

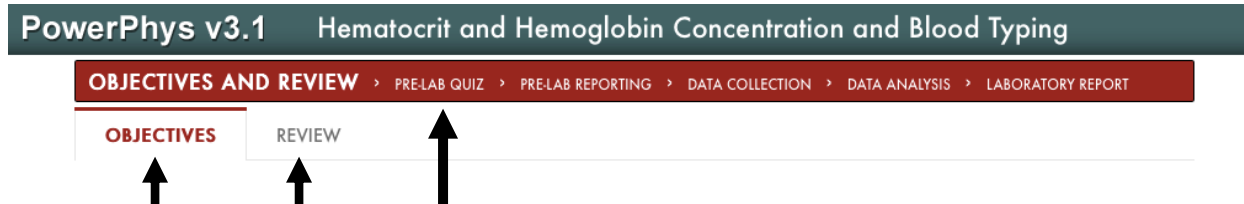
SC131 Unit 2 Assignment

Directions

- Go to the [Hematocrit and Hemoglobin Concentration and Blood Typing](#) PowerPhys lab in WileyPLUS (you must be logged into the classroom to utilize the blue link).
- As you complete the assigned steps outlined below, answer the corresponding questions on your answer sheet. You will **NOT** complete the entire lab or submit the generated lab report. You are to **only** access PowerPhys to complete the assigned steps from the worksheet and gather background information to successfully answer the questions below.
- Type your **answers only** onto a separate Word Document (.doc) and submit that document to the Unit 2 Assignment dropbox for a grade. Please do not type on this worksheet as it is only a guide for you to follow.

Objectives, Review & Pre-lab

Use the “Objectives”, “Review”, and “Pre-lab” tabs to complete the questions below questions:



1. Define agglutination in your own words.
2. During blood typing, anti-sera determines the positive presence of _____ when clumping occurs.
 - A. WBCs
 - B. platelets
 - C. antibodies
 - D. erythrocytes
 - E. antigens
3. What is the blood type of someone that exhibits no agglutination with anti-A serum, agglutination with anti-B serum, and agglutination with anti-Rh serum?
 - A. AB-
 - B. A+
 - C. O-
 - D. B+

4. Which of the following blood tests would be directly associated with oxygen carrying capacity?
- A. total WBC count
 - B. hematocrit
 - C. Hemoglobin conc.
 - D. agglutination reaction
5. The blood test performed to determine the amount of RBCs in a sample is called _____.
- A. hematocrit
 - B. hemoglobin
 - C. total RBC count
 - D. differential count
6. Where are ABO and Rh antigens located?
- A. in the blood plasma
 - B. on the surface of RBCs
 - C. in the red bone marrow
 - D. none of the above

Data Collection

Click the "Data Collection" tab and perform the experiment. Answer the following questions as you complete the lab (Make sure to read each step to ensure information is not overlooked while performing the lab).

PowerPhys v3.1 Hematocrit and Hemoglobin Concentration and Blood Typing

OBJECTIVES AND REVIEW > PRE-LAB QUIZ > PRE-LAB REPORTING > **DATA COLLECTION** > DATA ANALYSIS > LABORATORY REPORT

Subject 1
female,
age 25,
67 inches tall

Subject 2
female,
age 26,
70 inches tall

Subject 3
female,
age 27,
68 inches tall

Click or tap the Start button to begin.
Once you begin Data Collection, you will
need to finish the section in order to

7. What do the abbreviations Hct and Hb stand for?
8. The capillary tube used to collect the blood sample is coated with _____. This prevents blood clotting.
9. After centrifuging the sample, the clear straw-colored liquid at the top of the sample is called _____.

Table 3: Effect of Altitude on Hct and Hb

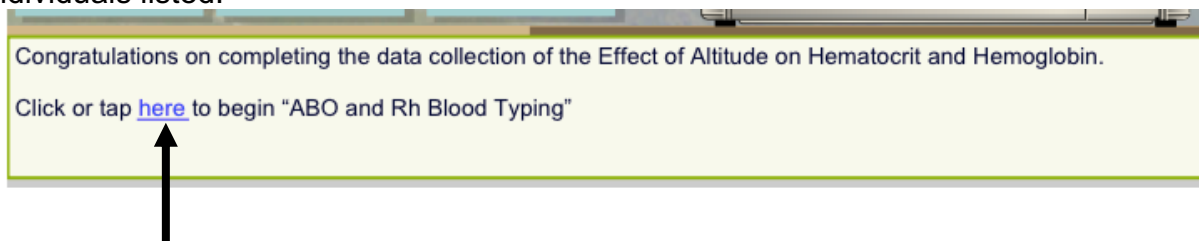
	Low Altitude				High Altitude			
	Length of Whole Blood Column (mm)	Length of Packed RBC Column (mm)	Hematocrit (%)	Hb (g/100 ml blood)	Length of Whole Blood Column (mm)	Length of Packed RBC Column (mm)	Hematocrit (%)	Hb (g/100 ml blood)
Subject 1	49	21	43	14.5	49	24	49	17.4
Subject 2	52	22	42	14.5	49	23	47	17.4
Subject 3	51	22	43	14.3	49	23	47	17.4
Average	51	22	43	14.4	49	23	48	17.4

10. Using the chart above, did average hematocrit increase, decrease, or not change after training at high altitude for 2 months?

11. Using the chart above, which subject shows the highest increase in oxygen carrying capacity of the blood? (Subject #1, #2 or #3) Explain.

12. Using the chart above, compare the hematocrit levels of the subjects at low and then at high altitude. Do the athletes training at high altitudes have more or less oxygen molecules per ml of blood than athletes training at low altitudes? List the average difference between low and high altitudes.

Complete the “ABO and Rh Blood Typing” lab by clicking “here” (see below). Collect all samples and then determine blood types (A+, A-, B+, B-, AB+, AB-, O+ or O-) for the individuals listed:



	Mother 1	Father 1	Child 1	Mother 2	Father 2	Child 2	Mother 3	Father 3	Child 3
Anti-A Sera	Agglut	No	Agglut	Agglut	No	Agglut	No	No	No
Anti-B Sera	No	No	No	Agglut	No	No	No	Agglut	Agglut
Anti-Rh Sera	No	No	No	No	Agglut	Agglut	Agglut	No	Agglut

Using the chart above, identify the blood type for each patient. Make sure to list the blood type (A, B, AB or O) and indicate if its Rh – or + (example: A+)

Note: “Agglut” indicates that agglutination has occurred in the blood sample. “No” indicates that no clumping as occurred for that serum.

Blood Typing Results:

Patient	Blood Type
13. Mother 1	
14. Father 1	
15. Child 1	
16. Mother 2	
17. Father 2	
18. Child 2	
19. Mother 3	
20. Father 3	
21. Child 3	

22. Which families can BOTH parents donate blood to their child and why.

23. Out of the three families above, which family could be affected by Hemolytic Disease of the Newborn (HDN)?

24. Explain the importance of giving RhoGAM to an Rh- mother during her subsequent pregnancies.

25. Explain what can happen to the RBCs when a patient does not receive a compatible blood type during a blood transfusion.