

## PD Support Materials

# Using Precise Language

### Directions for Using the Overview Slideshow

Each Instructional Strategy Guide contains an overview slideshow that sets the context for the evidence-based practices that are presented in Teach with Tech and illustrated in the Lesson in Action. It also identifies ways to differentiate instruction based on the Universal Design for Learning (UDL) principles. Discussion questions are embedded in each slideshow.

#### PD Goals

- ▶ To set a context for delving into Teach with Tech and the Lesson in Action
- ▶ To elicit prior knowledge and build background knowledge

#### PD Materials

- ▶ The slideshow within the Instructional Strategy Guide
- ▶ Discussion questions (embedded within the slideshow and provided as a handout below)

#### PD Activity

- ▶ Ask teachers to review the slideshow (either before or during the session)
- ▶ Elicit conversation using discussion questions
- ▶ As a follow up, share key ideas

See the PD Facilitator Guide for related activities to support ongoing professional learning.

## Discussion Questions for the Using Precise Math Language Slideshow

### DISCUSSION QUESTIONS

1. How do you let your students know when precise mathematical language is needed?
2. How have you highlighted differences between the common definitions of words and the math-specific meanings?
3. How has precise math language helped your students in their thinking aloud and solving of math problems?

### DISCUSSION QUESTIONS

1. How does using precise math language support the CCSS Mathematical Practices and the UDL principles?
2. How has technology helped you to differentiate instruction?

### DISCUSSION QUESTIONS

1. What challenges have your students faced when learning new math terms?
2. Are there models or visual representations that you have found useful when introducing precise math language?
3. What technology tools have you used to support formative assessment?

## Directions for Using Teach With Tech

Each Instructional Strategy Guide contains a Teach with Tech section, which offers suggestions for differentiating evidence-based practices and personalizing instruction using a range of technology tools.

### PD Goals

- ▶ To examine and discuss evidence-based practices in terms of:
  - What they are and how they can be used to differentiate instruction
  - How technology tools can be integrated to further meet the needs of struggling students
- ▶ To generate additional instructional strategies based on the needs of your students and the technology tools that are available in your school

### PD Materials

- ▶ Teach with Tech (which is located within the Instructional Strategy Guide). This can be:
  - Distributed as a handout
  - Projected onto a large screen
  - Viewed on laptops, tablets, and other devices
- ▶ A companion chart (below), titled ***Differentiate the Strategy***. The chart is divided into three columns:
  - The left-hand column, “Evidence-Based Practices,” which is divided into three sections (one for each of the three evidence-based practice headings)
  - The middle column, “PowerUp Suggested Strategies,” which lists the strategies presented within PowerUp
  - The right-hand column, “Differentiating Instruction with Technology,” which has been left blank so that it can be used to record ideas brainstormed by the group of teachers in your school

### PD Activity

- ▶ Review Teach with Tech (contained within the Instructional Strategy Guide)
  - Review the strategies under each of the three evidence-based practice headings
    - Discuss how relevant they are to your students’ needs
    - Compare them with current classroom practices
    - Identify new ideas that could be implemented
  - Discuss the accompanying Quick Views
  - Explore and discuss the identified UDL Guidelines
- ▶ Introduce the companion chart titled ***Differentiate the Strategy***
  - Collaboratively (in small groups or pairs) brainstorm ideas to include in the right hand column (“Differentiating Instruction with Technology”) by:
    - Exploring possible technology tools available in the school
    - Sharing ideas
    - Identify what it would take to implement these ideas in the classroom

See the PD Facilitator Guide for related activities to support ongoing professional learning.

