Snapshot Webinar Series 2024
Making Thinking Visible

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Activate Learning | Empowering Science Teachers
Professional Learning Services

Introductions

• Introductions — Chat
• What is your How?
List:
  ○ In what ways do your students make their thinking visible? — Slido Poll
  ○ In what ways do you and your students make use of representations to help them make sense of science? — Chat

• A recap of 3D Learning — Chat
  ○ Three Dimensions of NGSS
  ○ Practices Across Content Areas
  ○ Goals for Productive Discussions and Nine Talk Moves
• Making the Shift for Sensemaking
  ○ OSE Shifts in Writing and Drawing for Sensemaking

Making Thinking Visible

• Readings:
  ○ Making Student Thinking Visible
  ○ Making Students' Thinking Visible Through Discussion
• What were your notable Ahas or takeaways from these readings? — Chat
  ○ Going Public: Revealing Student Thinking in Science
  ○ What Does It Really Take to Get High School Students to Make Their Ideas Visible?
• What types of representations did you see in these articles? — Chat

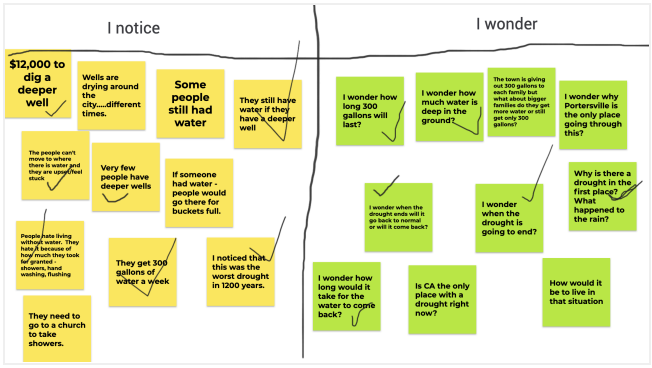
3D Learning in the Classroom
• Experience an Anchoring Phenomenon   ○ Examples from OpenSciEd Unit C.1 Lesson 1 — Google Slides

• Experience students modeling OpenSciEd C.1 Lesson 9 Google Slides
Writing and Drawing for Sensemaking in OpenSciEd
What do student drawings and writings look like in OpenScied? • Examples of Writing/Drawing for Sensemaking

Examples of Writing/Drawing for Sensemaking

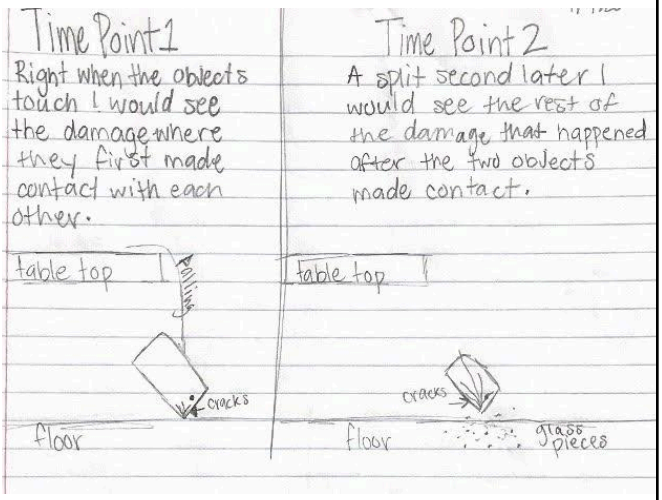
Droughts + Floods, Lesson 1

Notice/Wonder



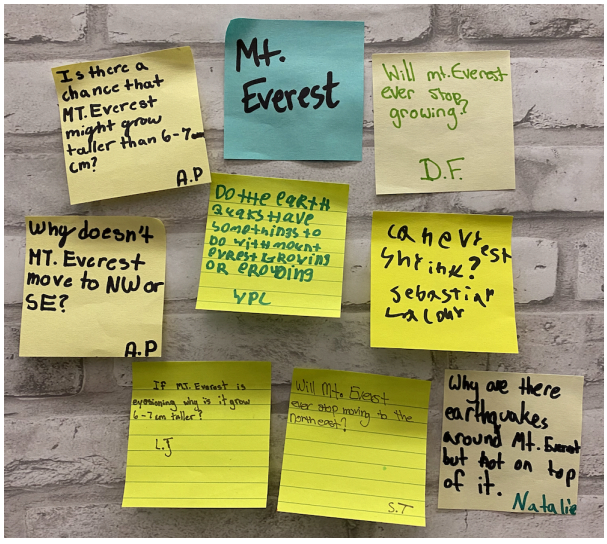
Collisions, Lesson 1

Initial Model



Everest, Lesson 1

DQB questions



Bath Bombs, Lesson 2

Progress Tracker

QUESTION	SOURCES OF EVIDENCE
Where is the gas coming from?	Zip-lock bag experiment where we used a scale.

