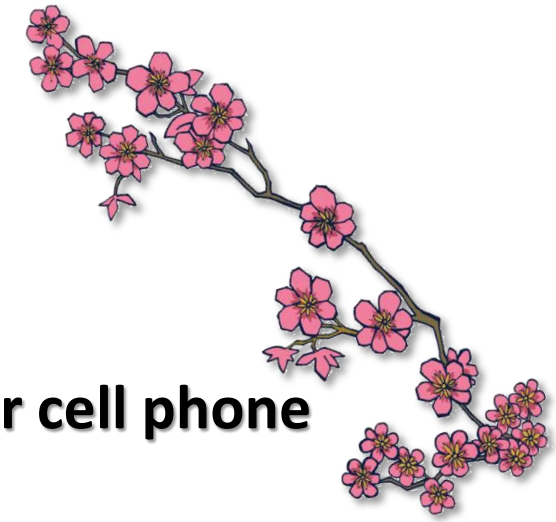
Science Leadership Network

Spring 2015

washington educational service districts

Welcome!

Northwest Science Leadership Network Spring 2015



Please…

- **Sign in**
- **Silence your cell phone**
- **Be ready to share:**
  - **Which science and engineering practice implemented this year?**
  - **How has student engagement reflected that practice?**

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Introductions

Brian MacNevin

NWESD Science Coordinator

Joanne Johnson

Director, Northwest LASER Alliance

Your name

Where and what you teach

Favorite thing about teaching science

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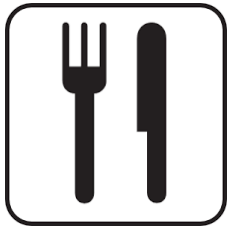
“3D” Needs



Dining

Drinking

Disposing

Norms

1. Pausing
2. Paraphrasing
3. Posing Questions
4. Putting Ideas on the Table
5. Providing Data
6. Paying Attention (to self and others)
7. Presuming Positive Intentions

✚ Persevering Beyond Perceived Barriers

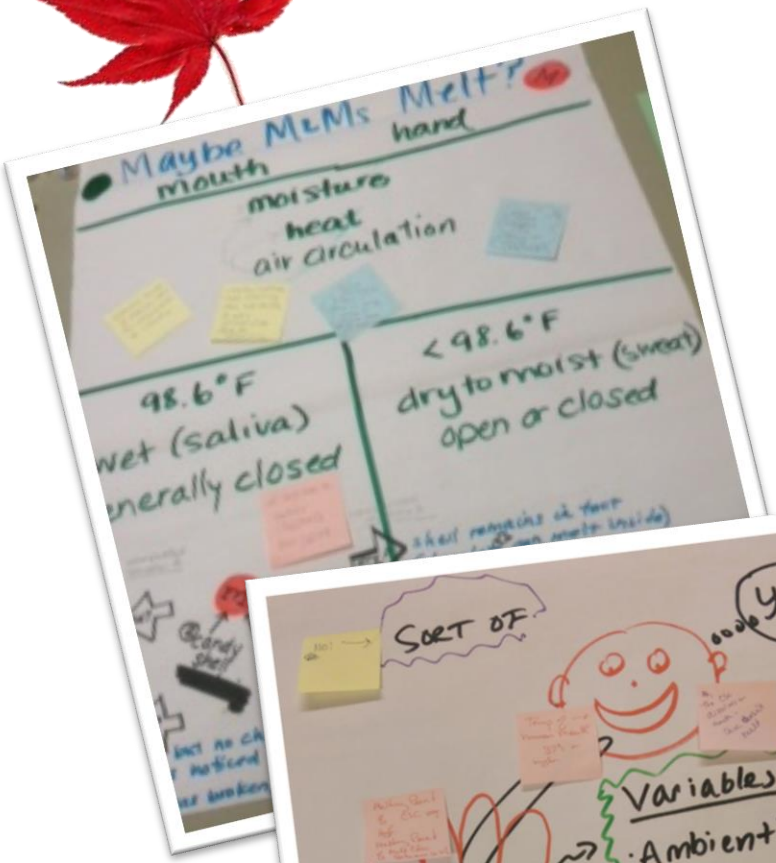
Photos from ESD 105 Science Education Cooperative

