



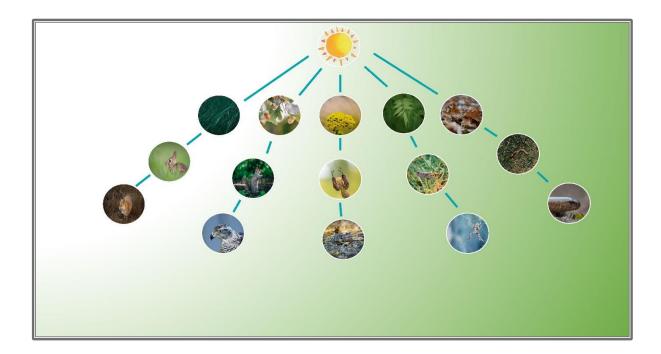






# **Background information**

Food chains are a part of everyday life and we can use them to explain how energy flows from the sun, through the eco system and how some of it flows into us and gives us the energy we need to go about our daily lives. All the natural world relies on energy from the sun from plants through insects, birds and on to the top predators. Understanding energy flow and food chains allows children to grasp how we must be careful not to disrupt the eco system and the consequences to different species of our actions.



## Climate perspective

It is well documented that rapid changes in climate can drastically affect eco systems. Although there have been changes in climate throughout history, when it happens at speed there is no opportunity for species to adapt which results in a loss of biodiversity. Each species lost influences other areas of the eco system. If it is a prey species lost it causes food shortages for predators or if a predator for a particular species is lost, then that causes over population of the prey species

with no predator to control it. As the climate warms there is evidence of species succeeding in areas they have not previously been found and pushing out the native species. Some have been introduced such as the Signal Crayfish, but others have found their own way such as the Harlequin Ladybird. This is a problem that is becoming more and more common, and steps must be taken to protect our native wildlife.

# Let the energy flow! Upper KS2

## A food chain activity that is all about energy

This activity allows children to work out different food chains using the cards provided and gain an understanding that all food chains start with the sun which is constantly giving us energy. They can then go on to create their own cards to make a food chain.

This activity is best done entirely outdoors so that there is space to move around and being surrounded by nature will help them to understand the energy flow.

#### **Materials needed:**

- Food chain cards
- Buckets with holes
- Water
- Bug pots
- Post-it notes (optional)



#### Step 1

Before the session starts, sort the food chain cards so you have one card per child making up complete food chains.

#### Step 2

Ask the group to stand in a circle and give every child a card which they hold up in front of them so everyone can see it. As you go round the circle ask each child to identify where in a food chain they would fit e.g. if they have the sun they are at the start of the chain or if they are the mouse they can identify what they might eat and what may eat them.

#### Step 3



Ask the children to work together to get themselves into food chains of 4 (1 of which will always be the sun). There may need to be a bit of shuffling about to fit everyone into a chain as there is some cross over of who eats particular things. When they are happy with all the chains ask them to explain each chain to the rest of the group.

#### Step 4

#### **How the Energy Flows**

Ask the children to run on the spot for 20 seconds and then discuss where their energy came from. Are they aware that the sun is the source of all our energy and the energy flows through the food chain into them? Ask the children what they had for breakfast and if they realise that their breakfast is the source of their energy for the morning. Can they describe the energy flow from the sun to them? E.g. if they had cornflakes then the energy flow is Sun-Corn-Humans and Sun-Grass-Cow(milk)-Human.

## Step 5



Pick an area of your grounds and ask the children to work in small groups to collect as many different leaves as they can. Ensure they only pick one leaf from any plant or bush to ensure that they do not do

any harm. When they bring them back lay them out in a row discarding any duplication. You should have a long line of different leaves.

Next give each group a few bug pots or jars and ask them to hunt for minibeasts or evidence that one has been there. If you prefer, they could write down what they have seen on post-it notes/paper rather than trying to collect them. At this stage they are looking for herbivores/omnivores/detritivores Lay out all the information in a row below the leaves. This should be a shorter row.

#### Step 6



The final stage is to look for evidence of carnivores. Once again the children can write their findings down on post-it notes. Examples for this stage might be a spider's web, a bird in a tree, or beetle under a log.

Lay out the results in a row as before, only including each example once. This row may be quite short. Explain that the rows have become shorter because the energy from the sun is being used up as it moves down the food chain and therefore can support fewer creatures.



### Step 7

#### **Energy Flow Activity**

This extension activity shows in a very visual way how the energy from the sun is flowing through the food chain and being used up by the plant/creature as it goes.

Take the four buckets/plant pots with holes and label according to a food chain (e.g. Sun - leaf – caterpillar – bird) and ask 4 children to stand in a row holding them (in outstretched arms to avoid getting too wet!)

You are going to pour the water into the first bucket who will then pour it into the second and so on until the last person who will pour it back into the original bucket and they can discuss why there is less water than when they started.

## **Curriculum Links**

**Area of Learning and Experience** - Science and Technology **Statement of What Matters:** 

The world around us is full of living things which depend on each other for survival.

Forces and energy provide a foundation for understanding our universe.

Area of Learning and Experience - Humanities Statement of What Matters:

Our natural world is diverse and dynamic, influenced by processes and human actions.

## Next steps and other ideas

- Investigate food chains in different environments.
- Draw up food chain cards to illustrate what they have learnt.

There are other websites which also have food chain activities and games which you can find below.

