Assessment schedule Mathematics and Statistics 91582 Elite Athletes

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| Evidence/Judgements for Achievement  | Evidence/Judgements for Achievement with Merit | Evidence/Judgements for Achievement with Excellence |
| The student has used statistical methods to make a formal inference. The student has:* produced a report that shows they have used each component of the statistical enquiry cycle to make a formal inference
* posed a comparison investigative question using a given multivariate data set
* selected and used appropriate displays and summary statistics
* discussed sample distributions
* discussed sampling variability, including variability of estimates
* made an appropriate formal statistical inference
* communicated findings in a conclusion

For example:**Problem**The question is a comparison investigative question that clearly identifies the comparison and the population(s). | The student uses statistical methods to make a formal inference, with justification.The student has:* produced a report that gives evidence of linking components of the statistical enquiry cycle to the context and/or populations, and referring to evidence such as sample statistics, data values, or features of visual displays in support of statements made
* posed a comparison investigative question using a given multivariate data set
* selected and used appropriate displays and summary statistics
* discussed sample distributions
* discussed sampling variability, including variability of estimates
* made an appropriate formal statistical inference
* communicated findings in a conclusion

For example: **Problem**A comparison investigative question has been posed and includes an explanation for the choice of variables for the investigation. | The student uses statistical methods to make a formal inference, with statistical insight.The student has:* produced a report that gives evidence of integrating statistical and contextual knowledge throughout the statistical enquiry cycle, and may include reflecting about the process and considering other relevant explanations
* posed a comparison investigative question using a given multivariate data set
* selected and used appropriate displays and summary statistics
* discussed sample distributions
* discussed sampling variability, including variability of estimates
* made an appropriate formal statistical inference
* communicated findings in a conclusion

For example:***Problem***The research is used to develop the purpose for their investigation and the contextual knowledge is used to pose a comparison investigative question. |

**Student A:**

What is the difference in median body fat percentage (%) for males and females athletes in the Australian Institute of Sport? Body fat percentage is your body fat mass over everything else (e.g. bone, water, muscle, hair). Calculating your body fat percentage is important to help you understand whether or not you have a healthy level of body fat. For an athlete, body fat percentage for a female must be between 14% and 20% whereas for a male body fat percentage must be between 6% and 13%. According to my research, males should have a lower body fat percentage than females. I want to investigate how large the gap is between male and female body fat percentage.

**Student B:**

What is the difference in median body fat percentage for male and female athletes in the AIS (australian institute of sport).

**Student C:**

What is the difference in body fat percentage for male and female athletes in the AIS (Australian institute of sport)

We are using body fat (%) and comparing genders to see which gender has the highest body fat (%) to determine who is healthier, although the data collected from the AIS sport is accurate  I believe this study might be biased towards males as the essential fats vary from each gender, males only needing 2-4 % and females needing 10-12% and believe another test would give better results.

**Student D:**

I’m interested in investigating what is the difference in median body fat percentage for male and female athletes in the AIS (Australian institute of sport).

I’m interested to know whether gender affects body fat percentage as this can be useful for doctors for determining whether or not athletes are at a healthy body fat. This can also be useful for trainers so that they have a better understanding of what advice to give to an athlete for their bodyfat percentage based on the athlete’s gender. According to the American Council on Exercise, the essential body fat percentage for females is higher than males- with males requiring 2-5% of essential body fat whereas females require 10-13% of essential body fat. From my research I have also found that “Mainly, women are healthier with higher body fat percentages than men. This is because women require higher fat levels for safe pregnancy.” Based on this research, I expect to see women in this study with a higher body fat percentage than men.

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| Student (A – D) | Mark (NAME) | Justification for Mark | Suggestion for Improvement |
| A |  |  |  |
| B |  |  |  |
| C |  |  |  |
| D |  |  |  |
| Your Own Work |  |  |  |