

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

## Human Body Decathlon

### Station 1: Pump It Up: The Heartbeat Challenge

How many cups of water did you transfer in one minute? \_\_\_\_\_

How does this change how you think about your heart pumping an average of 5 Liters per minute?

### Station 2: The Digestive Dash: Peristalsis in Action

1. What is the "chicken" representing in the lab?
2. How do the digestive and muscular systems work together to move food through your body?

### Station 3: Bubble Breath: The Geometry of the Lungs

1. Measure the diameter of your popped bubble and record it here:  
\_\_\_\_\_
2. Do you think your bubble would be bigger/smaller/the same after running a race?

### Station 4: Reflex Ruler! Test Your Nerves

Height	Results
6 inches	
12 inches	
24 inches	
36 inches	

1. What role does the nervous system play in your ability to catch the ruler?

2. If you repeated the experiment while distracted (ex: talking to someone or listening to music), how do you think your results would change? Why?

### Station 5: Cardio Counts: Measure the Beat

1. Resting Heart Rate (take heart rate for 15 seconds. Multiply the number by 4): \_\_\_\_\_
2. Do 50 jumping jacks. Now record your new heart rate (take heart rate for 15 seconds. Multiply the number by 4): \_\_\_\_\_
3. How did your heart rate change after doing exercise?

### Station 6: Bionic Grip

1. What were some challenges you faced while using the bionic hand?  
\_\_\_\_\_
2. What are some ways you think the bionic hand could be improved? (What are some tasks you think it should be able to do, but can not?)

### Station 7: Balancing Act: Steady as You Go

1. How long were you able to balance? \_\_\_\_\_
2. What organ systems are interacting when you are balancing?

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### **Station 8: Immune Tag: Pathogens and Antibodies**

1. During the lab simulation game, what is the primary role of the white blood cells?
  - A) To infect as many cells as possible
  - B) To avoid being tagged
  - C) To tag pathogens and neutralize them
  - D) To act as neutral players
2. Which of the following systems works closely with the immune system to help protect the body from infections?
  - A) The Digestive System, by breaking down food into nutrients
  - B) The Nervous System, by sending signals to muscles
  - C) The Circulatory System, by transporting white blood cells throughout the body
  - D) The Respiratory System, by exchanging oxygen and carbon dioxide
3. During the game, what strategies did the white blood cells use to successfully "tag" and neutralize the pathogens? Describe how this reflects the actual function of white blood cells in the human immune system.
4. The immune system often works closely with the circulatory system to fight infections. How do white blood cells use the circulatory system to reach and protect different parts of the body from pathogens?

### **Station 9: Body Builders: The System Puzzle**

1. What parts of the body did you struggle with finding a place for?
2. What organs or systems were you able to identify immediately?

### **Station 10: Nerve Relay: The Signal Journey**

1. What was the message you heard?
2. What was the original message?
3. What systems are you using while playing this game?

### **Reflection:**

1. What activity was your favorite, and why?