

PHYSIOLOGY OF AMUSEMENT PARK RIDES

Project 1

STUDENT NAME: _____ PARTNER: _____

REPORTING TIME: _____ LOCATION: _____

For each of the rides listed below, measure your pulse rate, breathing rate, and calculate estimated cardiac output before and after the ride. (Remember $SV \times HR = CO$; Approximate stroke volume is 0.07 liters for each heart beat) **SHOW ALL WORK ON THE BACK – INCLUDE UNITS**

RIDE	PULSE RATE		CARDIAC OUTPUT		BREATHING RATE	
	Before (Beats / min)	After (Beats / min)	Before (L/min)	After (L/ min)	Before (Breaths /min)	After (Breath / min)
AERO 360						
EXTERMINATOR						
JACK RABBIT						
LOG JAMMER						
MUSIC EXPRESS						
PIRATE SHIP						
RACER						
THUNDERBOLT						
WHIP						

PHYSIOLOGY OF AMUSEMENT PARK RIDES

Symptoms:

Indicate any symptoms that you had by placing numbers and writing out symptom of those appropriate from the list below. Explain your answers.

- | | |
|----------------------|------------------------|
| 1. Dry mouth | 7. Stomach butterflies |
| 2. Dizziness | 8. Trembling |
| 3. Tense muscles | 9. Sweaty hands |
| 4. Unable to move | 10. Upset stomach |
| 5. Cold hands / feet | 11. Fast breathing |
| 6. Enlarged pupils | 12. Other (describe) |

RIDE	SYMPTOM
AERO 360	
EXTERMINATOR	
JACK RABBIT	
LOG JAMMER	
MUSIC EXPRESS	
PIRATE SHIP	
RACER	
THUNDERBOLT	
WHIP	

PHYSIOLOGY OF AMUSEMENT PARK RIDES

QUESTIONS: USE BACK OF PAPER OR ATTACH EXTRA SHEET

1. Amusement park rides are designed to give the illusion of danger and speed. Which rides, based on the symptoms that you had, seem to give the greatest illusion of danger and speed? Explain your answer.
2. Based on your observations, how could an amusement park design a ride to give greater illusion of speed and danger?
3. Describe a ride you would design (include a sketch).
4. From the data you recorded, decide if the stress of the ride caused any changes in your autonomic nervous system to regulate your heart?
5. How would you rate yourself compared to your partner in your body performance to handling the stress of the rides in relationship to pulse, cardiac output and breathing.

GRADING:

GRAMMAR/SPELLING = 1 POINT

ORGANIZATION/NEAT = 1 POINT

BUS = 2 POINTS

CLOTHING = 1 POINT

SIGNING = 1 POINT

LAB REPORT SECTION = 7 POINTS

PAGE 1 = 45 POINTS (BREATHING AND PULSE ALL IN ONE RIDE – 1 POINT AND EACH CALCULATION 2 POINTS –SHOW WORK, UNITS, ANSWER)

PAGE 2 = 18 POINTS (2 POINTS FOR SYMPTOM AND EXPLANATION)

PAGE 3 = 30 POINTS (6 POINTS FOR EACH QUESTION)

TOTAL = 100 POINTS

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Project 2

For each of the rides listed below, measure your pulse rate and breathing rate before and after the ride. Indicate any symptoms that you had by placing numbers of those appropriate from the list below.

Symptoms:

- | | |
|-----------------------|------------------------|
| 6. Dry mouth | 6. Stomach butterflies |
| 7. Dizziness | 7. Trembling |
| 8. Tense muscles | 8. Sweaty hands |
| 9. Unable to move | 9. Upset stomach |
| 10. Cold hands / feet | 10. Fast breathing |
| 11. Enlarged pupils | 11. Other (describe) |

RIDE	PULSE RATE		BREATHING RATE		SYMPTOMS	
	Before (Beats / min)	After (Beats / min)	Before (Breaths / min)	After (Breaths / min)	Before	After
AERO 360						
EXTERMINATOR						
JACK RABBIT						
LOG JAMMER						
MUSIC EXPRESS						
PIRATE SHIP						
RACER						
THUNDERBOLT						
WHIP						

PHYSIOLOGY OF AMUSEMENT PARK RIDES

QUESTIONS:

6. Amusement park rides are designed to give the illusion of danger and speed. Which rides, based on the symptoms that you had, seem to give the greatest illusion of danger and speed? Explain your answer.
7. Based on your observations, how could an amusement park design a ride to give greater illusion of speed and danger?
8. Describe a ride you would design (include a sketch).