Mathematics and Statistics   Curriculum Level Seven

	Curriculum: Level 7 **Statistical Investigation** *Students will:* Carry out investigations of phenomena, using the statistical enquiry cycle: -conducting experiments -evaluating the choice of measure for variables and data collection methods used -using relevant contextual knowledge, exploratory data analysis, and statistical inference.
	Teaching and Learning in relation to literacy and language demands in writing: Students need to use writing to explain concepts, processes, and theories relevant to curriculum tasks. They need to express increasingly sophisticated ideas and information, incorporate specialized vocabulary, and structure their responses according to purpose and audience.
	Assessment task Achievement Standard 91265 Conduct an experiment to investigate a situation using statistical methods In this assessment activity the students conducted an experiment using statistical methods to investigate the factors affecting human movement or how human movement affects something else. The movement may have been small muscle movement such as handwriting or large muscle movement such as running. The students carried out their investigation, collected and analysed data, and then presented their findings in a written report.

Level 2 Achievement Standard 91265   Conduct an experiment to investigate a situation using statistical methods (Internal)

The following is an example of a written response at Curriculum Level 7 that demonstrates the literacy and language skills students require.

Structure	Exemplar of student work (Extract only)	Audience and Purpose
The structure of the overall report meets the requirements of the task - outlining the method, presenting the results, analyzing and discussing the findings, and reflecting on the results. Within the discussion, the response could be strengthened by improving the **structure of each paragraph** (e.g. Introduction/Example/Recommendations - Introductory sentence about accuracy, examples of inaccuracy in this experiment, recommended improvements). Reading and **analyzing exemplars** of report writing in Mathematics can also support students to identify the key features that they need to include in their own writing.	*From the diagrams I have drawn from our experiment to find out if hopping with a set distance effects how far you jump compared to hopping with a target distance.* *From the my data graph I can see that Group 2 is shifted slightly further up the scale compared to Group 1. Group 1 who had no set target distance box and whisker on the graph is 10cm more varied along the graph compared to Group 2. Both box and whiskers are quite symmetrical with only a slight difference in each middle 50%. The median at Group 1 is 1.32m whereas the median at Group 2 is 1.29m there is a 3cm difference between these two medians…* *Discussion* *This experiment may not be so accurate as when doing the experiment we did not stress to the 2nd group that they must past the target distance which we displayed with a ruler. But told them like the first group to hop as far as they could with their right foot. Next time we should specifie that they must try to beat our set target. Also we should have defined our starting point, because they didn't quite know where it was, also to get them to stay inplace while we take the correct measurements so they can be more accurate, because they would hop and move straight after they had landed. Also the size of our experiment was quite small so it may only give us an idea at whether students jump further with or without a target distance. To get more steady results we would need to conduct this experiment on another few groups of students. We should also take into account that this experiment was only conducted on year 11 girls in the morning. So we cannot say that these results cover the entire population of students as we have not conducted this experiment at boys who may have hopped more or less than our results and year 11 students may not be so happy to hop early in the morning compared to a younger group of girls, say in year 9. So this data only represents a fraction of year 11 girls. So in my future experiments I would need to take all these things*	Content, overall language use and structure are appropriate for audience and purpose (writing an experiment, presenting statistical data, discussion of results in a report).
		Language
		Relevant **subject –specific vocabulary** has been used in relation to the question (*difference/accurate/represent/compared to*). The response could be strengthened through the use of a wider range of **evaluative phrases** e.g. *There was no evidence of..../Unless....then.../...was relevant because....* etc.
Ideas and Information The writer has **responded to all parts** of the task indicating that he/she has a sound understanding of the investigative process and the statistical methods required. The writer has outlined **relevant** considerations in relation to the investigation (e.g. *…we would need to conduct this experiment on another few groups of students*) Findings are **supported by evidence** gained from the experiment (*Group 2 is*		**Accuracy** Coherency could be strengthened by avoiding the repetition of sentence beginnings (*Also… So…*). Some lengthy sentences would have more impact if they were divided (*So we cannot say that these result…/Year 11 students…*)

shifted slightly further up the scale compared to Group 1.)	into account when I am writing up my experiments to change and define my results.	