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The teacher asks: What can you tell me about the graph? (It is reasonably linear?) If someone had a radius bone that was 17 cm, what would you guess their height is? (Answers will vary. A student might come up and suggest where the point with a radius value of 17 should be placed on the graph.) Is it possible for someone to have a 17 cm radius bone and have a height of 170 cm? (Not very likely, but possible.) What if Akeem Olajuwon (the Houston Rocket basketball player) walked into the room? Could you predict the length of his radius bone? (Olajuwon is 7' 1" tall. The students will have to convert his height to centimeters. This could be done using the spreadsheet program.) How confident are you about your prediction?

The teacher continues. This computer program (Statistics Workshop) also makes guesses about the relationship of the radius bone to the height and gives this relationship a graphical and mathematical interpretation. What do you think the graphical one would look like? (This program will draw a straight line that tries to go through all the points or as close as possible to all the points. This line is called a best-fit or regression line. It also tells you the relationship in terms of x and y.) Can someone explain the formula and how it relates to your data points?

What are some other examples of descriptions of mathematical relationships? (Degrees Fahrenheit and degrees Centigrade are related by the formula $F = 9/5 C + 32$. As an optional activity have students using *Statistics Workshop* discover the formula merely from the facts that $0^{\circ} C$ equals $32^{\circ} F$ and $100^{\circ} C$ equals $212^{\circ} F$.)

Does our data support these facts? Why? (Not enough data.) For homework collect more data. Measure friends and family. Bring to class at least 5 more measurements. (Does it work for your dog?) Compare your results with the formulas above. How close did you come?

Followup Questions:

Where do you think these formulas came from? How accurate do you think these formulas are?

To the class: Believe it or not, I made up the story about receiving a letter from Shelly Saunders. But there really is a Shelly Saunders and she really does study bones! You can read about her on the next page. (A short biography of a female anthropologist is found in this textbook.)

So what do you think? Does this lesson "do the Standards"? How would I know for sure? I think it does, but the only true test is how it impacted the students. As anyone who has ventured into a classroom knows, there are no guarantees about learning. What works for one class, may not work for another. But I'll tell you one thing, I would much rather teach this class with game plan #2, than the one the textbook offers. The chances of having a successful learning experience is much greater. And how do I know? What is my ultimate criteria whether learning is taking place? No, not results from a test; even though, that would make me feel good, but, rather, if the lesson excites them enough so that they are still talking about it when they leave the room. Or even better if I overhear some of the students arguing about the lesson over lunch! As a teacher, I savor those times!

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