



**Geography**

**Year 5**

**Term 6**

**Natural Resources (sustainability)**

**Key Question: What are the world's natural resources and how sustainable is our use of them?**

**National Curriculum Objectives:**

- Describe and understand key aspects of human geography, including: the distribution of natural resources including energy, food, minerals and water (land use, economic activity)
- Locate the world's countries using maps to focus on the world, the UK concentrating on their key physical features
- Name and locate the countries of the UK and their physical and human characteristics understanding how some of these have changed over time
- Understand geographical similarities and differences through the study of a human and physical geography of a region within South America
- Use maps and atlases to locate countries and describe features studied
- Use symbols and keys
- Use graphs

**Vocabulary:**

*Natural resources, raw material, environment, produce, manufacture, unevenly distributed, exhaustible, income, minerals, water, air, soil, plants, animals, deposit, reserves, mining, gold, silver, platinum, coltan, cobalt, tin, gold, oil, coal, silicone, nitrogen, copper, aluminium, natural gas, limestone, petroleum, diamonds, key, population growth, population density, data trend, data pattern, UK geographical regions, renewable, non-renewable (exhaustible), sustainable energy source, non-sustainable energy source, fossil fuels (oil, coal, gas), solar power, wind power, hydropower, geothermal power, Curitiba, Brazil, sustainable city, "Green City", Transport route, rapid transit route, green space, green exchange, housing programme*

**Prior Learning:**

Year 5, Term 2 children have learnt about Brazil and some of their natural resources and settlements (favelas)  
Year 3 Term 6 and Year 5, Term 4 children have learnt about population size, density and concentration  
Year 4 Term 2 and 6 children have learnt about water and natural disasters (the location of some of the world's resources)  
Across KS2 children have used keys to identify geographical features  
Year 5, Term 5 (History) children have learnt about the industrial revolution

**End Point:**

Children design their own sustainable city. Which natural resources are allowed and not allowed? What is being done to replenish any resources used?

**Knowledge:**

- I know what the world's natural resources are and I can name some
- I know that the world's population has grown and we use more of the world's resources because of this
- I know which natural resources the UK has and where some of them are located
- I know some renewable and non-renewable natural resources
- I know which sources of energy are renewable and which are not

**Skills:**

- I can locate the world's natural resource on a map
- I can show where natural resources are on a world map and on a map of the UK
- I can identify trends and pattern on graphs to describe the world's population
- I can identify trends and pattern on graphs to describe the world's consumption of natural resources
- I can describe some of the features of a sustainable city and know why they are good for the environment

**Map Work:**

**Locate and map the world's natural resources**  
**Create keys**  
**Locate and map the UK's natural resources**

**Field Work**

**NA**

**Cross Curricular Links:**

Maths - statistics and graphs  
<https://www.theworldcounts.com/stories/natural-resources-for-kids> (this website continually counts the amount of resources we consume and need)  
Science - materials

**Oracy:**

**Building understanding - what are the world's natural resources?**  
**Debate - how can we make our world more sustainable?**

**Wider Reading**

**Enrichment**

The Last Wild - Piers Torday - highly recommended as a class read  
Belonging - Jeannine Baker  
The Extraordinary Colours of Auden Dare - Zillah Bethell

Greenpeace guest speaker?

