Power lab report essay sample

Science, Physics

Purpose: To investigate what physical characteristics of students how it affect the power generated on running up the stairs.

Hypothesis: The student that can generate the highest power would probably be Adam K, because it is so obvious that he’s the most physically fit among every one of us. In addition, he’s muscular and sporty.

Variables and Controls:

Independent Variable: the mass of all the students

Dependent Variable: The force (Fg)

Control: the vertical height of the stairs.

Materials:

Meter Stick

Stopwatch

Weighing Scale

Calculator

Procedure:

1. I made a table with columns name, Fg(N), Vertical Height (m), Work done, Power, Ranking

2. We measured the height of a one step, and then multiplied it to 14 since the stairs has 14 steps.

3. Then I used the stopwatch to measure how fast Xerxes made it to the top. Then record it on the time column of the table. Then Xerxes timed how long I took to reach the top.

4. Then other partners did just like what we did, they timed each other.

5. After that, we share the data we got.

6. Lastly, I completed the information on the table by computing work done, power, and to get the ranking.

Safety Considerations:

We assured that there is nothing on the stairs that can make us fell as we run up. Like slippery materials, or if it is wet.

I was wearing running shoes, for safety purposes.

Observations:

Name

Fg

(N)

Time

(s)

Vertical Height (m)

Work Done

(J)

Power

(W)

Ranking

Alanna

725

3. 12

2. 66

1929

618

13

Corrine

706

2. 16

2. 66

1878

869

5

Adam K.

907

1. 82

2. 66

2413

1326

1

Mitchell

550

1. 89

2. 66

1463

774

7

Elvis

628

2. 47

2. 66

1670

676

10

Moses

600

2. 05

2. 66

1596

779

6

Khalil

617

2. 49

2. 66

1641

659

11

Adam R.

666

1. 80

2. 66

1772

984

2

Natalie

608

2. 35

2. 66

1617

688

8

David

564

2. 38

2. 66

1500

630

12

Matt

685

2. 02

2. 66

1822

902

4

Xerxes

686

2. 62

2. 66

1825

686

9

Ms. Adair

833

2. 34

2. 66

2216

945

3

Sample Calculations:

Analysis:

The 5 most powerful:

1. Adam K. – tall, athletic, heavy, strong, fast

2. Adam R. – fast, short, agile

3. Ms. Adair – tall, athletic, heavy, strong, alert

4. Matt- athletic, fast, tall, agile

5. Corrine – heavy, athletic, fast

1. The power output of two students of the same mass could be very different because their power depends upon their rate of doing work. If students A and B have the same, and student A took lesser time on doing work than student B, student A would have greater Power.

2. The power of a strike in karate can be maximize by speeding up every strike. The power of a strike is how fast you can deliver energy to the target.

Sources of error:

– The time could not be accurate; it’s when one started running on late or advance time of the stopwatch. The runner must start at time the timer commands as he hits the stopwatch.

Conclusion:

Power is the time rate at which work is done. It is a measure of how fast you exert your energy. In this lab, it is Adam K. who has the largest power. Our physical properties affect the power we can generate. If we are heavy and fast we could generate high power. Because if you are athletic, you can do work in lesser time, as a result there is greater power. Example if you walk or run up the stairs, the power used is greater if you run up the stairs since you took less time.