

GETTING AHEAD

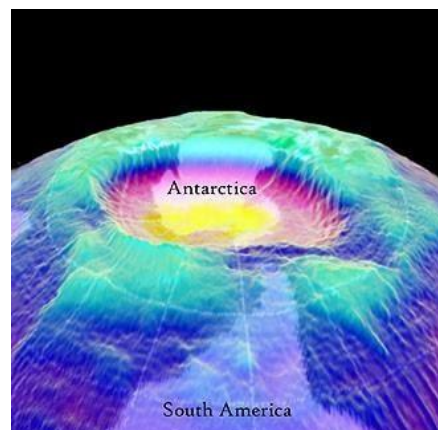
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ALTON

Start to develop skills that are relevant to your course before you join HSDC this September!

Environmental Sustainability – BTEC Level 3 Subsidiary Diploma

Unit 1 – Understand the Principles of Sustainable Development



3D Picture of the Hole in the Ozone Layer over Antarctica courtesy of ucsusa.org

How the Behaviour of One Generation Impacts on the Environment for Future Generations

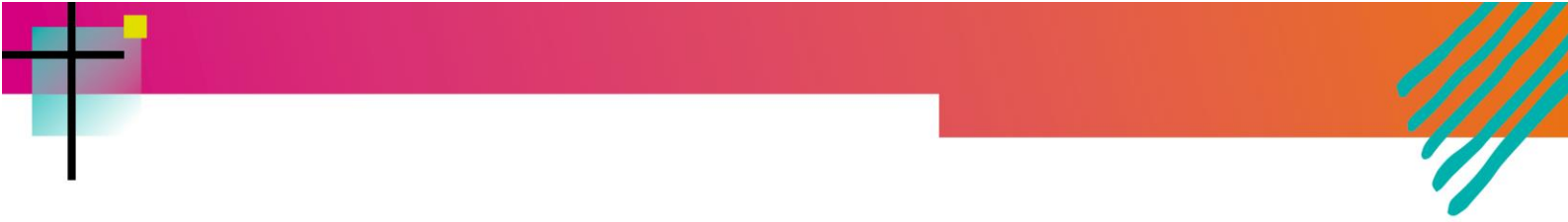
The aim of this booklet is to develop your interest in Environmental Issues and to introduce you to the BTEC way of working. Have a go at the tasks in this booklet and find out more about the background to topics we will be finding out about on the course. Enjoy your learning and produce work you're proud to show to us when you start College. Protecting our environment has never been more important than it is today and we look forward to welcoming you to your new BTEC L3 Environmental Sustainability course.

What is Sustainable Development?

Like Easter Island at the time of its first inhabitants, the Earth has limited resources to support human populations and all of their demands. Human existence depends upon the continued availability of the Earth's natural resources to support life. For over two million years of human existence human societies have been successful in obtaining food and in extracting natural resources, with the result that growing human

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populations have been sustained. But is that development sustainable? Have modern societies been more successful than the Easter Islanders in living in a way that does not exhaust the available natural resources? Are we falling into the same trap as the Easter Islanders and fatally damaging our life support system?

Research Easter Island and explain why in the space below (500 words) the story of Easter Island can be seen as a warning to us all about the need to live in a sustainable way.

A couple of websites to get you started in your research:

<https://www.nationalgeographic.com/travel/world-heritage/easter-island/>

<https://www.smithsonianmag.com/travel/the-mystery-of-easter-island-151285298/>

Why Easter Island Can Be Seen As A Warning To Us All About The Need To Live In A Sustainable Way:

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Environmental Timeline:

The graphic is titled "Environmental History Timeline" and features a row of seven historical figures. Below the figures is a timeline with buttons for different periods: BC - 1250 AD, 1250 - 1750, 1750 - 1850, 1850 - 1890, 1890 - 1920, 1920 - 1940, 1940 - 1960, 1960 - 1970, 1970 - 1980, 1980 - 1990, 1990 - 2000, 2000 - Now, and The Future. The text "Roll over the buttons to reveal a summary; click the buttons for details." is written above the timeline. Below the timeline, the section "Ancient Civilizations" contains a list of environmental issues and a photograph of a Roman sewer system.

