Information and Communications Technology

Where to go?
SOSE Level 4 (Geography)

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Sample Unit

Information and Communications Technology

SOSE Level 4 (Geography)

Where to go?

This unit is designed to allow students to further investigate different climate zones and to use geographical tools, such as atlases and maps, to locate places and apply cartographic conventions.

Students investigate temperature and rainfall in two different places. One location will be in Australia and the other will be in Asia. Students record weather and rainfall details onto spreadsheets and make comparisons. The purpose of the comparisons is to decide what time of the year would be best to holiday in each location.

Learning outcomes

This unit focuses on CSF learning outcomes in the Geography strand of Studies of Society and Environment and the Information strand of Technology but could be developed to include activities that focus on other strands in English and other key learning areas.

The relevant learning outcome and indicators for level 4 SOSE (Geography) are:

4.1 Locate and explain the distribution of significant natural and built features both in regions of Australia and globally, using maps and other geographical techniques. SOGE0401

• Describe the spatial patterns of significant natural and built features in regions of Australia and the world, including major cities and physical regions.
• Transfer and represent data on appropriate outline maps at a range of scales, using geographical conventions.
The relevant learning outcome and indicators for level 4 Technology (Information) are:

4.2 Develop preferred solutions to information problems experienced by various audiences, using a range of information technology skills, processes and equipment.

TEIN0402

- Identify some factors that assist in determining the suitability of data sources and presentation styles, and the efficiency of functions and techniques.
- Independently use a range of skills, processes and functions to efficiently process different data types and produce accurate and suitable information that meets the needs of three different audiences.

Links to other key learning areas

The Arts
Drama
4.4 Distinguish features of drama that locate it in a particular time, place or culture.
ARDR0404

Studies of Society and Environment
History
4.3 Describe significant events and people in the recent history of an Asian country. SOHI0403

ICT chart reference

Application: Spreadsheet
Example: Creates templates/worksheets to calculate and chart information, e.g. enters rainfall and temperature statistics for different locations and charts the results for comparison.

Unit objectives

This unit is designed to enable students to:

- transfer and represent climatic data in a graph
- identify some factors that assist in determining the suitability of data sources and presentation styles, and the efficiency of functions and techniques
- independently use a range of skills, processes and functions to efficiently process different data types and produce accurate and suitable information.
Prior learning

Students will need the following knowledge and skills to begin this unit:

**Information and communications technology (ICT)**
- enter and edit data and simple formulae into a spreadsheet.

**Studies of Society and Environment**
- understand the meaning of temperature and rainfall averages.

Teacher notes

The classroom activities in this unit are influenced by a range of factors, including the accessibility and location of computers, preferred teaching styles, students’ learning styles and time.

Students use the worksheets (pages 7–10) to work through a number of activities. The worksheets are available as Microsoft Word files and can be modified as required. Some are designed specifically for students to use electronically while others could be distributed as handouts. Teachers may prefer to incorporate the ideas on the worksheets into their presentation of lessons.

Before beginning the activities, students are divided into groups and two geographical locations are selected for each group. For the purpose of comparison, the location of the site in Australia needs to have different climatic conditions from the one chosen for the Asian site. Students work through the tasks in small groups.

Activity 1 begins with researching the significant geographical locations. For the Australian site this can be extended to the chosen State whereas the Asian site can be extended to consider the main geographical features of the country. This activity can include the History strand in which students could also research historical events, culture, significant people, important festivals and celebrations.

The CSF II Annotated Work Samples Studies of Society and Environment (*level 4 Cultural snapshot* and *level 4 Aboriginal and Torres Strait Islander land use*) provides examples of tasks that can assist in extending the unit to include the History strand and in assessing student work (see [www.vCAA.vic.edu.au](http://www.vCAA.vic.edu.au)).

**Activity 1: Research**

In groups, students follow the instructions on Worksheet 1 (page 7). Each group researches the selected locations to find out and identify the significant geographical features.

