Sample Unit

Information and Communications Technology

SOSE Level 6 (Geography)

Rivers of noise

This unit is designed to enhance the students’ awareness of how a freeway development can adversely affect the noise level for the residents of the local environment. The unit involves undertaking a fieldwork study to monitor noise pollution along a section of a major arterial transport route. Students work in groups to design and produce a desktop newspaper article reporting on whether there is a local noise pollution problem. The article includes different representations of the data collected, such as photographs, charts, maps and tables.

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 key learning areas.

The relevant learning outcome and indicators for level 6 SOSE (Geography) are:

6.3 Predict the effects of resource development and use on a selected natural and human environment. SOGE0603

- Outline the relationship between current use of the environment and future availability of resources.
- Describe the likely impact of resource development and use on a natural environment.
- Suggest ways of sustainability developing a natural and human environment.

The relevant learning outcome and indicator for level 6 Technology (Information) are:

6.2 Analyse and develop solutions to information problems, both individually and as a team member, using a range of information technology skills, processes and equipment. TEIN0602
Apply a range of techniques, equipment and procedures that minimise the cost, effort and speed of processing the solutions, and maximise the effectiveness of the finished information products.

**Links to other key learning areas**

**Science**

**Biological science**

6.6 extension Relate concepts of adaptation, biodiversity and evolution to the survival of species. SCBS0606

**Mathematics**

**Chance and data**

6.4 Construct graphical displays for bivariate data and time series data. MACDS604

**ICT chart reference**

Application: **Desktop publishing**

Example: Creates text, selects and modifies graphics, designs layout and imports into planned templates, e.g. creates and formats text and graphics to produce the front page of a newspaper reporting on the proposed resolution of a local land use issue.

**Unit objectives**

This unit is designed to enable students to:

- understand the processes affecting the noise levels around major arterial transport routes
- make and record field observations about the noise levels along a section of a major arterial route
- process the collected data to describe the effects of noise pollution along a specified section of an arterial
- use information and communications technology to process data in a range of geographical media and to present the information in the format of a newspaper article.

**Prior learning**

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

**Information and communications technology (ICT)**

- format text into columns with headings
- scan photographs into digital format
- draw basic maps and sketches using design (draw) applications
• paste pictures, images, charts and tables into a desktop published document.

**Studies of Society and Environment**

• collect and record data in the field
• interpret gathered data
• write a short report simulating a newspaper article
• draw a chart manually to conform to the geographic conventions for drawing charts (BALTSSNA: Border, Axis labels, Legend (Key), Title, Scale of axis, Source, Neatness and Accuracy).

**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 8–11) 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.

This unit involves the class visiting a selected site in the local area. Students work in groups to complete the activities. Before commencing Activity 1, which involves a class visit to the selected area to be studied, teachers discuss with students noise pollution and the relevant issues. An audiovisual presentation can assist in introducing and discussing the topic. Before commencing Activity 1, students research when the road to be studied was constructed and why it is important for road transport. A newspaper search or interviewing local people may assist in delving into any community concerns that were raised before the construction of the road. A guest speaker could be invited to address the class before beginning the field trip.

Students will be required to:

• analyse and interpret data, using computers to formulate tables and design charts
• design additional maps and figures (sketches) and to scan photographs
• key the report using word-processing software
• develop a desktop template, import the text and graphics files (including photographs, pictures, sketches, maps, tables and charts), and finalise the article’s appearance.

Students are provided with the following task.

**Student task**

Imagine you work for a newspaper and that you have been asked to write an investigative article about the noise pollution generated by a local development (proposed or ongoing). This article will feature on the front page.

Your report includes:

• geographic location of the section of the arterial route you have investigated using text, photographs, sketches or maps
• sources of noise pollution generated along the chosen section of the arterial route using text, photographs and sketches
possible short- and long-term effects on people and the environment
findings of your investigation presented as text and graphics such as tables, photographs and charts
possible solutions to the problem.

The report includes an analysis of the data that they have collected along the arterial route, together with information already acquired about noise pollution. Photographs, pictures, sketches, tables, maps and charts may complement this analysis.

