Assessment Schedule: Mathematics and Statistics AS 3.9 (v2) Investigate Bivariate Measurement Data

Criteria	Achieved	Merit	Excellence
Demonstrate informed contextual knowledge	Evidence of informed contextual knowledge is shown.	Informed contextual knowledge is used to develop a purpose for the investigation and related to findings. Sources are referenced.	**As for Merit and** informed contextual knowledge is integrated with statistical knowledge throughout the report.
Posing an appropriate relationship question using a given multivariate data set	Evidence will provide an introduction to the investigation which is used to identify a purpose, and pose an appropriate relationship question. The question has a meaningful purpose in the context of the investigation. The question includes the explanatory and response variables.	Evidence will provide an introduction to the investigation which is used to identify a purpose, and pose an appropriate relationship question. The question has a meaningful purpose in the context of the investigation. The question includes the explanatory and response variables. A justification for the investigation in terms of this particular relationship and its context is given. A reflection on what they expect to find in their analysis could be made.	**As for Merit and** a reflection on what they expect to find in their analysis is made which considers and refers to relevant statistical and contextual knowledge.
Selecting and using appropriate displays	Evidence will show a correctly labelled scatter plot of the raw data.	Evidence will show a correctly labelled scatter plot of the raw data.	Evidence will show a correctly labelled scatter plot of the raw data.
Identifying features in the data	Evidence will be a description, in context, of the features of the scatter plot based on a visual inspection of its data values. Features included should be the strength and direction of the relationship.	Evidence will be a description, in context, of the features of the scatterplot. Features included should be the strength and direction of the relationship and other features of the data, such as clusters and unusual values, may have been discussed in context. These descriptions will be justified by referring to the scatter plot and data.	Evidence will be a description, in context, of the features of the scatter plot. Features included should be the strength and direction of the relationship and other features of the data, such as clusters and unusual values, may have been discussed in context. These descriptions will be justified by referring to the scatter plot and data. Discussion includes reflection on these features and whether they make sense in terms of relevant statistical and contextual knowledge.
Found an appropriate model	Evidence will be fitting an appropriate regression model to the data.	Evidence will be fitting an appropriate regression model to the data. The appropriateness of the model is justified by referring to its fit in terms of the features of the data and displays.	**As for Merit and** Reflection on whether the model makes sense in terms of statistical and contextual knowledge has occurred. Comments may evaluate the adequacy of the model or show a deeper understanding of the model.

Describing the nature and strength of the relationship and relating this to the context	Evidence will be a description, in context, of the strength of the relationship based on visual features of the scatterplot and the fitted model.	Evidence will be a discussion, in context, of the nature and strength of the relationship in terms of the fitted model and the data values. Could include discussion of features, trends, statistical measures and/or contextual knowledge. These descriptions will be justified by referring to the scatter graph and data.	Evidence will be a discussion, in context, of the nature and strength of the relationship in terms of the fitted model and the data values. Discussion of features, trends and statistical measures integrates statistical and contextual knowledge. These descriptions will be justified by referring to the scatter graph and data.
Using the model to make a prediction	Evidence will be using the model to show calculations for a prediction in context (units and sensible rounding) within the data range of the explanatory variable.	Evidence will be using the model to show calculations for a prediction in context (units and sensible rounding) within the data range of the explanatory variable. Comments are supported with reference to statistical evidence from the analysis, purpose and/or research. The precision of this forecast is discussed by considering features of the display. This could be by reviewing the strength of the relationship and the scatter on the graph close to the relevant explanatory data value.	Evidence will be using the model to show calculations for a prediction in context (units and sensible rounding) within the data range of the explanatory variable. Comments are supported with reference to statistical evidence from the analysis, purpose and/ or research. Precision of this forecast is discussed by considering features of the display. Consideration as to whether the prediction makes sense in terms of research and context is given. Comments integrate statistical and contextual knowledge. Evidence of further reflection on the prediction in terms of their relevance to the context and the adequacy of the model or a consideration of other variables or a demonstration of a deeper understanding of the model may be provided.
Communicated findings in a conclusion:	Evidence will be a summary of their findings which is consistent with the purpose of the investigation.	Evidence will be a summary of the findings. The summary is justified with reference to the displays, data and the context.	Evidence will be a summary of the findings. The summary is justified with reference to the displays, data and the context. The summary also considers whether the main findings are consistent with the context and may also reflect on the process. Discussion integrates statistical and contextual knowledge.

Final grades will be decided using professional judgement based on a holistic examination of the evidence provided against the criteria in the Achievement Standard. A holistic approach should be taken in forming judgments at all levels of achievement. The schedule could be a starting point for assessors when forming their judgments, and it could also be used as a rubric by students to help judge if they have met the criteria for the standard.