Effective Questioning

You can promote discourse and stimulate student thinking through effective questioning. This, in turn, develops the habits of mind suggested by the Standards for Mathematical Practice. Here is a list of questions from the *Professional Standards in Teaching Mathematics*, grouped into categories that reflect the mathematical practices.

❖ **Helping students work together to make sense of mathematics:**
  ➢ “What do others think about what Janine said?”
  ➢ “Do you agree? Disagree?”
  ➢ “Does anyone have the same answer but a different way to explain it?”
  ➢ “Do you understand what they are saying?”

❖ **Helping students to rely more on themselves to determine whether something is mathematically correct:**
  ➢ “Why do you think that?”
  ➢ “Why is that true?”
  ➢ “How did you reach that conclusion?”
  ➢ “Can you make a model to show that?”

❖ **Helping student learn to reason mathematically:**
  ➢ “Does that always work?”
  ➢ “Can you think of a counterexample?”
  ➢ “How can you prove that?”
  ➢ “What assumptions are you making?”

❖ **Helping students learn to conjecture, invent, and solve problems:**
  ➢ “What would happen if...? What if not?”
  ➢ “Do you see a pattern?”
  ➢ “What is alike and what is different about your method and her method to solve the problem?”
  ➢ “Can you predict the next one? What about the last one?”

❖ **Helping students to connect mathematics, its ideas, and its applications:**
  ➢ “How is this process like others that you have used?”
  ➢ “How does this relate to ________?”
  ➢ “Have you ever solved a problem like this before?”
  ➢ “Can you give me an example of ________?”

---

* Adapted from *NCSM Great Tasks for Mathematics, 6-12* by Schrock, Norris, Pugalee, Seitz, and Hollingshead, 2013

SFUSD Mathematics Department, June 2015, sfusdmath.org