

# Continuous improvement

- Continuous improvement is an approach that seeks to continually improve and develop products, services and procedures for the better
  - A Japanese approach called 'Kaizen' (*Change for better*) rewards employees who suggest and develop improvements, regardless of how small they may seem
  - The cumulative impact of making improvements can be significant

改善

# Efficient working

- Efficient working aims to remove waste from any process which may manifest itself as:
  - Wasted time
  - Over Production
  - Wasted resources including Power
  - Wasted Activity
- Digital printing technology has enabled small publishing companies to benefit from printing books on demand rather than printing and warehousing large print runs. How might this improve efficiency?
  - Utilise Just In Time manufacture, manufacture only when needed
  - Less storage space needed and for a shorter time
  - Only uses materials required for a specific print run

# Pollution

- Our air and waterways can be affected by industrial pollution

- How does air pollution affect us?

Air pollution can cause damage to people's lungs and to wildlife.

- How does the pollution of our rivers, seas and waterways affect us?

It can affect the animals/plants around us or even spread disease if the water we drink is polluted  
Energy needed to clean the water.

- What can be done to reverse and prevent pollution?

We can avoid throwing away too much and try to clear the pollution from water. Reduce air pollution by driving less

- What can you undertake to reduce Pollution?

You could make sure that you recycle old products and drive less.

Stop buying products that harm the environment, buy organic/local food

# Global warming

- Primarily caused by an excess of CO<sub>2</sub> in the atmosphere that traps heat, warming the planet
- Burning fossil fuels releases CO<sub>2</sub> from the earth
  - What are some of the effects of global warming?
  - What are some of the techniques, policies and products being created to reduce or reverse these effects?

Some of the effects of global warming are species going extinct and reduced biodiversity. Increased pollution in the air and in the waterways. Polar ice caps melting, rising sea levels, forest fires, wildfires, loss of natural environment.

Some companies/governments are agreeing to become carbon neutral so that they don't emit carbon dioxide and to help slow down global warming. Products such as electric cars to reduce air pollution. 6 R's and reducing the amount of fossil fuels.

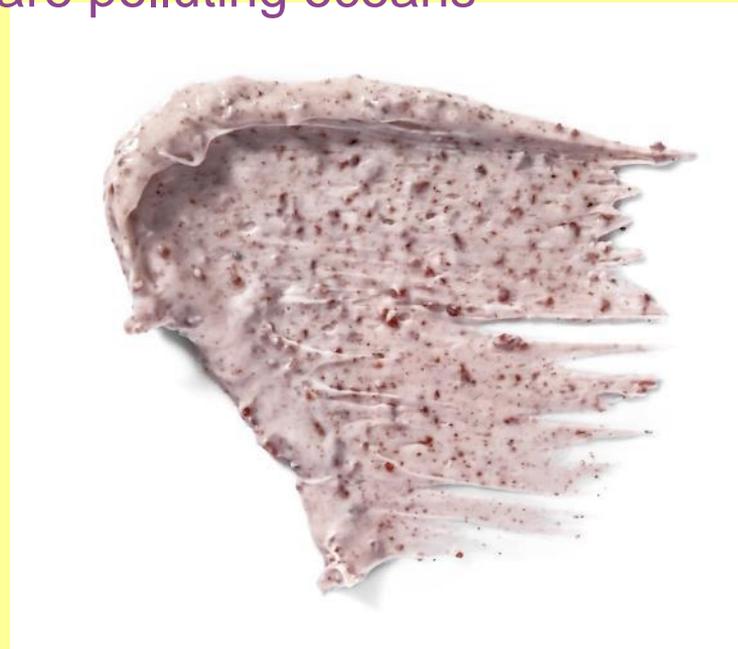
# Battery power

- Battery production uses finite and dangerous metals
- The production process is very intensive
- Proper disposal of batteries is required to prevent leaching alkalis into the environment
  - How 'green' is battery power?
  - What is the alternative to battery power?



# Impact on the environment

- Plastic microbeads in exfoliating scrubs, body washes and toothpaste
  - Not a new idea, but only recently have we found them inside deep sea animals and they are polluting oceans
  - Plastics absorb toxins
  - Fish eat plastics
  - We eat fish. Mmmm



<https://www.bbc.co.uk/news/science-environment-39217985>

# Helping the environment

- Hydrogen fuel cells produce only water as waste
- Electronic paper could replace printed paper
  - What might be the environmental impacts of producing these technologies?

