Government of **Western Australia**
School Curriculum and Standards Authority

Sample assessment task

Year level	9
Learning area	Humanities and Social Sciences
Subject	Geography
Title of task	World population and food security

Task details

Description of task	Students investigate the influence of population growth on food security
Type of assessment	Summative
Purpose of assessment	To assess students' understanding of key Geographical concepts and skills as they apply to an examination of the effects of anticipated future population growth on global food production and security
Assessment strategy	Graphic organisers and written work
Evidence to be collected	• Summary table and evaluation of data • Hypothesis statement • Extended response
Suggested time	Two lessons (including a 20 minute extended response)

Content description

Content from the Western Australian Curriculum	**Knowledge and understanding** The effects of anticipated future population growth on global food production and security; the capacity for Australia and the world to achieve food security; the implications for agriculture, agricultural innovation and environmental sustainability **Humanities and Social Sciences skills** Construct, select and evaluate a range of questions and hypotheses involving cause and effect, patterns and trends, and different perspectives Analyse information and/or data in different formats (e.g. to explain cause and effect relationship; comparisons, categories and subcategories, change over time) Analyse the 'big picture' (e.g. put information and/or data into different contexts, reconstruct information by identifying new relationships, identify missing viewpoints or gaps in knowledge) Critically evaluate information and/or data and ideas from a range of sources to make generalisations and inferences; purpose explanations for patterns, trends, relationships and anomalies; predict outcomes
Key concepts	Environment, Interconnection, Change, Sustainability

Task preparation

Prior learning	Students have prior knowledge about how population growth can affect food security, and are familiar with how to analyse data.
Assessment differentiation	Teachers should differentiate their teaching and assessment to meet the specific learning needs of their students, based on their level of readiness to learn and their need to be challenged. Where appropriate, teachers may either scaffold or extend the scope of the assessment tasks.

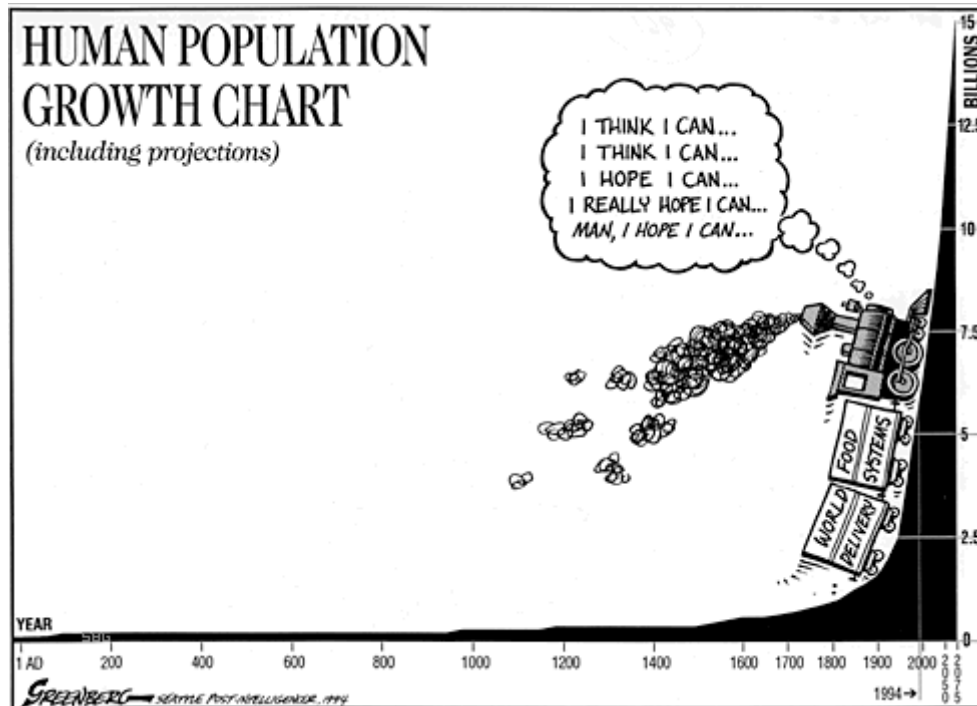| Assessment task	
Assessment conditions	All work is completed in class.

