WORK SAMPLE PORTFOLIOS

The 2013 portfolios are a resource to support teachers in the planning and implementation of the Foundation to Year 10 Australian Curriculum: Geography. Each portfolio comprises a collection of student work illustrating evidence of student learning in relation to the achievement standard.

Each work sample in the portfolio varies in terms of how much time was available to complete the task and/or the degree of scaffolding provided by the teacher.

There is no pre-determined number of samples required in a portfolio nor are the work samples sequenced in any particular order. Together as a portfolio, the samples provide evidence of all aspects of the achievement standard unless otherwise specified.

As the Australian Curriculum is progressively implemented in schools, the portfolios will continue to be reviewed and enhanced in relation to their comprehensiveness in coverage of the achievement standard and their representation of the diversity of student work that can be used to highlight evidence of student learning.

THIS PORTFOLIO – Year 9 Geography

This portfolio comprises a number of work samples drawn from a range of assessment tasks, namely:

Sample 1  Data response – Biomes and food security
Sample 2  Inquiry – Exploring interconnections through the coffee trade

This portfolio of student work shows that the student can explain how geographical processes such as the nutrient cycle change the characteristics of places (WS1, WS2). The student predicts changes in the characteristics of places over time and identifies the possible implications of change for the future (WS1). The student analyses interconnections between people and environments through examining the relationship between biomes and food shortages, (WS1) and between people and places through the production and demand for coffee (WS2). The student explains how these interconnections influence people, and change places (WS2) and environments (WS1). The student proposes explanations for distributions (WS1) and patterns over time and across space (WS2) and describes associations between distribution patterns (WS1, WS2). The student analyses alternative strategies to respond to a geographical challenge using environmental, social and economic criteria and proposes (WS2) and justifies a response (WS1).

The student’s work shows an ability to use initial research to identify geographically significant questions to frame an inquiry (WS2). The student collects (WS2) and evaluates a range of secondary sources and selects relevant geographical data and information (WS1) to answer inquiry questions (WS2). The student represents multi-variable data in a range of appropriate graphic forms (WS1, WS2), including special purpose maps that comply with cartographic conventions (WS2). The student analyses data to propose explanations for relationships, (WS1) patterns, trends, and anomalies (WS2). The student synthesises data and information to draw reasoned conclusions (WS1, WS2). The student presents findings and explanations using relevant geographical terminology and graphic representations in a range of appropriate communication forms (WS1, WS2). The student proposes action in response to a geographical challenge taking account of environmental, economic and social considerations and predicts the outcomes and consequences of their proposal (WS1, WS2).
The annotated samples in this portfolio provide evidence of most (but not necessarily all) aspects of the achievement standard. The following aspects of the standard are not evident in this portfolio:

- collects and evaluates a range of primary sources to answer inquiry questions
- analyses data to predict outcomes.
Data response – Biomes and food security

Relevant part of the achievement standard

By the end of Year 9, students explain how geographical processes change the characteristics of places. They predict changes in the characteristics of places over time and identify the possible implications of change for the future. They analyse interconnections between people, places and environments and explain how these interconnections influence people, and change places and environments. Students propose explanations for distributions and patterns over time and across space and describe associations between distribution patterns. They analyse alternative strategies to a geographical challenge using environmental, social and economic criteria and propose and justify a response.

Students use initial research to identify geographically significant questions to frame an inquiry. They collect and evaluate a range of primary and secondary sources and select relevant geographical data and information to answer inquiry questions. They represent multi-variable data in a range of appropriate graphic forms, including special purpose maps that comply with cartographic conventions. They analyse data to propose explanations for patterns, trends, relationships and anomalies and to predict outcomes. Students synthesise data and information to draw reasoned conclusions. They present findings and explanations using relevant geographical terminology and graphic representations in a range of appropriate communication forms. Students propose action in response to a geographical challenge taking account of environmental, economic and social considerations and predict the outcomes and consequences of their proposal.

Summary of task

Following an introduction to biomass production, soil fertility and food insecurity, students were provided with a range of source materials about the savannah biome and food security in the Sahel. They were asked to interpret this information and data to:

- propose a response to the issue of food insecurity in the Sahel
- present ideas using a range of graphic and visual formats and appropriate geographical terminology.

Students completed this task individually under exam conditions. They were give 120 minutes to complete the task.
Data response – Biomes and food security

Annotations

Represents multi-variable climate data in an appropriate format.

Interprets the climate graph to identify patterns in the data.

