

# Seeing Out of Both Eyes: An Approach to ELD Lesson Planning

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Presented by:

**GAPS ELP PLT Grant Team**

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with special appearance by Heather Huzefka

also starring Timothy Blackburn

# What we will share today

1. THE FOUNDATION: How did we get started?
2. THE UNIT: What choices brought us here?
3. THE FUTURE: Where do we go from here?

# THE FOUNDATION (Spring 2014)

- Common Core and district math initiatives
- ELP Standards and the ELP PLT Grant

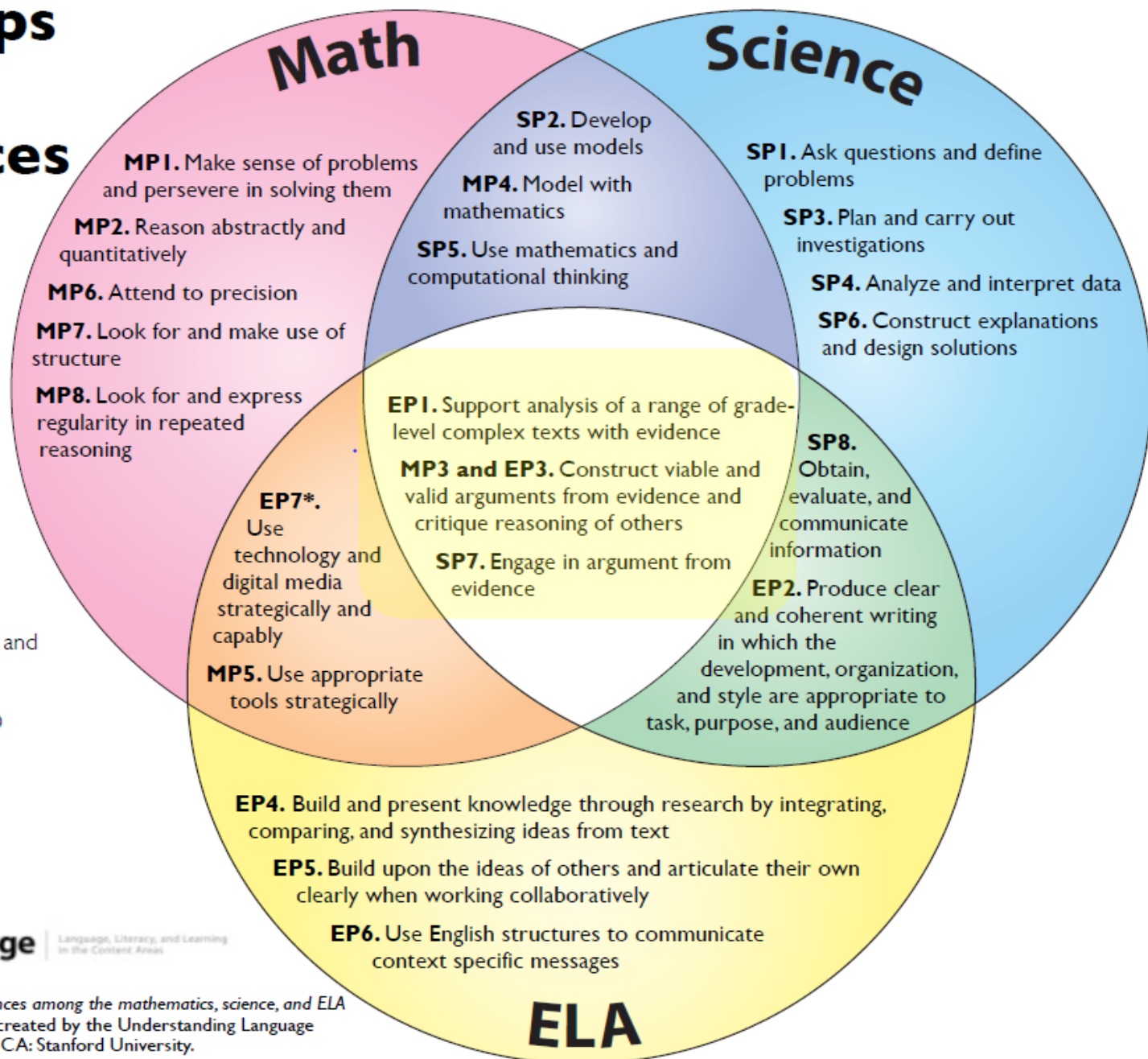
# Common Core and District Math Initiatives