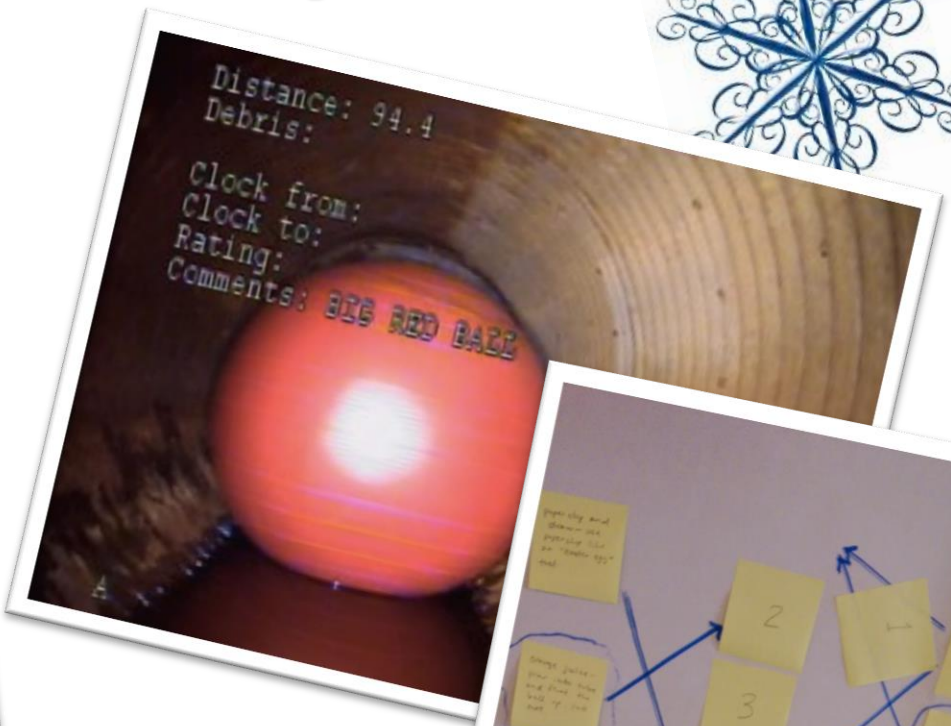
Why we gather

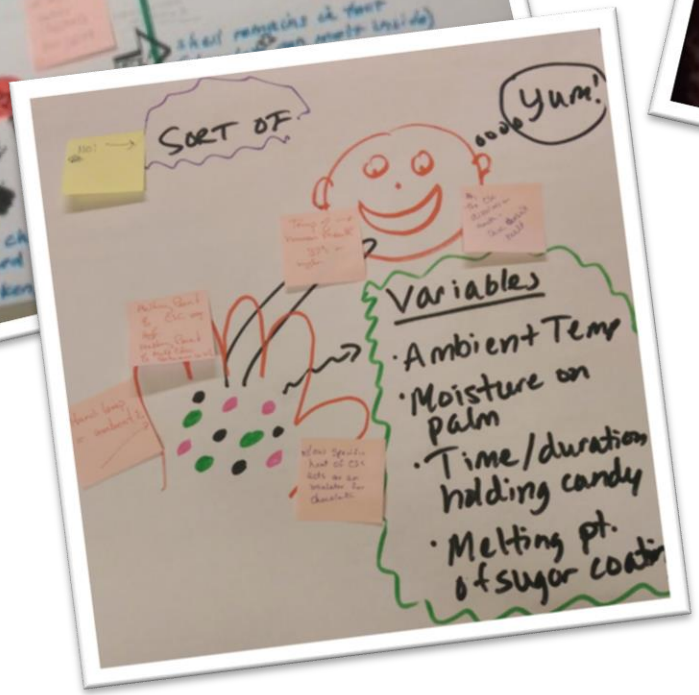
Science Teacher Leadership strengthens our regional capacity to support Washington's transition to the Next Generation Science Standards so that all students will benefit from a rich science and engineering education.

