Designing with a Discourse Practice

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Everything Changes?

- Students will use **sketch notes** while watching a series of anchoring phenomena, to record their thinking and observations.
  - This will allow students to focus on the content they're watching and their observations, rather than trying to figure out how to spell unknown words, or interrupting others by asking the teacher how to spell words.
- Students would then use their notes to help them create an **independent** (hand-drawn) **model** that shows the changes they observed. This model would be where students begin to form their explanation for why the changes they observed occur, and why some of the changes are reversible, and why some are not.
- Then, led by the teacher, the class could discuss their observations with their classmates, share their thinking, and work together to build a **class model** that shows their common evidence about why the changes were/were not reversible.

What's the Big Idea?

Some changes caused by heating and cooling are reversible, and some are not.

Phenomena:

Student will view four short videos (linked below) that involve objects changing, due to heat or cold.

(1) Melting Ice Cream https://www.youtube.com/watch?v=zzH4BtGcmTs&t=82s

(2) Freezing Glass of Water https://www.youtube.com/embed/xFRu2mt6SgQ?t=49s

(3) Candle Burning https://www.youtube.com/embed/Mhhw0kKuPR0?t=27s

(4) Supercooled Water https://www.youtube.com/embed/13unrtlvfrw

Standards Addressed:

NGSS 2-PS1-4. Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot. [Clarification Statement: Examples of reversible changes could include materials such as water and butter at different temperatures. Examples of irreversible changes could include cooking an egg, freezing a plant leaf, and heating paper.]

- After watching the videos, sharing their thinking, and discussing their observations/thinking, students should be able to use evidence from that they saw and that they heard from their peers to prove why some changes with heat/cold are reversible, and some are not.

CCSS.ELA-LITERACY.RI.2.3
"Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text."

- Students will need to see the connections between the events of each video - that in some videos heat is applied, and in others cold is applied. They will also have to see that sometimes the changes are reversible, and in others, the changes aren't.

SKETCHNOTES

EVERYTHING CHANGES?

Good scientists make observations AND make connections!
Draw what you observe in the videos! Be sure to add labels to your work!

Video #1

Video #2

Video #3

Video #4

MAKE A MODEL
EVERYTHING CHANGES?

Use pictures and words to show (1) what changes you observed, and (2) WHY you think the changes in each video happened.
BE sure to add lots of details to your thinking!

Video #1

Video #2

MAKE A MODEL
EVERYTHING CHANGES?

Use pictures and words to show (1) what changes you observed, and (2) WHY you think the changes in each video happened.
BE sure to add lots of details to your thinking!

Video #3

Video #4