1. Content Teachers expecting shifts
  - a. in content with CCSS
  - b. in pedagogy with math practice standards
2. Math TOSAs hired to help with transition
3. Teacher Development Group contracted to run Math Studio
4. Pedagogical practice of Structured Talk shared with all teachers in district
5. District-level PLCs with ELD teachers attending

# Relationships and Convergences

- Found in:
1. CCSS for Mathematics (practices)
  - 2a. CCSS for ELA & Literacy (student capacity)
  - 2b. ELPD Framework (ELA "practices")
  3. NGSS (science and engineering practices)

- Notes:**
1. MP1–MP8 represent CCSS Mathematical Practices (p. 6–8).
  2. SP1–SP8 represent NGSS Science and Engineering Practices.
  3. EPI–EP6 represent CCSS for ELA "Practices" as defined by the ELPD Framework (p. 11).
  4. EP7\* represents CCSS for ELA student "capacity" (p. 7).



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**Understanding Language** | Language, Literacy, and Learning in the Content Areas

Suggested citation:  
Cheuk, T. (2013). *Relationships and convergences among the mathematics, science, and ELA practices*. Refined version of diagram created by the Understanding Language Initiative for ELP Standards. Stanford, CA: Stanford University.

# Math Studio

- 3 Best Practice days in summer
- Ongoing professional development
- Focus on discourse in the math classroom
  - Public Records
  - Structured Talks
  - Selecting and Sequencing
  - Mathematical Representations
  - Conferring with Students

# Structured Student Talk

Begin with think time

Follow a prescribed structure that provides status-free and equitable talk time

Focus on each group member's mathematical reasoning, sense making, representation, justification, and/or generalizations

End with a discussion comparing their ideas

# ELP Standards and ELP PLT Grant

Grant team assembled April 2014  
(included math and ELL TOSAS)

Began ELP standards implementation in  
district

Attended PLT conferences with the  
amazing Tim Blackburn



# Grant Funds

Create vision for direction Albany would go with ELP standards

Team members and district ELD teachers participated in MOOC

Collaboration time for ELP team to create an ELP aligned instructional unit with common core correspondences

Attend PLT conferences to collaborate with other districts

Create professional learning opportunities for mainstream and ELD teachers alike

# Keys to Collaboration

## ELP PLT Grant Team

1. Focus on what is best for students
2. Growth mindset
3. Time and effort
4. Moving forward
5. Setting and meeting goals

# THE UNIT

Chose math as our content area:

