



THE
**SAND
SNAILS**
PROJECT



Aberavon Beach, Neath Port Talbot

WELCOME TO OUR PROJECT

THE SAND SNAILS

Snails. Love them or hate them they are part of the fragile natural ecosystem and have essential roles in nature.

Many of us are very aware of snails in the garden but what about sea snails that live on sandy shores?

This educational resource for teachers is linked to Curriculum for Wales AoLE: Science and Technology / What Matters: The world around us is full of living things which depend on each other for survival)

Throughout the pack you will find fieldwork, classroom and reference sheets to engage your pupils in these amazing and varied creatures that all belong to the Mollusc family.

This pack contains...

Sea snail food web - Reference

Food web cards - Classroom

Common whelk anatomy - Reference / Classroom

Snail Identification - Reference / Classroom / Fieldwork

Same or Different - Classroom / Reference

Dog whelk lifecycle - Reference

Snail eggs - Fieldwork / Reference

Collecting shells - Fieldwork / Reference

Make sea snail food - Fieldwork / Reference

Dog whelk colour wheel - Fieldwork

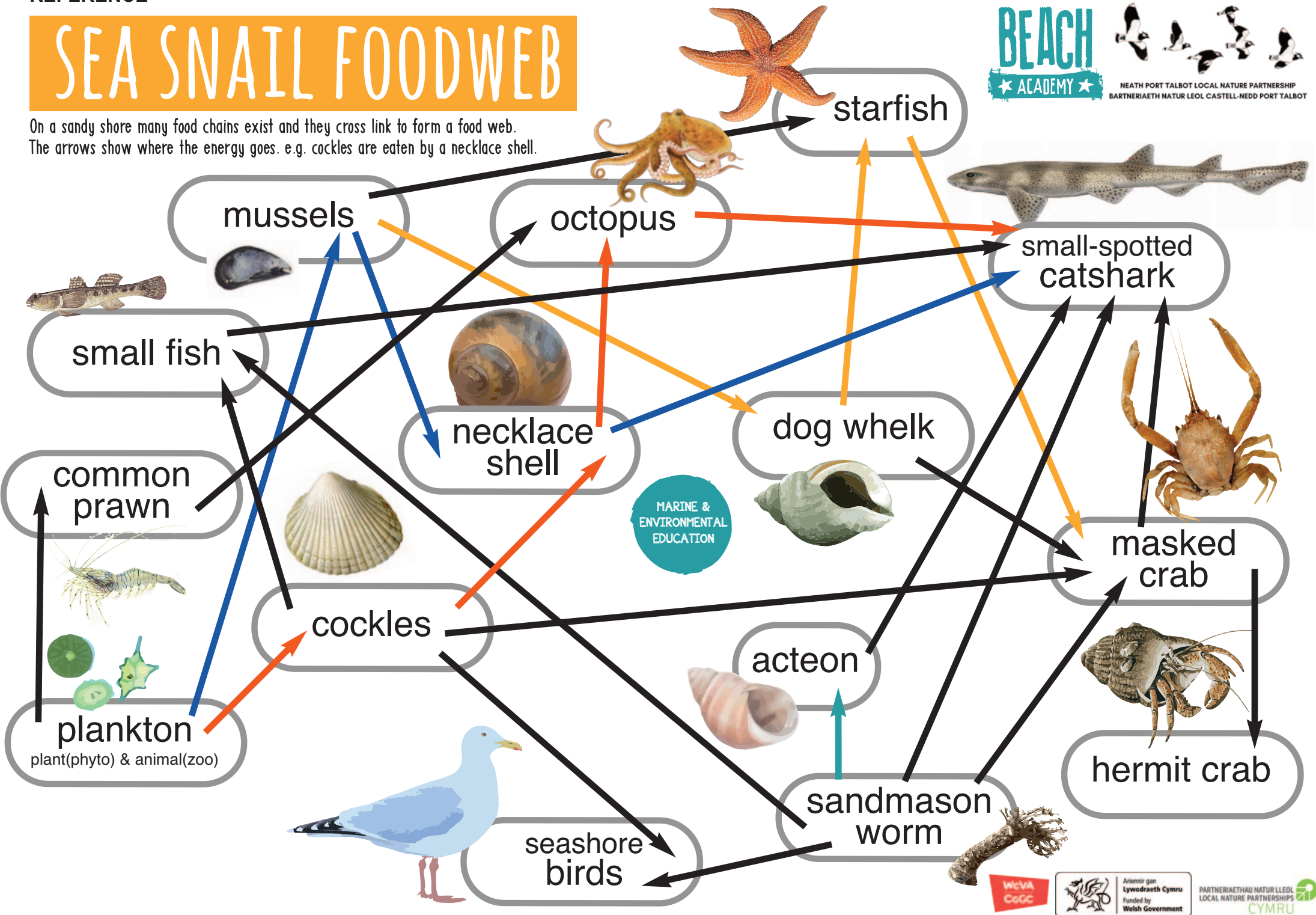


DID YOU KNOW
Sea slugs are just sea snails without shells!



