

FOOD CHAINS, ECOSYSTEMS AND ADAPTATIONS

All creatures need a source of energy to stay alive. A food chain shows how plants and animals get their energy. Every habitat will have its own food chains and food webs.

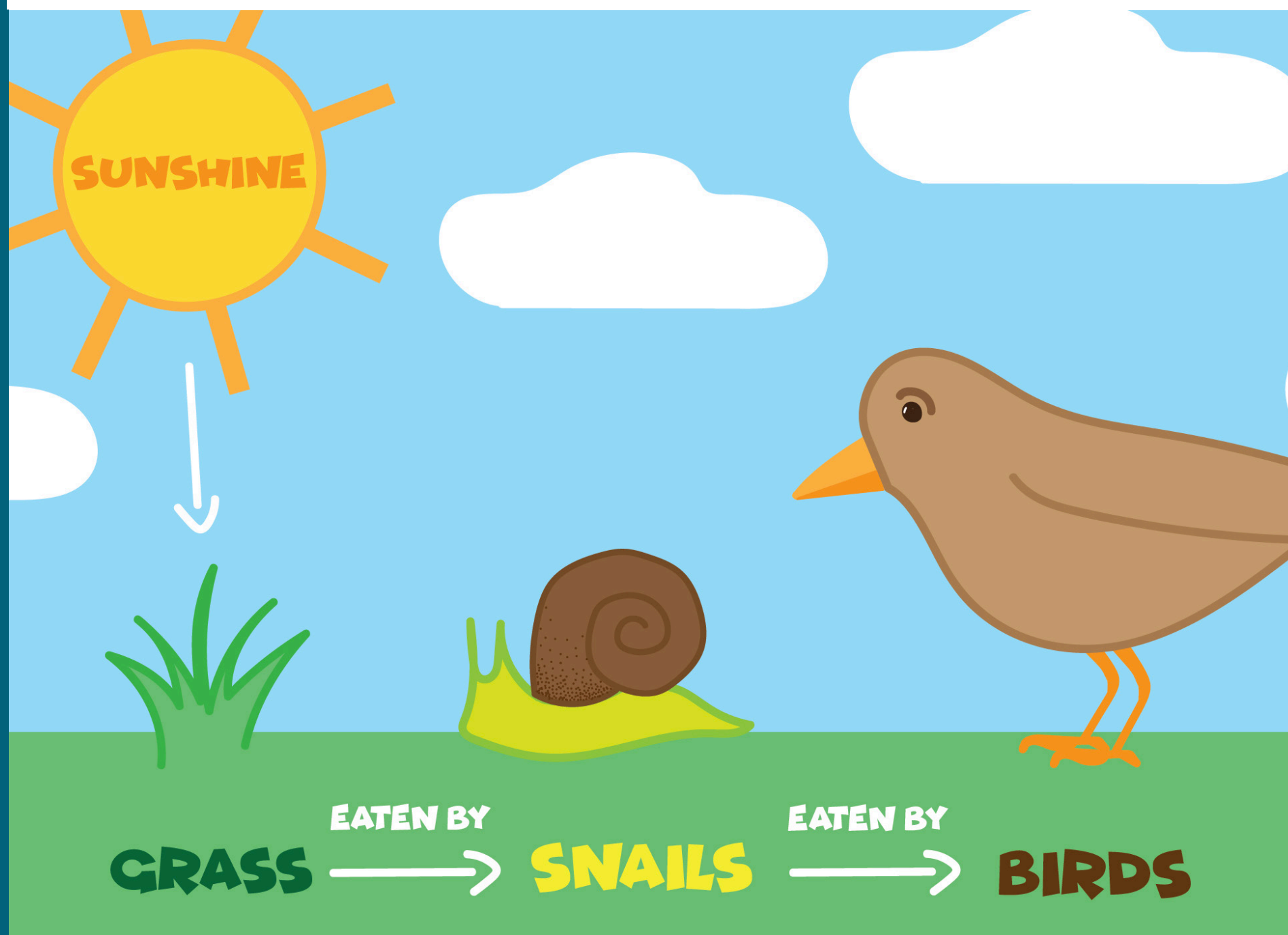
PRODUCERS AND CONSUMERS

Plants use the energy from sunlight to make food in their leaves by a process called photosynthesis. They are called **producers** because they produce their own food. Most habitats have lots of plants, and fewer animals. Most animals cannot make their own food. They must eat something else to get the energy to live and grow. They are called **consumers**.