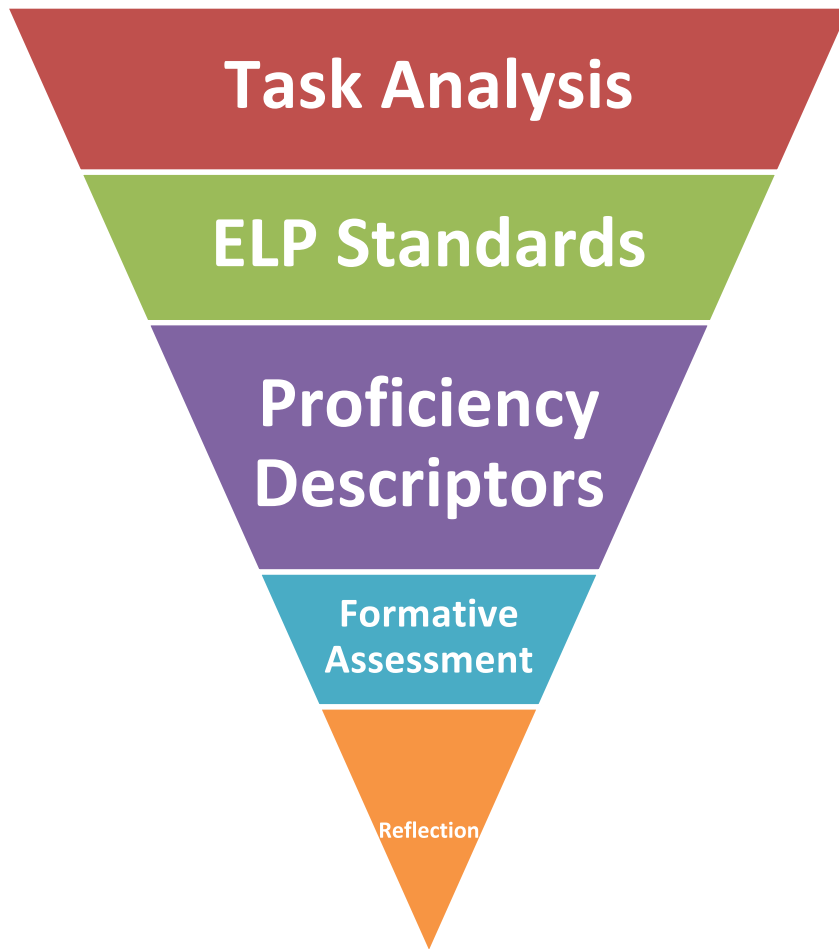
1. district level focus on math professional development
2. expertise of math TOSA
3. models the type of integration of content and language advocated for by the ELP Standards (page 3)

# Creating the Unit

Used what we learned from PLT conference on task analysis and applied that to our unit creation

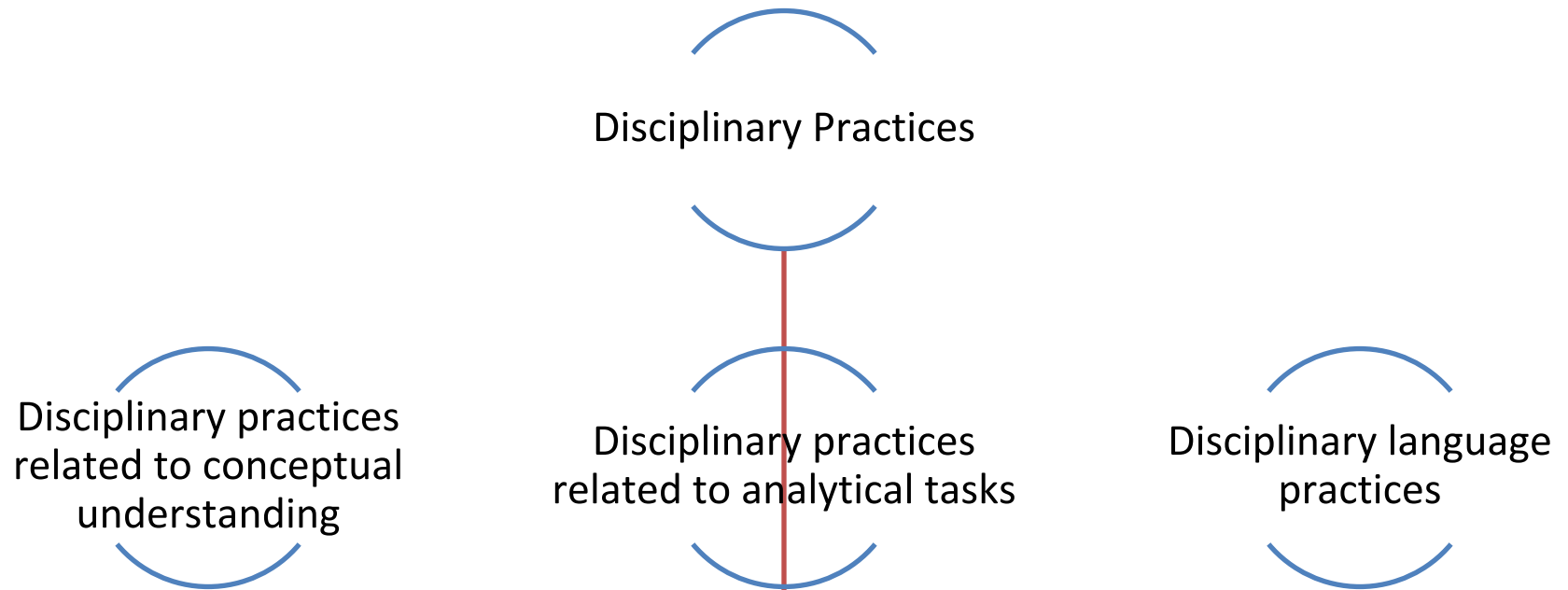
1. Backwards design
2. Started with the product we wanted from students
3. Incorporated math content and ELP standards
4. Complete a task analysis

