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## Who Cheated in the Race? Worksheet

## Data Table

Blood Sample \_\_\_\_

Group #	Red Blood Cell Volume (mL)	Total Blood Mixture Volume (mL)	PCV (%)

## **Post-Lab Questions**

- 1. Use Equation 1 from the *Background* section to calculate the percent PCV in each centrifuge tube from the blood sample your group was assigned to test. Record each PCV in the data table above.
- 2. What is the range of PCV values for the tested blood sample? Would any values be considered an outlier? What are possible sources of error in this lab activity?
- 3. Together with the other lab groups who tested the same simulated blood sample, determine the average PCV of the cyclist. *Hint:* The groups may decide to eliminate one or more outliers, if any, or average the three closest values. Show all work below and include the reasoning for the average calculation.
- 4. In your opinion, did the average PCV of your tested simulated blood sample indicate cheating by the cyclist?
- 5. Other than blood-doping, what factors might result in a higher-than-usual red blood cell volume?
- 6. Why is engaging in strenuous physical activity dangerous with a low or high red blood cell volume?
- 7. Find out the average PCV of the other two simulated blood samples. As a class, determine if any cyclist was cheating. Discuss the pros and cons of using a hematocrit to determine whether or not a contestant should participate in a race.

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