# Supporting strategies – assessing and advancing questions

‘According to NCTM (2000), asking questions that reveal students’ knowledge about mathematics allows teachers to design instruction that responds to and builds on that knowledge.’ (Steele and Raith)

Teachers often struggle to assist students without resorting to showing students how to achieve the correct answer. This does little to help students as it is the teacher who has done all the thinking. Assessing and advancing questions can be used to find out what a student knows and has already tried and to help them consider aspects of the problem or task they may not have noticed or paid attention to, moving them toward the lesson’s goal.

## Types of questions

Table 1 – characteristics of assessing and advancing questions (Bill and Smith 2008)

|  |  |
| --- | --- |
| Assessing questions | Advancing questions |
| Are based closely on the work that the student has produced. | Use what students have produced as a basis for making progress toward the target goal of the lesson. |
| Clarify what the student has done and what the student understands about what they have done. | Move students beyond their current thinking by pressing students to extend what they know to a new situation. |
| Give the teacher information about what the student understands. | Press students to think about something that they are not currently thinking about. |
| The teacher stays to hear the answer to the question. | The teacher walks away, leaving students to figure out how to proceed. |

## Sample questions

Table 2 – example assessing and advancing questions

|  |  |
| --- | --- |
| Assessing questions | Advancing questions |
| What have you noticed so far? | What would happen if…? |
| What have you explored so far? | Do you see a pattern? |
| Can you explain your thinking here? | Does that always work? |
| What assumptions are you making? | Can you think of a counter example? |
| How did you reach that conclusion? | How could you prove that? |
| Why do you think that? | Does that make sense? |

## References

NCTM (National Council of Teachers of Mathematics) (2014) *Principles to Actions: Ensuring Mathematical Success for All*, NCTM, US.

Steele MD and Raith ML (2017) in Smith MS (eds) *Taking Action: Implementing Effective Mathematics Teaching Practices,* NCTM, US.

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