



Day 3:
Constructing a MEL Task

Science and Engineering Practices - MEL Connections

Developing and Using Models

Analyzing and Interpreting Data

Constructing Explanations

Engaging in Argument from Evidence

Drill down! - which elements connect the best with
MELs/baMELs?

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Science and Engineering Practices - MEL Connections

How can we use the structure of a MEL/baMEL to create learning opportunities which develop proficiency in science and engineering practices, as well as the crosscutting concepts and disciplinary core ideas?



Activity Overview

1. Pick a GA GSES or NJSLS-Science (a.k.a. NGSS)
2. Identify a scientific model that relates to the standard and determine an alternative model
3. Identify 4-6 lines of evidence and provide extended information for lines of evidence
4. We'll then share our constructed MELs

<https://www.nextgenscience.org/>



CONSTRUCTING A MEL TASK

TOPIC: _____

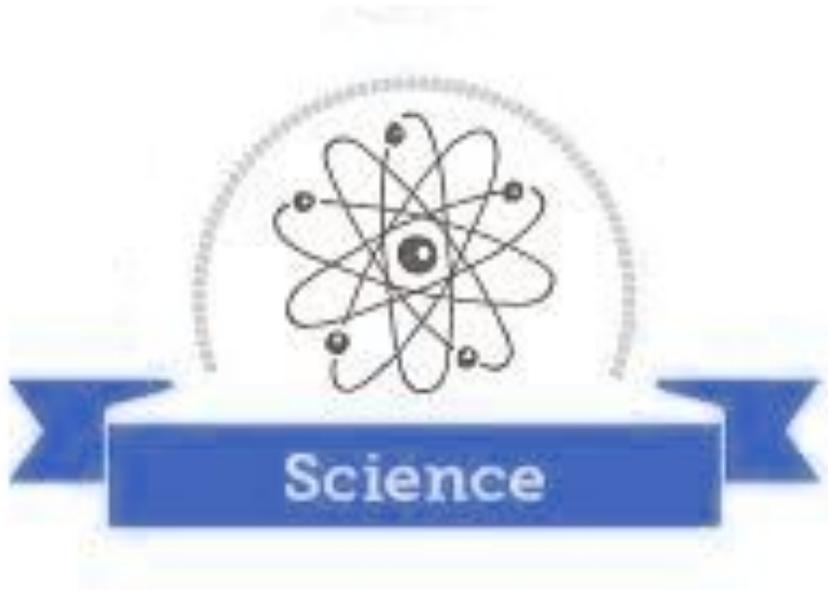
STANDARD: _____

Evidence #1	Model A	Evidence #3
Evidence #2	Model B	Evidence #4

Expanded Lines of Evidence:

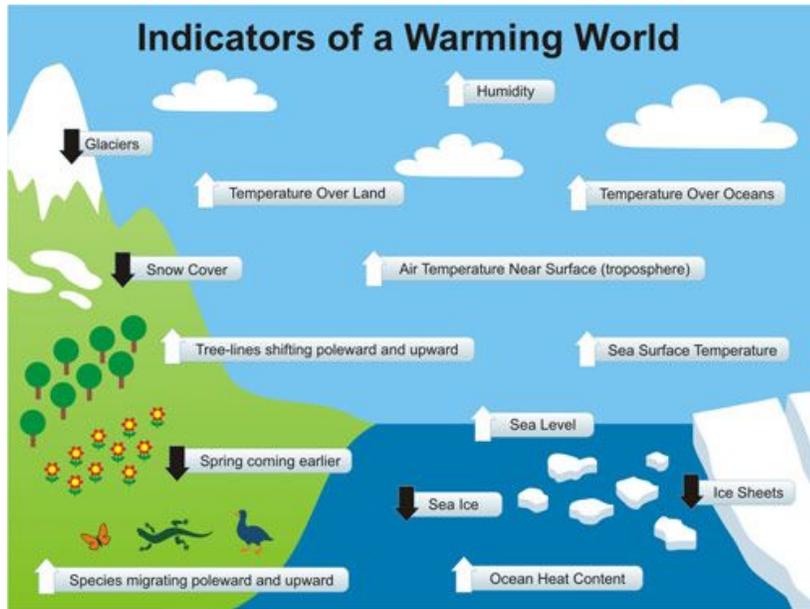
Evidence Statements:	Expanded Explanations:
#1:	
#2:	
#3:	
#4:	

