

Professional Learning Community 1.2
Chapter 5 of Teaching Science is Phenomenal (TSiP)
Science and Engineering Practices
Why should students engage in doing science?

Pre-Session and Review

Reading

1. Come to the PLC having read Chapter 5 of TSiP.
2. Bring an example of a science and engineering practice you use in your classroom.
3. Bring an example of an instructional strategy you use to get student to ask questions.

A. Round Robin Style Discussion – The full group listens as individuals present their ideas specific to the questions below.

- a) The practices are written with verbs (e.g., construct explanations, ask questions, develop models), which are the students' actions in the three-dimensional performances. How does this change classroom instruction?
- b) What are some effective strategies you use to get students to ask meaningful science questions during investigations?

B. Whole Group Discussion – Bring science-specific examples and experiences from your teaching to support the discussion of the questions below.

Reflecting on Science and Engineering Practices

1. In this chapter, the authors identify a few examples of practices that are more useful when paired with other practices (page 59). Review the list of all practices (see Appendix A) and identify two practices that can be effectively paired during instruction.
2. Use Figure 5-3 as an example to develop another row showing how a specific model is used by students to gather information/data, reason relationships, or communicate explanations.
3. The authors argue that we should engage students in making sense of actual phenomenon before using models as a proxy. Describe an advantage of starting with the phenomenon before using a model in instruction.
4. Some students only share their reasoning using models. Think about some of your students who use models rather than writing. How can you use this behavior to help them become better writers?
5. In the GRC performance sequence, the practices are given various role as students move from gathering data/information, to reasoning with that information/data, and finally communicating their reasoning. Why does the practice of *constructing explanations* seem to have a more prominent role than some of the other practices?

C. Individual Reflections – Write in Journal

- a) Reflect on the importance of a sequence of practices that lead student through science investigations.
- b) Reflect on why it is important to teacher students how to engage in using each of the practices.

ⁱ Use the back of the page to answer the questions.
