

Explicit Teaching in Problem-based Mathematics Questions are Opportunities

NARRATOR 1: Questions are opportunities.

NARRATOR 2: Develop and ask open-ended questions and prompts that serve as a check for understanding and as a way to engage students in exploring their own thinking to uncover, build, and deepen concepts, skills, and ideas.

BRENDA KRESS: I can't always be everywhere at once in a classroom, but as I was walking by I did notice that the student had drawn two similar shapes. So I questioned her about why she had drawn those and she actually questioned herself wondering if the perimeter would be the same for those two rectangles.

Can you tell me what you noticed about these two, Kim?

KIM: So I wondered if these two would be the same perimeter because they're just the same shape. They're congruent 'cause you just flip them around. So then I texted the perimeter out and I got 10 centimetres. They're both 10 centimetres.

BRENDA KRESS: She did in fact find that the perimeters was the same and that was able to tell me that she saw a relationship between congruence and an equal perimeter.

ALLISON BERSCHT: I really focus on asking open-ended questions to my students as it allows them to explain their thinking in their own way. I noticed that in a few of your arrangements you've shaded in some of the squares. Tell me about this.

STUDENT 1: Just because we want to show a visual of it because if you see every arrangement that we have that we shaded in, those four squares they all have a perimeter of 12 units.

ALLISON BERSCHT: And why do you think that might be so?

STUDENT 1: Because they're closer together.

STUDENT 2: Yeah, because they aren't 14 units, for example this one how they're all spread apart but this one which is 10 units almost all of them have at least two or three of the sides touching because they have that four that are touching but then the other two can be wherever.

ALLISON BERSCHT: When I ask them about why they had certain squares shaded it allowed them to kind of create some of their own generalizations and be able to then explain that to me without focusing on a specific question.