## Sequence of Learning

Lesson	Key Question	Key learning/notes
1	What are the world's natural resources?	<ul style="list-style-type: none"> <li>• In the previous History lesson you learnt about the industrial revolution (and about railways in Year 3). This was powered by using natural resources. The developed world is now all industrialised.</li> <li>• A natural resource is a material or substance that is produced by the environment that is useful to humans. They are the raw materials which we use to produce and manufacture all of the products we use. Most natural resources are unevenly distributed and exhaustible. Watch the BBC Bitesize clip as an introduction.</li> <li>• <a href="https://www.bbc.co.uk/bitesize/topics/zshp34j/articles/z62qy9q">https://www.bbc.co.uk/bitesize/topics/zshp34j/articles/z62qy9q</a></li> <li>• Explore any unfamiliar words in the definition</li> <li>• The basic natural resources of our world are water, air, minerals, soil, animals and plants</li> <li>• Explore what raw materials items around the school are made from (you may need to look at packaging as for example: the plastic in a sharpener is made from oil.) Identify as many raw materials (natural resources as you can) List them. Research what unfamiliar materials like phosphorus which is used in all farming (for fertilisers) actually looks like.</li> <li>• <a href="https://www.conserve-energy-future.com/list-10-natural-resources.php">https://www.conserve-energy-future.com/list-10-natural-resources.php</a></li> </ul>
2	Where are the world's natural resources and how can I show these on a map?	<ul style="list-style-type: none"> <li>• Where do all of these resources come from? Many resources are only found in certain places because of the way the earth was formed. For many countries these resources are their only income however some natural resources take millions of years to form. <i>The countries with the most natural resources in the world are:</i></li> <li>• <i>Brazil - They have uranium, gold, iron, timber and oil. They supply 12.3% of the world's timber (refer to previous Brazil previous topic)</i></li> <li>• <i>Australia - They have the largest gold reserves in the world. They also have over 46% of the world's uranium</i></li> <li>• <i>Democratic republic of Congo - They have large mining industry with the biggest coltan reserve in the world (used to make electronic devices) and colbalt (used in engines).</i></li> <li>• <i>Venezuela - They have the largest oil reserve in the world and the second largest gold deposit.</i></li> <li>• <i>USA - They are the leading producer of coal. 89% of the USA natural resource value is in timber and coal. They also have natural gas</i></li> <li>• <i>Russia - They have one of the biggest mining industries in the world producing silicon, nitrogen, copper and aluminium</i></li> <li>• <i>India - They have the 4<sup>th</sup> largest coal reserves and large reserves of limestone, petroleum and diamonds</i></li> <li>• <i>Canada - They have precious metals (platinum, silver and gold) plus large reserves of oil and timber</i></li> <li>• <i>Saudi Arabia - They have oil - the second largest reserve in the world. It is the largest exporter and importer of oil in the world</i></li> <li>• <i>China - They have phosphates, graphite, coal and tin (and some precious metals)</i></li> <li>• Locate all of these countries on a world map and create a key to show what natural resources are in which country. Revise what a key is and look at world maps that have keys that they have used previously. For example: volcano belts in Year 4 etc.</li> <li>• There are maps showing distribution of resources but these are difficult maps for children to pick out the information from as each map will show a different resource such as agricultural production or forestry.</li> <li>• Extend to researching and adding to the map to show other natural resources that other countries have</li> </ul>
3	How has population growth changed our use of natural resources?	<ul style="list-style-type: none"> <li>• Refer back to previous learning about population density and locations. Look at graphs showing world population growth (resource sheet) based on continent and country. Identify and discuss trends. Asia is the largest continent by population but its growth is slowing. India and China have the fastest growing populations. (You can input different countries on the below website to find out population information.)</li> <li>• <a href="https://ourworldindata.org/world-population-growth">https://ourworldindata.org/world-population-growth</a></li> <li>• Refer back to previous learning in History. Up until the industrial revolution people were more reliant on localised natural resources and used what was in their locality. As we industrialised we needed more and more natural resources to power this and there are more and more people in the world (population growth hit a peak in the 1950s)</li> <li>• Use the resource to identify trends in the world's use of natural resources (sharper increase since 2000, greatest growth in non-metallic mineral e.g coltan used in electronics - refer to previous learning.</li> <li>• Summarise that as the world's population has increased so has the world's consumption of natural resources.</li> </ul>

