**TASK 11: DATA SMOOTHING**

**In-class investigation**

**Unit 4**

**Topic 4.1: Time series analysis**

**Course-related information**

The concepts and skills developed in this investigation relate to the following dot points within the WA Mathematics Applications syllabus:

4.1.1 construct time series plots

4.1.2 describe time series plots by identifying features such as trend (long term direction), seasonality (systematic, calendar-related movements), and irregular fluctuations (unsystematic, short term fluctuations), and recognise when there are outliers

4.1.3 smooth time series data by using a simple moving average, including the use of spreadsheets to implement this process

4.1.6 fit a least-squares line to model long-term trends in time series data

**Background information**

This task has been designed to introduce students to time series data. They are given the opportunity to study, consider and respond to questions which show changes in data over time. While it is not expected that the students have commenced this topic, they should have completed Topic 3.1. They should be able to draw and interpret scatter plots, calculate the correlation coefficient and determine the least squares line of regression.

**Task conditions**

This task consists of an in-class investigation for which students might need 40 – 55 minutes to complete. Students need to be familiar with tabulation and graphing using technology and it is expected that access to such technology will be available during the investigation.