Acknowledgement
ACARA acknowledges the contribution of Australian teachers and students for providing the tasks and work samples. The annotations are referenced to the Australian Curriculum achievement standards.
Data response – Biomes and food security

Figure 1: Biomass production and the nutrient cycle in savannah grasslands

Map of vegetation and rainfall in N. Africa during the wet and dry season

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Data response – Biomes and food security

2. Study Figure 1.
   a. Explain how the climate shown in Table 1 affects biomass production the savannah grasslands.

   Most grass grows in the wet season, so vegetation production is greatest in June to September. This is due to more rainfall that grass needs to grow. The production of green vegetation is the same as the amount of rain during the wet season when grass dies at the end of the wet season. Biomes such as grassland, savannah and bushland have lots of grass and the temperatures are high. Grass begins to die in the dry season.

   b. Identify another factor affecting biomass production. Explain the link.

   Fire as it comes in the dry season and burns the grass.

Annotations

Explains the relationship between biomass production and climate over time.

Analyses geographic data to identify and explain biomass production.
Data response – Biomes and food security

c. Explain the link between the biomass and soil fertility

Explain the relationship between biomass and soil fertility.

An annotations

Shows how natural processes (nutrient cycle) affect characteristics of the environment.

Draws the nutrient cycle to explain how geographical phenomena are interconnected (effect of overgrazing and overcropping on soil).

Predicts changes to characteristics of the environment as a result of human actions.

Uses relevant geographical terminology, for example weathering and leaching.

Identifies future implications of changes in the nutrient cycle.

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Data response – Biomes and food security

Figure 2: Factors affecting food security in the Sahel

Anomalies in wet season precipitation in the Sahel 1900-2020

Conflict in North Mali

The population of Mali has an annual growth rate of 2.61%.
3. Study Figure 2. “Food insecurity and malnutrition are recurrent in the (Sadhe) region with more than 16 million people directly at risk this year” [Link to FAO report on food insecurity in the Sahel region].

   a. Identify 6 factors that have resulted in food insecurity in Mali

   b. Draw a concept map to show how these factors are related in food insecurity.

Annotations

- Analyses geographical data from the range of sources provided.
- Identifies relationships between food insecurity and characteristics of places and environments.

Draws a concept map to explain how processes and the characteristics of places result in food insecurity.
4. Outline a way in which agricultural production could be improved in the Sahel region. Evaluate the economic, environmental and social impacts of the scheme and its sustainability.

- Water harvesting could improve agricultural production. Farmers build stone walls, access a hill/slope to slow down the movement of soil/water.
- The benefits of water harvesting are:
  - water doesn’t run over the land as quickly
  - the water can multiply the land by storing water
  - harvesting water, although, it doesn’t help farmers when there isn’t much rain, the option could also overcrop, therefore damaging the soil.

- Water harvesting also helps stop water eroding:
  - wind erosion, the water isn’t moving across the land speedily, the ground is more likely going to be eroded. Also, as the soil isn’t dry, it can be picked up by the wind. Stopping soil erosion is important, the top layer of soil is, it is most valuable for growing crops. But if the winds aren’t blown along the same wind. If it increases the water erosion at the end of the hill.

- Some farmers won’t like the idea as it there are lots of stone walls. At the bottom of the slope might get less water. It is hard work to build the walls in the first place, as the natural stone fill the area might be used, causing people to travel to get it. This could cause conflict with people, losing money or could cost money to transport the stone, although it is a sustainable method of getting water as it doesn’t damage the environment. Much can be done without big businesses.

- A water harvesting program like this can increase the use of water when it rains. Unless a large scale storage facility like a dam is built, the years it doesn’t rain make the wall won’t help a bit.

Annotations (Overview)

The student presents findings and explanations using appropriate geographical terminology and graphic representations in a range of appropriate communication forms. The student synthesises information from a range of sources to draw reasoned conclusions.

Annotations

Proposes and justifies a response to the challenge of food insecurity.

Applies environmental, social and economic criteria to assess the merits of the proposal.
Inquiry – Exploring interconnections through the coffee trade

Relevant part of the achievement standard

By the end of Year 9, students explain how geographical processes change the characteristics of places. They predict changes in the characteristics of places over time and identify the possible implications of change for the future. They analyse interconnections between people, places and environments and explain how these interconnections influence people, and change places and environments. Students propose explanations for distributions and patterns over time and across space and describe associations between distribution patterns. They analyse alternative strategies to a geographical challenge using environmental, social and economic criteria and propose and justify a response.