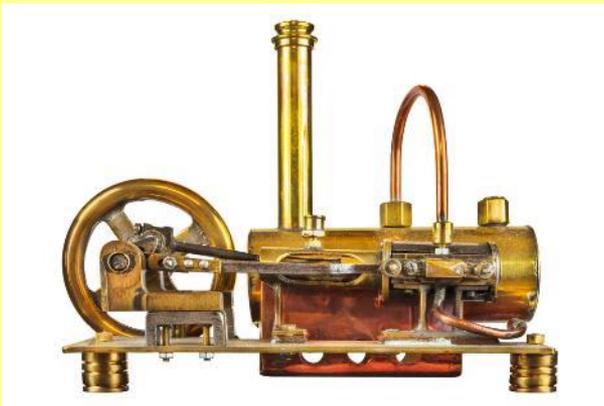
Hydrogen fuel cells need producing which takes people ,money and energy.Hydrogen can also be very dangerous. Electronic paper uses up a lot of energy in charging, production and transportation.

- How might each of these technologies actually help the environment?

Hydrogen fuel cells mean that less energy is needed to fuel cars and you don't have to use petrol or diesel which emit greenhouse gases. Hydrogen is very abundant and would therefore be very unlikely to run out. Electronic paper such as iPads mean that less paper is needed and less trees have to be cut down which reduces the impact manufacturing and transporting the paper and increases the amount of trees which absorb carbon dioxide.

# Eco-friendly technology

- Old technology combined with new ideas can create excellent new products
  - The engine has become more and more efficient with refinements and technological developments
  - Where / how could current technology be developed in the future to do more?



# Reducing consumption

- Digitisation and consolidation of many devices in one
  - Reading a book, playing a CD and taking a photo can all be done with one device, without requiring any more raw material
  - Devices also combine Sat Nav systems, calculators, torches, watches, alarm clocks and more



# Carbon Offsetting

Q6

Explain how carbon offsetting helps to reduce the overall CO<sub>2</sub> emissions of a company.

- Will the production of goods always have some negative impact on the environment?

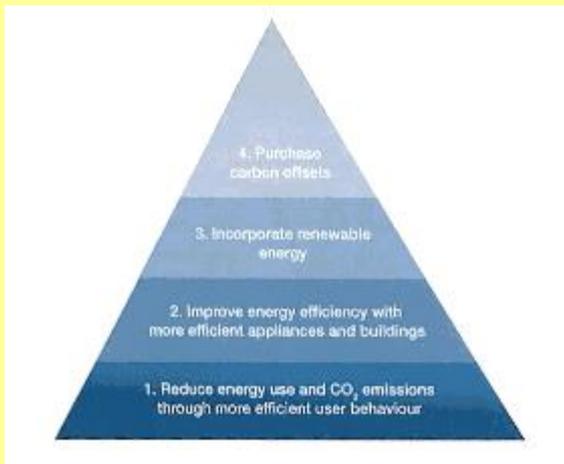
A product is said to be Carbon Neutral if it produces zero net emissions when the \_\_\_ has taken all considerations into account.

Purchasing carbon credits are seen as the only way of companies achieving a low carbon footprint.

Explain what carbon credits are?

This is when someone who produces carbon dioxide emissions  
pays to support projects that reduce CO2 emissions and this  
allows them to offset their emissions to become carbon neutral.

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## Extension Q's

Q5

Wind-up radios and torches have had a very positive influence in developing countries. What factors do you feel make wind-up products of this type sustainable and environmentally friendly?

The wind up radios and torches don't need to be provided with energy because you generate the electricity by winding it up. This means that they don't need a power supply to use the product and this allows it to be used in remote areas where people don't have access to an energy supply.

Q7

The Paris agreement in December 2015 was the first global climate agreement, involving 195 countries. Find out the main aim of the agreement.

The main aim of the agreement was to keep the global temperature increase below 2 degrees to help prevent global warming. This was done to help stop rising sea levels, polar ice caps from melting, loss of biodiversity etc.