

Seals

TEACHER'S NOTES

What this topic is about

Seals belong to a group of animals called pinnipeds, which can be divided into three families:

- true seals
- eared seals (fur seals and sea lions)
- walruses

Two of the 35 different species live around the coasts of Europe and belong to the true seal family; these are the grey seal and common (or harbour) seal. The UK is home to around 40% of the world population of grey seals, *Halichoerus grypus* (110,000 animals), and 40% of European subspecies of the common seal, *Phoca vitulina vitulina* (40,000).

Most of the UK's seals are distributed around the Scottish coast and offshore islands, with smaller colonies in Wales, Cornwall (including the Sea Life Centre at Gweek), Northumberland and The Wash. The new seal facility at Weymouth is a permanent home for seals and sea lions unable to live in the wild. The hospital is busiest during the winter months. Simulations model that activity for summer visitors. Over the years, between the facilities, thousands of seal pups have been successfully returned to the wild.

What will pupils learn?

- About the life cycles and needs of these fascinating and unusual native mammals
- About the unique characteristics of seals that help them adapt and survive to different circumstances
- How human action can preserve and protect living things

Essential information

The word pinniped is derived from the Latin *pinna* meaning fin or wing and *pedis* meaning foot. Seals are the 'fin-footed' mammals of our shores.

Pinnipeds share five common characteristics with other mammals. They are warm-blooded (maintaining a high and constant body temperature independent of the surroundings), give birth, nurse their young, breathe air, and have hair. Since they live in the marine environment and they find their food at sea, pinnipeds are called marine mammals.

Although most of their lives are spent in the water, pinnipeds, unlike fellow mammals whales and dolphins, are also dependent on land. Pinnipeds may come ashore periodically to rest and bask in the sun, and at least once each year, during their breeding season, most species congregate on beaches or sea ice to give birth and breed.

A pinniped's body is insulated with a thick layer of fat called blubber which lies just under the skin. Besides reducing the amount of body heat lost to cooler surrounding waters, blubber contributes to a pinniped's streamlined shape and stores energy. A streamlined shape produces less resistance and helps a pinniped conserve energy as it swims.

Seals are opportunistic feeders - they feed on a number of different prey depending on what is available, diving as deep as 300 metres if necessary. Their diet consists mainly of fish such as sand eels, herring and whiting, as well as bottom-dwelling fish like plaice and flounder. They also eat squid and octopus.

Seals are gregarious animals and breed in large colonies where many animals aggregate on beaches and sandflats. The greater the number the better it is to watch for predators.

Seals mate at the end of lactation. Both grey seals and common seals can mate in the water. Male seals often fight for access to females.

Seals (continued 1)

TEACHER'S NOTES

Grey seals give birth to a single pup on beaches or in hidden sea caves from July to November. Common seals pup deliver on beaches and sandflats within the tidal reach from May to July.

Grey seals are born with a silky white coat and are helpless until the coat is moulted after nine to 18 days. Common seal pups are dark and mottled having shed their coat before birth and can swim within five minutes.

Common and grey seals have been hunted by man in the UK for thousands of years, mainly for pelts, oil and meat. As recently as the early seventies, 90% of pups were killed for their skin. This resulted in a ban on the fur trade in 1973.

Although, large scale hunts for grey seals during the breeding season were outlawed in the early twentieth century, there remained repeated calls for a cull from fishermen who perceived seals as detrimental to fish stocks. The government conceded and a licensed culling programme was introduced in 1962, further reducing numbers of grey seals in the UK. This annual cull continued until 1979, when it was stopped in the face of strong public protest.

Since then, grey seal populations are increasing by around 7% annually and common seal numbers appear stable. Even so, a report commissioned by the European Union states that common seal numbers are around one quarter what they were at the turn of the century.

Things your pupils can do:

● *Before their visit*

Touch - Vision - Smell - Hearing activities

Use books, magazines, CD-ROMs and the Internet to find out all they can about the seal's highly developed senses and the practical advantages of each gift, as described below:

- **Touch** - seals search for food with their coarse, continuously growing whiskers. The seal sweeps its upper lip to and fro, using these sensitive whiskers to detect fish in murky waters
- **Vision** - a seal's eye must be adapted to focussing in both air and water and so is large with a spherical lens
- **Smell** - seals have a keen sense of smell in air, which allows them to detect predators. Females also use smell to recognise their pups on the crowded breeding beaches. Whilst swimming the nostrils are kept tightly shut.
- **Hearing** - seals hear very well in both water and air. Females and pups often call to each other. Seals also make growls and grunts underwater especially during the breeding season.

Seals (continued 2)

TEACHER'S NOTES

● *During their visit*

Look for ways that Sea Life's seals are kept active and interested. Feed may be pulled round the pools, giving the seals a chance to chase and catch it. Fish are frozen inside ice blocks so that the seals can play with them and eventually eat the fish. Food is hidden around the pools so that the seals can search for it and find it. Play things – including things that float – are put in the pools for games.

● *After their visit*

Write a proposal for a new seal sanctuary - with drawings and design.

Answers to questions in Pupil Work Sheet

- A.** Seals can hold their breath for up to half an hour! They store oxygen in their blood. (2)
- B.** Seals can sleep in the water. They turn on their backs and bob up and down like a life buoy. If they go under water, their nostrils close automatically. (3)
- C.** Seals have a very thick layer of fat or blubber under their skin to keep them warm in icy water. (1)
- D.** Seals can dive up to 70 metres deep without a mask or air bottle. (4)
- E.** Seals can detect other animals in the water. Their long whiskers detect the movement other animals make in the water (6).
- F.** Blind seals can survive very well in the sea. They have an amazing sense of smell and they use this, together with their whiskers, to find food. (5)