

## Amplifying Students' Mathematical Brilliance: Infusing Literacy in Problem Solving Through Spatial Reasoning

### High School

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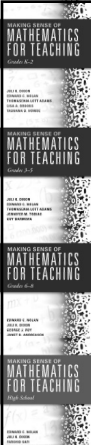
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## Session Goals

- Continue developing a shared understanding of what literacy means in the context of mathematics learning.
- Practice infusing literacy strategies while engaging students in visual and spatial reasoning.
- Reflect on (re)designing tasks to promote and support learners' opportunities to access and engage in mathematics discourse.

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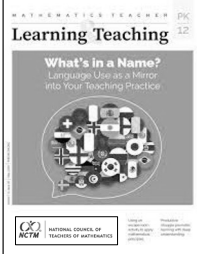
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## Smiles Task





**Learning Teaching**  
 What's in a Name?  
 Language Use as a Mirror  
 into Your Teaching Practice

**Smiles: A Strengths-Based On-Ramp Mathematics Task**

Use this activity to support students in working together, recognizing one another's contributions, and leveraging their mathematical strengths to solve challenging problems.

Dorenda Y. White

White, D. Y. (2022). Smiles: A strength-based on-ramp mathematics task. *Mathematics Teacher: Learning and Teaching PK-12*, 115(1), 49-55.      Jennifer A. Wolfe @drjenmathed

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## Master Designer Task

MATHEMATICS TEACHER PK-12

### Learning Teaching

What's in a Name?  
Language Use as a Mirror  
into Your Teaching Practice

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### Learning to Collaborate While Learning Mathematics

This task structure both engages students in various, grade-level appropriate mathematical work and allows the teacher to do the intentional and purposeful work of building a collaborative classroom culture. We highlight possibilities for adapting this task structure to teach different mathematics content across grade levels, e.g.

Frances K. Harper and Sandra Crespo

Harper, F. K., & Crespo, S. (2020). Learning to collaborate while learning mathematics. *Mathematics Teacher: Learning and Teaching PK-12*, 113(10), 800-811.

Jennifer A. Wolfe  
@drjemath

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### Plan & Reflect with the TQE Process in Mind

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**Tasks**

- Identify the learning goals.
- Select tasks to support the learning goals.
- Select tasks that will help uncover students' misconceptions.
- Show variation of cognitive demand among tasks.

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### Plan & Reflect with the TQE Process in Mind

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**Questions**

- Identify mathematical practices addressed within each topic.
- Anticipate students' misconceptions. Prepare potential questions to be posed during instruction and anticipate students' responses.

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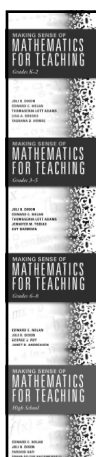
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## Plan & Reflect with the TQE Process in Mind



**Evidence**

- List potential evidence (e.g., written work, demonstration, oral responses) of student learning.
- Consider how to adjust instruction for students who do or do not understand.

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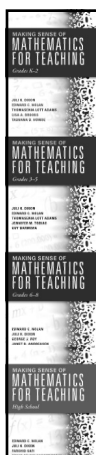
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## Literacy & Mathematics



How can we infuse literacy in mathematics teaching and learning?

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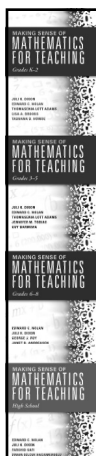
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## Anchor Standards for Literacy

Reading	Writing	Speaking & Listening
<ul style="list-style-type: none"> <li>• Key Ideas and Details</li> <li>• Craft and Structure</li> <li>• Integration of Knowledge and Ideas</li> <li>• Range of Reading and Level of Text Complexity</li> </ul>	<ul style="list-style-type: none"> <li>• Text Types and Purposes</li> <li>• Production and Distribution of Writing</li> <li>• Research to Build and Present Knowledge</li> <li>• Range of Writing</li> </ul>	<ul style="list-style-type: none"> <li>• Comprehension and Collaboration</li> <li>• Presentation of Knowledge and Ideas</li> </ul>

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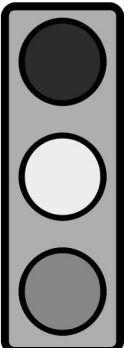
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**TRAFFIC LIGHT REFLECTIONS**



- Stop
- (Re)design
- Continue

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**REVISIT SESSION GOALS**

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