



Lesson: Biodiversity 1



ACTIVITY OUTLINE



Using the powerpoint slides explore definitions of food webs and interdependence through feeding relationship within an ecosystem.

Students can demonstrate their understanding of food chains, the role of producers and decomposers within them using the worksheet “Food chains found in the desert food web”.

Explore the meaning of the arrows in a food chain as indicating the flow of energy and matter between organisms. There is an opportunity to look at the way matter is recycled within the food web, this natural system producing no pollution (unused waste).

There is the opportunity to expand this activity with teaching on the key terms of interdependence, population and community.

Non-food matter (toxins, plastics) can also pass along a food chain when they have been ingested by organisms at a lower trophic level. Where this material is not excreted or broken down it can be subject to Bioaccumulation. Although not yet well understood, there is evidence that microplastics are accumulating in marine food webs.

Students give a written explanation of how persistent materials such as microplastics increase in concentration in top predators (including humans). Some students may be helped to achieve this outcome by the support of a writing frame or the diagrammatic representation given in the bioaccumulation summary sheet..

Expanding the lesson to consider the broader environmental and social costs of unsustainable plastic pollution. Students can find out about the effect of plastic on sea birds through watching the trailer for the albatross film (please watch this before showing it to students as it is a very moving clip).

Following the film which shows the impact of plastic waste, the lesson explores where plastic comes from, the impact on low-income countries of dealing with waste from developed countries.

The plastic pollution and the economy activity and worksheet look at a life time scenario for plastic. The PDF shows a higher resolution image which could be used alongside the plastic pollution and the economy worksheet.

Personal action is encouraged in the plenary/ home learning activity.



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CURRICULUM OUTCOMES



Students will -

Explore relationships in an ecosystem and the interdependence of organisms in an ecosystem, including food webs and how organisms affect, and are affected by, their environment, including the accumulation of toxic materials.

Describe how a species' population changes as its predator or prey population changes.

Explain effects of environmental changes and toxic materials on a species' population.

Combine food chains to form a food web.

Develop an argument about how toxic substances can accumulate in human food.



GLOBAL LEARNING OUTCOMES



RESPONSIBLE
CONSUMPTION
AND PRODUCTION



Students are aware of negative externalities and can describe how the price of a product often does not reflect the environmental or social cost of producing it.

Students can provide examples of how mass consumption processes can lead to the degradation of natural resources and students can describe how consumer's decisions can have an impact on global issues.

CLIMATE
ACTION



Students can name some different consequences of climate change and how these affect people, animals and plants.

Students can explain how and why climate change affects some places and communities more than other e.g. people in the majority world.



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Action



The Marine Conservation Society believe too much is being taken out and too much is being put into our seas. Their scientists, campaigners, volunteers, advocates, data experts, fundraisers, divers and researchers are all passionate about creating a sustainable future for our seas.

- www.mcsuk.org

We use single-use plastics for just about everything, from cleaning our teeth and showering, to buying and storing our food and other products. It is durable and lightweight, but it's these properties that allow it to persist in the environment for hundreds to thousands of years.

The Plastic Challenge isn't about living completely plastic-free - in this day and age that would be pretty near impossible. We hope Plastic Challengers will try to reduce their plastic footprint in all sorts of ways! Even small changes can make a huge difference.

- www.mcsuk.org/campaigns/plastic-challenge-home#take_action



The project has been funded with support from the European Commission. The contents of this publication are the sole responsibility of Leeds DEC and do not necessarily reflect the opinion of the European Union.