

LIVING ON THE EDGE - VEGETATED SHINGLE

A UNIQUE COASTAL HABITAT, UNDER THREAT

VEGETATED SHINGLE BEACHES (shingle beaches with plant cover) are uncommon. South East England is lucky to have many more examples than North France. Unfortunately, housing and development has destroyed many vegetated shingle beaches and others are threatened by coastal erosion. Many of the special plants found in this **HABITAT**, such as Sea Pea and Sea-holly, are becoming scarcer. (A habitat is a place where an organism can live.)

WHY ARE SHINGLE BEACHES SUCH A HOSTILE HABITAT FOR PLANTS?

On hot summer days, bright flowers, butterflies and other insects make shingle beaches colourful, attractive places. However, even then there are major problems for the plants' survival, and at other times of year shingle beaches can be bleak, hostile habitats for plants.



Sea-kale

Sea-kale and Red Hemp-nettle



Yellow Horned-poppy



ESSENTIAL SURVIVAL NEEDS FOR ALL PLANTS

a) All plants, whether they live by the sea or inland, require the following (fill in):

In addition, the habitat must enable the plants to reproduce successfully, so that they can increase or at least maintain their populations.

PROBLEMS FOR THE SURVIVAL OF SHINGLE BEACH PLANTS

One of the major problems confronting shingle vegetation is the lack of fresh water in the shingle. Deep down in the shingle, there is usually a fluctuating layer of fresh water, derived from rain draining down between the pebbles, which floats above salt water that has spread into the base of the beach from the sea. In summer, this fresh water layer may be very thin, and may vanish altogether during droughts.

b) Give 5 other reasons why the environment is so hostile for shingle plants:

HOW DO PLANTS SURVIVE IN THIS DIFFICULT ENVIRONMENT?

The plants have had to **ADAPT** to their very dynamic, hostile habitat, evolving special features to enable them to survive. They are **SPECIALIST PLANTS**, adapted to live on shingle close to the sea.

Sea-kale, for example, is a very tough plant found just above high tide level on the shingle. It often grows as well spaced-out single plants, separated by areas of bare shingle. It is well adapted to survive the harsh conditions. On the diagram overleaf, see if you can match the plant's adaptations listed on the left with the environmental problems it faces listed on the right.



c) Draw arrows to connect the relevant boxes:

Very long roots descend up to 2 metres into the shingle.

Produces large numbers of small white flowers.

Produces large numbers of buoyant waterproof spherical seeds.

Dies back to become a low growing clump in winter.

Thick, waxy leaves.

Strong winds, salt spray and lack of shelter in winter.

High temperatures and evaporation rates in summer.

Rainwater quickly drains down through the shingle, forming a semi-permanent layer of fresh water at depth.

Needs to attract insects for pollination.

Needs to disperse its seeds widely. Few will find a good place to grow.