# Language & Content – Task Analysis



- **Task Analysis**
  - *What are our students using language to do?*
- **ELP Standards**
  - *What standards are assessed by the task?*
- **Proficiency Descriptors**
  - *How deeply does the student understand class content and language?*
- **Formative Assessment**
  - *How do teachers scaffold for access to demonstrate understanding of class content?*
- **Reflection**
  - *What does student work reveal about the depth of understanding of language and content?*

# Dimensions of Academic Task Demands



Valdés, G., Kibler, A., & Walqui, A. (2014, March). [Changes in the expertise of ESL professionals: Knowledge and action in an era of new standards](#). Alexandria, VA: TESOL International Association.

Chose a real academic task from CMP3 curriculum, which are the current materials being piloted by middle school math teachers.

(Sidenote: This collaboration has the potential to inform math instructional materials adoption when considering equitable access to content.)

Use this experiment to write an article for your local paper, trying to convince the people in your town to conserve water and fix leaky faucets.

In your article, include the following information:

- a coordinate graph of the data you collected;
- a description of the variables you investigated in this experiment and a description of the relationship between the variables;
- a list showing your predictions for:
  - the amount of water that would be wasted in 15 seconds, 2 minutes, in 2.5 minutes, and in 3 minutes if a faucet dripped at the same rate as your cup does;
  - how long it would take for the container to overflow if a faucet dripped into the measuring container at the same rate as your cup;

Explain how you made your predictions. Did you use the table, the graph, or some other method? What clues in the data helped you?

- a description of other variables, besides time, that affect the amount of water in the measuring container;
- a description of how much water would be wasted in one month if a faucet leaked at the same rate as your paper cup (explain how you made your predictions);
- the cost of the water wasted by a leaking faucet in one month. (To do this, you will need to find out how much water costs in your area. Then, use this information to figure out the cost of the wasted water.)



## Is Your Wallet Leaking?

Do you hear a drip, drip in your house at night? Leaky faucets lead to gallons of water waste! And water isn't cheap. It doesn't seem like a drip could add up so quickly, but consider this: A faucet that drips at a rate of 16 milliliters per minute will lose six gallons and one cup of water down the drain daily. In one month, this faucet will waste about 182 gallons of fresh, unused water!

Not only is a leaky faucet wasteful, but it can also be costly for you and your household. One cubic foot of water, which is equal to 7.48 gallons, costs Albany residents about \$3.80. You could pay \$92 for those 182 unused gallons!

It is important to review your monthly utility bill and check for unexplained changes in your water usage. Not all leaks lose water at the same rate. You may not notice a subtle drip in your bathtub or a leak in an outdoor hose unless you check your bill.

You may be able to ignore the drip, drip at night, but you cannot deny that a hole in your wallet is worth your attention. Fix your leaky faucets today!