SEA SNAIL FOODWEB

On a sandy shore many food chains exist and they cross link to form a food web. The arrows show where the energy goes. e.g. cockles are eaten by a necklace shell.



MARINE & ENVIRONMENTAL EDUCATION



FOODWEB CARDS



Cut out the cards below.
Connect them to create sandy shore food chains and food web.

seashore
birds



plankton
plant & animal



small-spotted
catshark



sandmason
worm



necklace
shell



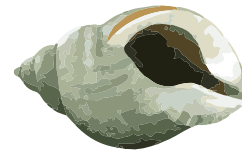
small fish



octopus



dog whelk



masked
crab



acteon



mussels



cockles



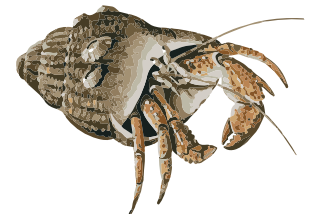
common
prawn



starfish



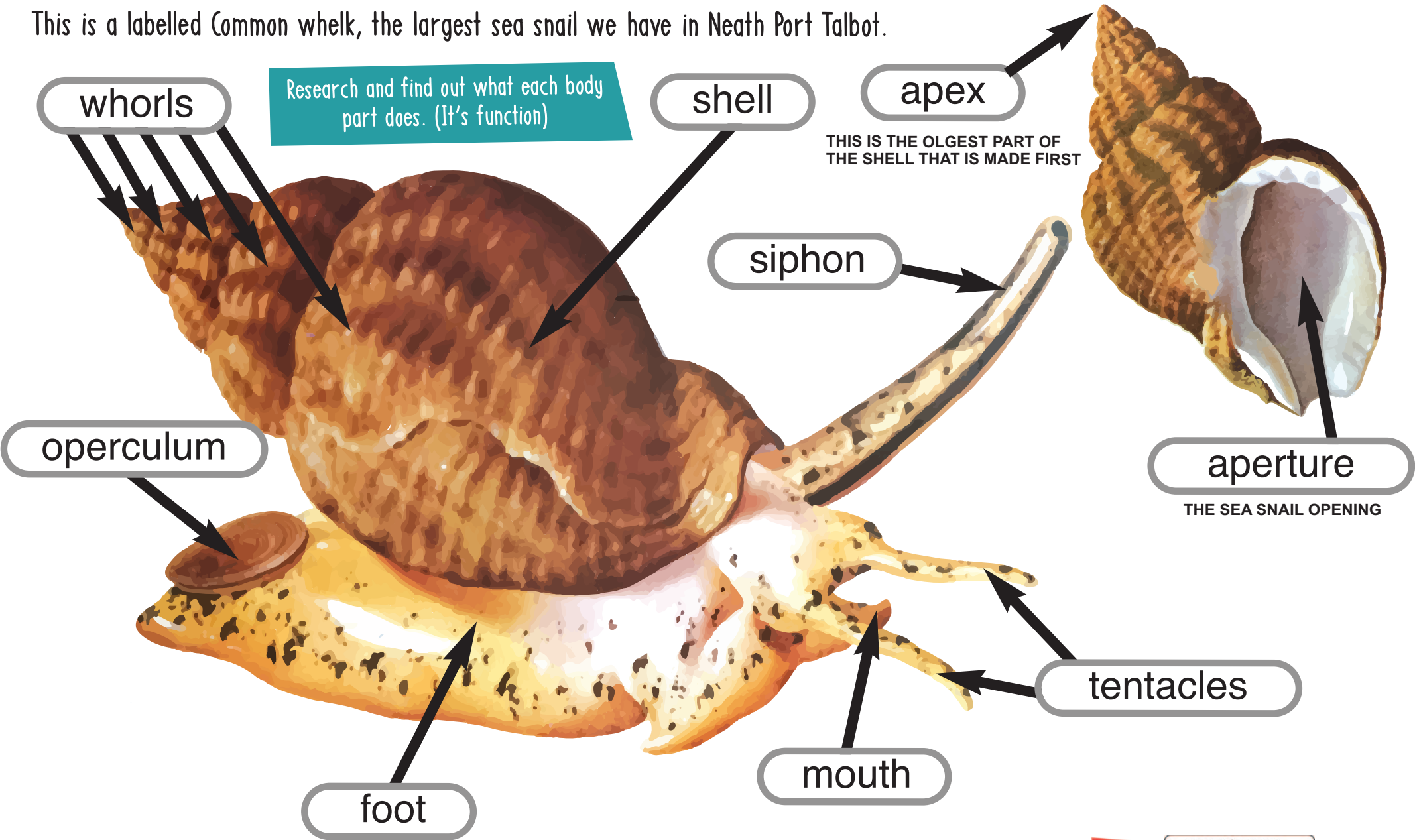
hermit crab



COMMON WHELK ANATOMY

This is a labelled Common whelk, the largest sea snail we have in Neath Port Talbot.

Research and find out what each body part does. (It's function)



SNAIL IDENTIFICATION



Oyster drill



Necklace shell



Flat winkle



Dog whelk



Netted dog whelk



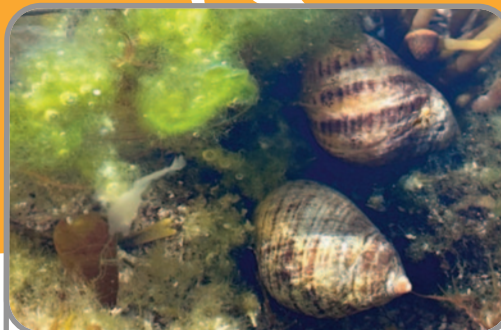
Acteon (shelled sea slug)



Grey topshell



Common whelk



Edible winkle

Creatures with shells are called Molluscs. Some marine Molluscs have 1 shell, some have 2. All marine molluscs that have 1 shell are Gastropods or **Sea Snails**.

Collect, sort and identify the shells you have found

TOP TIP
LOOK AT SHAPE
AND COLOUR



SAME OR DIFFERENT

Living Things can have some things different about them and some things the same. Take a look at the 3 snail species below. They are all snails but found in different habitats. Can you list how they are the same and different?

Go out into nature to find snails from different habitats.



Common whelk (marine habitat)

