Mathematics GCSE Statistics Coursework

Hypothesis:

How long is a piece of string? I am going to find out whether the estimation of the length of a piece of string improves with age. It is thought that a child's estimation will improve with age and I ai m to either prove or disprove this hypothesis. I chose this task because it gives me the freedom to add in plenty of sub-hypotheses to help me with my main hypothesis.

Plan:

The sample population are children aged between eleven and sixteen. I have chosen a stratified random sample. I have taken the sixth and twenty-first people in each register of every tutor group. The data I need to collect is the persons age, sex, tutor group and their estimations for a normal piece of string flat out straight and a piece of string wrapped around a pen. I will collect my data by asking the children to come to the maths room at lunchtime. If this does not work I will go round to the tutors and ask them there. I am only using primary data because I feel it is more reliable than data that someone else has collected because then at least I know that if I get anomalous results, it's because I know that someone has definitely guessed that, instead of wondering whether the results have been tampered with.

I have drawn up a table to make it easier to collect my data and will fill it in accordingly. I aim to show my results in graphs, pie charts, and cumulative frequency graphs and scatter graphs to give a wider variety and to gain a more accurate case as to whether I can prove or disprove my hypothesis. I am using all these methods to give me a wider variety of results. The graphs should show the spread of all the data that I have collected. I will analyse the data using various methods such as, mean and standard deviation, median and inter-quartile range, mode, range, percentage and ratio and spearman's Rank. I expect to find out whether estimation improves with age and whether the estimation is more accurately if the string isn't wrapped around a pen.

http://www.gcseguide.co.uk/standard_deviation.htm