**Activity 2: Presenting the research**

Worksheet 2 (page 7) provides students with instructions on how to present their information to the class. The information is presented on a poster.
Activity 3: Maps and graphs

The Bureau of Meteorology provides interesting and useful weather data from its website. Students find information about climate data (for example climate averages) and examples of graphs which can be useful in preparing for this task.

The Monthly Rainfall graph (page 8) and Average Temperature graph (page 8) for Notown (not a real place) provided in the student worksheets, indicates to students what is required for the graph to be useful and provides a good comparison for their own work.

Teachers ask students to identify which elements of the graph (i.e labelling the months) help to make the information useful.

Using Worksheet 3 (page 8) as a handout, each student is able to practise entering information into a spreadsheet and then converting the information to a line or column graph. Students are provided with rainfall and average temperature data to enter into a spreadsheet and convert into column and line graphs using an electronic chart wizard.

Activity 4: Gathering and graphing the data

In order to make accurate comparisons between the two locations, teachers provide students with appropriate websites to gather information.

Depending upon your class’ access to technology, students either access the data for the two sites by using a search engine, or the data may be given directly to the students. The data can be downloaded from the site into a spreadsheet from which students can then create their graphs.

Following instructions on Worksheet 4 (page 9), each group enters the information they have gathered into a spreadsheet. Using an electronic chart wizard, each group converts the temperatures for each place onto column graphs and the rainfall on line graphs.

Students then print the four graphs.

Activity 5: Comparing the data

As a basis for comparison, each group discusses and analyses the weather data for the Australian site and compare that with the site in Asia. From this analysis they will make any comparisons. Questions can include:

- Which months are the hottest–coldest in each location?
- What is the temperature range throughout the year?
- How much rain falls throughout the year?
- How would you describe the weather throughout the year?
- What type of clothing would people wear in June at each location?
- Which months are summer or winter. What type of weather does each site experience?
- What other factors about the climate might be considered?
When would they recommend a visit to each location for a holiday? Why and what activities would they do?

Following instructions on Worksheet 5 (page 10), each student writes a report about their observations and recommendations.

**Activity 6: Different ways of graphing information**

Following instructions on Worksheet 6 (page 10), each student uses an electronic chart wizard and converts the temperature and rainfall information into different types of graphs. Students discuss their observations within their group and make recommendations. The group then shares their thoughts with the rest of the class about which types of graphs are effective for displaying rainfall and temperature information.

**Assessment**

Student learning can be assessed against CSF learning outcomes and indicators as detailed in the Assessment Table below. Suggested strategies for collecting assessment data are also included.

<table>
<thead>
<tr>
<th>What to assess</th>
<th>Relevant indicators</th>
<th>Gathering assessment information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Knowledge</strong></td>
<td>SOSE Geography SOGE0401</td>
<td></td>
</tr>
<tr>
<td>• Identifying and mapping geographical.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Understanding of the weather conditions depicted on the graphs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Comparing weather in two different sites.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Skills</strong></td>
<td>TECHNOLOGY Information TEIN0402</td>
<td></td>
</tr>
<tr>
<td>Ability to:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• input data using a spreadsheet application</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• construct a chart using the Chart Wizard function</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• format a chart to conform to the geographic conventions for drawing charts.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Describe the spatial patterns of significant natural and built features in regions of Australia and the world, including major cities and physical regions.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Transfer and represent data on appropriate outline maps at a range of scales, using geographical conventions.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Identify some factors that assist in determining the suitability of data sources and presentation styles, and the efficiency of functions and techniques.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Independently use a range of skills, processes and functions to efficiently process different data types and produce accurate and suitable information that meets the needs of three different audiences.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Group posters and presentation.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Column and temperature graphs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Student written comparisons and statements about the graphs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Recommendations for visiting each site.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Resources

Software
Microsoft Excel.

Websites
At the time of publication the URLs (website addresses) cited were checked for accuracy and appropriateness of content. However, due to the transient nature of material placed on the Internet, their continuing accuracy cannot be verified. Teachers are strongly advised to prepare their own indexes of sites that are suitable and applicable to this unit of work, and to check these addresses prior to allowing student access.

