

PG & E

A routine for engaging in investigation, inquiry, or experimentation

- *Predict: What do you think will happen?*
- *Gather: Carry out your investigation, inquiry, or experiment and collect data, information, and evidence as you do.*
- *Explain: Review your data to build an explanation for why things happened as they did.*

Purpose: What kind of thinking & learning does this routine encourage?

This routine focuses on theorizing and predicting initially and then moves into analyzing data to build explanations.

Application: When and where can it be used?

This routine can be used to guide an inquiry, investigation or experiment. This should be a novel situation in which there is actually something to discover and learn. Investigations that have some ambiguity and nuance to them invite more thinking than do tasks that merely require verification of an expected outcome. Although well suited to scientific and mathematical experimentation, this routine also can be used in less structured investigations as in making a prediction about what might happen in a work of fiction, reading to gather data, and then making sense of the data you did collect.

Launch: What are some tips for starting and using this routine?

Begin by introducing the investigation, inquiry, and experiment. Ask students to make predictions about what they think might occur, what is likely to happen, or what they are likely to find out. In making these predictions you want to avoid students merely guessing about outcomes or trying to be correct and playing it safe. Following up with “What makes you say that?” will take students’ thinking beyond just guesses. Collecting the predictions in a whole group allows the class to see that there are many different ways of thinking and sends the message that you aren’t looking for a single correct answer or for them to be right.

Have students actually carry out the investigation with directions to collect data on what they are finding out. Students may need help to identify what data will be important to collect as well as how they might collect it. For instance, students might be encouraged to collect evidence about what works and what doesn’t work in constructing a tin foil boat that will hold a heavy weight. Or, students might be advised to look for language that reveals a character’s motivation when reading a text. Initially, the data gathering stage might best be done by pairs or in small groups. This can help insure that the process doesn’t become too overwhelming. Sometimes, it can be helpful to provide structures for collecting data, but it can also be instructive for students to investigate what works best in terms of organizing data rather than merely following a teacher’s directions.

Once the data is collected (note: some investigations require that multiple iterations of data be collected), students try to make sense of the data and build an explanation for what happened. Sometimes that explanation might include making sense of why their prediction differed from what they expected. Here again, this step might be done initially in pairs or in small groups so that students have the opportunity to discuss and share ideas as they collectively build their explanation.