

Purpose

In this lesson we will consider Practice 3 of the Next Generation Science Standards (NGSS), *planning and carrying out investigations*. You should have watched a video about children carrying out investigations and brought the notes from your observations with you to class. [If your instructor assigns you TL Extension I, you will be guiding children through a similar activity.]



What are the teachers' and students' roles in planning and carrying out investigations?

Predictions, Observations and Making Sense

Part 1: Your Ideas about How Teachers Facilitate Investigations

Engaging children in science and engineering learning requires facilitating their investigations. Consider the investigations you have been doing in Next Gen PET as well as any other examples of classroom science or engineering investigations you have observed.



What were the students doing during the investigation?



What was the teacher doing during the investigation?

Share your ideas with your group members.

Part 2: Video Reflection

At home, as part of TL Extension H, you should have watched a video of children participating in an engineering design activity. In the video, the overarching (engineering) challenge was to design a parachute that will land a payload softly on the surface of the planet. Recall that this engineering problem led to identifying three variables: 1) canopy material, 2) canopy size, and 3) length of suspension line.



Chose one of these variables, and think of a scientific (testable) question that could guide a scientific investigation.

Share this question with your group.

Look at your notes about the video, especially the questions about what the students and teacher were doing during the investigations. Share your notes with your group members.



Look again at the chart for student expectations for this practice. Which expectations of the practices did you notice that students engaged in?



How might you modify this activity to engage students in more of the expectations?

Summarizing Questions

S1: In activities where the students are planning and carrying out investigations, what do you think teachers need to do *before* instruction?

S2: In activities where the students are planning and carrying out investigations, what do you think teachers need to do *during* instruction?