

## V2-Experiment Procedure “Train like an astronaut”

### GENERAL INFORMATION

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### SHORT EXPERIMENT DESCRIPTION

Use different exercises to train your reflexes and gather data! For example, a student holds a ruler above the hands of another student. This student then has to catch the ruler, whenever the first student lets it drop (without warning!). Note the length of the ruler above the fingers. Repeat this exercise in order to gather some data and be able to define the mean, median etc. Then repeat this exercise again, but do this while the students talk about something else, to have them not solely focused on that one task. Again, gather data by repeating the exercise a few times. Then add more modifications (e.g., watching a video/movie, etc.).

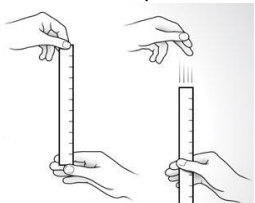
Use these different sets of data about the same basic exercise to compare different data sets by comparing means and so on.

	Ruler
	Notebook
	Pen
	Cell phone (for distractions, e.g., watch videos)
	Coins

### HARDWARE CHECKLIST

### PROCEDURE

#### EXERCISE 1: RULER

Step	Action	NOTES	Duration	Check
1	hold ruler above the hands of another student	Student 1 holds a ruler vertically above Student 2's open hand, ready to drop it at any moment.	1-10 sec	
2	Drop ruler (without warning)	Student 1 drops the ruler without warning 	15 sec	

## PROCEDURE “TRAIN LIKE AN ASTRONAUT”

3	Catch ruler	Student 2 attempts to catch it as quickly as possible.	1 sec	
4	Note the length of the ruler above Student 2’s fingers when they catch it		5 sec	
5	Repeat and gather data	Repeat it 5 times, record the results	5min	
6	Add distraction test	e.g. have Student 2 talks, watches a movie/video or perform another activity while repeating the exercise.	10-15 sec	
7	Repeat and gather data	This tests reaction time with distractions. Compare data sets (with and without distractions). Calculate mean, median, and range.	15 min	

### EXERCISE 2: COIN TOSS

Step	Action	NOTES	Duration	Check
1	Place coins on back of the hand and toss them into the air		10 sec	
2	Try to catch as many as possible before they hit the ground. Record the number caught.	This is a loud exercise when a lot of students do it	2 min	
3	Repeat with different numbers of coins and gather data	Count how many are caught each time. Gradually increase the number of coins and repeat the task. Record results for each trial.	10 min	
4	Use data to compare means and discuss the results	Analyze success rates across different coin counts. Calculate averages and discuss trends in difficulty.	5 min	
5	Repeat and gather data	Perform <b>5 trials</b> with a fixed number of coins.	5 min	

### EXERCISE 3: FLAMINGO BALANCE

Step	Action	NOTES	Duration	Check
1	Stand on one leg with eyes closed	for as long as possible	1 sec	
2	Have another student count time	how long you can balance without falling, Perform the task with each leg. Record the time balanced for each leg.	5 min	
3	Repeat and gather data	Repeat <b>3 trials</b> for each leg and average the results.	15 min	
4	Compare between different legs and different students and repeat step 1,2,3	Analyze performance by leg and calculate group statistics.	5 min	

#### NOTE on Data Analysis:

- Compare your data for each exercise, especially noting how distractions or added difficulty (more coins) impact performance.
- Calculate statistical parameters (mean, median, range).
- Calculate averages and discuss differences in reflexes, balance, and focus.
- Clear distinctions between initial tests and tests under altered conditions.