WHAT WE FIGURED OUT IN WORDS/PICTURES
What we found out is that there is no new matter. We know this because the mass/weight didn't change so the claim - " The gas was formed from a chemical reaction when you add water." - is right because when we broke the bath bomb into lots of pieces in the bag no mass was added or released because the bag didn't expand and the weight stayed the same.

Sound Unit, Lesson 5

Planning for an investigation

Lesson 5: Investigation plan & Observations

Part 1: Use the boxes below to record important parts of our plan for today's investigation.

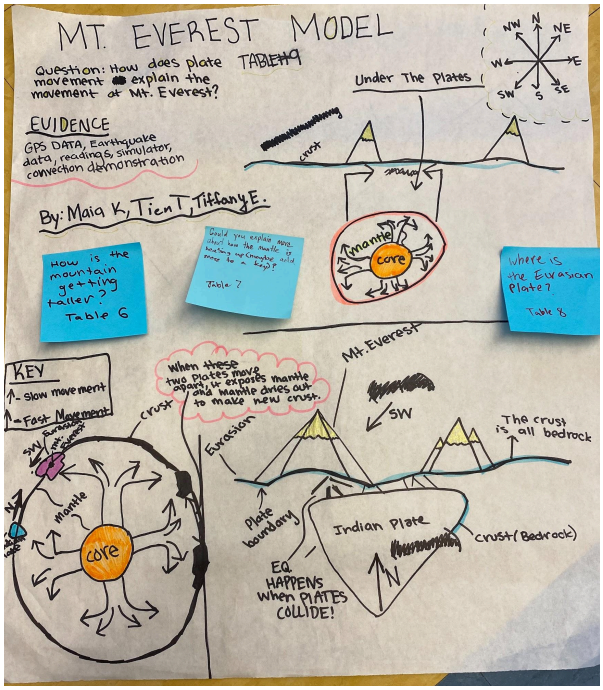
What is the question we are trying to answer today? **We want to know how high pitch and low pitch vibrations compare?**
What kinds of instruments or other sound sources make higher pitch sounds? **Smaller instruments and sound sources make higher sounds.**
What kinds of instruments or other sound sources make higher pitch sounds? **Larger instruments and sound sources make lower pitches.**
How can we use the stick and motion detector to help us answer our question? **We can resize the stick to make different pitch vibrations. Smaller to make higher pitch and longer for a lower pitch.**

Part 2: Use the data table below to record your observations as we try our investigation plan with the stick and the motion detector.

Length of stick	Observation #1	Observation #2
Longer Length (Video 1)	The vibrations are not very far from rest (low amplitude)	There were only 2 vibrations in 2 seconds. (Frequency)
Medium Length (Video 2)	The vibrations are close to rest position (Low amplitude)	There were 4 vibrations in 2 seconds (Higher Frequency)
Shorter Length (Video 3)	The vibrations are close to rest position (Low amplitude)	There were 9.5 vibrations in 2 seconds (Even higher frequency)

Everest Unit, Lesson 8

Small group model with student feedback



Bath Bomb, Lesson 5

Argument

Arguing from Evidence

Our question: What gas(es) could be produced by a bath bomb?

- Your written argument should provide a claim to answer this question.
- You should use all relevant evidence and reasoning (using scientific principles and ideas based on science) to support your claim. Look through your science notebook for these.
- You should use our anchor chart to remind you of what is important to include.

The gases that could be produced by a bath bomb are Argon, Nitrogen, Carbon Dioxide, or Carbon Monoxide. A while ago, for an experiment we put a lit match into the bath bomb's gas within a flask and the match's flame extinguished. This means that we can eliminate Air with 5% humidity, Propane, Hydrogen, Methane, and Oxygen, because in our Some Common Gases data table these gases won't extinguish a flame, and this connects to our scientific principle that certain properties can identify specific gases, therefore these gases are removed from the list of possible gases in the bath bomb. In our most recent experiment we poured a bottle of the bath bomb's gas into an alluminum container and it extinguished the lit candle inside, and it was poured downwards. This means that the gas produced by a bath bomb is more dense than air, because of the scientific principle that less dense things rise and more dense things sink which eliminates Neon, and helium from the list of possible gases that could be produced by a bath bomb. In short, the gases that could be produced by a bath bomb are Argon, Nitrogen, Carbon Dioxide, or Carbon Monoxide as the only gases that are remaining on this list, of gases that could be produced by a bath bomb, based on our data and experiments.

Thermal Energy, Lesson 16

Design ideas