We learned...

* **FLOWCHARTS** → Identifying where students are at w/ discussions, WHY, & using as intervention w/ goals.

Sharing technique: "Buddy Spokesman"

* **PLANNING TOOL** → For guiding and knowing what to look/listen for.

* Student Feedback (i.e. Google Form, etc.)

* Discussions can be Flexible (not always formal circle w/ chart paper)

* "Heads up" to non-engagers for participation.
equitable  challenge to think in new ways  respect

question everything

open to new ideas

not afraid to make mistakes

we learn together

Providing evidence

moving our science thinking forward
Propel convo
forward

Planned
Discussions

Classroom
Equity

SUCCESS

Everyone has a voice

Norms +
Routines =
safe place to
make mistakes
+ learn

One size does not fit all

Non-verbal:
Gestures

Notes

Turn and talk
We Learned...

- Sense Making
  - Simulations
  - Videos
  - Data & Evidence
  - Language

Establishing Class Culture
- NORMS
  - Conversation
  - Self Evaluation
  - Flow Chart
  - Conversation... Discuss... Discuss... Based Citizenship
  - Rubric

Moving Science Thinking Forward
  - Marble Participation
  - Prep plan the Discussion
• Helpful Gestures
• Non-academic $\rightarrow$ Academic Language
• Together do Norms
• Discussions $=$ Literacy improvement $=$ Content knowledge $=$ EL's Language skills (Speaking & Listening)

What's your evidence?

Norms
- Respect
- Loud
- Community
What we have learned?

**Student Sensemaking:**
- Student v. Teacher Roles
- Leading Questions
- Options: Drawings/Writing/Gestures/Stories/Videos

**Classroom Culture:**
- Creating & Reflecting on Norms
- All Students engaged
- Getting all ideas out
- Students are the “Knowers”
- Students building off of others’ comments & asking each other questions.

**Discussions to move thinking forward:**
- Initial ideas, building understanding & consensus
- Explicitly teaching what is expected of students & teacher
- Discussion planning (Goal & How to start) (Anticipate Issues)
- Think of key ideas & ask questions for deeper understanding
- Discussion stems for student responses
"MAGNETIC THINKING"
VOICE/COMMUNICATE

Everyone’s idea is a piece of the missing pie. To move forward our ideas.