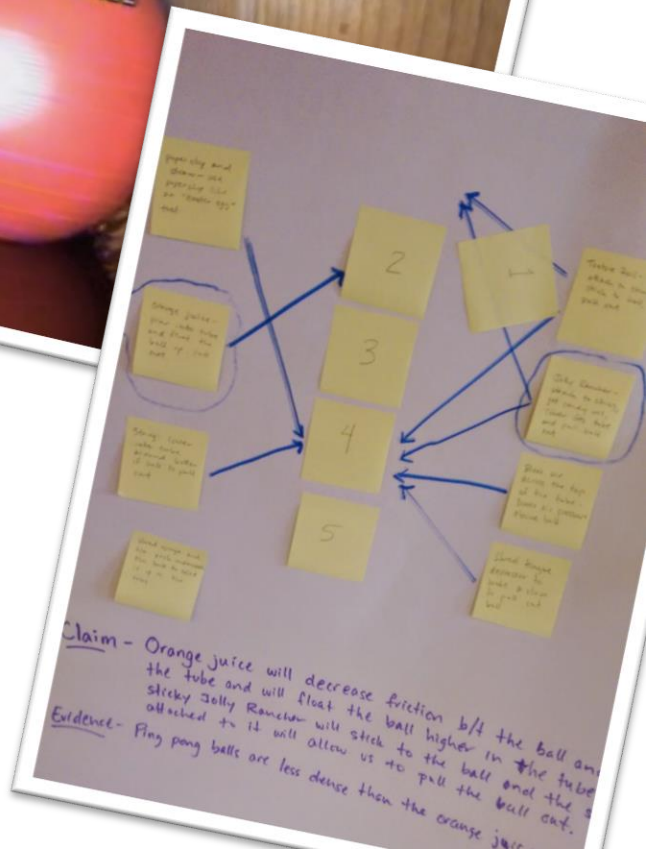
Science Leaders will deepen their own understanding of the Next Generation Science Standards (NGSS) and the state and national education initiatives (science as well as relevant language arts and math initiatives). Science Leaders will learn tools and processes to use with colleagues in their own districts to facilitate a local transition to the NGSS. They will be a local resource to strengthen science education in their district. Science Leaders will provide feedback and district perspectives to inform state and regional NGSS implementation and support plans.

Reflect on the year…









Photos from NWESD

Reflect on the year…

Share with your table

- **Which science and engineering practices you implemented this year.**
- **How has student engagement reflected that practice?**

Photos from NWESD

SLN Theme of Year:

Science and Engineering Practice #2:

Developing and using models.

Photos from NWESD

Today's Exploration:

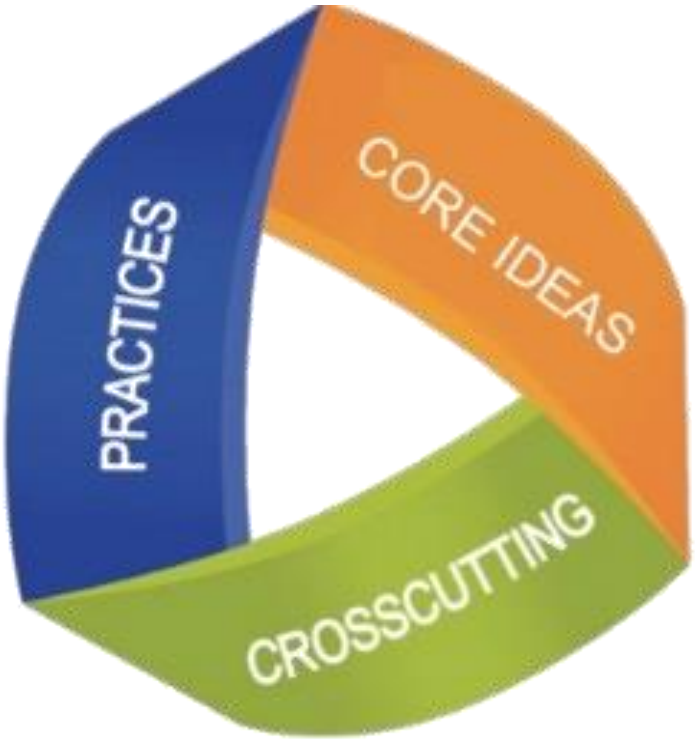
Integrating

Science and Engineering Practices
and
Crosscutting Concepts

Are They Using Crosscutting Concepts?

