NATURAL HAZARDS COGs unit

- Cross-curriculum stage 5 unit of work.
- Integrated Learning Stage 4 (Secondary COGs) model used to enhance learning opportunities for students across the curriculum.
GOALS

- Implement a COGS unit across a number of KLA’s
- Develop a unit that will increase student engagement
- Students become more competent users of technology (DER laptops)
- Embed QT model into project and professional practice
- Provide professional learning opportunities for staff
- Expose staff and students to new software packages
DEVELOPING THE TASK

During the planning process we continually referred to the four questions from the Quality Teaching framework.

- **What do you want the students to learn?**
- **Why does that learning matter?**
- **What are you going to get the students to do (or to produce)?**
- **How well do you expect them to do it?**
The examination and investigation of the physical causes of natural hazards, their environmental, social and economic impacts.
What do we want the students to learn?
BACKWARD MAPPING

IDEA!

- What do you want students to learn?
- What do you want the students to produce

OUTCOMES
**Cross Curriculum Links**

**Science** students will learn about mechanisms and causes of natural hazards and link their occurrence to geographic locations and tectonic or weather events.

**Geography** students will learn about the impact of these hazards and how communities are affected financially, socially and environmentally.
**Science** students will learn about mechanisms and causes of natural hazards and link their occurrence to geographic locations and tectonic or weather events.

**Geography** students will learn about the impact of these hazards and how communities are affected financially, socially and environmentally.

**English** students will learn how media reports and feature articles are used in print, internet and radio. Media reports and feature articles will be modelled and scaffolded in class to enable students to independently create their own.

**Maths** students will focus on the use of data. They will investigate how to analyse data and develop tables and graphs that depict the size and scale of a fictional natural hazard.
Content Outcomes

English

Maths

DS4.1 Constructs, reads and interprets graphs, tables, charts and statistical information
- choosing appropriate scales on the horizontal and vertical axes when drawing graphs
- using line graphs for continuous data only
- reading and interpreting tables, charts and graphs

DSS.1.1 Groups data to aid analysis and constructs frequency and cumulative frequency tables and graphs
- constructing a histogram for grouped data

Science

Outcome 5.4: A student discusses evidence supporting different viewpoints.
5.4 the implications of science for society and the environment

Outcome 5.9: A student relates the development of the universe and the dynamic structure of Earth to models, theories and laws and the influence of time.
5.9.2 the theory of plate tectonics
a) discuss evidence that suggests crustal plates move over time.
5.9.4 natural events
d) relate movements of Earth’s plates to convection currents in the mantle and to gravitational forces
e) explain how interactions at plate boundaries may result in earthquakes, volcanic activity and new landforms
f) explain some impacts of natural events including cyclones, volcanic eruptions and earthquakes on the atmosphere, hydrosphere, lithosphere and/or biosphere.

HSIE

Outcome 5.3: A student selects and uses appropriate written, oral and graphic forms to communicate geographical information

Outcome 5.5: A student demonstrates a sense of place about Australian environments

Outcome 5.6: A student explains the geographical processes that form and transform Australian environments

Outcome 5.10: A student applies geographical knowledge, understanding and skills with knowledge of civics to demonstrate informed and active citizenship.
## Skills Outcomes

### English

**Outcome 1.3** Students analyse the effectiveness and impact of texts on responders in terms of ideas and arguments. **Links Mathematical Ideas** Students develop and use processes for exploring relationships, including the identification and use of appropriate mathematical models. Students evaluate and identify connections to real-world situations.

**Outcome 1.2** Students respond to and compose more sustained texts in a range of contexts for understanding, interpretation, critical analysis and pleasure. **WMS5.1.3** Uses mathematical terminology in written, oral or graphical form. Students develop, select and use a range of strategies, including the selection and use of appropriate mathematical language and representations to formulate and express mathematical ideas.

**Outcome 1.1** Students identify, describe and explain the purpose of texts in personal, historical, cultural, social, technological and workplace contexts. **WMS5.2.2** Selects and uses appropriate problem-solving strategies that include selecting and using relevant mathematical ideas. Students develop, select and use a range of strategies, including the selection and use of appropriate mathematical language and representations to formulate and express mathematical ideas.

**Outcome 1.0** Students respond to and compose increasingly sophisticated and sustained English, Maths, Science and HSIE texts for understanding, interpretation, critical analysis and pleasure.

