

## BOBCAT STATS

### Teaching Guidelines

<b>Subject:</b> Mathematics	
<b>Topics:</b> Statistics	
<b>Grades:</b> 7 - 12	
<b>Concepts:</b>	<p>Note: "Explicit" refers to concepts which are named and discussed in the course of the lesson; "implicit" refers to concepts which students experience in the course of the lesson but which are not named and discussed.</p>
<ul style="list-style-type: none"> <li>• Correlation (explicit)</li> </ul>	
<b>Knowledge and Skills:</b>	
<ul style="list-style-type: none"> <li>• Can create a scatter plot</li> <li>• Can determine whether or not a scatter plot of given data indicates positive, negative, or no correlation</li> </ul>	

**Procedure:** This project should be done by students in teams of two.

Distribute the handout; ask students to read the first two paragraphs and discuss and answer the first question. Circulate as they do so and ask questions to ensure that they have understood the context of the question they are being asked to answer.

Once most teams have answered the question, discuss their answers and reasoning. Do not evaluate the correctness of their answers, but try to discover whether or not students have assumed that tall bobcats should weigh more than short bobcats. (Students who think that the bobcat is underweight will likely have made that assumption.)

Then ask the teams to study the data presented and consider the questions which follow that data. Discuss to the point of agreement that it's not easy to tell by looking at the numbers. Review or teach students how to make scatter plots of the data in the table, and have the teams do so. In your discussion of the results, introduce or review the meaning of the term "correlation" and ask students whether or not the scatter plot shows a correlation between height and weight of adult male bobcats. (For more advanced students, you may wish to have them determine the degree of correlation.)

Finally, ask students to plot the data point of "their" bobcat, and guide them through discussion and other examples to the understanding that the placement of that data point so far from the others indicates that it is, at least, unusual, and probably good cause for further investigation of that bobcat's health.

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## Bobcat Stats

Adult bobcats in North America usually weigh from 6 to 11 kilograms, but can weigh as much as 18 kilograms. Their heights are usually in the range of 20 to 24 inches.

Imagine you have been assigned to care for a male bobcat in a zoo. You measure the animal's weight and height (carefully!), and find that it is 24 inches high and weighs 7.2 kilograms.

Do you think the bobcat might be underweight? Explain your answer:

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You do some research and find the following data for the heights and weights of adult bobcats that have previously lived at the zoo:

Name	Height (inches)	Weight (kilograms)
Bobby	19	6.8
Jinx	22	8.1
Pete	22	10.2
Leaper	20	8.3
Mac	24	10
Scratch	20	7.5
Tom	23	9.5

Based on this data, do you think your bobcat is underweight? How could you display the information you have in a way that helps you to decide? Do that, and explain your decision here:

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