Cross Cut Symbols images available at http://crosscutsymbols.weebly.com/

Re-grounding in the Crosscutting Concepts



- **New Achieve Video [LINK]**
- **NSTA Matrix of Crosscutting Concepts**
- **Revise your CCC probe response**

https://www.teachingchannel.org/videos/crosscutting-concepts-achieve

Were They Using Crosscutting Concepts?

1. Take a look at the Teacher Notes for the Probe.

2. Revisit and/or revise your response.

3. Share any new ideas you have about Crosscutting Concepts with an elbow buddy.

Let's Summarize…

Activity	What did we do?	What did we observe/think?	How does this relate to implementing the NGSS in our classroom?
Crosscutting Concepts			

1. **Collaborate with others at your table to create a Summary Chart.**

2. **Complete a row on the chart to summarize what we learned about Crosscutting Concepts.**

Take a Break!

We will resume at ……

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Supporting ALL Students in Discourse for Crosscutting Concepts

Crosscutting Concepts Discussion Cards

Photos from ESD 105 Science Education Cooperative

Supporting Student Discourse

Partner Talk Strategy

Classroom Video – Round One: 3rd Grade Sound Unit

- **Partner A - Looks for discourse strategies & scaffolds**
- **Partner B - Looks for evidence of a crosscutting concept.**

Classroom Video – Round Two: High School Sound Unit

- **Partner A - Looks for evidence of a crosscutting concept.**
- **Partner B - Looks for discourse strategies & scaffolds**

Round 1: 3rd Grade Sound

Let's Summarize Again

Activity	What did we do?	What did we observe/think?	How does this relate to implementing the NGSS in our classroom?
Crosscutting Concepts			
Supporting Student Discourse			

1. **Have a quick dialogue to determine your group's responses to the questions on the Summary Chart.**

2. **Complete a new row on the chart to summarize what you learned about Supporting Student Discourse.**

Lunch
With Updates! (yummy)

We will resume at ……

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Today's Exploration:

Integrating

Science and Engineering Practices
and
Crosscutting Concepts

Pelican Colonies
A Model-Eliciting Activity (MEA)

B. A. Bowen Photography

Pelican Colonies
A Model-Eliciting Activity (MEA)

1. **Read the article: "Pelican Colonies"**

2. **Complete the "Individual Exercise"**

B. A. Bowen Photography

Engineering Design Process

What is the best way to estimate the number of nests in a Pelican colony?

Colony A – Aerial Photograph

Define

Specify criteria and constraints that a possible solution to a problem must meet.

What are the criteria and constraints associated with this problem?

Adapted from Pelican Colonies MEA, University of Michigan, 2010

Shifting to Engineering Design….

Colony A – Aerial Photograph

Define

Specify criteria and constraints that a possible solution to a problem must meet.

How would you refine the Individual Response questions to support engineering design for your students?

Adapted from Pelican Colonies MEA, University of Michigan, 2010

What is the best way to estimate the number of nests in a Pelican colony?

Develop a solution that answers the question.

Colony A – Aerial Photograph

Develop Solutions

Research and explore multiple possible solutions

Adapted from Pelican Colonies MEA, University of Michigan, 2010

What is the best way to estimate the number of nests in a Pelican colony?

Materials you may use to develop your solution:

- **Uncooked rice**
- **Black beans**
- **String**
- **Scissors**
- **Smart phone camera/apps**
- **Ruler**
- **Unit cubes, grids, color tiles**

20 min

Adapted from Pelican Colonies MEA, University of Michigan, 2010

What is the best way to estimate the number of nests in a Pelican colony?