Environmental History Timeline

Roll over the buttons to reveal a summary; click the buttons for details.

BC - 1250 AD
1250 - 1750
1750 - 1850
1850 - 1890
1890 - 1920
1920 - 1940
1940 - 1960
1960 - 1970
1970 - 1980
1980 - 1990
1990 - 2000
2000 - Now
The Future

Ancient Civilizations

- **Air pollution** was common in large towns long before the industrial revolution. The pollution came from dust, wood smoke, tanneries, animal manure and other things.
- **Water pollution** was less severe in some civilizations. Israeli and Hindu cities tended to have less water pollution due to strict religious codes about cleanliness. On the other hand, ancient Rome was notorious for sewage-filled streets.
- **Timbering** stripped the forests of Babylon, Greece, Phoenicia (Lebanon) and Italy with the rise of civilization. The wood energy crisis led Greeks to use passive solar energy by orienting their cities and houses toward the sun. Romans made some use of solar energy but imported wood for timber and fuel from as far away as the Black Sea. Both Greeks and Romans kept sacred groves of trees from being timbered.

Babylonian sewer system.

This timeline came from the following website which gives interesting information on major events which made the people of the world realise why they should protect their environment. You may find the link useful when thinking about how to answer the questions in this booklet.

<http://www.environmentalhistory.org/>

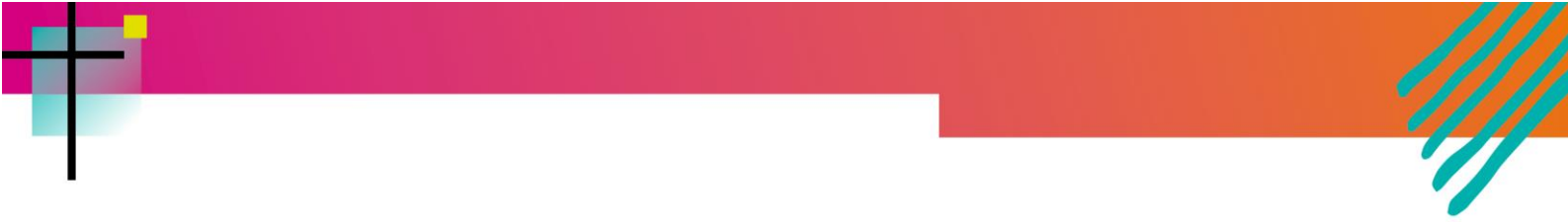
Read the main article on the homepage of the website link below entitled:

'Environmental issues are a part of history' (don't forget to click on 'continue reading' to make sure you read the whole article).

Here is the link: <http://www.environmentalhistory.org/>

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The article explains how people have realised for a long time that changes humans have made to their environment have caused problems for future generations. Looking at the history of the changes can give clues to how science can help reduce the problems for future generations.

To consider how the behaviour of one generation impacts on the environment for future generations we will consider three different problems created by past generations not realising that they would create environmental issues. These are:

1. Air Pollution
2. Water Pollution
3. Timbering/Deforestation

Air Pollution

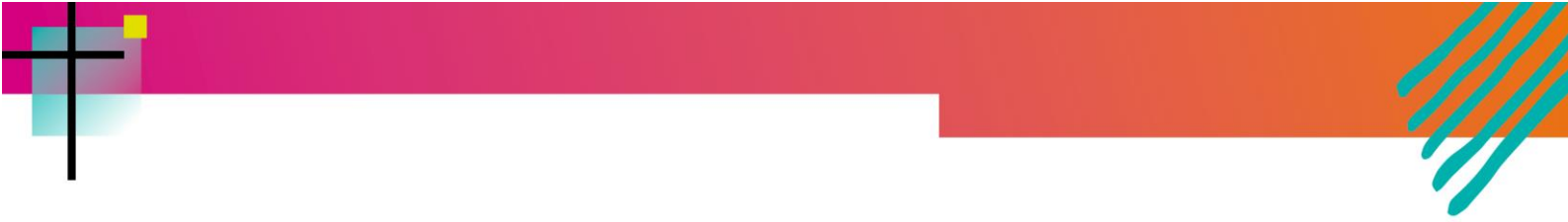
Look at the article on the same website on the London Smog (*you need to scroll down the page to find this on the right-hand side*):

<http://www.environmentalhistory.org/>

In the space below explain why you think that people (both in the past and in today's generations in London) cause air pollution even though they realise that burning fossil fuels creates problems for themselves and others?

