WIDA MPIS for Mathematics Instruction

Urban Math Liaisons & ELL Directors Meeting

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Today’s Agenda

- Welcome and Introductions
- MPI Refresher
- Creating Math MPIs using a Placemat Tool
- Discussion
- Wrap Up and Looking Ahead
Model Performance Indicators (MPIs) Refresher

★ **Model Performance Indicators (MPIs)** provide examples of how students could process or produce language in a specific context (activity, assessment).

★ **MPI Components:**

★ **Language function:** linguistic processes used in receiving or conveying a message

★ **Content stem:** derived from state content standards

★ **Support:** instructional strategy or tool used to assist students in accessing content necessary for classroom understanding or communication
Sample Task

**Grade 8 Expressions and Equations**

8.EE.5. Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in two ways.

Compare a distance-time graph to a distance-time equation to determine which of two race cars has a greater speed, and explain your answer.
Activity: Car A’s speed is shown in the graph, Car B’s speed is given as an equation. Which car is moving faster? Justify your answer.

CAR A

CAR B

\[ y = 40x \]

\[ y = \text{distance travelled in miles} \]
\[ x = \text{time in hours} \]
Creating MPIs

★ Evaluate the math context for language use (task, activity, problem) and identify:
  ★ **Linguistic demands**
  ★ **Math content knowledge or skills**

★ Consider audience (ELL student):
  ★ What can the student DO?
  ★ What are potential language barriers?
  ★ **What supports will this student need?**

★ Create MPIs using
  **language function** + **content stem** + **support**
Car Task

Car A’s speed is shown in the graph, Car B’s speed is given as an equation. Which car is moving faster? Justify your answer.

Level 2, Writing:
Produce simple sentences explaining whether the equation or the graph represents a car going at the greater speed with a partner using illustrated word banks and sentence frames.

Level 3, Writing:
Describe whether the linear equation or the graph represents a car going at a greater speed using a word bank and sentence frames.
**MPI Strands**

**MPI Strand:** MPIs for five levels of English language proficiency for a given context of language use.

<table>
<thead>
<tr>
<th>Writing</th>
<th><strong>Level 1: Entering</strong></th>
<th><strong>Level 2: Emerging</strong></th>
<th><strong>Level 3: Developing</strong></th>
<th><strong>Level 4: Expanding</strong></th>
<th><strong>Level 5: Bridging</strong></th>
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<tbody>
<tr>
<td></td>
<td>Identify the car that is going at the greater speed, and label key terms in the equation and the graph with a partner using an illustrated word bank.</td>
<td>Produce simple sentences explaining whether the equation or the graph represents a car going at the greater speed with a partner using illustrated word banks and sentence frames.</td>
<td>Describe whether the linear equation or the graph represents a car going at a greater speed using a word bank and sentence frames.</td>
<td>Describe in detail and using appropriate transition words whether the linear equation or the graph represents a car going at a greater speed using a <em>transition words</em> word bank.</td>
<td>Write a paragraph justifying whether the linear equation or the graph represents a car going at a greater speed using appropriate technical vocabulary from a word bank.</td>
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Creating MPIs: A Placemat Tool

- Evaluate the math context for language use (task, activity, problem) and identify:
  - **Linguistic demands**
  - **Math content knowledge or skills**
- Consider audience (ELL student):
  - What can the student DO?
  - What are potential language barriers?
  - **What supports will this student need?**
- Create MPIs using **language function + content stem + support**
<table>
<thead>
<tr>
<th>LANGUAGE FUNCTION</th>
<th>CONTENT STEM</th>
<th>SUPPORTS</th>
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<tbody>
<tr>
<td><strong>Level 1</strong></td>
<td>Content Standard: 8.EE.5. Graph proportional relationships, interpreting...</td>
<td>Sensory</td>
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<tr>
<td>Listen</td>
<td>Circle</td>
<td>Realia</td>
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<tr>
<td>Draw</td>
<td>Select</td>
<td>Manipulatives</td>
</tr>
<tr>
<td>Respond</td>
<td>Trace</td>
<td>Physical Activity</td>
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| **Level 2**       | Context for Language Use: Comparing a distance-time graph to a distance-time equation to determine which of two race cars has a greater speed, and justifying the answer. | Graphic |
| Predicts          | List         | Charts   |
| Label             | Classify     | Maps     |
|                  | Create       | Timelines... |

| **Level 3**       | In the native language (L1) With the teacher In pairs or... | Interactive |
| Recall            | Role-play... |          |
| Explain           | Discuss...   |          |

| **Level 4-5**     | In the native language (L1) With the teacher In pairs or... |          |
| Analyze           | Interpret... |          |
| Interpret         | Explain...   |          |
| Narrate           | Resolve...   |          |
| Compose           | Interpret... |          |

**ELD Level 2 - car activity**

*Produce simple sentences* explaining whether the equation or the graph represents a car going at the greater speed

with a partner using illustrated word banks and sentence frames.

Source: MPI Placemat adapted from Paula Merchant (MATSOL) and Kellie Jones (Brockton Public Schools).
Your Turn to Try!

★ **Task:** Grade 8 Flower Vases

★ **ELD Level:** selected from student profiles cards.
Do some math, create an MPI

1. Read over the task and begin working on it.
2. Think about the language demands in the task and potential focus language domain/s.
3. Discuss the math involved in your assigned task.
4. Select a student profile card and discuss:
   ★ What can the student DO?
   ★ What are potential language barriers?
   ★ What supports will this student need?
Do some math, create an MPI

Using the *Placemat* to create MPIs

- Parts #1 and #2: Speaking/Listening MPI
- Parts #3 and #4: Reading/Writing: MPI

5. Discuss the math **CONTENT STEM** and record this on the placemat.

6. Find appropriate **LANGUAGE FUNCTION(s)** and **SUPPORT(s)** using *Placemat* as guide.

7. Turn and Talk at your table. Share and discuss your MPIs.

8. We’ll have a whole group “report out”.

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Wrap-up and Looking Ahead

★ How does this work resonate with what you are already doing (or planning to do) in your district?

★ How can ESE support the networks in implementing WIDA standards for Mathematics instruction?