**Statistical Surprises and Stories**

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| **Key Ideas in Statistics and Mathematics**  **(from Senior Secondary Guides)** | | |
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| **Uncover stories**  **in which variation is omnipresent** | **Unlock stories**  **using models, abstractions and representations** | **Tell stories**  **using evidence and reasoning** |

[**https://sway.com/JBTWmM8vpxS6FN5t**](https://sway.com/JBTWmM8vpxS6FN5t)

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| **Topic** | **Resources** | **Variation** | **Surprise / Story** |
| 1. Time Series | Baby names A, B, C, Research  Summary 1 /2  Written response  Time Series Report Writing | How does this data vary over time?  Trend  Seasonal / cyclical | Don’t start with ‘model’ example |
| 1. Bivariate Data | Learning from exemplar (AIS Data set)  Inzight instructions  Bivariate Report Writing | How do these data sets vary in relation to each other? | Attendance  Diamonds  AIS  Heptathlon |
| 1. Inference | Intro  Bootstrapping  Inference Report Writing | Variation within a group  By chance alone  Sample variability  Sampling variation | Perception of graphs / difference |
| 1. Simultaneous equations | Play doh creations | Types of solutions (deterministic models…) | Makes 15 internal credits |
| 1. Probability | Alcohol testing drunk drivers  Probability summary  See think do check  Estimating means and standard deviations | Experimental / Theoretical / True  Random variables / variation | Risk / Absolute / Relative |
| 1. Probability Distributions | One page summaries  ​Using geogebra  Distributions experimental and theoretical​  All black scenarios | How much variation is too much?  Model and ‘real life’ | What do we expect? |
| 1. Revision | Post its | Every one… | Key ideas |
| 1. Data Visualisation | http://www.radionz.co.nz/national/programmes/thiswayup/audio/201779602/data-visualisation  ​http://pitchinteractive.com/ |  |  |