Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Behind the Black Box Worksheet**

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| --- | --- |
| **5-Part Plan Title:** | **Behind the Black Box** |
| **Engineering Grand Challenge(s) Covered:** | **Advance Health Informatics** |
|  | **Engineer the Tools of Scientific Discovery** |
| **Fellow Contributor(s):** | **Max Jin** |
| **Grade Level(s):** | **10-12** |

**Please answer the following questions:**

1. Name one Grand Challenge that you are interested in and why?
2. What are the chambers in the heart and which ones are oxygenated?
3. What happens during systole and diastole?
4. How does pulse plethysmography and blood oximetry differ in how they work?

**An Exercise with a Pulse Oximeter:**

**Please record the following measurements for each member of your group.**

1. Heart Rate Calculated Manually: \_\_\_\_\_\_\_\_\_\_\_\_\_
2. Heart Rate Measured Using Pulse Oximeter: \_\_\_\_\_\_\_\_\_\_\_\_\_
3. Blood Oxygen Saturation Level: \_\_\_\_\_\_\_\_\_\_\_\_\_
4. Heart Rate Measured After Activity: \_\_\_\_\_\_\_\_\_\_\_\_\_
5. Draw the waveform shown on Pulse Oximeter in the space below: