DATE: NAME: CLASS:

CHAPTER 8 ANSWER KEY	# When Red Blood Cells Go Wrong! Answer Key	BLM 8.2.3A

Patient	Condition	Hemoglobin (grams Hb/100 mL blood)	Oxygenated blood (mL O_2/100 mL blood)	Deoxygenated blood (mL O_2/100 mL blood)	Cardiac Output (L/min)
1	Normal	15	19	15	5.0
2	Hypoxic	15	15	12	6.6
3	Hypoxic	9	9.5	6.5	7.0
4	Hypoxic	16	21	13	3.0
5	Hypoxic	15	19	18	No info.

1. Patient #3 might be suffering from a dietary iron deficiency because his/her amount of hemoglobin is almost half the normal amount. Iron is a major component of hemoglobin.

2. Patient #4 may be experiencing heart failure and thus poor blood circulation because the cardiac output is less than normal. The patient's blood appears to be compensating for the poor heart with increased hemoglobin and thus more oxygen is being carried by the blood.

3. Patient #2 may recently have experienced high altitude (hiked up a mountain) where air is lower in atmospheric oxygen. Patient #2 has higher than normal cardiac output, indicating the heart is working harder to get oxygen around to the body. Oxygen content is less than normal, indicating less oxygen available to the body.

4. Patient #5 may have been exposed to a poison that prevents the cells from using oxygen because the deoxygenated blood oxygen amount is higher than normal, indicating that the blood has not exchanged the oxygen.

5. Patient 2 is exercising (as was established in question 3), which means the demand for oxygen by the cells is increased. Because the exercise was at a higher altitude, there is less oxygen available and the respiratory system would respond by increasing respirations.

6. a) Blood is flowing through the lungs of Patient 1 at a rate of 5.0 L/min.

   b) In Patient 1, 750 mL of oxygen is transported to the lungs each minute.

   15mL/100 mL : x/5000 mL/min, x = 750 mL/min

   c) In Patient 1, 950 mL of oxygen is carried away from the lungs each minute.

   19mL/100mL: x/5000mL/min, x = 950 mL/min

   d) In Patient 1, 200 mL of oxygen is consumed each minute.

   950 mL/min – 750 mL/min = 200 mL/min consumed.