Palm Oil: Destroying forests but in our everyday products

Lesson Map: http://esriaustralia.com.au/education/SpatialActivity93

Engage

What is palm oil and how do I consume it?

→ Click on the map URL above to open the StoryMap. The title page will be displayed. Scroll down to the section titled *What is Palm Oil?* to begin.

→ This StoryMap also has a navigation panel at the top of the page, which allows users to quickly jump to specific aspects of the StoryMap.

→ Read the information in this section. Take notes if required and stop to discuss if necessary.

– **Optional:** Access the **'Palm Oil product list'** by clicking the green button. This list has been published by *Borneo Orangutan Survival Australia* and shares a list of products that have palm oil in them.

? Palm oil can appear on ingredients lists as 'vegetable oil'. How can this be misleading to a consumer? *[If a consumer is actively looking to avoid purchasing products that contain palm oil, they may be misled in thinking that a vegetable oil other than palm oil has been used in the product.]*

? Look at the image above. Name five products or brands in the image that you have consumed (eat or use) in the last 12 months. *[Student answers will vary. Notable products include: soft drinks like Coca Cola, Fanta, Pepsi; chocolate and candy products like Mars or Nerds; cereals like Fruit Loops or Cornflakes.]*

? Think about the processed foods in your school lunch box today, including ingredients that may be on your sandwiches. Quickly research each food item's name and brand and make a list of the items that do have palm oil in them. *[Student answers will vary. Likely products: spreads like margarine or Nutella, fruit juice/drink poppers, biscuits and bars, chips.]*

Download student worksheet here.

Time

1 – 2 lessons

Activity

Investigate the palm oil industry and its environmental, economic and social impacts.

Learning Outcome

Students will be able to:

- Understand key environmental, economic and social consequences and challenges that the palm oil industry creates
- Analyse and evaluate data presented in maps, graphs and charts
- Understand the role of the consumer in being an agent for change
- Research and examine the actions companies are taking to address palm oil concerns

ACARA Curriculum Link

Year 9 Geography: Biomes and food security

ACHGK060 | ACHGK061 | ACHGK062 | ACHGK063 | ACHGS067 | ACHGS069 | ACHGS071

Teacher Feedback:

To share your feedback on this, or any Spatial Activity, please contact education@esriaustralia.com.au

Explore

Where is palm oil produced? Who consumes it?

➔ Scroll down to the major heading titled *Where is it produced?* Read the information. Take notes if required and stop to discuss as necessary.

? What pattern do you observe about the spatial distribution of these palm oil-producing countries? [*Palm oil producing countries are largely situated on or near the equator. This equatorial zone is a tropical zone, characterised by high levels of rainfall and warm temperatures year-round.*]

➔ Scroll down to the next heading titled *Taking a closer look…* As you read each sentence, click the button that follows. This will turn on a new map layer to unpack and visualise the written information being shared.

➔ Scroll down to the next heading titled *Earth's rainforests.* Read the information and take notes if required.

– **Engage with the swipe map** to see the location of Earth's rainforests (left) and palm oil plantations (right).

➔ Scroll down to the major heading titled *Who consumes it?* Read the information. **Engage with the swipe map** to see what countries import the most palm oil (left) and how much they use domestically (right).

? List the top five countries that import the most palm oil. Ensure your list is from largest to smallest and includes the amount (MT) that the country imports. [*India (11,600 MT), China (5,250MT), Pakistan (3,250 MT), Bangladesh (1,650 MT), United States (1,600 MT).*]

? Why might these countries have higher import and domestic use rates than other countries? [*Both India and China have populations over 1.3 billion. This likely means that these countries will use more of the palm oil product domestically as they have more people that will purchase food / care products that contain palm oil. India, China, Pakistan and Bangladesh also produce a lot of goods that are exported to other countries, like Australia. This may result in them importing more palm oil so that they can use it in the products they produce for export. The United States is also a production powerhouse and its culture is also known for its consumption of processed foods and drinks.*]

? Most countries import more palm oil then the use domestically. For instance, the U.S. imported 1,600 MT but only used 13,05 MT domestically. Why might this be the case? [*Most countries are importing more palm oil than they use domestically. This is likely because some of the palm oil that they import is used to produce goods that*

will then be exported as trade to other countries. It may also be that a percentage of the imported palm oil is also lost as waste in the production phase.]

