

# Food production and sustainable farming

## Task: Sustainable approaches to agriculture

With global human populations continue to increase, a sustainable food supply is crucial. Intensive agricultural practices might produce more food in the short-term, but research has shown that these practices degrade soil, contribute to aquatic pollution and lead to wildlife loss. Changes in agricultural practices and our approach to food needs to change. In the UK, 72% of the land is used by farmers for food production. Many UK farmers are now tackling climate change using **agroforestry** - Use this [resource](#) to find out how agroforestry is a great example of a sustainable agricultural practice.

## Farming: The facts

**30%**

of all antibiotics<sup>2</sup> consumed in the UK are used on farm animals

**1<sup>2</sup>**

billion+ farm animals<sup>2</sup> are killed for food each year in the UK

**466,000<sup>2</sup>**

jobs provided by agriculture in the UK

**35%**

the amount global food demand<sup>2</sup> is expected to increase by 2030

**75%**

of the world's food is generated from only<sup>2</sup> 12 plants and 5 animal species



A transition to organic agriculture also represents a sustainable approach to reduce greenhouse gas emissions. This "agroecological" farming system has many benefits that are explored [here](#).



### Task: Consequences of global temperature rise

Global rises in temperature will have significant social, environmental and economic impacts. These include habitat loss, resulting in reduced biodiversity and changes in species distribution, rising sea levels leading to flooding, loss of agricultural land, and loss of business.

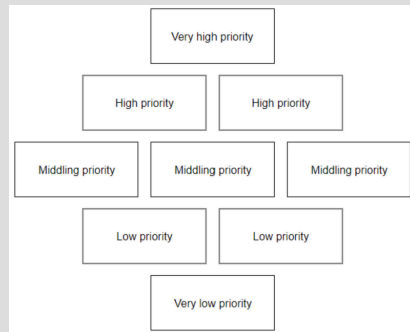
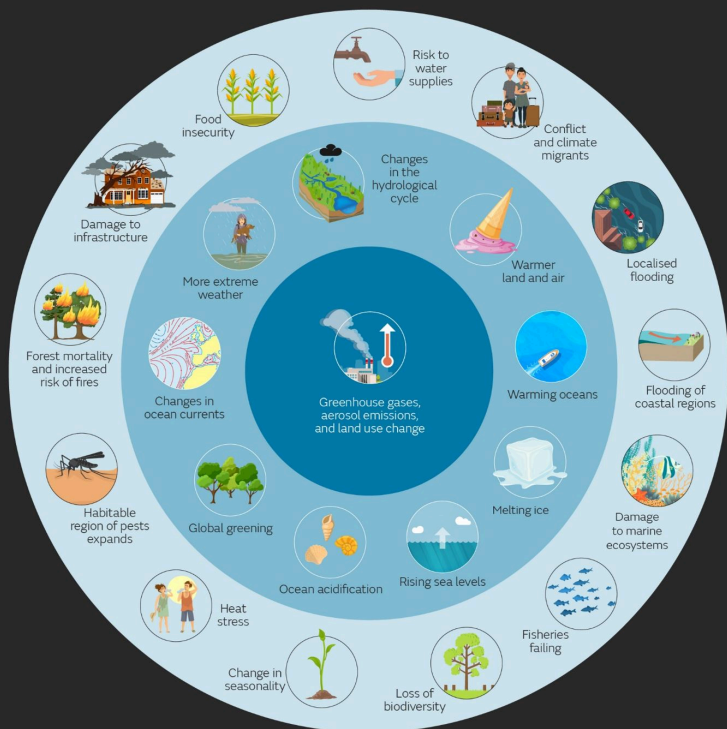
#### What will be affected by temperature rise?

- Agriculture ▼
- Frequency of extreme weather incidents ▼
- Quantity of ice and snow ▼
- Sea levels ▼
- Wildlife ▼

If we continue to produce energy from fossil fuels, global temperatures will continue to rise. Click on the image opposite to explore the impacts of this on land, air and water.

### Task: Effects of Climate Change

The image below is available on the [Met Office website](#). In groups, consider the drivers of climate change, the changes to the climate system and the impacts. Use the "Diamond 9" approach to decide on the most significant impacts, with the largest impact at the top of the diamond and the least significant at the bottom.

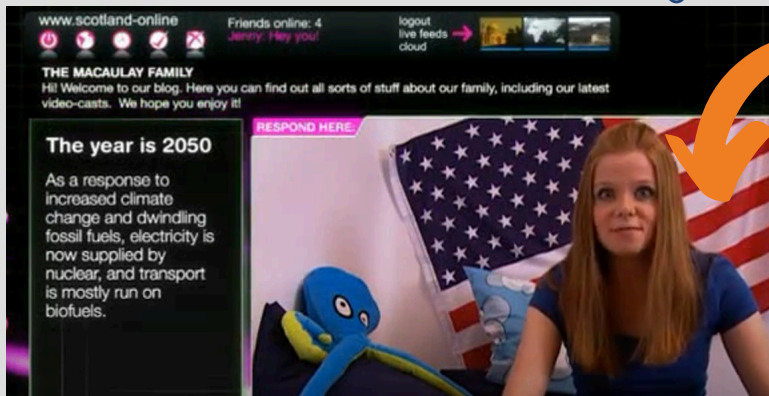


- Drivers of climate change
- Changes to the climate system
- Impacts



## Task: Choosing our Tomorrows

It is the year 2050 - what does it look like? How did society react and adapt to climate change? Meet the Macaulay family, who own a farm in East Lothian. The outcome of three different reactions to climate change are presented.



Watch the trailer here - these videos have been developed by The Macaulay Land Use Research Institute to explore climate change and the choices individuals and society can make to respond to the climate change emergency.

The full resource is available [here](#). The three choices presented are shown in the diagram below.

### *We have done nothing to combat climate change*

Petrol prices exceed £10 per litre  
In Scotland winters are extremely wet with frequent violent storms  
Summers are much warmer and very dry  
Food shortages are common  
Climate change has forced millions to migrate from Southern Europe to Northern Europe  
Polar bears are extinct



### *We have responded to climate change by investing in new technologies*

We have done little to reduce our use of natural resources  
Only the wealthy can afford access to the new technologies  
Every bit of farmland is used to produce GM food and biofuel  
There is little wildlife in the countryside  
Food prices are very high  
Nuclear power is now Scotland's main source of energy  
High waste disposal charges mean people recycle almost everything



### *We have made a serious response to climate change*

Most people produce some of their own food and shop locally  
Scotland is almost self-sufficient in food and energy  
Food imports are mostly a thing of the past  
Renewables are now Scotland's main source of energy  
Most homes have solar panels and heat exchange pumps  
Transport fuel costs are very high  
Advances in computer technology allow many people to work from home  
Children are taught in virtual classrooms