Students use initial research to identify geographically significant questions to frame an inquiry. They collect and evaluate a range of primary and secondary sources and select relevant geographical data and information to answer inquiry questions. They represent multi-variable data in a range of appropriate graphic forms, including special purpose maps that comply with cartographic conventions. They analyse data to propose explanations for patterns, trends, relationships and anomalies and to predict outcomes. Students synthesise data and information to draw reasoned conclusions. They present findings and explanations using relevant geographical terminology and graphic representations in a range of appropriate communication forms. Students propose action in response to a geographical challenge taking account of environmental, economic and social considerations and predict the outcomes and consequences of their proposal.

Summary of task

Students were required to select one product that is purchased by their household and investigate how the production and demand for this product creates networks of trade and economic interdependence at local, regional, national and international scales. The inquiry took place over five weeks and students were asked to present their findings as a written report. They were provided with the following questions to assist them with their inquiry:

- Where is the product produced?
- Where is the product manufactured?
- What is the supply chain for the product?
- What is the spatial distribution of the production and demand for the product?
- How does the product connect places?
Inquiry – Exploring interconnections through the coffee trade

Where is coffee produced and why there?

Most coffee in the world is produced in what National Geographic calls the “Bean Belt” which is between the Tropic of Cancer and the Tropic of Capricorn. Figure 1 shows the regions in the world where coffee is grown. These regions are Central and South America, Africa and the East and Southeast Asia.

Coffee grows in these regions because the climatic conditions, and the rich soils. The best beans are produced at high altitudes, in a moist, tropical climate, with rich soils and temperatures around 70°F (21°C). The region between the Tropic of Cancer and the Tropic of Capricorn has these characteristics.

There are more than 50 countries in the world that produce coffee. As can be seen in the graph below, the biggest coffee producing region in the world is Central and South America with 6 countries in that region being among the biggest coffee producers in the world. South East Asia has three countries in the top 10 and Africa has one. The largest producing coffee country in the world is Brazil followed by Vietnam.

Annotations

- Identifies the location of coffee growing regions in the world.
- Constructs a map to illustrate the location of coffee growing countries.
- Explains the relationship between the natural characteristics of places and coffee production.
- Sources and analyses data to identify the top coffee producing regions in the world.
Inquiry – Exploring interconnections through the coffee trade


What is the coffee supply chain?

Small farmers sell green coffee beans directly to middlemen who export from the country of origin to importers in developed countries. The large coffee estate owners process and sell their harvests and sell them to importers from developed countries at a price set by the New York Coffee Exchange.

Importers of green coffee roast and package the coffee. They then sell the packaged coffee to both wholesalers and retailers for domestic consumption. There are very large roasters around the world, the main ones being Kraft, Sanka and Nestle.

Importers also sell unpackaged coffee to retailers who roast their own coffee such as cafes and specialty stores that sell coffee. About 40% of coffee purchased by roasters is sold to these stores, Supermarkets and coffee retail stores are the primary channel for coffee and they hold about 60% of market share of total coffee sales.

Annotations

Sorts data and constructs a column graph to show the top coffee producing countries by region.

Explains the network of people and activities at each stage of the coffee supply chain.
Inquiry – Exploring interconnections through the coffee trade

Annotations

Draws a supply chain to show how people and activities are interconnected in the production and consumption of coffee.

Synthesises data to identify patterns of distribution.

Constructs a pie graph to illustrate the world's top coffee importing countries.

Acknowledgement
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Geography

Inquiry – Exploring interconnections through the coffee trade

How is the production and demand for coffee spatially distributed?

All of the world’s coffee is produced in the regions of Central and South America, Africa and countries of the East and South East Asia region (see Figure 5). These places are involved in the primary production of green coffee beans. The countries that import most of the coffee are in the regions of North America, Europe and in Japan. Countries in these regions are involved in the manufacturing, packaging, distribution and consumption of coffee. All countries that produce coffee are located between the Tropic of Cancer and the Tropic of Capricorn in contrast to the importing countries which are all located in the northern hemisphere (mostly above the Tropic of Cancer).

Annotations

Identifies spatial variations in the production and demand for coffee.

Constructs a thematic map to represent the spatial distribution of coffee production and demand.