## For more information:

About reading your water bill

<http://www.cityofalbany.net/departments/public-works/utility-billing/understanding-your-bill>.

About leaks and requesting adjustments to your bill for a leak

<http://www.cityofalbany.net/departments/public-works/utility-billing/checking-for-leaks-a-leak-adjustment>

## Sample Lab Write-Up

The independent variable, which is on the horizontal axis, is measuring the amount of time the faucet has been leaking. The dependent variable, which is on the vertical axis, is measuring the volume of water lost. Our group found that these variables are related because the volume of water lost is dependent on the amount of time the faucet has been leaking. The variables appear to be related in a linear fashion because when graphed, the data points approximate a straight line.

This linear relationship enables us to make predictions about the amount of water lost after more time passes. According to the data we recorded on our table, the amount of water lost in 15 seconds was five milliliters and 16 milliliters were lost in 60 seconds. We think the amount of water lost in 60 seconds is a better data point because the margin of error is smaller when multiplying by a smaller number. We can multiply the amount of water lost in one minute by two to predict that the amount of water lost in two minutes, which would be 32 milliliters. We predict that the amount of water lost in 2.5 minutes will be 40 milliliters. In three minutes the amount of water lost would be 48 milliliters.

# Sifted out the language from the task

- How do we use data to support our claims?

Tier 1 & 2 Vocabulary	Tier 3 Vocabulary
<ul style="list-style-type: none"><li>• Leak, leaky, leaking</li><li>• Faucet, spigot</li><li>• Bathtub, sink</li><li>• Unit, gallons, cups</li><li>• Seconds, minutes, hours, days, weeks</li><li>• Fix</li></ul>	<ul style="list-style-type: none"><li>• Coefficient</li><li>• Dependent variable, independent variable</li><li>• Equivalent expressions</li><li>• Inequality</li><li>• Linear relationship</li><li>• Point of intersection</li></ul>

Language Features
<ul style="list-style-type: none"><li>• Making predictions<ul style="list-style-type: none"><li>◦ Future tense</li><li>◦ Modals (should, may, etc)</li></ul></li><li>• Persuade<ul style="list-style-type: none"><li>◦ Cause/effect (If/then)</li><li>◦ Modals (should, may, etc)</li><li>◦ Adapt language choices for audience and purpose</li></ul></li><li>• Describing, Explaining<ul style="list-style-type: none"><li>◦ Present tense</li></ul></li></ul>

# Integrated language and content standards in learning targets

ELP Standards 4, 5, 7, 9, and 10

## Math Standards

Use proportional relationships to solve real-life problems.	7.TP.A.2 7.RP.A.2a 7.RP.A.2b 7.RP.A.2c 7.RP.A.2d 7.EE.A.2 7.EE.B.3 7.EE.B.4 7.EE.B.4a	With heavily scaffolded support, explains and shows partial understanding of the mathematical concepts and procedures and satisfies some of the essential conditions of the problem.	With scaffolded support, explains and shows partial understanding of the mathematical concepts and procedures and satisfies most of the essential conditions of the problem.	Explains and mostly shows understanding of the mathematical concepts and procedures and satisfies most of the essential conditions of the problem.	sentences. Explains and shows full understanding of the mathematical concepts and procedures and satisfies most of the essential conditions of the problem.	Explains and shows full understanding of the mathematical concepts and procedures and satisfies all essential conditions of the problem.
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To see our complete unit go here:

<https://drive.google.com/a/albany.k12.or.us/folderview?id=0B4pdLsVvFLKFS1dzYzFqVnhjUGc&usp=sharing>

# Keys to Collaboration Building Level

1. Focus on what is best for students
2. Growth mindset
3. Time and effort
4. Moving forward
5. Setting and meeting goals

# THE FUTURE

Discuss with your table groups:

1. Where are you at in your building/district?
2. How would this type of collaboration get started or continue?
3. What are your next steps?

Interdistrict collaboration is great! So is  
intra-district collaboration. Contact us!

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