**Activity 1: What is noise pollution?**

Teachers discuss with students the meaning of noise pollution and the issues that arise from it. Different stakeholders’ viewpoints need to be examined. This can be achieved by conducting newspaper searches, interviewing local people and inviting a government representative to talk to students. Students need to take notes, as these will be considered together with their site visit results in completing the task which is outlined in Worksheet 1 (page 8).

**Activity 2: Investigating the site**

As part of a class activity, students visit the selected site. Students collect information for the task using Worksheet 2 (page 9) to record information. Whilst at the site, each group needs to:
- observe sources of noise pollution along the chosen site
- take appropriate pictures or draw sketches
- note any possible short- or long-term effects on people who live nearby and the local environment
- write down any possible solutions to the problems.

Back at school, each group discusses their findings. Students also investigate any maps available that could be used.

**Activity 3: Drafting your article**

Students analyse the data they have collected from their site visit, and together with relevant information collected about noise pollution, draft a article, using word-processing software. Teachers need to suggest a word limit on the article and advise students on techniques for writing newspaper articles. These include:
- starting the article with a lead paragraph that tells the most important information
- providing more details of the lead in the body of the story. The integrity of the article can be enhanced by substantive evidence, such as quotations and statistics from primary and secondary sources
- writing an interesting headline, using a strong verb to attract the reader
- provide some examples from the local newspaper and get students to identify the article components.
Students edit their work, in readiness for importing into their desktop publishing template. Worksheet 3 (page 10) provides an editing/proofreading checklist for students.

Students produce text and graphics files for their article, print and then check that the information is accurate. This means checking for typographical accuracy and for the accuracy of facts. Different members of the group proofread the work.

**Activity 4: Planning the layout**

Students plan the layout of their article and document how they are going to create the desktop file (process). Using a hand-drawn annotated diagram, students can show the position of the text and the location of any pictures, sketches and graphs. Students also indicate any other formatting features such as borders and lines. A process plan should also be prepared, which states, step-by-step the procedures that will be followed to create the file, such as: Step 1: open and name a new file (provide the name) in (name the desktop publishing software program). Worksheet 4 (page 10) provides instructions for students.

**Activity 5: Desktop publishing**

Worksheet 5 (page 11) instructs each group to create a desktop publishing template and import the relevant files.

The completed news report is displayed and evaluated as a class or group activity. Each group could send their article to the local newspaper. The local residents may be very interested in the findings. The local member of parliament may also be interested.
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 SGE0603</td>
<td>• View collected data and draft of report.</td>
</tr>
<tr>
<td>• Understanding of the phenomenon of noise pollution.</td>
<td>• Outline the relationship between current use of the environment and future availability of resources.</td>
<td>• Collect article presented in newspaper format containing headlines, photographs, maps, tables and charts to substantiate claims with respect to noise pollution.</td>
</tr>
<tr>
<td>• Understanding of the elements that contribute to noise pollution.</td>
<td>• Describe the likely impact of resource development and use on a natural environment.</td>
<td></td>
</tr>
<tr>
<td>• Explanation of possible solutions to the problem.</td>
<td>• Suggest ways of sustainability developing a natural and human environment.</td>
<td></td>
</tr>
<tr>
<td><strong>Skills</strong></td>
<td>TECHNOLOGY Information TEIN0602</td>
<td></td>
</tr>
<tr>
<td>• Use of hardware and software to create graphic images (e.g. photographs, maps).</td>
<td>• Apply a range of techniques, equipment and procedures that minimise the cost, effort and speed of processing the solutions and maximise the effectiveness of the finished information products.</td>
<td></td>
</tr>
<tr>
<td>• Application of techniques, formats and conventions to produce a newspaper article containing different data types.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Interpretation of raw data in order to write a report.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Resources

**Software**
Microsoft Office
Microsoft Publisher
Claris ClarisWorks
MapInfo.

**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.

Environment Protection Authority, Victoria, Australia
Environment Protection Authority, New South Wales, Australia
www.epa.nsw.gov.au

Australian Academy of Science – Article – ‘Quiet Please’ Fighting noise pollution
www.science.org.au/nova/072/072key.htm

National Society for Clean Air (NSCA) and Environmental Protection, England
www.nsca.org.uk/pages/topics_and_issues/noise_sources.cfm

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. What is noise pollution? (page 8)
2. Investigating the site (page 9)
3. Drafting your article (page 10)
4. Planning the layout (page 10)
5. Desktop publishing (page 11)
Rivers of noise

In this unit you will:

- investigate the cause and effects of traffic noise pollution in your local community
- create and produce a newspaper article on noise pollution stemming from an arterial route in your local area
- report the results of your findings.

