



Key Stage 3/4 Lesson 3 – Food Webs in Action

Lesson Plan

Introduction

Bring Yorkshire into the classroom by exploring the wildlife we find on Yorkshire's coast and the part it plays in the marine ecosystem.

In this lesson, we explore the different roles in a food chain, how Yorkshire's local marine wildlife fits into the food chain, what a food web is and issues that threaten a food web.

Teaching and Learning

Task 1: Food webs in action PowerPoint presentation

- Start the lesson by presenting the PowerPoint to learn about the marine ecosystem and a marine food web we find at Spurn National Nature Reserve. Students will learn the difference between a food chain and a food web, the different roles that organisms play in a food chain and about how harmful materials can enter a food web.

Task 2: Nearpod quiz

- Use the Nearpod link on the 'Marine Learning Pack' webpage and complete the quiz to test students' understanding of the PowerPoint presentation. Use the teacher's link to add the quiz to your resources and to be able to edit the quiz (you will need to create a free Nearpod account to do this) or use the student-paced link to allow students to complete the quiz in their own time (no Nearpod account needed).

Task 3: Practical activity – microplastic in the food chain

- This activity will explore how marine plastics enter the food chain. Students will represent different organisms in the food chain and work as a group to model the transfer of microplastics up the food chain. Students will explore bioaccumulation and the impact that plastic in the food chain has on the lifecycle of marine organisms.

Learning Outcomes

- 1) Describe what a food chain and a food web are
- 2) Explain the role of different organisms in a food chain
- 3) Explore what would happen if different organisms in the food web increased or decreased in number

Key Vocabulary

Organism, habitat, community, ecosystem, food chain, food web, producer, photosynthesis, primary consumer, secondary consumer, tertiary consumer, predator, prey, apex predator, microplastic, bioaccumulation.

Links to the National Curriculum

KS3 Biology

Structure and function of living things:

- Nutrition and digestion
 - Plants making carbohydrates in their leaves by photosynthesis and gaining mineral nutrients and water from the soil via their roots.

Material cycles and energy:

- Reproduction
 - 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.

Interactions and independencies:

- Relationships in an ecosystem
 - The interdependence of organisms in an ecosystem, including food webs and insect pollinated crops
 - How organisms affect, and are affected by, their environment, including the accumulation of toxic materials.

KS4 Biology

General principles:

- Life on Earth is dependent on photosynthesis in which green plants and algae trap light from the Sun to fix carbon dioxide and combine it with hydrogen from water to make organic compounds and oxygen
- The chemicals in ecosystems are continually cycling through the natural world.

Photosynthesis:

- Photosynthesis as the key process for food production and therefore biomass for life.

Ecosystems:

- Levels of organisation within an ecosystem
- Organisms are interdependent and are adapted to their environment
- The importance of biodiversity
- Positive and negative human interactions with ecosystems.

