7.3 Noticing Student-Teacher Interactions

Context

Ms. Fye is using the Introduction to the Sine Graph Desmos task in a remote synchronous class session. There are eight students present for the lesson. After the task was launched, Ms. Fye put students in breakout rooms in pairs to work together on the together. Ms. Fye has been monitoring the students' work on the Desmos teacher dashboard and by moving in and out of the breakout rooms.

Introduction to the Sine Graph Desmos Task

Ms. Fye's learning goals for the task are listed below.

- Students will recognize the connection between the structure of a sine function equation (i.e., $y = a\sin(bx) + k$) and its related graph with respect to amplitude, midline, and period. Specifically,
    - Amplitude is $|a|$
    - Midline is $y = k$
    - Period is $\frac{360}{|b|}$

Specific performance goals include:

- Given a sine function equation, students will determine the amplitude, period, and midline without graphing.
- Given the amplitude, midline, and period, students will determine the function equation.
- Given the graph of a sine function, students will determine the amplitude, period, and midline.
- Given the graph of a sine function, students will determine the function equation.

Scenario 1:

A pair of students, Allison and Jonathan, are working on page 8 of the task and have just called Ms. Fye into their breakout room for help.

Watch the first minute of Ms. Fye monitoring Allison & Jonathan

Transcript of the first Minute

Jonathan:	I have a question for number 8. I don't like really know the exact value.
Ms. Fye:	I was just going to ask you about number 8. Ok, so what are your initial thoughts about period?
Jonathan:	We said 360, but like I feel like.
Allison:	I think its 360.
Ms. Fye:	Yeah.
Jonathan:	Ok.
Allison:	Because when you're looking at the number 1, like the points its like, so that first one for example, is at 90 comma 1, and then the next one is at 450. So like, the distance between that is 360 when I subtract it.
Ms. Fye:	Yes, good reasoning
Allison:	270 and 90, so you would be adding that instead and that's 360

Q1. How would you use the technology to support the students to further develop their conjecture about the period? Be specific.

Q2. Now watch the rest of the video and take note of the way that Ms. Fye elicits and uses the students' thinking as well as the technology to support them in making sense of the period of the function. Write down two things Ms. Fye does in her interactions with the students that you particularly like, and explain why you like it.

Watch Allison & Jonathan

Scenario 2:

Imagine a pair of students, Martina and Omar, are working on page 14 of the task (shown below). They call you into their breakout room for help.

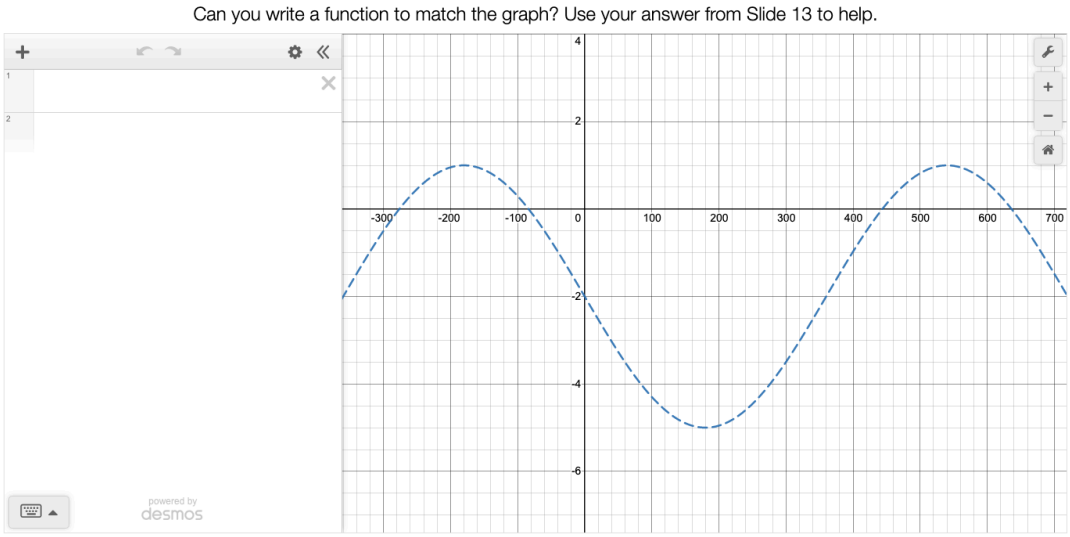

Figure 1. Page 14 of the Introduction to the Sine Graph Desmos Task

Omar:	We're just a bit confused about page 14. Amplitude? Is that 3? Or is it -3?
Martina:	Yeah, we're not sure which it should be.
Teacher:	How might we use the sliders to help us figure this out?

Q3. Imagine you are the teacher. Write the next 8–10 lines (i.e., talk turns) of dialogue for how you would continue this discussion towards supporting the students in figuring out the answer to their question.