Identify a Disciplinary Core Idea



- Working in groups, use the GA GSES or NJ SLS (NGSS) in Earth or Environmental Science, identify a DCI for which the MEL strategy would be appropriate:
 - Scientific models can be identified that support the standard
 - Alternative models can be identified

Identify 4 Lines of Evidence



Evidence statements are brief

- One - two sentence summaries

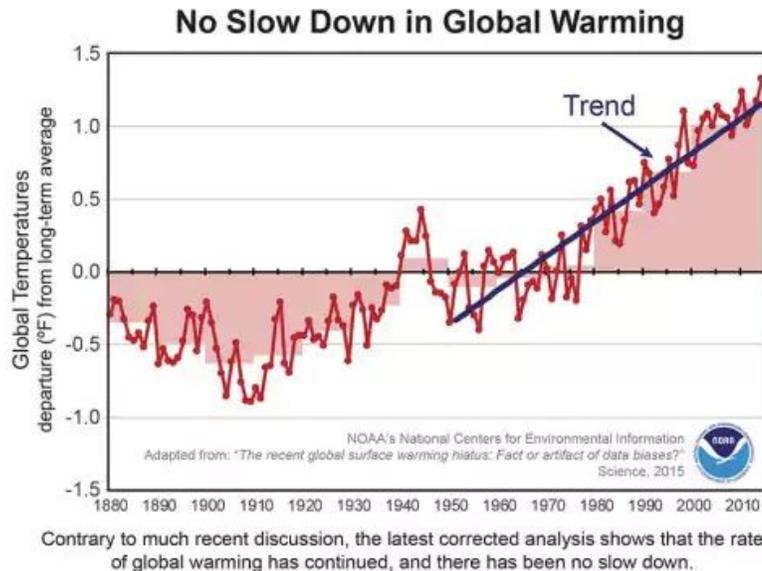
Evidence can come from:

- Readings
- Research
- Student Investigations
- Lab Activities

Ideally, evidence should reasonably connect to both models

Consider adding evidence that falsifies the non-scientific model

Expanding Your Lines of Evidence



- Evidence statements are brief, supported by expanded explanations
- What background information can be provided to support evidence statements?
- How will students get extended information?
 - Readings?
 - Activities?
 - Investigations?

In our activities we presented readings as expanded explanations (evidence text) but this isn't always the case!

Template

CONSTRUCTING A MEL TASK

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STANDARD: _____

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Expanded Lines of Evidence:

Evidence Statements:	Expanded Explanations:
#1:	
#2:	
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1. Pick a GA GSES or NJSLS-Science (a.k.a. NGSS)
2. Identify a scientific model that relates to the standard and determine an alternative model
3. Identify 4-6 lines of evidence and provide extended information for lines of evidence
4. Share your constructed MEL



Sharing your Constructed MEL Activities

CONSTRUCTING A MEL TASK
 TOPIC: _____

STANDARD: _____

Evidence #1	Model A	Evidence #3
Evidence #2	Model B	Evidence #4

Expanded Lines of Evidence:

Evidence Statements:	Expanded Explanations:
#1:	
#2:	
#3:	
#4:	

- Using the same layout as shown on your handout, re-create your activity on chart paper and hang up.
- Gallery Walk:
 - Individually, use sticky notes to give feedback on each group's activities
 - Strengths?
 - Weaknesses?
 - Suggestions?
 - Other ideas?
- Review the comments made on YOUR constructed MEL



Caution!



Not an easy process!

Construction of MELs used in this workshop were:

- Written by teams of researchers
- Reviewed
- Field Tested
- Reviewed again

baMELs are even more complicated to produce!

Review & Reflection



- What were some of the challenges in constructing your MELs?