

# [The program is called python though - lab report example](https://assignbuster.com/the-program-is-called-python-though-lab-report-example/)

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## The program is called Python Though

Lab Report Electric field By: Physics (including Earth and space sciences Events in the Experiment The experiment involves the simulation of calculations and plotting of electric field from the center of the rod. As it was observed, the electric field grows weaker as the distance widens. One of the measurements was done with the single rod with the electric charge perpendicular to and at the center of the rod. This was plotted as shown in figure 1 below.
Figure 1: Electric Field with with charge at the centre of the rod
The second measurement experiment was conducted with the rod broken into a number of pieces. As the number of pieces increased, electric field calculation remained constant, but the numerical value increased. The results were plotted as shown in figure 2 below.
Figure 2: Electric Field against Number of pieces of the Rod
The third measurement of electric field was carried out with the charge along the diagonal of the rod. The electric field reduced as the diagonal distance increased, but the numerical calculation was slightly above the exact value of the electric field (Huray, 2009). The results are as shown in figure 3 below:
Figure 3: Electric field against Diagonal Distance
2. Physics Principles Used
The principle of physics used in this experiment was the Principle of electromagnetism (Grant & Phillips, 2008).
3. Relationships among Parameters and Variables Used
The relationship between the variables was a combined equation as shown below:
b = arrow (pos = (r1\*sin (theta) \* cos (phi), r1\*sin (theta)\*sin (phi), r1\*cos (theta))
In this equation, b is the electric field; rl is the distance from the rod to the charge while theta and phi are the two complementary angles between the rod and the charge. Arrow is the actual amount of electric charge.
4. Analysis of the Data Collected
The data collected was made up of the component of electric field and the distances from the center of the rod.
4. 1. Calculation 1: Data Collected
Distance From the Rod (m/L)
Electric Charge (N / C)
0. 1
7013
0. 2
3329
0. 3
2048. 5
0. 4
1418
4. 2. Calculation 2: Data Collected
Number of pieces of the Rod
Electric Charge (N / C)
200
7000
400
7038
600
7039
800
7045
1000
7053
4. 3. Calculation 3: Data Collected
Diagonal Distance (m/L)
Electric Charge (N / C)
0. 5
1440
1. 0
360
1. 5
160
2. 0
91. 091
References
Huray, P. G. (2009). Maxwells Equations. Wiley-IEEE. p. 205.
Grant, I. S & Phillips, W. R. (2008). Electromagnetism (2nd Edition), Manchester Physics, John Wiley & Sons.