4	<p>What resources does the UK have and where are they?</p>	<ul style="list-style-type: none"> <li>• Watch the BBC bitesize clip from lesson 1 to answer the question. Also use ICT to research the question. Use</li> <li>• <a href="http://projectbritain.com/resources.html">http://projectbritain.com/resources.html</a></li> <li>• <a href="https://www.worldatlas.com/articles/what-are-the-major-natural-resources-of-the-united-kingdom.html">https://www.worldatlas.com/articles/what-are-the-major-natural-resources-of-the-united-kingdom.html</a></li> <li>• <a href="https://www.bbc.co.uk/bitesize/guides/z2v3dmn/revision/3">https://www.bbc.co.uk/bitesize/guides/z2v3dmn/revision/3</a></li> <li>• Identify the geographical regions that these resources come from: wheat production in the east of England, copper mining in Wales, tin mining in Cornwall, gas from the North sea</li> <li>• As in lesson 2, create a key and label a UK map to show where in the UK, our natural resources come from. You can also use natural resource maps in Atlases.</li> </ul>
5	<p>Which natural resources are renewable and which are not? Which sources of energy sustainable?</p>	<ul style="list-style-type: none"> <li>• We can divide the world's natural resources into the categories of renewable and non-renewable. Renewable means a material will keep being generated such as fish and forests (renewable sources can become exhaustible without careful management - refer back to the deforestation of the Brazilian rainforest) Non-renewable means that the material will not last forever and will run out. It is exhaustible.</li> <li>• List all of the world's natural resources that you have already learnt about. Children brainstorm materials that they know grow back and those which they think do not.</li> <li>• Focus on energy and sustainability.</li> <li>• Watch BBC bitesize clip to learn more about fossil fuels</li> <li>• <a href="https://www.bbc.co.uk/bitesize/topics/zshp34j/articles/zntxgwx">https://www.bbc.co.uk/bitesize/topics/zshp34j/articles/zntxgwx</a></li> <li>• How do we get energy? Use the teaching resource to categorise energy into renewable and non-renewable. Define sustainability as when something is good for the people, the environment and the economy.</li> </ul>
6	<p>O que ha de especial em Curitiba? (What is special about Curitiba?)</p> <p>A case study in a sustainable city</p>	<p>Curitiba is a city in Brazil. Identify on a map and refer back to previous unit on Brazil. It has become known as the "the greenest city on Earth". It is a benchmark on sustainability and across the world people look at it as a sustainable model. In the UK there are four towns currently called "ecotowns" but they are nowhere near as on the same scale as Curitiba.</p> <p>During the 1950s and 60s the city grew rapidly meaning that favelas were developing (refer to previous unit) and it was becoming very polluted because of all of the vehicles. In the 1970s some innovative thinkers (including an architect who became the mayor of the city - Jaime Lerner) decided to transform a busy shopping street into a pedestrian area. There were protests but they achieved their goal in 72 hours! The city realized this was a positive change so backed all of the innovations:</p> <ul style="list-style-type: none"> <li>• Creating and retaining parks and green space beside the rivers. This act as a floodplain. When the Iguazu River floods, some areas created are used as boating lakes.</li> <li>• The green spaces being dedicated to different ethnic and immigrant groups.</li> <li>• Urban growth is restricted to corridors of growth - along key transport routes. Tall buildings are allowed only along bus routes.</li> <li>• A bus rapid transit system operates. This is cheaper to run than a tube system. Some employers subsidise their employees who use it. 80% of travellers use it.</li> <li>• The bus rapid transit system uses triple section bendy buses. It carries two million passengers a day. The bus fare is the same wherever you go. No one lives more than 400 metres from a bus stop.</li> <li>• Lighthouses of Knowledge. These are free educational and internet centres.</li> <li>• A green exchange programme. The urban poor bring their waste to neighbourhood centres. They can exchange their waste for bus tickets and food. This has many advantages, for example the urban poor areas are kept clean, despite waste trucks not being able to reach them easily.</li> <li>• COHAB, the public housing programme, is providing 50,000 homes for the urban poor.</li> </ul> <p>Look at images of these innovations Use the websites below for more information on Curitiba and to find images</p> <p><a href="https://www.bbc.co.uk/bitesize/guides/zs6m82p/revision/4">https://www.bbc.co.uk/bitesize/guides/zs6m82p/revision/4</a>  <a href="https://www.bbc.co.uk/bitesize/guides/zqvxdmn/revision/5">https://www.bbc.co.uk/bitesize/guides/zqvxdmn/revision/5</a>  <a href="http://www.coolgeography.co.uk/A-level/AQA/Year%2013/World%20Cities/Sustainability/Curitiba.htm">http://www.coolgeography.co.uk/A-level/AQA/Year%2013/World%20Cities/Sustainability/Curitiba.htm</a></p> <p>Extend to look at other Green/sustainable Cities - Freiburg in Germany</p>