

Developing Critical Thinking with Effective Questioning

Help students build confidence and rely on their own understanding:

- Why is that true?
- How did you reach that conclusion?
- Does that make sense?
- Can you make a model to show that?

Help students learn to reason critically:

- Is that true for all cases? Explain.
- Can you think of a counterexample?
- How would you prove that?
- What assumptions are you making?



Check student progress:

- Can you explain what you have done so far? What else is there to do?
- Why did you decide to use this method?
- Can you think of another method that might have worked?
- Is there a more efficient strategy?
- What do you notice when...?
- Why did you decide to organize your results like that?
- Do you think this would work with other numbers?
- Have you thought of all the possibilities? How can you be sure?

Help students collectively make sense:

- Do you agree? Why or why not?
- Does anyone have the same answer but a different way to explain it?
- Can you convince the rest of us that your answer makes sense?
- What do you think about what _____ said?
- Do you understand what _____ is saying?

Encourage conjecturing:

- What would happen if...? What if not?
- Do you see a pattern? Can you explain the pattern?
- What are some possibilities here?
- Can you predict the next one? What about the last one?
- What decision do you think he/she should make?

Promote problem solving:

- What do you need to find out?
- What information do you have?
- Will you do it mentally? With pencil and paper? Using a number line?
- Will a calculator help?
- What tools will you need?
- What do you think the answer or result will be?
- What strategies are you going to use?

Help when students get stuck:

- How would you describe the problem in your own words?
- What do you know that is not stated in the problem?
- What facts do you have?
- How did you tackle similar problems?
- Could you try it with simpler numbers? Fewer numbers?
Using a number line?
- What about putting things in order?
- Would it help to create a diagram? Make a table? Draw a picture?
- Can you guess and check?
- Have you compared your work with anyone else? What did other members of your group try?

Make connections among ideas and applications:

- How does this relate to... ?
- What ideas that we have learned before were useful in solving this problem?
- What uses of mathematics did you find in the newspaper last night?
- Can you give me an example of ... ?

Encourage reflection:

- How did you get your answer?
- Does your answer seem reasonable? Why or why not?
- Can you describe your method to us all? Can you explain why it works?
- What if you had started with... rather than ... ?
- What if you could only use...?
- What have you learned or found out today?
- Did you use or learn any new words today? What do they mean? How do you spell them?
- What are the key points or big ideas in this lesson?

What other questions would you add to this list?