

**There is a mathematician
within each of us.**

**Experiences with models
for math concepts help us
understand, invent and remember
important math ideas.**

Learning math is a social activity.

**Learning math is an ongoing process
of knowledge construction.**

**“Disequilibrium” is a sign
of new learning.**

**Mathematics is a fascinating world
of its own.**

**The world of mathematics
connects to many other worlds.**

Genuine Questions

Following are some examples of questions for individuals or small groups that can be adapted to any topic or problem by filling in the blanks. The purpose of these questions is to elicit student thinking. They can be used as the basis for oral or written discussion.

What do you think?

How would you explain _____ to a student who doesn't understand?

Could you explain _____ in another way?

How can you be sure that _____?

Can you explain your reasoning?

Can you draw a picture or build a model to illustrate _____?

How do you feel about _____?

Is there anything you don't understand about _____?

What are your conjectures about what will happen?

What else would you like to know?

What do you plan to do next?

What is the most important idea or fact you learned while working on _____ and why do you feel that way?

What were your first thoughts about _____?

What was/is the most challenging/easiest part of _____ for you?

What do you understand now that you didn't understand before?

What caused you to have a breakthrough in your understanding of _____?

What pictures do you have in your mind to help you think about _____?

How else do you think you could solve this problem?

How would you describe this problem in your own words?

What mathematical connections did you make?

What didn't work?

Are there any relationships in this problem that will always be present in similar problems?

What if _____?

What's your idea?

What were your thought processes while you worked on _____?

What do you wonder about regarding _____?

Where did you get "stuck" and what helped you get "unstuck?"

What mathematical insights did you have and what do you think prompted them?

What are your observations about _____?

Reflecting on my Classroom Practices

1. Did I begin the lesson by presenting information or begin with a problem that elicited student thinking?
2. Were students encouraged to remember a process or were they encouraged to look at the problem in their own way?
3. Did I give the impression that only the right answer was valuable or was it also important to know the students' thinking?
4. Were students encouraged to look at problems in different ways?
5. Did I encourage all students to take part in hands-on explorations with manipulatives and class materials, or was the use of these limited to demonstrations?
6. Were discussion and collaboration among students encouraged?
7. Were students encouraged to rely on their own thinking or was I the authority?
8. Did I allow students to express their thinking or did I try to express their thinking for them?
9. While students worked in groups, did I circulate and correct students who were making errors or did I observe student work, ask questions, and explore the thinking of those who were having difficulty?