



**Yorkshire**  
Wildlife Trust

Educator resources

FOOD CHAINS

This video is meant to act as a starting point to broach the topic of food webs, the video contains all the basic information that someone learning about food webs for the first time needs to know or could act as a helpful reminder of the basics.

For your use we have attached some related further topics to allow for you to expand on any specific areas or to help tailor any learning or activities to the aptitude of the student.

The subject of food webs and chains allows for seamless segue into many other relevant topics within curriculums through all the key stages.

- Pollution and bioaccumulation – example mercury pollution accumulating in the tissues of ocean tuna.
- Nutrient cycle – saprophytic chains and how phosphates/ calcium/ nitrates are recycled in the environment.
- Different food chains – saprophytic, parasitic, predator
- Energy loss in the form of heat -wasted energy – Second law of thermodynamics
- Omnivores, carnivores and herbivores
- Predator-prey and Host-Parasite relationship
- Different survival and feeding strategies – baleen whale vs shark – secondary vs tertiary consumer – also schooling behaviour in fish and birds – How do the primary consumers try and avoid being eaten? How to secondary and tertiary consumers try and outsmart and eat them?
- Photosynthesis and cell biology – how producers produce energy from the sun using chlorophyll/ chloroplasts and how animal cells differ from plant ones.

Topics within the Key Stages that relate to this topic:

### Key stage 1/2

#### Year 1

##### Animals, including humans

- Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals
- Identify and name a variety of common animals that are carnivores, herbivores and omnivores

#### Year 2

##### Living Things and their Habitat

- Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other
- Identify and name a variety of plants and animals in their habitats, including microhabitats
- Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food

##### Plants

- Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy

##### Animals

- Find out about and describe the basic needs of animals, including humans, for survival (water, food and air)

#### Year 3

##### Plants

- Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant, explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant

#### Year 4

##### Living things and their habitats

- Recognise that living things can be grouped in a variety of ways
- Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment animals
- Identify the different types of teeth in humans and their simple functions
- Construct and interpret a variety of food chains, identifying producers, predators and prey

## Year 5

### Living things and their habitats

- Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird

## Year 6

- Living things and their habitat
- Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals
- Give reasons for classifying plants and animals based on specific characteristics

### Evolution and inheritance

- Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago
- Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution

### Geography – Place Knowledge – in relation to Yorkshire

- Understand geographical similarities and differences through the human and physical geography of a small area of the UK, and of a small area of a non-European country
- Use basic geographical vocabulary to identify key physical features such as beach/cliff/coast/forest/hill/mountain/sea/ocean/river/soil/valley/vegetation/season/w eather
- Use basic geographical vocabulary to identify key human features such as city/town/village/factory/farm/house/office/port/harbour/shop

### Human and physical geography – in relation to Yorkshire

- Describe and understand key aspects of physical geography, including: climate zones/ biomes and vegetation belts/ rivers/mountains/ volcanoes and earthquakes/ and the water cycle
- Describe and understand key aspects of human geography, including: types of settlement and land use, economic activity including trade links, and the distribution of natural resources including energy, food, minerals and water

## English

- Introducing new terminology (see following glossary) associated with ecology and zoology
- Read words of more than one syllable that contain taught GPC's

## Key stage 3 / 4

### Nutrition and digestion

- Plants making carbohydrates in their leaves by photosynthesis and gaining mineral nutrients and water from the soil via their roots
- The role of leaf stomata in gas exchange in plants

### Photosynthesis

- The reactants in, and products of, photosynthesis, and a word summary for photosynthesis
- The dependence of almost all life on Earth on the ability of photosynthetic organisms, such as plants and algae, to use sunlight in photosynthesis to build organic molecules that are an essential energy store and to maintain levels of oxygen and carbon dioxide in the atmosphere
- The adaptations of leaves for photosynthesis

### Relationships in an ecosystem

- The interdependence of organisms in an ecosystem, including food webs and insect pollinated crops
- The importance of plant reproduction through insect pollination in human food security
- How organisms affect, and are affected by, their environment, including the accumulation of toxic material

### Ecosystems

- Levels of organisation within an ecosystem
- Some abiotic and biotic factors which affect communities; the importance of interactions between organisms in a community
- How materials cycle through abiotic and biotic components of ecosystems
- The role of microorganisms (decomposers) in the cycling of materials through an ecosystem
- Organisms are interdependent and are adapted to their environment
- The importance of biodiversity
- Methods of identifying species and measuring distribution, frequency and abundance of species within a habitat
- Positive and negative human interactions with ecosystems

### Cellular respiration

- Aerobic and anaerobic respiration in living organisms, including the breakdown of organic molecules to enable all the other chemical processes necessary for life
- A word summary for aerobic respiration
- The process of anaerobic respiration in humans and micro-organisms, including fermentation, and a word summary for anaerobic respiration
- The differences between aerobic and anaerobic respiration in terms of the reactants, the products formed and the implications for the organism

### **Human and physical geography – in relation to Yorkshire**

- Physical geography relating to geological timescale and plate tectonics; rocks, weathering and soils; weather and climate, including how the climate has changed since the last ice age; and glaciation, hydrology and coasts

### **English**

- Pupils should continue to develop their knowledge of and skills in writing, refining their drafting skills and developing resilience to write at length. They should be taught to write formal and academic essays as well as writing imaginatively. They should be taught to write for a variety of purposes and audiences across a range of contexts. This requires an increasingly wide knowledge of vocabulary and grammar.

### **Citizenship – in relation to Yorkshire and SSI/SAC/MPA of Flamborough**

- The roles played by public institutions and voluntary groups in society, and the ways in which citizens work together to improve their communities, including opportunities to participate in school-based activities
- Local, regional and international governance and the United Kingdom's relations with the rest of Europe, the Commonwealth, the United Nations and the wider world

## Glossary

**Carnivore** – an animal that feed on other animals

**Community** – a 'community' in biology consist of two or more populations of organisms

**Consumer** – an organism that obtains food by feeding on other organisms or organic matter

**Herbivores** – an animal that feeds on plants

**Micro-algae** – microscopic, single-celled algae that exist independently or in colonies

**Omnivore** – an animal or person that eats food from both plant and animal origin

**Organism** – an individual animal, plant or single-celled life form

**Primary consumers** – the organisms that eat the producers are primary consumers

**Producer** – make up the first level of a food chain and make their own food (plants)

**Photosynthesis** – = the process by which plants use sunlight to synthesize nutrients from carbon dioxide and water. Photosynthesis in plants generally involves the green pigment chlorophyll and generates oxygen as a by-product

**Phyto-plankton** – are microscopic marine algae

**Secondary consumers** – the organisms that eat primary consumers. They can be carnivores or omnivores

**Tertiary consumers** – the carnivore at the top of the food chain that feeds on secondary consumers

## Taking the subject further...

We have a range of printable resources on our website to assist you in your teaching and learning. Categories include:

- Colouring sheets
- Crafts
- Spotter ID sheets
- Quizzes
- Activity booklets

The activities have been developed to allow participants to be creative, allowing pupils to *produce creative work, exploring their ideas and recording their experiences* in-keeping with national curriculum guidelines.

There is also the opportunity to improve computer skills through research for completing the activity booklets.

To link specifically with this topic we would recommend:

- the Underwater Scene craft activity for creative
- Marine mammal quiz to test your knowledge of some of the ocean's top predators
- 'Marine Megafauna' activity booklet focussing on ocean giants including whales, dolphins and seals. Where do these creature fit in a food chain?

The resources can be found following the link here:

<https://www.ywt.org.uk/living-seas-centre/printables>