



Pass the Science Please - Science Talk Moves

What is the issue?

Science is a social discipline and as such, conversations about scientific phenomena can advance a learner's understanding of the content. These strategies provide guides and scaffolds to facilitate conversations both online and at home. **How can we promote sense-making through dialogue?**

Audience:

For teachers to share with families.

Strategy:

Facilitating home discussions to promote scientific literacy.

Family/Community Connections

Talking as a family at mealtimes is just one example of a way families might gather. Provide students, families, and caregivers with access to this list of [Conversation Starters](#) on STEM topics as a way to encourage more conversations at-home. Invite students and families to develop their own conversation starters for use by the class.

This effort represents the collective work of a group of individuals including, but not limited to science education leaders representing the Council of State Science Supervisors (CSSS) and the National Science Education Leadership Association (NSELA). Resource Contributors (listed in alphabetical order): Lizette Burks, Linda Cook, Maya Garcia, Mike Heinz, K. Hillary Paul Metcalf, Renae Pullen, Kathy Renfrew, Meg Richard, and Tricia Shelton. Special thanks to Kathy Renfrew, Meg Richard, Linda Cook and Kerri Wingert for their work on "Pass the Science Please".

Implementation

Science talk can happen anywhere or anytime and is a great way to invite students and [families to engage with phenomena](#) outside of the classroom. Talk can happen anywhere! You can be out on a nature walk, watching the birds at the feeder, sharing a meal, watching TV, or even while taking out the trash.

The conversation starters below are intended to help children/students by fostering curiosity and getting the conversation started in their homes. If your children/students are familiar with science talk in the classroom they will be ready and prepared to jump in or maybe even lead the conversation. If the children/students are less familiar with science talk the examples provided will help get them started. Feel free to translate the following as needed!

Start with these simple questions:

1. I wonder why...
2. Look at the pattern...
3. I think this... because...
4. Oh...tell me about that (to encourage more explanation)
5. What is that? or Have you seen anything like that before?
6. What is happening _____?
7. What would happen if _____?
8. How do you think that is happening? or How do you think that works?
9. How could we test our idea or design that better?
10. Is there anything we need to measure here?
11. What evidence do you have? or How do you know?

For students in middle and high school

- Have students discuss anchor phenomena and use the [5 Whys](#) protocol to identify root causes, understandings, and consider areas for investigations and growth.
- Utilize a [student talk protocol](#) where students can write their explanations of a scientific phenomenon, then take turns sharing responses and comparing their ideas in a virtual setting.

Strategic Tips

• ELA Connections

Engage children/students in science conversations where they can do first draft thinking in science. Children/students involved in science conversations are practicing the literacy skills of speaking and listening.

• Math Connections

Leverage science conversations for doing mathematical sensemaking about phenomena students are discussing. Examples of cloud patterns could be collected, recorded, and analyzed during a science talk. When speaking and listening in science children/students have the opportunity to compare the sizes of objects, measure and record information, and apply mathematical thinking to things they are seeing in the real world

Tech to Try

- [Seesaw](#) - an online journaling tool, that allows students to take and annotate pictures, make videos, and type information.
- [FlipGrid](#) - this Microsoft tool could be used as a daily digital journal, or as a way for students to see and experience phenomena in a variety of ways.

Resources:

- ★ STEM Teaching Tool #1 [Argumentation Vs Explanation](#)
- ★ STEM Teaching Tool # 6 [Productive Talk](#)
- ★ STEM Teaching Tool #35 [Use Productive Talk to Foster Curiosity](#)
- ★ STEM Teaching Tool # 48 [Guiding Student Talk](#)
- ★ [PLI Science & Engineering Talk Poster](#)
- ★ [Doing and Talking Science: a Teacher's Guide to meaning making with English Language Learners](#)
- ★ [The Argumentation Toolkit](#)
- ★ [SERP Institute](#)
- ★ [Talk Moves Map](#)
- ★ [Discussion Rubric](#)
- ★ [Talk Science Resources from TERC](#)