Figure 5: Regions of coffee export and countries of coffee imports

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Inquiry – Exploring interconnections through the coffee trade

Figure 6 shows that there is a relationship between the level of economic development of a country and whether they are involved in primary or secondary and tertiary stages of production. The GDP per capita of countries engaged in primary production is less than $20,000 per year, with many countries earning less than $2,000 per year. In contrast, countries that import coffee to manufacture into a finished product and distribute earn over $20,000 per year per capita, with most earning over $35,000 per year. The highest consumption of coffee also occurs in regions with high GDP per capita.

Annotations

Identifies and explains the relationship between GDP per capita and the production and demand for coffee.

Creates a special purpose map to represent the spatial distribution of different levels of economic development.

Uses the cartographic conventions of title, border, north point, legend and source.
Inquiry – Exploring interconnections through the coffee trade

Figure 7 shows that GDP per capita of 9 of the top ten coffee consuming countries in the world is over $30,000. All of these 9 countries are located in North America, Europe and Japan. The exception is Brazil which is the largest coffee producing country in the world. Brazil’s coffee consumption could be due to the presence of a large middle class, its high coffee production or its relatively high income compared to other coffee producing countries.

![Figure 7: Top 10 Coffee consumption countries and GDP per capita](chart)

Annotations

- Identifies patterns in the spatial distribution of coffee consumption.
- Proposes an explanation for the spatial anomaly of Brazil as a coffee consuming country.
- Constructs a column graph to illustrate the relationship between GDP per capita and coffee consumption.
- Explains how spatial patterns of resources create interconnections between places.

Therefore, there are spatial variations in the production and demand for coffee with lower income earning countries in Central and South America, Asia and Africa contributing to the production of coffee and higher income earning countries in Europe, North America and Japan demanding coffee for manufacturing, distribution and consumption. The relationship between production and supply is possibly due to the factors of production that are available to producing and manufacturing countries. Coffee producing countries provide cheap labour and can produce coffee because of the natural characteristics of their environment. In contrast, manufacturing countries can provide capital and enterprise due to their high income, education and enterprise. The relationship between characteristics of regions and their role in

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Table 1: Comparison between the characteristics of regions that produce and demand coffee

<table>
<thead>
<tr>
<th>Region</th>
<th>Role in supply chain</th>
<th>Location</th>
<th>GDP per capita (US$)</th>
<th>Coffee Consumption</th>
<th>Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa, Central and South America, East and South East Asia</td>
<td>Production (Primary)</td>
<td>Between Tropic of Capricorn and the Tropic of Cancer</td>
<td>Between 2-20K</td>
<td>Very low with the exception of Brazil</td>
<td>Land, Labour</td>
</tr>
<tr>
<td>North America, Europe</td>
<td>Manufacturing Distribution Consumption (Secondary and Tertiary)</td>
<td>Above the Tropic of Capricorn</td>
<td>Between 20-35K</td>
<td>Highest consumption countries of Europe, Japan and United States</td>
<td>Capital Enterprise</td>
</tr>
<tr>
<td>Japan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

How are countries interconnected through the coffee trade?

The spatial patterns of coffee production and demand create networks of trade and economic interdependence. Figure 8 shows the networks that are created due to the trade of coffee between exporting regions and importing countries. There is a growing interdependence between coffee producing countries and manufacturing countries. There are over 20 million families in 50 countries that work in the cultivation of coffee. Coffee is a vital source of export for these countries and there are many jobs generated outside of cultivation. Some of these include:

- labourers: loaders and unloaders
- administrators: people who weigh bags of coffee
- millers: people who remove the soft cherry “fruit” from the coffee seed (been) and manage the drying process
- truck drivers
- buyers and sellers
- shipping company employees

Annotations

Identifies the relationship between the location and characteristics of places, and their role in the supply chain.

Explains how the spatial patterns of resources create economic interdependence, and affect people through employment.
Inquiry – Exploring interconnections through the coffee trade

The coffee trade also generates employment for import countries. These jobs include:
- shipping company employees
- dockworkers
- railway workers
- truck (or car) drivers
- coffee roasters
- coffee shop owners and employees

Annotations

Constructs a map to show networks of trade that exist at national, regional, and international scales.
Inquiry – Exploring interconnections through the coffee trade

A business case study of the coffee trade between Guatemala and the United States shows how local and world economies create networks, movement patterns and transportation routes. Figure 9 shows how the movement of coffee between the Central American country of Guatemala and California and Oregon. The coffee, which is produced in the highlands of Huehuetenango is transported to the City of Guatemala and then transported to the city of Los Angeles by ship. The coffee is then transported to neighbouring states by vehicle for manufacturing and to Portland by rail. In Portland, the coffee is transported to roasters for manufacturing and then distributed to retailers in nearby states. This case study shows that the coffee trade connects places and creates networks between places through the movement of goods from the producer to the end-user. It also shows the interdependence between different places through economic activity.