Create and display a poster that describes your solution.

Include the following:

- **A description of your solution.**
- **Evidence that your solution meets the criteria of the problem.**
- **Justify why your method is the best solution to estimate the number of Pelican nests in a colony.**

10 min

What is the best way to estimate the number of nests in a Pelican colony?

Sticky--notes and language scaffolds

- **ADD**
  - **You could support your solution more by adding…**
- **REVISE**
  - **One way you could change this to make it stronger…**
- **QUESTION**
  - **I was wondering…**

15 min

Take a Break!

We will resume at ……

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Using FEEDBACK to FEED FORWARD

How I will use feedback to revise my work or reconsider my ideas:

1. What did the feedback tell me?

2. Here are the changes I will make to my work or thinking:

3. What parts of the feedback do I not yet understand? (list and then ask the person who gave you the feedback to explain it more clearly)

Complete the "Using Feedback" section.

Adapted from Science Formative Assessment – Volume 2, 50 More Strategies for linking Assessment, Instruction, and Learning, Paige Keeley 2015

Using FEEDBACK to FEED FORWARD

Reflect on how you will use the feedback in the future.

15 min

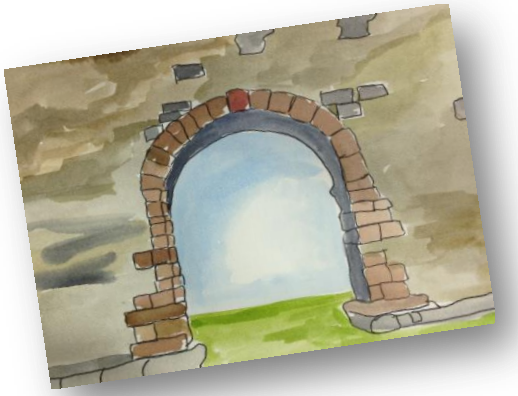
How this feedback will help me improve my future work or inform my thinking:

1. Feedback that will be useful to me in future work when I am thinking about my ideas (provide at least on piece of feedback):

2. This is how I will help myself to remember to use feedback in the future:

Adapted from Science Formative Assessment – Volume 2, 50 More Strategies for linking Assessment, Instruction, and Learning, Paige Keeley 2015

Were They Using Crosscutting Concepts? Revisited



1. How did you make use of pattern in your design solution?

2. How did scale, proportion and quantity affect your design solution?

3. How did looking only at a small part (model) of the pelican system help us with our design solution?

Were They Using Common Core ELA?

1. Look at page 13, question 3.

2. What Common Core ELA connections do you observe?

Colony A – Aerial Photograph

Were They Using Common Core Math?

