FLINN SCIENTIFIC

Name_____

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.