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It has been suggested by the world's media that, following severe smog blanketing Beijing in China in February 2013, the Chinese people could learn a valuable lesson from the legislation brought in by Britain to provide people in the UK with clean air.

Read these web sites to see what the media suggests:

http://www.china.org.cn/opinion/2013-02/25/content_28064429.htm
www.cnn.com/2013/02/07/opinion/sutter-china-air-can

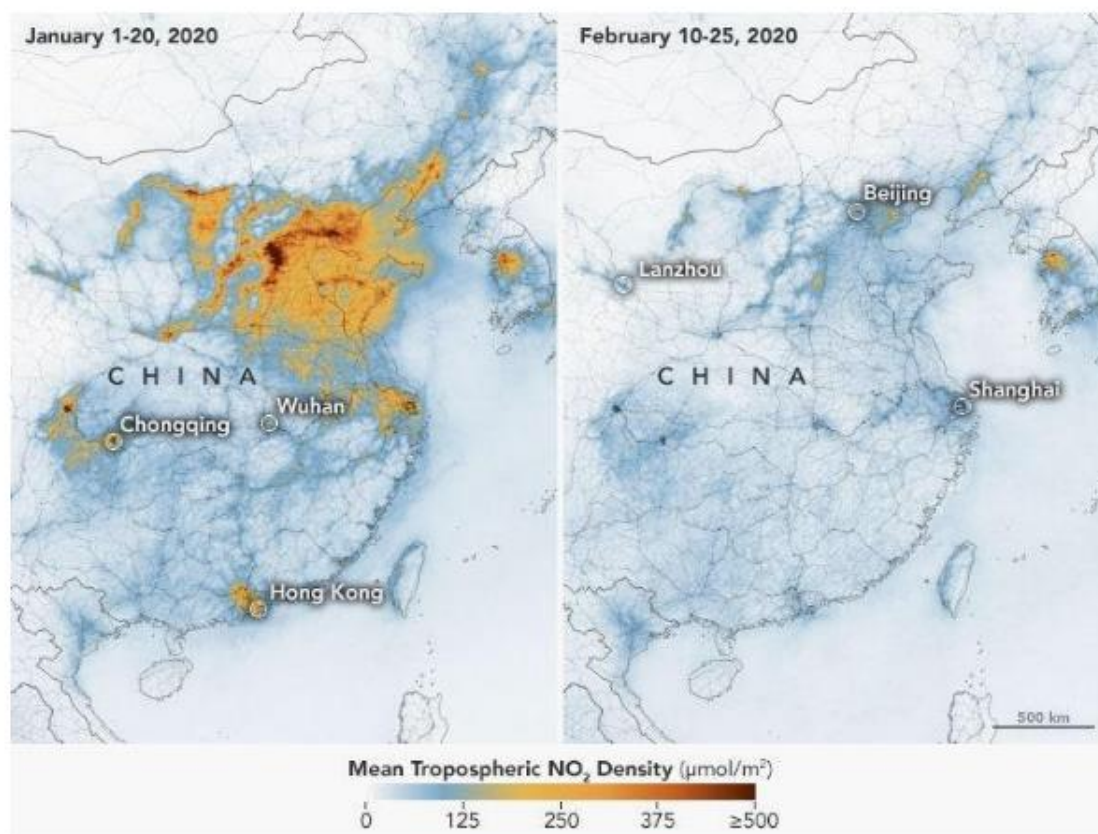
Why is there such a problem with air pollution in Beijing? How have past generations created this problem? Use the space below to explain your answers to these two questions.

