

# Resource consumption and development

Lesson Map: <http://esriaustralia.com.au/education/SpatialActivity5>

## Engage

*How is global wealth distributed?*

- Click on the lesson map link above to commence the lesson.
- ? The map shows Gross National Income per Capita (GNI) in 2014. What does GNI per Capita measure? *[The total economic value of the income earned by citizens of a country, divided by the number of people within that population]*
- ? What are the top earning regions, and countries? Are there any surprises? *[Answers will vary]*
- In the 'details' pane, click the 'show contents of map' button. Click on the layer titled 'gross national income by country, 2014' to reveal additional icons. From here, click the 'show table' icon.
- When the table opens, click the header of the column called 'Gross National Income per Capita, PPP' and select 'sort descending.'
- ? Which countries have the highest GNI per Capita? *[Qatar, Singapore, U.A.E, Norway, and Hong Kong]*
- ? Now, sort the table by ascending order (select 'sort ascending'). Which countries have the lowest GNI per Capita? *[Note – do not include the countries with no data listed. Answer includes Central African Republic, Democratic Republic of Congo, Liberia, Burundi and Malawi]*

## Explore

*What is the relationship between income and energy usage?*

- In the 'details' pane, under 'content' tick the checkbox to turn on the layer called 'energy use by country, 2010.' Turn off all other layers.
- ? Per capita, which countries consume the most energy? To determine this, open the table for 'energy use by country, 2010,' and sort the column 'energy use (million Btu) per Capita' in descending order. *[U.S Virgin Islands, Trinidad and*

Download student worksheet [here](#).

Time  
30 minutes

### Activity

Investigate global patterns of development, and the relationship between social and economic development with resource consumption.

### Learning Outcome

Students will be able to:

- Determine global patterns of wealth and development
- Understand the relationship between development and economic wealth
- Investigate the relationship between wealth, education and energy consumption

### ACARA Curriculum Link

[Year 10 Geography - Unit 2: Geographies of human wellbeing](#)

[ACHGK076](#) | [ACHGK077](#) | [ACHGK078](#)  
[ACHGS076](#) | [ACHGS077](#) | [ACHGS078](#)

*Tobago, Qatar, UAE, Iceland]*

- ? Per capita, which countries consume the least energy? Do not include regions with no recorded data. *[Chad, Burundi, Mali, Rwanda, and Somalia]*
- Energy use is a good indicator of industrial productivity. Countries with lower energy consumption have less mechanized labor systems, and thus rely more dominantly on manual labor.
- The 7 lowest energy consuming countries are in Sub-Saharan Africa. This indicates that these countries have less mechanized industrial systems.
- In the 'details' pane, under 'content', tick the checkbox to turn on the layer 'adult literacy rate by country'.
- ? What is the general pattern in adult literacy levels across Sub-Saharan Africa? *[Mostly under 50% immediately beneath the Sahara, with literacy levels increasing further south]*
- Flick between the layers 'energy use by country' and 'adult literacy rates'.
- ? Flick between the layers 'energy use by country' and 'adult literacy rates'. Is there any relationship between these factors in Sub-Saharan Africa? *[Lower energy consumption limit adult literacy rates to 0-80%. South Africa is an example which suggests that higher energy consumption is related to higher literacy rates]*
- ? Are there any anomalies in Sub-Saharan Africa? *[Burundi, Gabon, Botswana, and Zimbabwe are some anomalies, as they have the highest adult literacy rates in Sub-Saharan Africa, yet the lowest levels of energy consumption]*
- ? How may the less mechanized labor system be influencing adult literacy rates? *[Citizens receive a shorter formal education, due to the need to be involved in the less-mechanized, more labour-intensive workforce]*
- Optional: You can repeat this process to determine the relationship between 'energy consumption by country, 2010' and 'life expectancy at birth, total.'

## Explain

*How does quality of life vary across the world?*

- The Human Development Index (HDI) combines several country statistics to monitor progress towards improving quality of life.
- Tick the checkbox to turn on the layer 'human development index by country,

## Acknowledgements:

This lesson map uses data sourced from an Esri GeoInquiry.

Accompanying lesson material has been amended to align with the Australian National Curriculum.

## Teacher Feedback:

To share your feedback on this, or any Spatial Activity, please contact [education@esriaustralia.com.au](mailto:education@esriaustralia.com.au)

1980-2010 time series.' Turn off all other layers.

- A timeline slider will appear at the bottom of the map. Press play, or drag the timeline to observe HDI over time.
- ? Which countries have made significant improvements in HDI from 1980 to 2010?  
*[Answers may include North Korea, China, Vietnam, Chile, Argentina and India]*
- ? What factors do you think contribute to the improvement in HDI? *[Answers will vary depending on student knowledge of HDI indicators]*

## Extend

*How do earnings vary with human development?*

- Investigate the relationship between GNI and HDI by flicking between these two layers. Zoom in to Sub-Saharan Africa to investigate patterns here.
- ? What is the relationship between GNI and HDI in Sub-Saharan Africa? *[Regions classified as 'low' HDI also have low GNI also]*
- ? Why does this relationship exist? *[Answers will vary, but may include that increased income allows people to access improved healthcare, housing, and general wellbeing. Thus, health and development increases typically follow an income increase]*

## Next Steps:

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