### Maths

**Outcome 5.18** A student selects and uses appropriate forms of communication to present information to an audience. **WMS5.1.5 & WMS5.2.5** Reflecting Students develop and use appropriate language and representations to formulate and express mathematical ideas. **WMS5.1.2** Analyses a mathematical or real-life situation, systematically applying problem-solving strategies. Students develop, select and use a range of strategies, including the selection and use of appropriate mathematical language and representations to formulate and express mathematical ideas.

**Outcome 5.17** A student explains trends, patterns and relationships in data and/or graphical representations. **WMS5.2.2** Selects and uses appropriate problem-solving strategies that include selecting and using relevant mathematical ideas. Students develop, select and use a range of strategies, including the selection and use of appropriate mathematical language and representations to formulate and express mathematical ideas.

**Outcome 5.16** A student accesses information from a wide variety of secondary sources. **WMS5.1.3** Uses mathematical terminology in written, oral or graphical form. Students develop, select and use a range of strategies, including the selection and use of appropriate mathematical language and representations to formulate and express mathematical ideas.

### Science

**Outcome 4.3** Students use appropriate language forms and features and structures of texts in their own compositions and describe, explain and justify their choices in terms of purpose, audience and effect on meaning. **WMS5.2.3** Uses appropriate mathematical language — connections in written, oral or graphical form. Students develop, select and use a range of strategies, including the selection and use of appropriate mathematical language and representations to formulate and express mathematical ideas.

**Outcome 4.1** Students identify, describe and explain the purpose of texts in personal, historical, cultural, social, technological and workplace contexts. **WMS5.2.2** Selects and uses appropriate problem-solving strategies that include selecting and using relevant mathematical ideas. Students develop, select and use a range of strategies, including the selection and use of appropriate mathematical language and representations to formulate and express mathematical ideas.

**Outcome 4.0** Students transfer understanding of language concepts into new and different contexts. **WMS5.2.5** Uses mathematical language — connections in written, oral or graphical form. Students develop, select and use a range of strategies, including the selection and use of appropriate mathematical language and representations to formulate and express mathematical ideas.

### HSIE

**Outcome 3.3** Students use advanced word processing tools including formatting of references and publishing to compose appropriately and effectively crafted and sustained texts in a range of modes and media. **WMS5.1.5 & WMS5.2.5** Reflecting Students develop and use appropriate language and representations to formulate and express mathematical ideas. **WMS5.1.3** Uses mathematical terminology in written, oral or graphical form. Students develop, select and use a range of strategies, including the selection and use of appropriate mathematical language and representations to formulate and express mathematical ideas.

**Outcome 3.2** Students use writing and representing as an aid to research, planning, classifying and organizing key information and learning. **WMS5.1.5 & WMS5.2.5** Reflecting Students develop and use appropriate language and representations to formulate and express mathematical ideas. **WMS5.1.3** Uses mathematical terminology in written, oral or graphical form. Students develop, select and use a range of strategies, including the selection and use of appropriate mathematical language and representations to formulate and express mathematical ideas.

**Outcome 3.1** Students use and critically assess a range of processes for responding and composing. **WMS5.2.3** Uses appropriate mathematical language — connections in written, oral or graphical form. Students develop, select and use a range of strategies, including the selection and use of appropriate mathematical language and representations to formulate and express mathematical ideas.

**Outcome 3.0** Students use and critically assess a range of processes for responding and composing. **WMS5.2.3** Uses appropriate mathematical language — connections in written, oral or graphical form. Students develop, select and use a range of strategies, including the selection and use of appropriate mathematical language and representations to formulate and express mathematical ideas.
SKILLS OUTCOMES

English
Outcome 1: A student responds to and organises increasingly multi-layered and sustained texts, demonstrating understanding, interpretation, critical analysis and evaluation.

1.3 analyse the effectiveness and impact of texts on readers in terms of ideas, perspective and originality.
1.2 respond to and compose more sustained texts in a range of contexts for understanding, interpretation, critical analysis and pleasure.

Outcome 2: A student uses and applies a range of processes for responding and composing.

2.2 use writing and representing as an aid to research, planning, classifying and shaping meaning.
2.1 understand processes of representation through texts and visual images.

Outcome 3: A student selects, uses, describes and explains how different technologies affect language, and content and shape meaning.

3.3 use advanced word processing tools including formatting of references and bibliographies, formatting multiple page documents including weblinks, importing data from internet and manipulating images to compose and format texts for publication.

Outcome 4: A student selects and uses language forms and features, and structures of texts, according to different purposes, audiences and contexts, including the workplace.