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The Coronavirus pandemic has led to a global reduction in air pollution. Read this article to find out more:

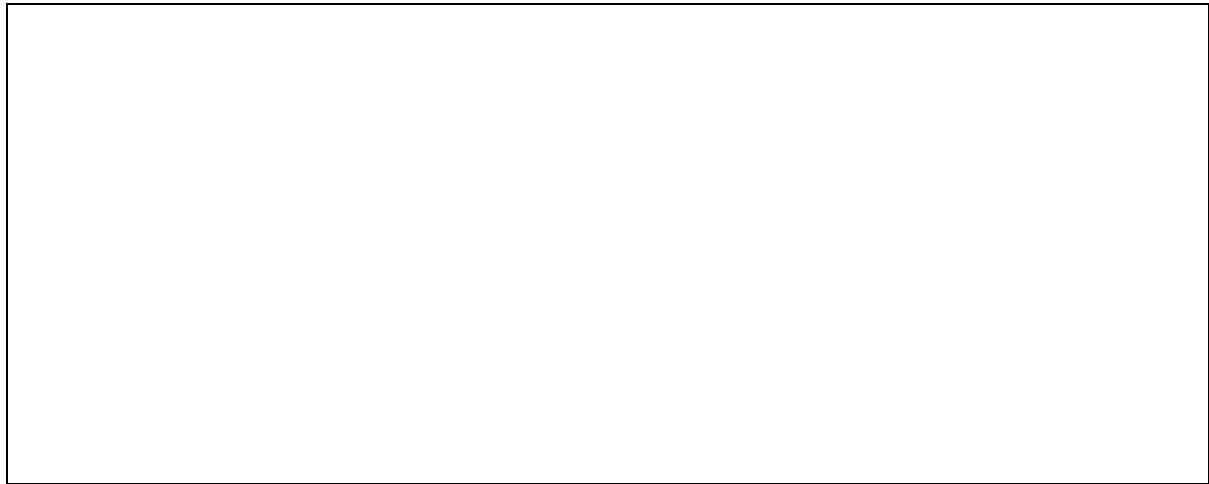
<https://www.wired.com/story/the-pandemic-has-led-to-a-huge-global-drop-in-air-pollution/>



How do you think future generations should make use of this evidence to help reduce pollution in the future? How could this pollution be reduced? Fill in your answer in the space below.

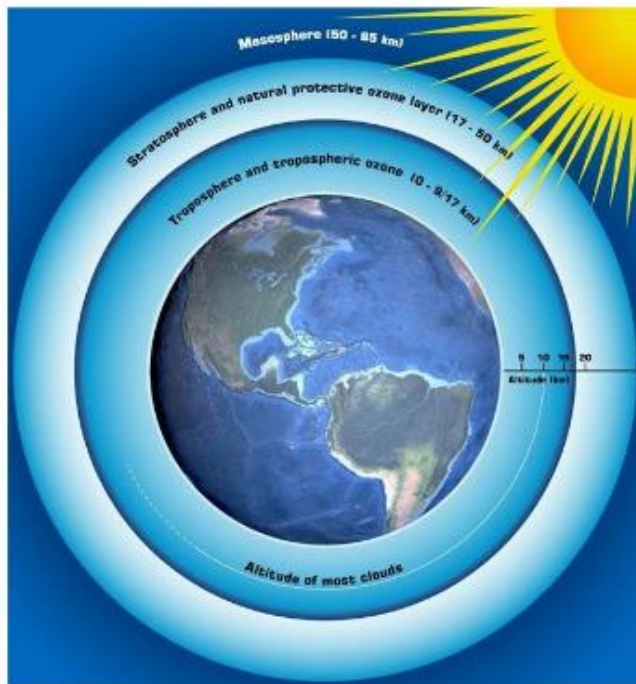
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The Depletion of the Ozone Layer

In the 1970s scientists began to realise that the protective layer of ozone around the Earth was depleting and that in the Polar Regions the layer actually had 'holes'. It was found that human usage of CFCs was breaking down the ozone layer.