? Are there any anomalies noticeable between a country's palm oil imports and their palm oil consumption? Explain why this is the case. [*Student answers may vary depending on the country they identify as an anomaly. Expected response: Most countries demonstrate a higher amount of imported palm oil than they consume domestically. One clear exception to this pattern is Indonesia, who does not import any palm oil but consumes 5,800 MT domestically. This is most likely because Indonesia does not need to import palm oil when it is responsible for most of the world's palm oil production.*]

Explain

What are the consequences of using palm oil? What challenges exist to reducing the use of palm oil?

→ Scroll down to the major heading titled *Consequences.* Read the information and watch the video (until 8-minute mark) for an overview.

→ Scroll down to the next heading titled *Deforestation (1).* Read the information and take notes if required.

− **Engage with the graph titled *Oil palm production***. You can hover over the line to see exact figures (year and quantity). You can also click the tabs at the bottom of the graph to view the data in chart, map or table forms.

→ Scroll down to the next section, titled *Deforestation (2).* Read the information and take notes if required.

− **Engage with the graph titled *Land use for palm oil production***. You can hover over the line to see exact figures (year and quantity). You can also click the tabs at the bottom of the graph to view the data in chart, map or table forms.

→ Scroll down to the next section, titled *Deforestation (3).* Read the information and take notes if required.

− **Engage with the graph titled *Land use for vegetable oil crops, World***. You can hover over the line to see exact figures (year and quantity).

→ Scroll down to the next section, titled *Deforestation (4).* Read the information and take notes if required.

− **Engage with the map** on this slide.

- Use the 'layer list' (below the search bar) to toggle satellite imagery from 2014 and 2018 on and off.
- Use the 'Bookmarks list' (below the search bar) to relocate the map extent to different palm oil plantations in south-east Asia.
- Follow the instructions on the StoryMap to explore and observe forest clearance for palm oil plantations.

➔ Scroll down to the next heading titled *Biodiversity loss, habitat destruction, species endangerment.* Read the information and take notes if required.

➔ Scroll down to the next heading titled *Pollution and climate change.* Read the information and take notes if required.

➔ Scroll down to the next major heading titled *Challenges.* Read the information and take notes if required. Stop to discuss as necessary.

Extend

What can you do? How can I be an informed consumer?

➔ Scroll down to the major heading titled *Certified Sustainable Palm Oil.* Read the information take notes if required. Stop to discuss as necessary.

➔ Watch the video that the RSPO published.

➔ Scroll down to the next sub-heading titled *What can you do?* Read the information and take notes if required. Stop to discuss as necessary.

– **Student task:** Research a fast-food company, cereal/biscuit company and non-food company using the *Palm Oil Buyers Scorecard* website. Answer the following questions.

? What are your companies' scores out of 22? [*Student answers will vary depending on companies researched. Example response: McDonald's Corporation has a score of 13.8 out of 22 and is described as in the 'middle of the pack'.*]

? What factors have led to your company's score? [*Student answers will vary depending on companies researched. Example response: McDonald's Corporation has scored of 13.8 out of 22, which is a mediocre score. It has been given some recognition for being a RSPO member, for being committed to sourcing 100% CSPO by 2020 across the entire company and corporation, and for requiring its palm oil suppliers to have a 'deforestation-free and conversion-free policy'. However, it has*

lost points for not having any 'on-the-ground' investments in palm oil sustainability.]

Next Steps:

Request a free ArcGIS Online Account for your school:

Australian schools can request a free ArcGIS Online account as part of Esri Australia's Classroom GIS Initiative. A school subscription provides additional map layers, content, features and privacy.

Learn more about ArcGIS Online, and apply for your ArcGIS Online School subscription at http://esriaustralia.com.au/education