4.5 identify purpose, audience and context of texts through consideration of the effects of the technology including layout and design on meaning.
4.4 apply the concepts of language form and structure to personal, historical, cultural, social, technological and workplace contexts, and describe, explain and justify their choices in terms of purpose, audience and context.
4.3 use appropriate language forms and features and structures of texts in their own compositions and describe, explain and justify their choices in terms of purpose, audience and context.
4.2 identify, describe and explain the purpose of texts in personal, historical, cultural, social, technological and workplace contexts.
4.1 identify, describe and explain the purpose of texts in personal, historical, cultural, social, technological and workplace contexts.

Outcome 5: A student transfers understanding of language concepts into new and different technological and workplace contexts.

5.3 adapt their own or familiar texts into different forms, structures, modes and media for different purposes, audiences and contexts.
5.2 compose written, oral and visual texts for personal, historical, cultural, social, technological and workplace contexts.
5.1 transfer understanding of language concepts into new and different technological and workplace contexts.

Maths
Outcome 5.17: A student explains trends, patterns and relationships in data and/or information to an audience.
5.18 presenting information to an audience.
5.17 explain and justify conclusions drawn from statistical analysis.
5.16 A student accesses information from a wide variety of secondary sources.
5.15 present information from a variety of sources in written and/or oral form.
5.14 present information from a variety of sources in written and/or oral form.
5.13 mathematical or real-life situation.
5.12 present information from a variety of sources in written and/or oral form.
5.11 present information from a variety of sources in written and/or oral form.
5.10 Access information from a variety of sources.
5.9 present information from a variety of sources in written and/or oral form.
5.8 present information from a variety of sources in written and/or oral form.
5.7 present information from a variety of sources in written and/or oral form.
5.6 present information from a variety of sources in written and/or oral form.
5.5 present information from a variety of sources in written and/or oral form.
5.4 present information from a variety of sources in written and/or oral form.
5.3 highlight the key idea(s) in a text.
5.2 highlight the key idea(s) in a text.
5.1 highlight the key idea(s) in a text.

Science
Outcome 3.2.4 Students use scientific information from a wide variety of sources.
3.2.3 Students use scientific information from a wide variety of sources.
3.2.2 Students use scientific information from a wide variety of sources.
3.2.1 Students use scientific information from a wide variety of sources.
3.1.4 Students use scientific information from a wide variety of sources.
3.1.3 Students use scientific information from a wide variety of sources.
3.1.2 Students use scientific information from a wide variety of sources.
3.1.1 Students use scientific information from a wide variety of sources.

HSIE
Students develop the ability to analyse geographical information, by reflecting on their geographical reasoning and the accuracy of their understanding.

Extracting Information – Yellow
Analysing Extracted Information – Orange
Numeracy – Red
Literacy – Purple
Presenting to Audience – Light Blue
ICT presentation – Dark Blue
What are the students going to produce?
THE TASK

Your task is to prepare a media report on a fictional local natural hazard.

*Choose* one of the following natural hazards; Earthquakes, Bushfires, Volcanic eruptions, Drought, Cyclones or Flood

*Research* historical events

*Record* your research in OneNote.

Pretend the natural hazard affected the local area.

*Present* as a media or feature article using:
- Newspaper or magazine story using *Microsoft Publisher*
- Television report, current affairs piece or short documentary using *Adobe Premiere elements*
- Web blog or news report using *Macromedia Dreamweaver*
Your task is to prepare a media report on a fictional local natural hazard.

Choose one of the following natural hazards; Earthquakes, Bushfires, Volcanic eruptions, Drought, Cyclones or Flood

Research historical events
Record your research in OneNote.

Pretend the natural hazard affected the local area.

Present as a media report or feature article using:
- Newspaper or magazine story using Microsoft Publisher
- Television report, current affairs piece or short documentary using Adobe Premiere elements
- Web blog or news report using Macromedia Dreamweaver
BACKWARD MAPPING

• What teaching & learning activities will enable students to achieve outcomes?

TEACHING & LEARNING

• How well do you expect them to do it?
• Clear indicators of learning

EXPLICIT QUALITY CRITERIA

• What do you want students to learn?
• What do you want the students to produce

OUTCOMES

IDEA!
# Marking Criteria

<table>
<thead>
<tr>
<th>DISASTER NEWS MEDIA REPORT - MARKING CRITERIA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Category</strong></td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td>Accuracy</td>
</tr>
<tr>
<td>Completeness</td>
</tr>
<tr>
<td>Relevance</td>
</tr>
<tr>
<td>Clarity</td>
</tr>
</tbody>
</table>

- Accuracy: The accuracy of the news report in conveying the facts and details of the disaster.
- Completeness: The extent to which the report covers all relevant aspects of the disaster.
- Relevance: The relevance of the report to the audience and the purpose.
- Clarity: The clarity of the language and presentation in the report.

