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TEACHER: Franci, you're going to be first. Let me get your picture up here. And we can kind of talk about it first.

FRANCI: So basically, what we did was that we created the stadium first. And then we did it 10 by 20 inches. And then afterwards, we put one foot in the middle where it was 10 inches because since it was 20, it would be where the middle would be. We put Elliot. And then afterwards, you drew where the light would be, the light radius. And then afterwards, we found out that there was going to be a triangle within it. So we drew the line in the middle to show where the midpoint was. And then afterwards, we realized that it created two right angles. And then afterwards, when we realized that it was divided, we realized that there was two more right angles. So we realized that these two were similar because they both have right angles.

MICHAEL MOORE: What does it mean for triangles to be similar? What do we need to know? Well, just in general, what's the definition of triangles being similar? Thank you. No.

NOAH: Triangles that are alike, or in this case, triangles with the same angles and all three spots.

MICHAEL MOORE: Nice—same angles in all three spots. So Franci definitely established we have a 90 degree that matches a 90 degree. But is that enough to know that these triangles are similar? My next presenter is going to show that we know all three angles are the same so that we can prove that these two triangles actually are similar triangles. All right, Lexi. Talk us through that next part proving that these are similar.

LEXI: OK, so we did it in yards. But-- so that's 25 since it's cut in half by Elliot. And that's 12 yards. So it creates four triangles. These two triangles are the same. And then it makes these two triangles the same. But this triangle and this triangle are similar because they have the same angles. This triangle-- this angle and this angle is 90 degrees. And then, like, the reflexive property, this angle is the same for this triangle and that triangle because it falls on the same line. And knowing that, like, all triangles add up to 180, what our group did was that we gave this angle a magical number. So we said that that's 90 and that's 30. So that adds up to 120. So that means that this and this have to be like the missing piece, which would be like 60 in our case. So that's why they're there because it's just like the final piece of the puzzle.

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MICHAEL MOORE: Walk me through those three angles again-- congruent pair number one.

LEXI: So the first pair is this purple angle. And that one--

MICHAEL MOORE: And we know they're congruent because--

LEXI: Because they're right angles.

MICHAEL MOORE: They're both right angles-- nice congruent set number two.

LEXI: This one because it's just like, there's only one angle. And it just falls on the same line. It's like reflexive.

MICHAEL MOORE: Nice. It's that angle shared in common. And then the third one, again?

LEXI: The third is the blue ones. Since you already have two angles, then you know that that's just like the third one because all triangles have three angles.

MICHAEL MOORE: Nice. All triangles have three angles. What else do we know about those three angles?

LEXI: They add up to 180.

MICHAEL MOORE: They add up to 180. Does anybody have any questions for Lexi before she sits down about how those triangles are similar? Thank you, Lexi. Lexi did a wonderful job of proving here for us that we have similar triangles. And now I'm going to let Jerry take us home here in terms of that last part actually answering the question about how long Elliott's shadows are.

JERRY: So we know the triangles are similar. And to figure out how long x, which is the length of shadow, is, we need to know the scale factor of the small triangle, which has a length of x, and the big triangle, which has a length of 25 plus x. And we know that the height of the small triangle is two yards and the large triangle is 12 yards. And if we take 2 divided by 12, that's 6. So we know that the small triangle multiplied by a scale factor of 6 would give you the large triangle.

MICHAEL MOORE: Cool.

JERRY: And to figure out of the shadow, we could set the two bases to be equal to each other. So, well, we have 6x times x plus 25, which I wrote down here. And then I subtracted x from both sides, which

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	gave me 5x equals 25, divided by 5, which gave me if x equals 5. So we know that each of the shadows are five yards long. So the total length of the shadows is 10 yards.
MICHAEL MOORE:	The two shadows together are 10 yards, 5 on each side. Nice. What did Jerry introduce that maybe we didn't put into our problem? Franci?
FRANCI:	Is it the scale factor?
MICHAEL MOORE:	Nice. He identified a scale factor. What is a scale factor?
KWAME:	Like, say you have a big triangle and a little triangle. It's like what you're dividing by to get the little triangle.