1. Look at page 14.

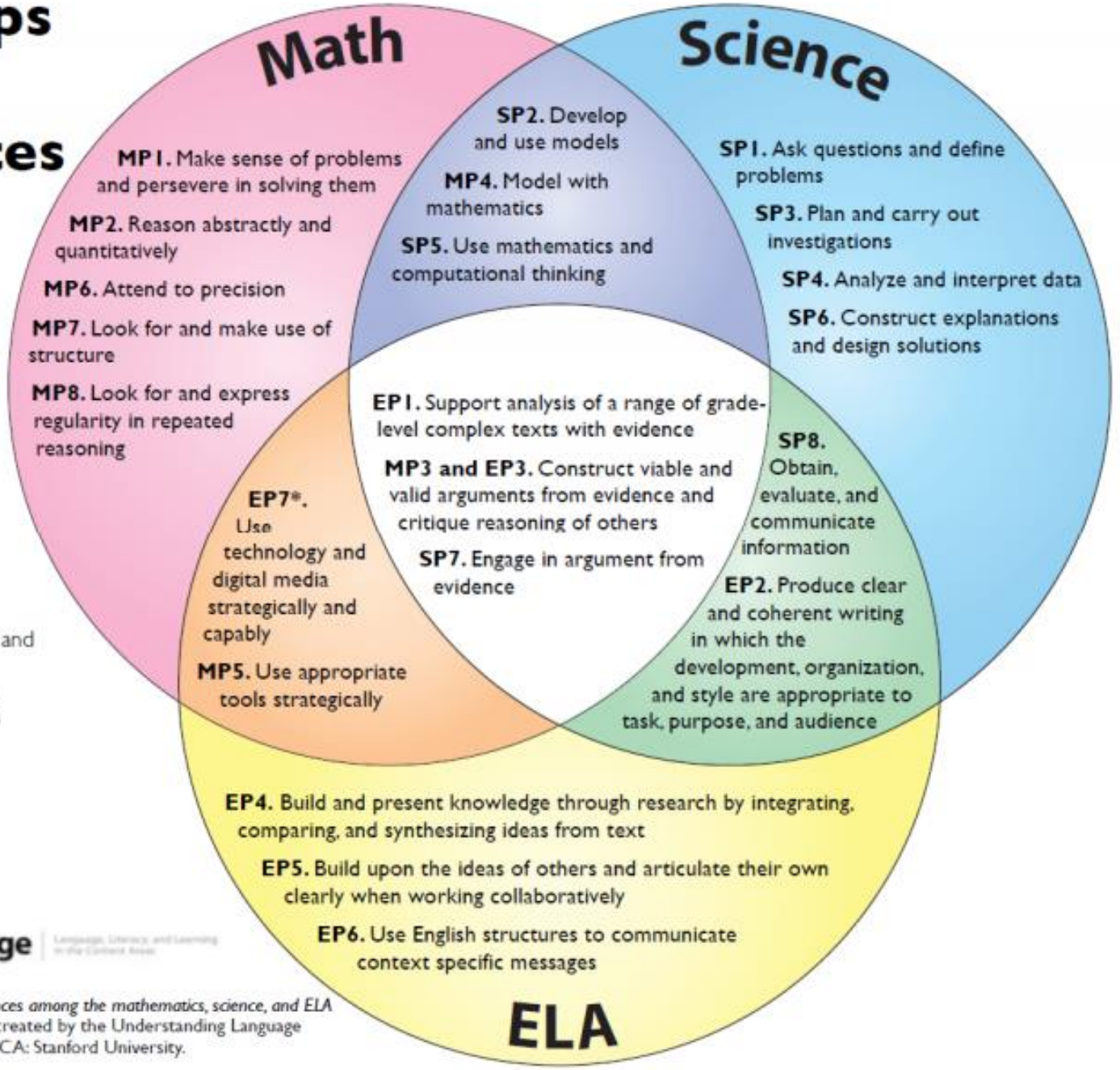
2. What Common Core Math connections do you observe?

Colony A – Aerial Photograph

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. EP1–EP6 represent CCSS for ELA "Practices" as defined by the ELPD Framework (p. 11).
4. EP7* represents CCSS for ELA student "capacity" (p. 7).



Stanford
GRADUATE SCHOOL OF EDUCATION

Understanding Language

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.

Time to Summarize!

Activity	What did we do?	What did we observe/think?	How does this relate to implementing the NGSS in our classroom?
Crosscutting Concepts			
Supporting Student Discourse			
Pelican Colonies MEA			

Complete a new row on the chart to summarize what you learned from the Pelican Colonies MEA.

Pelicans MEA and Others

To access more Model-Eliciting Activities (MEAs):

Link: http://wordpress.unlvcoe.net/wordpress/?p=13

Team Planning/Discussion Time

- Consider your district needs and plans.
- What messages or ideas about *integration* and NGSS implementation are important for your district?
- Postcard: What would you like to share with colleagues in your district? When might you do it?
- AESD Survey

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AESD Science Reflection Survey

Question #4 Date:	Workshop Date: **04-21-2015**
Question #6 Title:	*From dropdown menu select **other** and then type* **NWSLN** for Question #7
PD Hours:	**5**
ESD of this PD:	**NORTHWEST ESD 189**
Question 9:	Kindly select N/A for outcomes that do not apply to this event.

bit.ly/aesd_survey

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