Note: The table above is a template and can be customized based on specific criteria for marking disaster news media reports.
BACKWARD MAPPING

TEACHING & LEARNING
- What teaching & learning activities will enable students to achieve outcomes?

EXPLICIT QUALITY CRITERIA
- How well do you expect them to do it?
- Clear indicators of learning

OUTCOMES
- What do you want students to learn?
- What do you want the students to produce

IDEA!
BACKWARD MAPPING

**STUDENTS ENTRY POINT**
- What knowledge do the students bring to the classroom?
- What are the strengths & weaknesses of the students?
- Why does this learning matter?

**TEACHING & LEARNING**
- What teaching & learning activities will enable students to achieve outcomes?

**EXPLICIT QUALITY CRITERIA**
- How well do you expect them to do it?
- Clear indicators of learning

**OUTCOMES**
- What do you want students to learn?
- What do you want the students to produce
BACKWARD MAPPING

STUDENTS ENTRY POINT
What knowledge do the students bring to the classroom?
What are the strengths & weaknesses of the students?
Why does this learning matter?

TEACHING & LEARNING
• What teaching & learning activities will enable students to achieve outcomes?

EXPLICIT QUALITY CRITERIA
• How well do you expect them to do it?
• Clear indicators of learning

OUTCOMES
• What do you want students to learn?
• What do you want the students to produce

What strengths & weaknesses do staff have?
The Task – Teaching & Learning

Teachers design their own teaching and learning activities.
They differentiate the content and process appropriate to their class cohort and their own skills.

Teachers are supported with models and scaffolds to encourage students:
- Critical comprehension
- Analysis of available information
- Critical thinking
- Creativity
THE TASK – TEACHING & LEARNING

Teachers design their own teaching and learning activities. They differentiate the content and process appropriate to their class cohort and their own skills. Teachers build content through the lower order skills (blooms) preparing students for the task.
The task requires students to operate in the cycle of analysis, evaluation, synthesis, evaluation of the Higher order skills.
Teachers assess their own subject outcomes and explicit feedback through the marking rubric.

Teachers teach their subject content and give regular meaningful feedback on progress throughout the unit.

ICT outcomes assessed by a small panel of teachers.
Why does this learning matter?
Backward Mapping

- The explicit teaching of skills students need:
  - **Literacy** – to engage with sample texts and competently write an engaging media report or feature article
  - **Numeracy** – to manage data associated with the size and scale of economic, social or environmental impacts
  - **ICT** to effectively research secondary sources and use their selected ICT to produce a media product.
  - **Thinking skills** Critical thinking to analyse secondary sources and apply hazard to local area
  - **Creativity** in the development of their media report/feature article and its presentation.
  - **Self-management** to enable a student to take responsibility for their own work and learning
The explicit teaching of skills students need:

- **Literacy** – to engage with sample texts and competently write an engaging media report or feature article
- **Numeracy** – to manage data associated with the size and scale of economic, social or environmental impacts
- **ICT** to effectively research secondary sources and use their selected ICT to produce a media product.

- **Thinking skills** Critical thinking to analyse secondary sources and apply hazard to local area
- **Creativity** in the development of their media report/feature article and its presentation.
- **Self-management** to enable a student to take responsibility for their own work and learning
Where are we at now?
TIMELINE

- Distribute and start T&L cycle Day 1 Term 3
  - Task ready
  - Resources on Moodle
  - OneNote notebook
  - Need to continue to refine marking rubric
  - Continue to develop models and scaffolds to support teachers and students
LOGISTICS

- Coordinated introduction across KLA’s
  - Outline by one KLA only
  - T&L cycle in subject specific during first 2-3 weeks
  - Week 3 or 4
    - Students independently work on producing ICT media in Science & HSIE
    - Maths produce appropriate graphs using ICT
    - English works in a support capacity whilst concurrently teaching internet and radio media
  - Teachers assess their own subject outcomes and explicit feedback through the marking rubric
  - ICT outcomes assessed by a small panel of teachers
CONCERNS

- Teachers who are anxious about DER laptops & technology in the classroom.
  - Team teaching and supported with scaffolds & models
- Students having too much class time to work on task which could become unproductive.
  - Students have choice over most engaging ICT and scaffolds to guide
- Students being too ambitious with ICT.
  - ICT presentation not too heavily weighted in marking rubric and guided by support teachers
Question & Answer