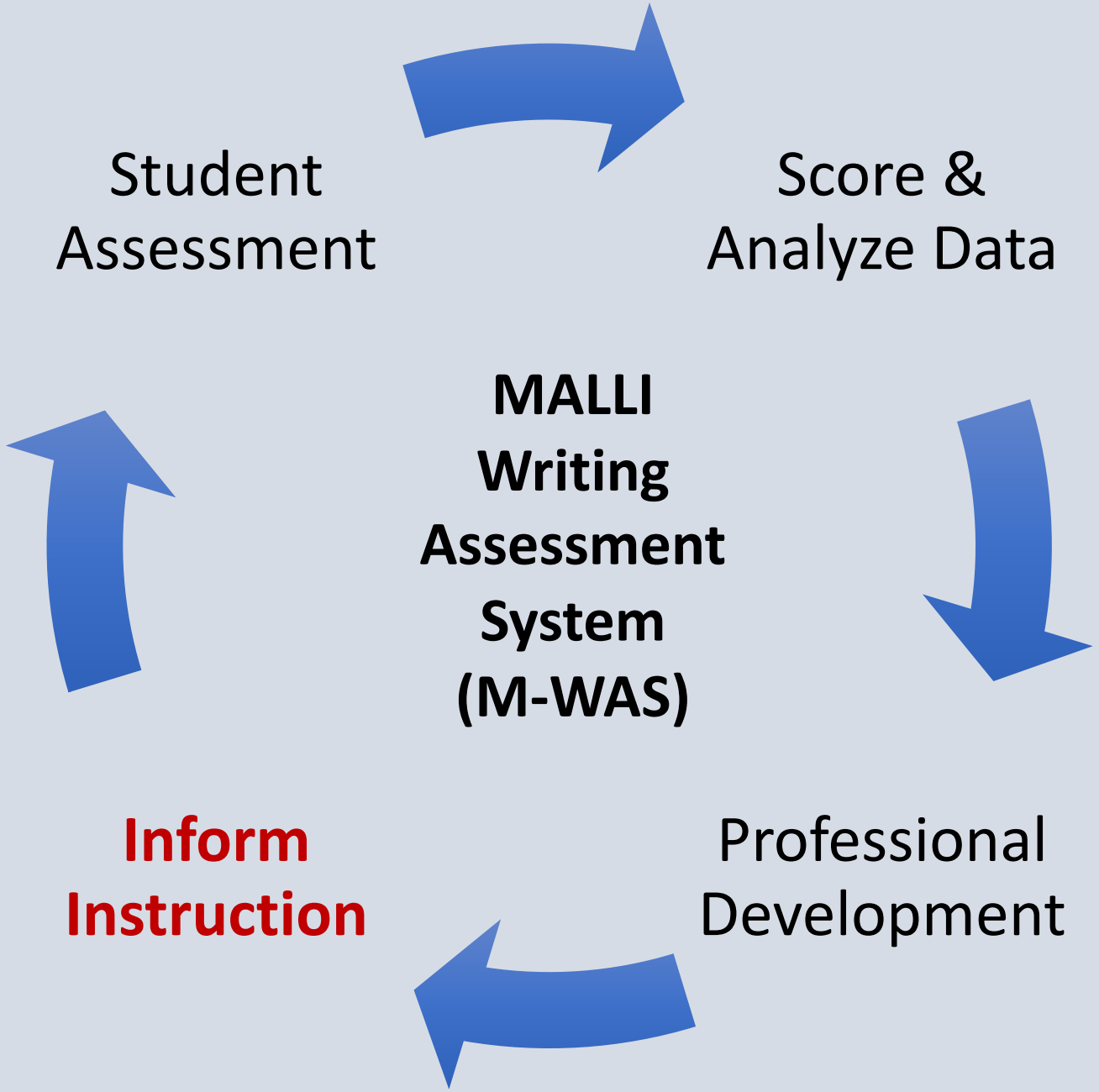
Your Task

Part B

1. Based on your findings from the evaluation of student work, and with your partner create a mini-lesson that targets the area of need
   - Math Reasoning
   - Math Computation
   - Math Vocabulary
   - Math Literacy
2. Upload your mini lesson



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Reflection

- What have you learned from the session?

- Can you think about a way in which you could involve your mentee or pre-service teacher in administering, scoring, thinking through how students responded or planning instruction?
  - How would you change it?

Logistics

TX-UT San Antonio

- email

CA-Santa Clara University

GUEST SPEAKER /HONORARIUM
Approval Request Form

Speaker Name					
Social Security #			Phone		
Home Address:	Street #				
	City				
	State		Zip		
Program/Event/Class of Presentation					
Math and Language Literacy Integration in Dual Language Settings (Project EDU 023) Observation					
Date of Presentation	20-Apr-20	Location of Event	Virtual/Remotely		
Honorarium Amount					$500.00
Travel (Air,Bus,Taxi,Parking)					
2009 auto mileage rate; effective 1/1/2009		@ .55 Per Mile			
2010 auto mileage rate; effective 1/1/2010		@ .50 Per Mile			
Lodging					
Meals					
Total Amount Billed					$500.00

Note: To be reimbursed for expenses, original receipts must be attached. A 1099 for payment of services provided will be issued to IRS for tax reporting purposes.

	FACTORS TO BE CONSIDERED FOR HONORARIUM	Yes	No
1	The speaker is hired for specific event	☑	☐
2	The speaker is a current employee	☐	☑
3	The speaker is being hired on continuing, recurring, or long term basis	☐	☑
4	Nonresident Alien Speaker- Attach forms **W8-BEN** and **8233**.	☐	☑

Accounting String

Account	Fund	Dept	Prog	Activity	Class	Project
7410	13001	EDUC	PS			EDU023

Submitted By	Marco Bravo		Dept		Fax / Ext	6040	Date 25-Apr-20
Department Manager Approval					Ext		Date
Dean/Director Approval					Ext		Date
For Account Payable- Qualifies for payment as Honoraria					☐ Yes	☐ No	