

GALWAD

CIRCULAR ECONOMY

EXPLORE A CIRCULAR LIFE CYCLE FROM NATURE AND COMPARE IT WITH THE LIFE CYCLE OF MAN-MADE PRODUCTS



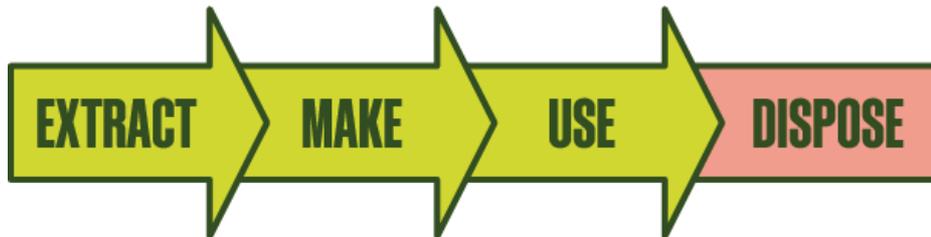
Eco-Schools



Photo: Kirsten McTerna

Background information

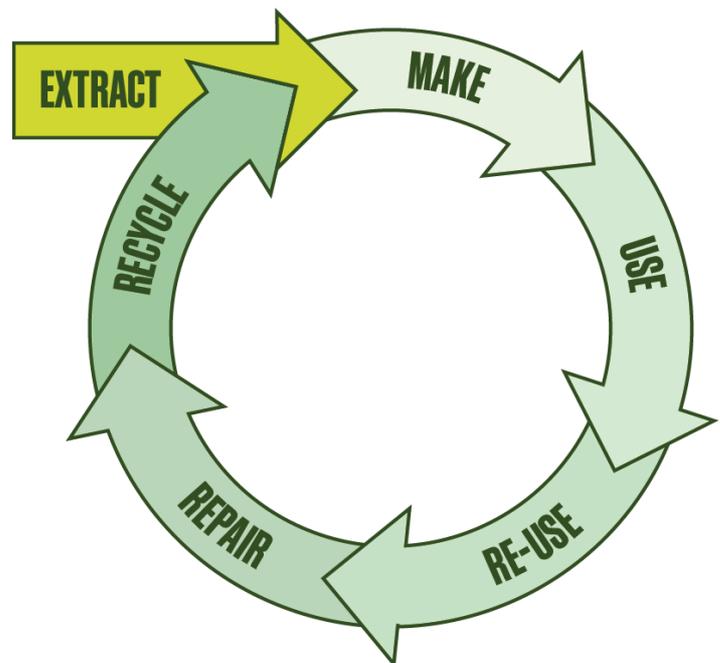
All around the world, the major civilizations are based on a take-make-waste economic model. That is to say that as we have created new products and technologies to make our lives easier, we have done so without bearing in mind that the world has limited resources. It has a limited amount of natural resources to extract and there are also limits to the amount and type of waste it can handle. This take-make-waste model is also known as a 'Linear Economy'.



This is not a sustainable way to exist, resources will eventually become used up and waste will pollute the earth.

For a sustainable world, where we are able to enjoy the benefits of our modern lifestyles, we need to move towards a 'Circular Economy'. This is where every step of an item's lifecycle is considered, how it is designed, how it is used and what happens to it afterwards.

Is a Circular Economy not just the same as recycling? Some items are ideal for recycling, aluminium, for example, can be recycled over and over again, whilst maintaining the properties that make it so useful to us.



The way plastic is currently recycled, on the other hand, is more of a downward spiral than an endless loop. Plastics are usually sorted, cleaned, shredded, melted and remoulded. Each time plastic is recycled this way, its quality is degraded. The new, lower grade plastic often becomes unsuitable for use in food packaging and most plastic can be recycled a very limited number of times before it is so degraded it becomes unusable. Therefore, until improvements can be made to the current process, recycling alone isn't the answer to the issue of decreasing resources and increasing waste.

The products that we manufacture are also very often a mixture of several types of materials, which can make it very complicated, energy intensive and difficult to recycle.

Find out more about the Circular Economy and strategy for Wales in [Beyond Recycling \(gov.wales\)](https://gov.wales/beyond-recycling).



In 2019, the total world-wide weight of waste electronic equipment was 53.6 million tonnes.



Globally, consumers waste up to £390 billion each year by throwing still-wearable clothes to landfill.