Use the websites below to answer the questions that follow:

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<http://www.dailymail.co.uk/sciencetech/article-2222949/The-hole-Ozone-layer-shrinks-second-smallest-decades-size-North-America.html>

<http://ypte.org.uk/factsheets/ozone-layer/what-is-the-ozone-layer#section>

Give the answers to the following questions in the spaces:

What are CFCs and how were they being used?

The ozone layer absorbs UVB ultraviolet light from the sun. What harmful effects can depletion of ozone cause for today's generations?

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What was the Montreal Protocol and how is it helping to reduce the problem for today's generations?

Water Pollution

Water Pollution is very topical at the moment with reports in the media about the concerns about plastics getting into our oceans.

One of the major concerns about water pollution is how long litter, especially plastic litter, can remain in rivers and seas so polluting water not just today but for future generations.

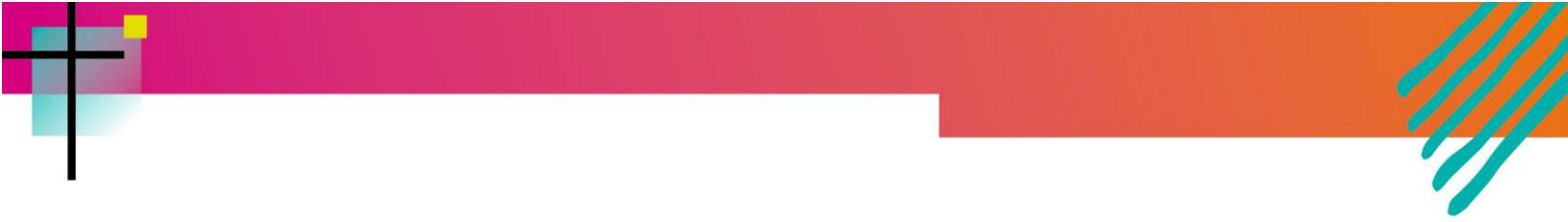
After the First World War improvements in chemical technology led to an explosion in new forms of plastics; mass production began around the 1940s and 1950s.

Plastics are durable and degrade very slowly; the chemical bonds that make plastic so durable make it equally resistant to natural processes of degradation. Experts suggest that plastic left in the environment will be around for thousands of years.

Since the 1950s, one billion tons of plastic have been discarded and may persist for hundreds or even thousands of years. Serious environmental threats from plastic include the increasing presence of microplastics in the marine food chain along with the many other highly toxic chemical pollutants that plastic attracts and concentrates, and larger fragmented pieces of plastic called nurdles.

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In the 1960s nurdles were observed in the guts of seabirds, and since then have been found in increasing concentration.

Read what the following website has to say about the environmental problems caused by marine litter:

<http://www.sas.org.uk/issues/marine-litter/>

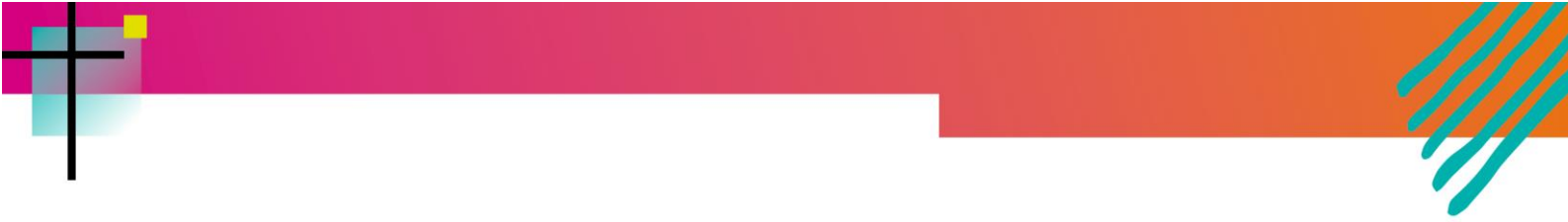
Then watch this YouTube video and explain in the space below what environmental problems can now be reduced by recycling or not using plastic carrier bags:

<https://www.youtube.com/watch?v=JsOZhJlpkFU#t=146.265291>

How could you as an individual help to prevent harm to wildlife from marine litter and help to protect the marine environment for future generations? Complete the space below.