Some animals eat plants and are called **herbivores**. They need to eat a lot of plants because plants contain relatively little energy. Animals that eat meat are called **carnivores**. They get their meat by eating other animals, usually smaller than themselves.

Omnivores (like humans) eat both plants and animals. Some animals, like lugworms, eat bits of plants and animals that are dead, rotten or are other animal's droppings! They are called **decomposers**. They are important for recycling nutrients. Fungi and micro-organisms are also decomposers. The nutrients go back into the soil where they can be used again by plants to help them grow.

A SIMPLE FOOD CHAIN



Plants are producers: they make their own food using the energy of the sun.



Worms, like this ragworm are a consumers: They eat dead plants and animals.



ARE THEY A PRODUCER OR A CONSUMER?



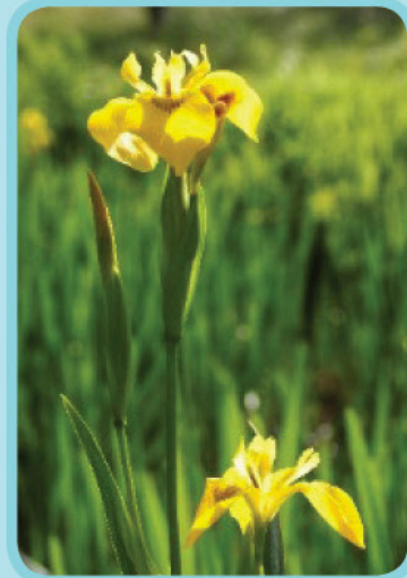
Harbour seals are a consumer: They are carnivores that eat fish.



Water voles are a consumer: They are herbivores that eat plants.