Resources	Provided resources:
	• Copies of all the provided resources
	• Summary table framework
	• Hypothesis framework
	• Lined paper for written response – Question 4
	• The following article from the United Nations Environment Programme (UNEP) has been used as the basis for data:
	    ▪ online: Grid Arendal. *The Environmental Food Crisis.* http://www.grida.no/publications/rr/food-crisis/
	    ▪ pdf: UNEP. *The Environmental Food Crisis.* http://www.grida.no/files/publications/FoodCrisis_lores.pdf
	    ▪ other sources: Food and Agriculture Organization of the United Nations. *The State of Food Insecurity in the World 2014.* http://www.fao.org/publications/sofi/2014/en/

Instructions for teacher

World population and food security

For copyright reasons the images have been replaced with links to the images. Teachers may choose to complete this activity online and provide students with the links.

Data sources could be provided by country, incorporating examples across a range of countries at different stages of development like Bangladesh/Argentina/Australia. This could invite more detailed analysis at a national scale; alternatively, students could be asked to provide their own data to support their hypothesis.

World population and food security

[Greenberg, S. (2010). *Population train* [Cartoon]. Retrieved September, 2015, from
www.greenberg-art.com/.Toons/.Toons,%20Environ/PopulationTrain.html#note]

Task

'The lives of half the world's population are directly affected by agriculture. They will profit or lose depending upon the actions adopted by [society].'

[Adapted from: Bender, W., & Smith, M. (1997). *Population, food and nutrition*. Washington D.C.: Population Reference Bureau, p. 43. In S. Beder. (2001). *Can we feed the future world population?* Retrieved September, 2015, from www.uow.edu.au/~sharonb/STS300/limits/studies/articles/article2.html]

You are to consider the influence of population on food security as part of your studies in Geography.

1. Examine the sources about world population and food security. Reflect on the represented information in each of the data sources, paying particular attention to the interconnections across the data and comparisons to each country/region.

2. Consider the data and choose nine of the available sources to further analyse. Describe the pattern and/or trends using the framework provided. Evaluate the value of the data on the extent to which it informs you of the impact of future population growth on food production (food security).

3. From your evaluation of the data in your summary table, construct a hypothesis about the effects of the anticipated future population growth and capacities for food security for the world. What is the big picture message and how does the data lead you to this conclusion?

4. In an in-class 20-minute timeframe, write an extended response that discusses your hypothesis and explain how four data sources support your conclusions. You will be able to use your sources and reference them.

Summary table of population and food security data

For patterns, use terms like high/low/increasing/decreasing/large/small/static/change/
significant/absence/abundance/stable/unstable

Source Number: Title: Description of data: Patterns/trends: Evaluation:	Source Number: Title: Description of data: Patterns/trends: Evaluation:	Source Number: Title: Description of data: Patterns/trends: Evaluation:
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Hypothesis

Explain contribution of source used to support hypothesis.

Explain contribution of source used to support hypothesis.

Explain contribution of source used to support hypothesis.

Explain contribution of source used to support hypothesis.

Ideas for explaining hypothesis:
One Stop English. *Hypothesis: Geography.* http://www.onestopenglish.com/clil/clil-teacher-magazine/your-clil/hypothesis/hypothesis-geography/551493.article.

Broadsheet source graphics

Source 1: *Global population, estimates and projections (billions).*

http://www.grida.no/graphic.aspx?f=series/rr-food-crisis/figure04.jpg

Source 2: Grid Arendal. *Will there be enough food for 9.6 billion people?*

http://www.grida.no/graphicslib/detail/will-there-be-enough-food-for-96-billion-people_43f8#

Source 3: Grid Arendal. *Diet composition.*

http://www.grida.no/graphicslib/detail/diet-composition_32b8#

Source 4: *World bank country income groups.*

http://www.grida.no/graphic.aspx?f=series/rr-food-crisis/figure05.jpg

Source 5: *Kilocalories per capita/day.*

http://www.grida.no/graphic.aspx?f=series/rr-food-crisis/figure06.jpg

Source 6: *Annual production increase 1965–2008 (%).*

http://www.grida.no/graphic.aspx?f=series/rr-food-crisis/figure07.jpg

Source 7: Agricultural Changes in production and practices.