1 What is noise pollution?

The task

Imagine you work for a newspaper and that you have been asked to write an investigative article about the noise pollution generated by a local development (proposed or ongoing). This article will feature on the front page.

Your report will include:

- Geographic location of the section of the arterial route you have investigated using text, photographs, sketches or maps.
- Sources of noise pollution generated along the chosen section of the arterial route using text, photographs and sketches.
- Possible short- and long-term effects on people and the environment.
- Findings of your investigation presented as text and graphics such as tables, photographs and charts.
- Possible solutions to the problem.

Your report also contains an analysis of the data that you have collected along the arterial route. Photographs, pictures, sketches, tables, maps and charts may complement this analysis.

To complete the task:

- design additional maps and figures (sketches) and scan photographs
- type the report using word-processing software
- develop a desktop template, import the text and graphics files (including photographs, pictures, sketches, maps, tables and charts), and finalise the article’s appearance.

Completed as a small group activity.
## Investigating the site

As part of a class activity, you will visit a selected site.

The following recording sheet will assist with collecting data.

<table>
<thead>
<tr>
<th>Site Record</th>
</tr>
</thead>
</table>
| **Members of group**  
**Recording sheet for** (name of road)  
**Date** |

<table>
<thead>
<tr>
<th>List sources of noise pollution along the chosen site</th>
<th>Possible solutions to the problems</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Short-term effects of the noise pollution on people who live nearby and the environment</th>
<th>Long-term effects of the noise pollution on people who live nearby and the environment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Appropriate sketches (list) | Photographs (record photos taken)  
e.g. houses near the road |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other information to collect later (maps, history)</th>
<th>Tasks to be completed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Back at school, your group will need to discuss your findings. You may also acquire any maps that could be used.
3 Drafting your article

Analyse the information you have acquired from the site visit and that provided by your teacher, to draw conclusions about the causes and effects of noise pollution in the local community. Suggest possible solutions. Draft a newspaper article using word-processing software. Here are some hints on writing newspaper articles:

<table>
<thead>
<tr>
<th>Article Checklist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you:</td>
</tr>
<tr>
<td>• Checked typographical accuracy? ☐</td>
</tr>
<tr>
<td>• Checked accuracy of the facts? ☐</td>
</tr>
<tr>
<td>• Acknowledged any sources of graphics and included a caption? ☐</td>
</tr>
<tr>
<td>• Referenced any information, providing title, author, publisher, date of publication? ☐</td>
</tr>
<tr>
<td>• Used an appropriate reporting style? ☐</td>
</tr>
<tr>
<td>• Formatted your report using different fonts and sizes, borders, columns? ☐</td>
</tr>
<tr>
<td>• Is the information interesting? Relevant? Persuasive? ☐</td>
</tr>
<tr>
<td>• Provided a heading that will capture the intended audience’s interest? ☐</td>
</tr>
</tbody>
</table>

4 Planning the layout

This involves making decisions about:

• the title of the article
• the number of columns
• the location, size and number of graphics. Remember that each graphic should have a caption
• the use of other formatting features such as borders, fonts and lines to make the article appear attractive
• the content of the article. Is it interesting? Is it informative and/or persuading?

A draft layout on paper will assist with the task. Assign different tasks to each group member. You need to consider what ICT tasks will be needed such as scanning and formulating a graph.
5 Desktop publishing

Once you are satisfied with the quality of the information, create the desktop-publishing template and then import the relevant files. If your information does not fit into the template, adjust the length of the text and/or the size of your graphics. Avoid changing the placement of the text and/or graphics.

You could send this article to your local newspaper – maybe the local residents would be interested in your findings. Your local member of parliament may also be interested.