LET'S LOOK MORE CLOSELY AT SOME FOOD CHAINS FOUND IN HARBOUR HABITATS

A STREAM HABITAT FOOD CHAIN



STREAM PLANTS



MAYFLY LARVA



MINNOW



HERON



A SHORELINE HABITAT FOOD CHAIN



SEAWEED



SAND HOPPER



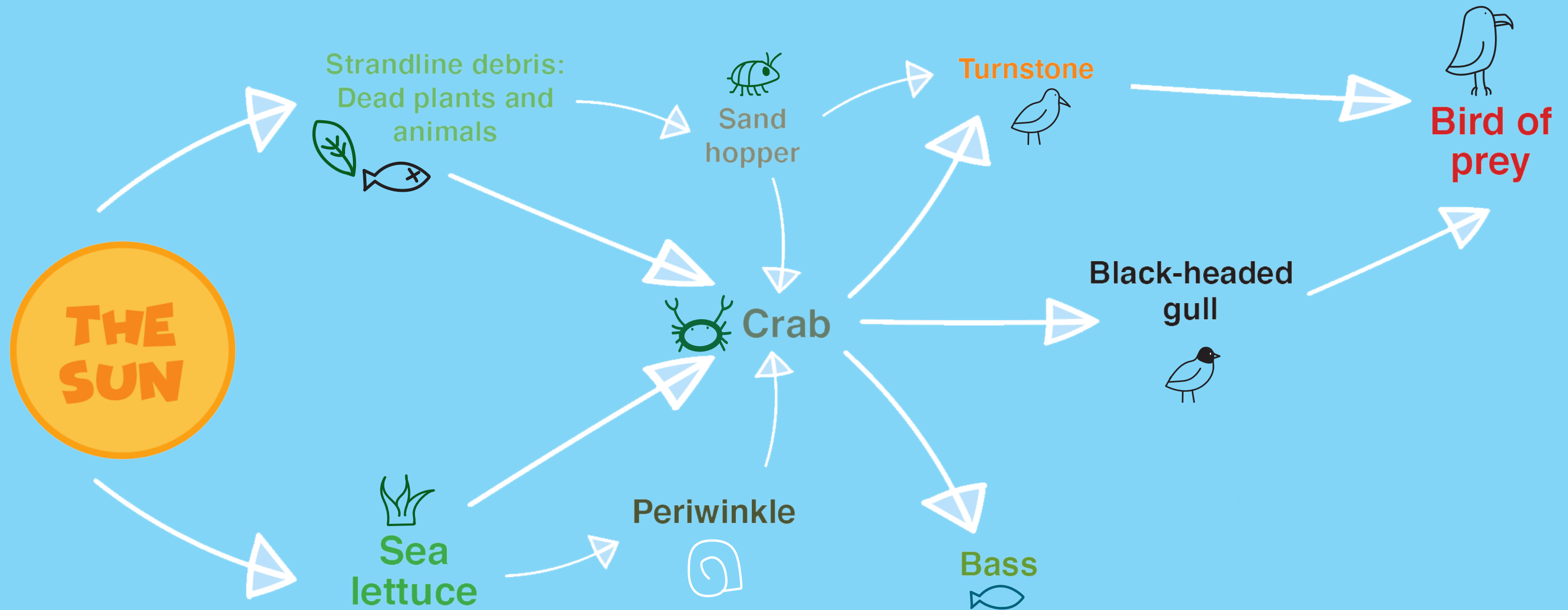
TURNSTONE



FOOD WEBS

A food web is a collection of food chains working together. Food webs shows how all the living things in a habitat can be connected.

A FOOD WEB FOR THE SHORELINE AND SEAWATER HABITATS



The organisms in a habitat depend on each other. Animals need plants for food, for shelter from the weather and as hiding places from predators. Without plants there would be no animals for the carnivores to eat. Without decomposers, such as worms and bacteria, there would be a shortage of minerals in the soil. The plants would not grow well and then there would be less food for all.

ADAPTATION

Plants and animals must be adapted for where they live. For example, plants growing on sand dunes need to be able to cope with very dry and exposed conditions. Plants in streams must cope with living in water and the risk of being washed away.

Each animal or plant has special body features called adaptations that allow it to live well in its habitat. For example, birds like the Oystercatcher have long beaks to search in the mud for seaworms and shellfish. Some carnivores actively hunt their food, so they have legs to run, wings to fly or can swim. The Harbour seals can swim very fast and have sharp teeth and jaws that can deal with eating meat. Other animals stay in one place and eat what comes past them. For example, sea anemones can stick to rocks and put out tentacles to catch anything edible.

Bladder wrack seaweed has adaptations to help it live on the shoreline. It has round air bladders so it can float upright when it is covered by seawater. This helps the seaweed to get more sunlight for photosynthesis when it is underwater. It can also stick itself to stones and rocks so they can remain on the part of the beach that has the best living conditions for them.

Can you see the air bladders in the photograph?



This bird is a curlew – look at its muddy beak. It lives on the coast and has a long strong beak that allows it to probe deep in the mud for its food: worms and shellfish. Waders like this bird also have long legs to help them hunt in water.



WHAT ARE ECOSYSTEMS?



A community of animals, plants and microorganisms, together with their habitat is called an ecosystem.

For example, a stream ecosystem may consist of a stream habitat, inhabited by aquatic plants, microorganisms in the mud at the bottom, fish in the water and a heron on the bank.

If one part of an ecosystem is changed, this may affect other living things in the ecosystem.

For example, if a disease suddenly wipes out the plants in a pond, it might affect the fish and heron because they have less food to eat.