

Tips for Establishing a Culture of Figuring Out

To promote equity, relevance, and engagement

1 Elicit and leverage **student questions**

- The program provides a number of embedded opportunities for students to ask questions in the unit.
- Set aside additional time to document, return to, and sort student questions at key moments such as the beginning of the unit and at the beginning and end of each chapter.

2 Connect to local and **relevant phenomena**

- Find ways to build from the curriculum-provided phenomena
- Welcome in students' interests and experiences, and help draw connections to what they're figuring out in school

3 Validate **student contributions**

- Find space to share students' ideas and thoughts at various stages of the figuring out process (not just final explanations) - uncertainty is OK!
- Think about how to attribute ideas from students who might not see themselves as contributors to the conversation

4 Allow for a **variety of sensemaking** types and paces

- Different students might thrive with different modalities, or need less or more time with them.
- Use the pathway to teach sequentially but allow for flexibility based on student need

5 Take on the role of an **interested skeptic**¹

- Students might not be intrigued by a phenomenon right away because they believe they already know how or why it happens. Help students become dissatisfied with what they can explain.²
- Ask questions such as: "Is that how a scientist would do it?", "Is that consistent with what we read about?", or "Do you agree with your partner's idea?"

¹ Sara Goodman, knowatom.com

² Using Phenomena in NGSS-Designed Lessons and Units