Bureau of Meteorology – Climate Information – Climate Averages and Extremes

Australian Bureau of Statistics
www.abs.gov.au

Victorian Curriculum and Assessment Authority
www.vcaa.vic.edu.au

This site contains the ICT Teacher Resource that provides advice about different ICT functions used in the unit.

Student worksheets
1. Research (page 7)
2. Presenting the research (page 7)
3. Maps and graphs (page 8)
4. Gathering and graphing the data (page 9)
5. Comparing the data (page 10)
6. Different ways of graphing information (page 10).
Where to go?

In this unit you will:

- enter rainfall and temperature data into a spreadsheet
- convert the data to line and column graphs
- make comparisons.

1 Research

In groups, research two locations. One location will be in Australia and the other will be in Asia.

The task for your group is to:

- find out and identify the significant geographical features of each location
- present the information on a poster.

Make sure you assign a task to each group member.

Before commencing the poster, plan and draft how the information will be displayed.

Once you have agreed on your poster format, complete your poster. Make sure its clearly labelled.

2 Presenting the research

Now present your poster to the class.

You may need to prepare cue cards to assist with the presentation.

Make sure each member of your group participates.
Here is an example of a Monthly Rainfall Graph and Average Temperature Graph for Notown (not a real place). The graphs show what information needs to be included to be useful and to be used as a source for comparison when making your own graph.
Below are the rainfall and temperature averages in each month for Notown.

<table>
<thead>
<tr>
<th>Month</th>
<th>Rainfall (mm)</th>
<th>Average Temperature (Degrees Celcius)</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>75</td>
<td>25</td>
</tr>
<tr>
<td>February</td>
<td>53</td>
<td>26</td>
</tr>
<tr>
<td>March</td>
<td>76</td>
<td>21</td>
</tr>
<tr>
<td>April</td>
<td>94</td>
<td>19</td>
</tr>
<tr>
<td>May</td>
<td>84</td>
<td>17</td>
</tr>
<tr>
<td>June</td>
<td>86</td>
<td>15</td>
</tr>
<tr>
<td>July</td>
<td>88</td>
<td>14</td>
</tr>
<tr>
<td>August</td>
<td>68</td>
<td>15</td>
</tr>
<tr>
<td>September</td>
<td>98</td>
<td>18</td>
</tr>
<tr>
<td>October</td>
<td>84</td>
<td>19</td>
</tr>
<tr>
<td>November</td>
<td>94</td>
<td>20</td>
</tr>
<tr>
<td>December</td>
<td>78</td>
<td>22</td>
</tr>
</tbody>
</table>

Enter the information on a spreadsheet and use the Chart Wizard to convert the average rainfall to a column graph and the average monthly temperature to a line graph.

4 Gathering and graphing the data

For this task, your group will complete the following:

- Investigate the rainfall and average temperature for each month for each of your selected locations from Activity 1.
- Enter the information you have gathered into a spreadsheet.
- Use the Chart Wizard to put the average monthly temperature on line graphs and the rainfall on column graphs.
- Print the four graphs.
Comparing the data

Using the graphs your group has created for each site, answer the following questions? Within your group, discuss these questions.

- Which months are the hottest?
- Which months are the coldest?
- What is the temperature range throughout the year?
- How much rain falls throughout the year?
- How would you describe the weather throughout the year?
- What type of clothing would you wear in June?
- Which months are summer or winter?
- What type of weather does each site experience?
- What other factors about the climate might be considered?
- When would you recommend to visit each location for a holiday? Why and what activities would you do?

Individually, write a report about your observations and recommendations.

Different ways of graphing information

Experiment with other types of charts in the chart wizard.

In your group:

- Use the chart wizard and convert the temperature and rainfall information onto different types of graphs.
- Discuss and make recommendations about which types of graphs are useful to display rainfall and temperature information.
- Share your ideas with the rest of the class.