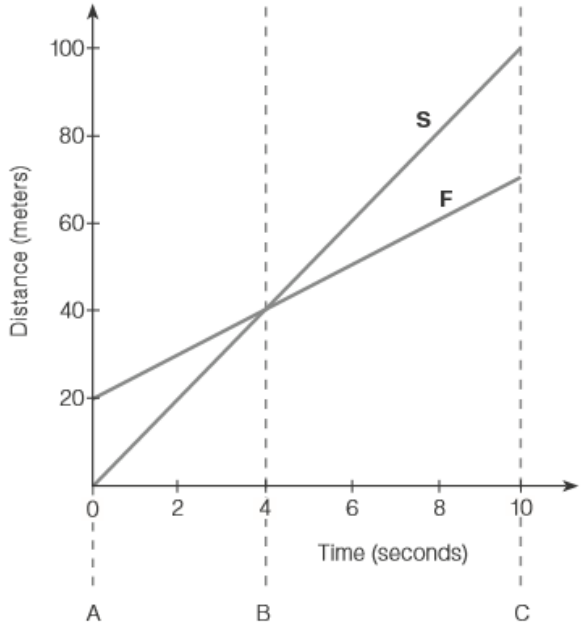
Using Discourse Actions to Build on Students' Strengths:
"Link" Students' Ideas and "Press" for More

Melissa Boston, Amber Candela, and Juli Dixon
NCTM 2019 Nashville Regional Conference

The Father and Son Race Task (Algebra)

The Father (F) and Son (S) 100-Meter Race (Algebra)

The figure below shows the relationship of distance and time for a father (F) and son (S) during a 100-meter race. Write a story that matches the graph. Be sure to include what is occurring at A, B, and C as well as the intervals in between.



Source: Nolan, Dixon, Safi, & Haciomeroglu, 2016, p. 16.

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Solve the Leftover Pizza task in figure 1.1. Do not use any procedures or algorithms. Try to solve the task in more than one way, using diagrams or other representations, including in ways students might correctly or incorrectly solve this task.

Douglas ordered 5 small pizzas during the great pizza sale. He ate ⅙ of one pizza and wants to freeze the remaining 4⅚ pizzas. Douglas decides to freeze the remaining pizza in serving-size bags. A serving of pizza is ⅔ of a pizza. How many servings can he make if he uses up all the pizza?

Source: Nolan, Dixon, Roy, & Andreasen, 2016.

Figure 1.1: The Leftover Pizza task (grade 6).

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Linking Action	Example	Evidence of Teacher's Linking	Evidence of Students' Linking
Revoicing students' contributions	• Student: I timesed 6 and 8 • Teacher: What I am hearing you say is, you *multiplied* 6 and 8? • Student: 14 is the lowest point on the graph. • Teacher: So you found the ordered pair (6, 14) to be the minimum.		
Prompting students to take up the ideas of their peers	• Who can extend upon what Blair is saying? • How does your idea relate to Jo's idea? • Who agrees with what Ming said?		
Focusing attention on students' explanations	• Can you repeat what you said so that everyone can hear? • What Taylor said was important to our discussion. Can someone restate it? • Can someone say what Peyton said in your own words?		

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Press Action	**Example**	**Evidence of Teacher's Press**	**Evidence of Students' Providing**
Prompting students to explain their answer, strategy or thinking (say more about *what* he or she did to solve the problem)	• Now what do you do next? • What do you mean by equally likely to occur?		
Eliciting students to provide justification or mathematical proof (indicate *why* what the student did was mathematically valid)	• Why is that valid? • How do you know your equation will always work?		
Asking students to validate their mathematical accuracy	• How did you get your answer of 12? • How did you define slope?		