Lesson 05

# Teach the Language of Math

WITH ANN DECHENNE

# Class Objectives

OBJECTIVE 4

Students will learn how to identify mathematical and general language to support students in the math classroom.

# Academic Language but Daily Language?

Introduction

It is easy to understand why academic language and vocabulary is important but daily language? What is that all about? As adults we have a lot of life experience and learning compared to our students. We have a lifetime of language stored in our brains.

# Academic Language but Daily Language?

Introduction

As much as we feel we are aware of how we speak to the students, our knowledge pops out.  Also, children tend to be more literal in their language and thoughts, which can cause some mathematical mayhem. More to come.:)

# Academic Language but Daily Language?

Introduction

My grandparents played Bridge and Pinnocle card games regularly.  My father had poker parties. A deck of cards was common in my household. Not as many kids know what a joker is (aside from Batman). If you have language learners it is quite possible their country doesn't even have 52 cards in a standard card deck. This is an example for older kids but it makes the point.

# Academic Language but Daily Language?

Introduction

Pay close attention or audio record a class session on a pad or your cell phone and take a listen to the language you are using. Anything surprising? Students have a new normal language just like you or I had a new normal language than our parents and grandparents.  My grandmother called the sofa/couch a davenport. Not sure that word is used much at all anymore.

# Academic Language but Daily Language?

Introduction

We will take a look at some examples. Let's quickly talk about the literal. I have a math friend who I worked with. He was baffeled when talking to students about shadows that ladders produce when against a building. This was a lesson focusing on angles.  He finally realized the students thought the ladder was flush with the building. :)

# Academic Language but Daily Language?

Introduction

Younger students may not have as much language experience but they carry a lot of it.  Just beaware that some of the simpliest words and phrases can be confusing to an ELL student, a student with an IEP, or a student in a low economic/literacy situation.

# Standards and Language

Knowing the language requirements of the standards will help orientate teachers when they are developing language rich lessons.  Understanding what is being taught will help the students.

## Oregon Math Standard

2.GM.A.3

CCSS: 2.G.A.3

## Example

**Partition circles** and **rectangles** into two, three, or four **equal parts**. Recognize that equal parts of **identical wholes** need not have the **same** shape.

Partition, Circle, Rectangle, Equal, Parts, Identical, Whole, Same

Explanation of previous slide.

## Example +

The words highlighted are the basic academic vocabulary that needs to be understood to work the problems. Some of the words like compare, describe, and authentic are often repeated and will be quickly learned. Others, like perpendicular and exponent, maybe take more time.

This vocabulary is part of the daily math teachers' vocabulary. As a math teacher, this is KNOWN. For students, it isn't yet, and  needs to be taught to move forward.


CSS:5.NBT.A.1

Oregon:5.NBT.A.1

Example +

Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.


CCSS:5.NBT.A.1

Oregon:5.NBT.A.1

## Example +

**Recognize** that in a **multi-digit number**, a **digit** in one **place represents** 10 **times** as much as it represents in the place to its **right** and 1/10 of what it represents in the place to its **left.**

Recognize, Multi-digit Number, Digit, Place, Represents, Place Times Right, Left

# CCSS: 2.OA.A.1

## Example

Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

# CCSS: 2.OA.A.1

## Example

Use **addition** and **subtraction** within 100 to solve one- and two-**step** word problems involving **situations** of **adding to**, **taking from**, **putting together**, **taking apart**, and **comparing**, with **unknowns** in all **positions**, e.g., by using drawings and **equations** with a **symbol** for the unknown number to **represent** the problem.

Oregon:2.OA.A.1

Example +

Use addition and subtraction within 100 to solve one- and two-step problems in authentic contexts by using drawings and equations with a symbol for the unknown.

# Oregon:2.OA.A.1

## Example

Use **addition** and **subtraction** within 100 to solve one- and two-**step** problems in **authentic contexts** by using drawings and **equations** with a **symbol** for the **unknown**.

Explanation of previous slides.

## Example +

Looking at both CCSS and ODE Math standard you can see that they are similar. The nice thing about comparing them is that I as a specialist looking can pull out the language I would like to help the math teacher with. To find more specific wording looking to the other standard can often help. If you notice in the last example that used the same standard for Oregon and CCSS that the wording was similar but CCSS was more specific.

Which ever standard you use the words will need to be taught. It is nice when they are easy to find in the standard.


Baseball card
Shared
Evenly

## Example

Gio had 100 **baseball cards**. he kept 12 and **shared** the rest **evenly** among his 8 friends. How baseball cards did each of his friends get?


Grows

Rate of

***This is a high school example but it is an excellent example of tricky language.**

## Example +

A town of 3200, grows at a rate of 25% every year. Find the size of the city in 10 years.

Note: This lesson really is a cool learning tool.  Can you see what may really trip up students?


Grows
Rate of

Town
City

## Example +

A **town** of 3200, grows at a rate of 25% every year. Find the size of the **city** in 10 years.

You may not have to define town and city but the change in reference may throw kids off.  A population discussion might need to happen.


Some Thoughts

## Example

Baseball cards, light houses, playing card (spades, face cards, jokers), steak, marbles, kite, wagon, etc. Many daily words are unfamiliar to students who are new to the country or just haven't had the same life exeperinces as everyone else. Clarify the langauge of the word problems and it will help the student with comprehension. Better to be clear

# Class Recap

POINT 1

For students to comprehend what you want them to learn they need to understand both the academic and the daily language used.

POINT 2

Pay attention to the words you use. So many words are a part of you and you may not notice what you are saying.

POINT 3

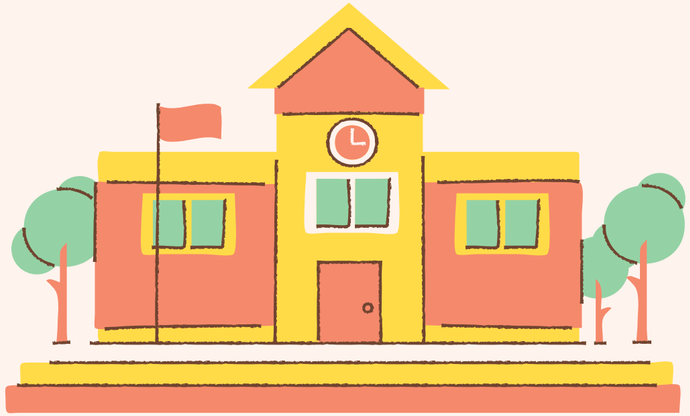
Review the lessons you are giving. Where can you clarify things to assist with student comprehension?

# Homework

Choose a standard either CCSS Math or ODE Math and complete the following:

1. Identify the standard by the alpha-numeric identifier.
2.. Provide the text of the standard
3. List all identified academic lan

# Thank You



IF YOU HAVE ANY QUESTIONS PLEASE FEEL FREE TO CONTACT ME AT:

DECHENNE.CONSULTING@GMAIL.COM