## Differentiate the Strategy: Using Precise Math Language

Evidence-based Practice	PowerUp Suggested Strategies	Differentiating Instruction with Technology
Provide Clear Explanations	When introducing new vocabulary, give your students examples that fit the definitions, as well as non-examples that don't quite fit. Ask the students to decide whether a given item is an example or non-example. Point out that the precision of the definition will help them to decide if an item is an example or non-example.	
	Have students create an online glossary of unit-related words. Have students work in pairs initially, and then use a follow-up class discussion to help students shape an accurate class definition with examples and illustrations.	
	Introduce new vocabulary words through explanations, examples, and illustrations. For terms that students don't already know, devote some time to thinking about and discussing their meanings. For terms that refer to objects, students can use tech tools to explore and experiment with examples, even before learning the definitions (e.g., using a dynamic geometry program when learning about different types of polygons).	
Give Students Strategies and Models	When supplying examples and non-examples, be sure to vary unimportant aspects such as size, shape, and spatial orientation. For example, when you define a rhombus for your students, make sure to show them squares. If they don't see squares when they first learn what a rhombus is, they may conclude that squares are not rhombuses at all, rather than realizing that they are special rhombuses.	
	Have each student create and regularly update his or her own glossary. If students stumble over the meaning of a word when providing an explanation, refer them to their glossaries rather than defining the word for them again.	
	Keep a "word wall"—in a spot that all students can see at all times—that displays important vocabulary for a particular unit.	
Provide Ongoing Formative Assessment	Give your students opportunities to talk about their mathematical thinking and listen to how they use mathematical terminology. Ask your students to paraphrase what you or other students have said. When students use informal language, point to the word wall and ask them to rephrase using the correct mathematical term or ask a classmate to rephrase.	
	Employ a two-step strategy when a student doesn't understand something you (or another student) have said that includes math terms. First, make sure the student understands the terms by asking about their meaning. If you can clarify the terms, prompt the student to use the definition to paraphrase the statement or idea in question.	
	Consider each student's needs and learning styles when you decide on the actions you will take to move students closer to the learning goals. Whatever those actions are, give students time to ask you questions, share their thinking, and respond to the feedback you provide.	

## Directions for Using the Lesson in Action

Every Instructional Strategy Guide includes one or more Lessons in Action. Each lesson provides a classroom example of the relevant evidence-based practice. The example illustrates how a teacher aligns instruction with the Common Core State Standards, differentiates instruction to meet the needs of her diverse students, uses technology to personalize learning, and engages in formative assessment.

### PD Goals

- ▶ To analyze the Lesson in Action and reflect on current teaching practice
- ▶ To provide teachers with a foundation for their own lesson planning

### PD Materials

- ▶ The Lesson in Action you selected from the Instructional Strategy Guide, which can be:
  - Distributed as a handout
  - Projected onto a large screen
  - Viewed on laptops, tablets, and other devices
- ▶ The companion handout (titled **Scavenger Hunt**), which can also be distributed as a handout, projected onto a large screen, or viewed on devices

### PD Activity

- ▶ Analyze and discuss the Lesson in Action
- ▶ Use the **Scavenger Hunt** handout to discuss how the teacher is:
  - Aligning the lesson with the Common Core State Standards
  - Employing the strategies suggested in Teach with Tech
  - Using technology to support struggling students
  - Personalizing instruction through differentiation
  - Translating UDL principles into action
- ▶ Compare the Lesson in Action with current practice in your school and classrooms
- ▶ Identify the new ideas the Lesson in Action offers for using:
  - Evidence-based practices
  - Differentiated instruction and UDL
  - Technology tools
- ▶ Use the Lesson at a Glance for lesson planning:
  - Discuss the sequence of the instructional steps: What? Why? How?
  - Discuss how the instructional steps can be used as a basis for lesson planning
  - Create a modified lesson plan to meet student needs by working individually or in collaboration

See the PD Facilitator Guide for related activities to support ongoing professional learning.

## Scavenger Hunt



**Within the Lesson in Action, can you find an example of how the teacher...**

1. Aligns instruction to meet the Common Core State Standards?
2. Uses one of the Teach with Tech suggested practices?
3. Uses technology to support struggling students?
4. Personalizes instruction through differentiation?
5. Translates UDL principles into action?

**If you can't find an example, what would you have done?**