Sample virtual program:

## Considerations for programming virtual classrooms

Guiding questions for establishing learning expectations and communication processes

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| Guiding question |  |
| What are your students going to learn? (Objectives) | Students will use statistical displays to compare sets of data. |
| How are they going to learn it? (Resources and Strategies) | It is envisaged that all concepts will be introduced by the staff member via video conferencing and Microsoft Whiteboard; however, materials to supplement learning and independent learning activities have been provided for self-paced study. |
| Target date for completion | 3 lesson sequence |
| How are you going to know that they learned it? (Success criteria) | * Students identify primary and secondary sources of data
* Students use ICT to organise and display data
* Students use key terms and phrases to describe data
* Students use statistical measures to represent the data
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| Collecting evidence of student learning (Verification) | Student work will be shared via a collaborative platform like MS Teams. Students will share their spreadsheets with the staff member for feedback. |
| Feedback (Evaluation) | Staff members can use the video conferencing and collaborative capabilities of MS Teams to pose assessing and advancing questions; and provide feedback. |
| Communication | Staff members can use the video conferencing and collaborative capabilities of MS Teams to lead discussions and facilitate activities. |

### Model 2 – Sharing resources for students to view/read and reflect on

It is envisaged that the following sequence of lessons would be facilitated by the peer discussions and conferencing, asynchronous discussion and mini-white board activities from the [Digital learning selector – Learning activities](https://app.education.nsw.gov.au/digital-learning-selector/LearningActivity/Browser?cache_id=240cd).

### Stage 5.1 – Single Variable Data Analysis

Year 9

##### Background

In Stage 5.1, students are only required to recognise the general shape and lack of symmetry in skewed distributions. No specific analysis of the relative positions of mean, median and mode is required.

##### Outcomes

A student:

* Uses appropriate terminology, diagrams and symbols in mathematics contexts MA5.1-1WM
* Selects and uses appropriate strategies to solve problems MA5.1-2WM
* Provides reasoning to support conclusions that are appropriate to the context MA5.1-3WM
* Uses statistical displays to compare sets of data, and evaluates statistical claims made in the media MA5.1-12SP

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| Lesson sequence |  |  |
| 1 Collecting and displaying data | 1. The staff member is to facilitate a discussion about the difference between primary and secondary data and provide examples of places where students can source reliable secondary data on the internet. The staff member may like to use an online platform such as Microsoft Teams to facilitate this discussion.
2. Students are then to gather secondary data from the Bureau of Meteorology website using the link provided. For the purpose of this activity students are to choose a location within Australia and gather either monthly temperature or monthly rainfall data from the year that they were born and from the year 2019.
3. They are to then tabulate the data into a spreadsheet application such as Microsoft Excel and produce a histogram of the data sets. If students are unfamiliar with using Microsoft Excel, or require revision of these skills, it is recommended that they watch the YouTube video ‘Excel Quick and Simple Chart Tutorial’
 | BOM: Climate Data Online<http://www.bom.gov.au/climate/data/index.shtml?bookmark=200>Video: Excel Quick and Simple Charts Tutorial<https://www.youtube.com/watch?v=TfkNkrKMF5c> |
| 2 Describing data displays | 1. Students are introduced to the terms ‘positively skewed’, ‘negatively skewed’, ‘symmetric’ or ‘bi-modal’ to describe the shape of distributions of data. This can be achieved via a teacher led discussion using a platform such as Microsoft Teams, by students reading through the information of the Maths is Fun website or by watching the YouTube video ‘Symmetric, right skewed (positively), and left skewed (negatively) distributions’
2. Students are to then describe their data sets using the correct mathematical terminology.
 | Maths is Fun<https://www.mathsisfun.com/data/skewness.html>Video: ‘Symmetric, right skewed (positively), and left skewed (negatively) distributions<https://www.youtube.com/watch?v=2x9ZdBLL-6I> |
| 3Interpret data | 1. The staff member may like to run a revision tutorial of how to calculate the mode, mean and median using an online platform such as Microsoft Teams or by getting students to watch the YouTube video ‘Finding the mean, median and mode’.
2. Students are to practise their skills in calculating the mean, median and mode by accessing the self-marking quiz from [www.transum.org](http://www.transum.org). Students should attempt levels 1 through to 6.
3. Students are to then calculate the mean, median and mode for their sets of data and compare the results from the data collected from the year that they were born and the year 2019. The staff member may like to get students to comment on why they believe there are differences (if applicable).
 | Video: Finding the mean, median and mode<https://www.youtube.com/watch?v=k3aKKasOmIw>Calculating the mean, median and mode:<https://www.transum.org/software/SW/Starter_of_the_day/Students/Averages.asp?Level=1> |