Annotations

Explains how local and national economies mesh to create networks, movement patterns, transportation routes, and markets.

Constructs a map to show transportation routes in the coffee supply chain and the interconnections between places due to the coffee trade.
Inquiry – Exploring interconnections through the coffee trade

What are the issues with interconnections and how can they be addressed?

The richest countries in world are connected to small farmers in poorer regions of the world through the coffee trade. The interconnections between places will increase as the global demand for coffee increases. However, the small farmers who produce the raw coffee are often exploited and paid very little for their crops. Fair Trade movements have improved the economic wellbeing of many small farmers as it has stopped many middlemen exploiting small farmers and has made sure that farmers are paid a fair price for their coffee. Consumers in the developed world can purchase coffee with a Fair Trade label knowing that the farmer who produced the raw material was paid a fair price. This strategy designed to protect small farmers improves the social and economic wellbeing of farmers and their families and costs consumers only a small amount of extra money per cup of coffee. It is also important to the environment as it ensures only the coffee being demanded is produced as farmers no longer have to produce more when prices are very low.

However, less than half the total production volume of the small farmers is sold at Fair Trade terms because demand for Fair Trade coffee is still too small. One strategy to ensure more farmers are protected by Fair Trade is to increase the demand for Fair Trade coffee through education and marketing campaigns.

Furthermore, workers on plantations are not protected by Fair Trade as the movement has not yet extended to plantations. Many plantation workers are paid as little as $2-3/day and work under extremely poor conditions. Bringing plantation grown coffee into the Fair Trade market would make it more difficult for small farmers.

A strategy to address the poor working conditions and wages of workers on plantations could be to develop a Code of Conduct or “Guidelines for Ethical Trading” for plantation owners and call upon roasters to source their coffee from those plantations that adhere to ethical practices. This idea came out of Europe in 1999 and although the idea is growing, more consumer organisations around the world need to join the campaign.

Annotations

- Uses initial research to frame an inquiry question.
- Identifies trends in the consumption of coffee and predicts the impact this trend will have on interconnections.
- Identifies Fair Trade as a possible strategy to address the exploitation of small coffee producers.
- Applies environmental, social and economic criteria to assess the merits of Fair Trade.
- Identifies weaknesses in the Fair Trade strategy and suggests ways to make it more effective.
- Identifies the need for additional strategies to address the exploitation of plantation labourers and proposes a strategy.
Inquiry – Exploring interconnections through the coffee trade

Like the Fair Trade movement, this strategy is socially, economically and environmentally viable with a small cost per cup of coffee to the consumer.

For people who live in the developed world, coffee is consumed daily. Very little thought is given to the farmers who produce this coffee. People should be educated on the Fair Trade movement and encouraged to buy coffee that is labelled accordingly. Consumer groups around the world also need to join the campaign to encourage roasters to purchase coffee from plantations that have developed a Code of Conduct. Only then will people in the developed world enjoy their coffee knowing that they have not exploited farmers and labourers in developing countries.

Conclusion
Resources related to the coffee industry are spatially organised – there are the regions of the world that produce coffee and regions that demand coffee. The producing regions have the natural characteristics and labour to produce coffee. The regions that demand coffee have the enterprise and capital to manufacture and the income to demand coffee. This spatial pattern of resources has created networks of trade and economic interdependence at local, regional, national and international scales. Local and global economies combine to create networks, movement patterns, transportation routes and markets. This inquiry shows that places in the world are connected and interdependent and the demand for a cup of coffee connects different places in the world and creates economic interdependence between them. It has also shown that these interconnections can lead to exploitation and that consumers need to think about their purchases if they do not want to contribute to this exploitation. Consumers should select Fair Trade labelled coffee to that they support the wellbeing of small farmers. Consumer groups should also support the campaign to develop guidelines for ethical trading. If these actions were taken, farmers and labourers in coffee producing countries would enjoy a higher standard of living.

Annotations

Proposes individual and collective action to address the challenge of labour exploitation and predicts the outcomes of this action.

Synthesises data and information to draw reasoned conclusions.

Annotations (Overview)

The student develops questions to frame an inquiry and presents answers in the form of findings and explanations using appropriate geographical terminology. The student understands world patterns and networks of economic interdependence and appreciates the impact of global economic processes on places at a range of scales.

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