http://www.grida.no/graphic.aspx?f=series/rr-food-crisis/figure08.jpg

Source 8: *Crop production and source increases.*

http://www.grida.no/graphic.aspx?f=series/rr-food-crisis/figure09.jpg

Source 9: *Food eaten and Food lost.*

http://www.grida.no/graphic.aspx?f=series/rr-food-crisis/figure11.jpg

Source 10: *Arable land and Land suitable for rainfed crops.*

http://www.grida.no/graphic.aspx?f=series/rr-food-crisis/figure13.jpg

Source 11: *Global change in productivity 1981–2003.*

http://www.grida.no/graphic.aspx?f=series/rr-food-crisis/figure16.jpg

Source 12: *Agricultural international land leases.*

http://www.grida.no/graphic.aspx?f=series/rr-food-crisis/figure30.jpg

Source 13: Wikipedia. *List of ongoing armed conflicts.*

http://en.wikipedia.org/wiki/List_of_ongoing_armed_conflicts

Source 14: *Urban and rural population in less developed regions (billions).*

http://www.grida.no/graphic.aspx?f=series/rr-food-crisis/figure32.jpg

Source 15: Grid Arendal. *Food loss and waste by region.*

http://www.grida.no/graphicslib/detail/food-loss-and-waste-by-region_15a8#

Source 16 *Restoring ecosystems could feed 740 million people.*

http://www.grida.no/graphicslib/thumbs/1805c933-493c-4b85-be16-ad06eb342332/medium/restoring-ecosystems-could-feed-740-million-people_7a5a.jpg

Sample marking key

Description	Marks
Summary table and evaluation of data	
Selects appropriate sources Develops a detailed, organised summary with an explanation of key patterns in data which includes an evaluation of the source and the extent of its relevance to the topic studied Consistently uses relevant subject-specific terminology and concepts in the appropriate context	9–10
Selects appropriate sources Develops a summary with an explanation of key patterns in data which includes relevant evaluation of the source and the extent of its relevance to the topic studied Uses relevant subject-specific terminology and concepts in the appropriate context	7–8
Selects mostly appropriate sources Develops a summary with some explanation of patterns in data which may include relevant and possible irrelevant evaluation of the source and the topic studied Uses some relevant subject-specific terminology and/or concepts in the appropriate context	5–6
Develops a brief summary with simple explanations of data patterns with limited use of subject-specific terminology and/or concepts	3–4
Develops a basic summary with few explanations	1–2
Subtotal	**10**

Description	Marks
Hypothesis statement	
Develops a hypothesis which conforms to an appropriate structure (e.g. thesis structures/grammar) • is relevant to the topic based on what has been studied • is useful and shows or predicts relationships/concepts/patterns/trends (e.g. cause/effect/ space/place/ interconnection/ change/scale) • is able to be tested against the data	4–5
Develops a hypothesis which conforms to a structure • is relevant and generalised with some links to relationships/patterns • shows some attempt to draw on the data to inform the hypothesis	3
Develops a hypothesis which is poorly constructed or is not clearly defined or implied • has few links or connection to the data	1–2
Subtotal	**5**

Description	Marks
Extended response	
Draws a comprehensive, conclusion and applies a range of relevant evidence from all four sources to support the hypothesis Consistently uses relevant subject-specific terminology and concepts	9–10
Draws a conclusion and applies a range of relevant evidence from all four sources to support the hypothesis Uses relevant subject-specific terminology and concepts	7–8
Draws a conclusion and applies evidence from some of the sources to support the hypothesis Uses some relevant subject-specific terminology and/or concepts	5–6
Provider uses limited explanation of hypothesis and use of evidence from the sources Minimal use of subject-specific terminology and/or concepts	3–4
Makes broad unsubstantiated statements	1–2
Subtotal	**10**
Total	**25**