12 Further Maths – Data Analysis - Bivariate (Work Plan)

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| **Skill** | **Practice** | **Resources** | **Learning Focus** |
| Response and explanatory variables | Ex 3 A Page 93  All Questions | <https://www.youtube.com/watch?v=mV6zbfj0j6U>  <https://www.youtube.com/watch?v=SK9Sr1K45S8> | response and explanatory variables and their role in investigating associations between variables |
| Associations between categorical variables | Ex 3 B Page 97  All Questions | <https://www.youtube.com/watch?v=k43vFIbrGjg>  https://www.youtube.com/watch?v=zLHunbpH5Hg | contingency (two-way) frequency tables, two-way frequency tables and their associated bar charts (including percentaged segmented bar charts) and their use in identifying and describing associations between two categorical variables |
| Associations between a numerical and a categorical variable | Ex 3 C Page 102  All Questions | <https://www.youtube.com/watch?v=KP1y9HU0ySU> | back-to-back stem plots, parallel dot plots and boxplots and their use in identifying and describing associations between a numerical and a categorical variable |
| Associations between numerical variables | Ex 3 D Page 105  All Questions  Ex 3 E Page 112  All Questions | <https://www.youtube.com/watch?v=CgRFrwm9TaE> | scatterplots and their use in identifying and qualitatively describing the association between two numerical variables in terms of direction (positive/negative), form (linear/non-linear) and strength (strong/moderate/weak)  answering statistical questions that require a knowledge of the associations between pairs of variables |
| Correlation coefficient | Ex 3 F Page 115  All Questions  Use calculator for all questions | <https://www.youtube.com/watch?v=bCpfd2PxBVA>  <https://www.youtube.com/watch?v=372iaWfH-Dg>  <https://www.youtube.com/watch?v=EShk1ze8Cpw> | Pearson correlation coefficient, *r*, its calculation and interpretation |
| Coefficient of determination | Ex 3 G Page 119  All Questions | <https://www.youtube.com/watch?v=6LBTmVv3K_Q>  <https://www.youtube.com/watch?v=wyCJdbYStwo> |  |
| Correlation and causality | Ex 3 H Page 124  All Questions | <https://www.youtube.com/watch?v=VMUQSMFGBDo>  <https://www.youtube.com/watch?v=ROpbdO-gRUo> | cause and effect; the difference between observation and experimentation when collecting data and the need for experimentation to definitively determine cause and effect  non-causal explanations for an observed association including common response, confounding, and coincidence; discussion and communication of these explanations in a particular situation in a systematic and concise manner. |
| Which Graph? | Ex 3 I Page 125  All Questions | <https://www.youtube.com/watch?v=Ka5pGmHJENI> | answering statistical questions that require a knowledge of the associations between pairs of variables |
| Review | Pages 127-131 |  |  |