

Beginning Repertoire of Teacher Questions

1. Initial eliciting of students' thinking

- *Does anyone have a response they would like to share?*
- *Please raise your hand when you are ready to share your solution.*
- *What did you come up with? What are you thinking?*
- *Can someone explain the solution/response they got?*
- *____, please explain to the rest of the class how you got your answer.*
- *How did you begin working on this problem?*
- *What have you found so far?*
- *Would anyone be willing to explain their response/solution?*
- *Can someone point to a part of this problem that was difficult?*
- *What are some ideas you had?*
- *Does someone have a different idea?*
- *Did anyone approach the problem/question in a different way?*
- *What do you already know about ____?*

2. Probing students' answers

- Trying to figure out what a student means or is thinking when you don't understand what they are saying**
- Checking whether answers are supported by correct understanding**
- Probing wrong answers to understand student thinking**
 - *How do you know?*
 - *How did you get that answer?*
 - *Why did you ____?*
 - *How did you get ____?*
 - *Could you use [materials] to show us how that works?*
 - *What led you to that idea?*
 - *Walk us through your steps. Where did you begin?*
 - *Please give an example.*
 - *Would you please repeat what you said about that?*
 - *Say a little more about your idea.*
 - *So is what you're saying ____?*
 - *When you say ____, do you mean ____?*
 - *Could you explain a little more about what you are thinking?*
 - *Can you explain that in a different way?*

3. Focusing students to listen and respond to others' ideas

- *What do other people think?*
- *What do other people think about what ____ said? Do you agree or disagree with the idea?*
- *Would someone be willing to add on to what ____ said?*
- *What do you think ____ means by that?*
- *How does what ____ said go along with what you were thinking?*
- *How could you explain what ____ said in a different way?*
- *Can you repeat what ____ just said in your own words?*
- *Why do you think ____ did it that way?*
- *Why is it okay for ____ to do that?*
- *Who can explain this using ____'s idea?*
- *Can anybody see what method ____ might have used to come up with that solution?*
- *How do you think ____ got his/her solution?*

4. **Supporting students to make connections (e.g., between a model and an idea or a specific notation)**
- *How is _____'s method similar to (or different from) _____'s method?*
 - *How does [one representation] correspond to [another representation]?*
 - *Can you think of another problem/question that is similar to this one?*
 - *How does that match what you wrote on the board?*
 - *Can you explain your representation?*
 - *Can you use the [representation] to explain what you are thinking?*
 - *How is this similar to what we learned about _____?*
 - *How is this related to [a particular problem students already solved or something students already learned]?*
 - *How does that relate to what _____ said?*
 - *How can we make a [] of this solution/response?*
 - *What part of the problem/solution does this [pointing to a particular part of representation] represent?*
5. **Guiding students to reason (e.g., make conjectures, state definitions, generalize, etc.)**
- *Can you explain the method you used?*
 - *Does this method always work?*
 - *Why does that work in this case?*
 - *When do you think that would be true?*
 - *Do you notice any patterns?*
 - *What do these solutions have in common?*
 - *Can this method be used for other problems?*
 - *What do we mean when we say _____ in math class?*
 - *What math terms help us to talk about that?*
 - *What do you mean by ____? Can you give a definition?*
 - *What do you already know that could help you figure that out?*
 - *Does this match our reasoning? How?*
 - *Have we found all the possible answers?*
 - *How do you know it works in all cases?*
 - *What about [counterexample]?*
 - *How would you describe _____'s method?*
 - *Can you represent the solution/response in another way?*
 - *Using this problem as an example, what can you say about problems like this in general?*
6. **Extending students' current thinking, and assessing how far they can be stretched**
- *Can you think of another way to solve this problem/question?*
 - *Can you use this same method to solve _____?*
 - *What would happen if the numbers were changed to _____?*
 - *What if the problem was like this instead: [give slight variation of problem]?*
 - *If someone said [wrong answer], how would you respond?*
 - *If we notice/know _____ then what does that mean for _____?*
 - *Can you think of another problem that could be solved with this method?*