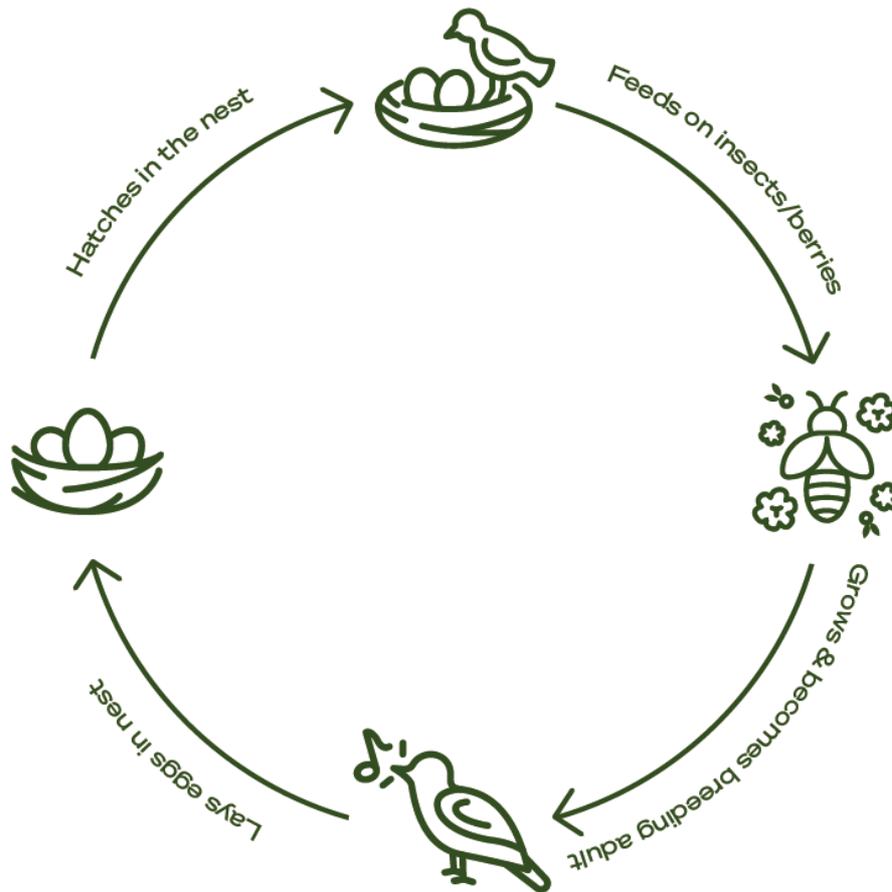
Over 80% of a product's environmental impact is determined at the design stage.

Activity

This activity looks at the circular processes that naturally occur in nature and how we can take inspiration to design products that enable us to live more sustainably. There is no waste in nature, everything has a purpose. One species' waste is another's fuel. The natural world is full of examples of circular processes that can inspire us to think creatively for a more sustainable world.

1. Explore an area outdoors where natural processes occur, such as a woodland, allotment, pond, beach etc. This could be within or outside the school grounds. Look for examples of natural cycles and draw a diagram of the process. E.g. the life cycle of a bird.

Look at your diagram and highlight where waste is produced during the cycle. What happens to this waste?



Further repeating processes you could explore: the life cycle of a tree; the water cycle; tree respiration

2. Choose something man-made that you have used recently. It could be food, entertainment, fashion, beauty products or anything else! Maybe a packet of crisps, a smartphone, a school jumper or a toothbrush.

Try to draw its life cycle in as much detail as you can, from its raw materials, through its manufacture, to its disposal. You may want to search the internet to assist your research.

What do you notice about the life cycle, can you highlight where waste is generated? Are there parts of the process that are harmful to the environment?

3. Think about how you could make the product more sustainable. Think about how it might be designed in the first place to be better for the environment, or is it possible to prolong the use of the item, by reusing or repairing?

Extension activity: Research into businesses in Wales and across the world that are contributing towards a circular economy. Some starting points:

- [Compostable crisp packets](#)

- [Ellen MacArthur Foundation Great Ideas](#)
- [Refillable Packaging](#)
- [Repair Café Wales](#)
- [Benthyg Cymru](#)

Reflection

As our global population grows, our demand for new resources needs to shrink if we are going to create a positive and sustainable future. We have learnt about how nature is completely circular; nothing is wasted and everything contributes to a balanced ecosystem. Are there any other lessons that we could learn from nature to help us live in a more 'circular' World in 2052?

Curriculum links

Purposes

- Ethical, informed citizens
- Enterprising, creative contributors

AOLEs and What Matters statements

Science and Technology

- Design thinking and engineering offer technical and creative ways to meet society's needs and wants.
- The world around us is full of living things which depend on each other for survival.

Humanities

- Informed, self-aware citizens engage with the challenges and opportunities

Global Goals



[Goal 15: Life on Land](#)

[Goal 12: Responsible Consumption & Production](#)

[Goal 11: Sustainable Cities & Communities](#)

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CREATIVITY IN THE UK



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