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The link below is to an article which explains how Natural England (The UK Government's adviser for the environment) are trying to promote the cleaning up of our beaches. Do you think enough is being done to promote beach clean-ups? How do you think the message could be put across to the public to get more people involved in projects to reduce marine litter? Use this space to give your opinion:

<https://naturalengland.blog.gov.uk/2016/09/20/the-great-british-beach-clean/>

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Deforestation

Cutting down trees for timber or firewood and clearing forests for agricultural land has had many negative impacts on the environment.

Countries around the world have suffered environmental consequences as a result of people destroying their forests. The following website explains how these environmental problems have occurred:

List and explain below, in your own words, the environmental effects of deforestation:

Careful management of forests can ensure that forests are protected for the benefit of future generations.

Watch the following video to find out how:

<https://www.youtube.com/watch?v=hrCpAE-llq8>

Organisations such as WWF also help in the fight against environmental damage caused by deforestation. You can read about their projects by clicking on the following link:

<https://www.wwf.org.uk/what-we-do/area-of-work/tackling-forest-loss-and-damage>

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Explain below what you as a consumer could do to play a role in ensuring less environmental damage is caused by deforestation?

Assessment task

Starter Assignment:

P11 Explain how the behaviour of one generation impacts on the environment for future generations.

To show you what a starter task is like for the BTEC write a short piece in the space below explaining how the behaviour of past generations has impacted on the environment today. Summarise what you have found out from the booklet so far.

Write about at least three different behaviours of past generations from this booklet and try to include both positive and negative effects of what past

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generations have done. Explain how people of the modern generation have responded to the threats to the environment.

Explanation of how the behaviour of one generation impacts on the environment for future generations:

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Find Out More for Yourself

This booklet has introduced you to environmental issues you could research in more depth. Become an expert and find out more about one of the problems facing our planet and solutions for these problems.

Choose one of the topics below and produce your own research project. Include: an introduction, how humans are causing the problem and what are the solutions. Use websites, like those given below, to start you off, watch TV and YouTube documentaries and read newspapers, magazines and books. Try to write about 1,000 words in a Word document together with a short Powerpoint presentation on your findings **to hand in at the start of the College year.**

Climate Change - Exploring Future Global Changes to Protect the Planet:

https://royalsociety.org/topics-policy/energy-environment-climate/?gclid=EAlaIQobChMIkbfB5LvA6AIVCLrtCh3NuQqAEEAYAiAAEqJqnfD_BwE

<https://www.activesustainability.com/climate-change/6-actions-to-fight-climate-change/>

Issues Facing our Oceans and Solutions for these Issues:

<http://www.worldoceansday.ca/education-resources/top-11-issues-affecting-oceans>

<https://www.nationalgeographic.com/environment/oceans/take-action/10-things-you-can-do-to-save-the-ocean/>

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Protect the Forests and Rescue Animals:

https://www.rainforestfoundationuk.org/?gclid=EAlaIQobChMIwMWS977A6AIVyrHtCh0uyg5fEAAYAiAAEgLf8vD_BwE

https://www.internationalanimalrescue.org/protecttheforest?gclid=EAlaIQobChMIwMWS977A6AIVyrHtCh0uyg5fEAAYASAAEgJYEvD_BwE

Stretch and Challenge

How about finding out more about what it would be like to study Environmental courses at university?

Try signing up for FutureLearn and do a short online course:

<https://www.futurelearn.com/subjects/nature-and-environment-courses>



Find out more and develop your interest by watching documentaries on TV and YouTube documentaries like these:

Marine Biologists Exploring the Deep Oceans:

https://www.youtube.com/watch?v=TODZQ7_7UOs

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Investigating Owls:

<https://www.youtube.com/watch?v=DfVs91kKI-Y>

Climate Change: UK Needs One Billion Trees:

<https://www.youtube.com/watch?v=vqbussAMWyl>

How Wolves Change Rivers:

<https://www.youtube.com/watch?v=ysa5OBhXz-Q>

How Whales Change Climate:

<https://www.youtube.com/watch?v=M18HxXve3CM>

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