SIMILARITIES	DIFFERENCES

sea snail



Flat ramshorn snail (freshwater habitat)

SIMILARITIES	DIFFERENCES

pond snail



Garden snail (terrestrial habitat)

SIMILARITIES	DIFFERENCES

land snail

Think about colour, shape, body parts, protection and movement.

DOG WHELK LIFECYCLE



laying eggs

Eggs are laid in protective vase-shaped egg capsules on hard rocks, in damp crevices like Honeycomb worm reefs and under stones. Capsules are cemented to the rock by the ventral pedal gland and foot and is sealed with a 'plug' at the opposite end. Larger females lay larger capsules with most 9-10mm high, 3-4 mm across and yellow to brown in colour.

spawning

Dog whelks gather in groups called aggregations to spawn. Some groups may contain around 30 or more individuals. Adults do not feed during this time and may remain in the same place for 4-5 months without feeding or moving significantly. Spawning takes place in sheltered areas of the shore in crevices or under hangs. Spawning occurs in intervals, between which a few egg capsules are laid, one at a time.



EACH CAPSULE MAY CONTAIN AROUND 600 EGGS. 94% OF THE EGGS ARE UNFERTILISED AND FUNCTION AS 'NURSE EGGS' THAT ARE FED UPON BY THE DEVELOPING EMBRYOS. THE NUMBER OF CAPSULES LAID DEPENDS ON THE FEMALE'S FOOD RESERVES, AGE AND TEMPERATURE,

MANY DOG WHELKS DIE THROUGH PREDATION. WHEN OUT IN THE OPEN GULLS SWALLOW THEM WHOLE AND WHEN IN THE WATER CRABS PULL OUT THEIR SOFT INSIDES OR STARFISH CRUSH THEM UP! AVERAGE LIFESPAN 5-10 YEARS.

developing

The dog whelk larvae (juveniles) feed on the nurse cells in the capsules. Development is slow and temperature dependent, taking around 4 months.

hatching

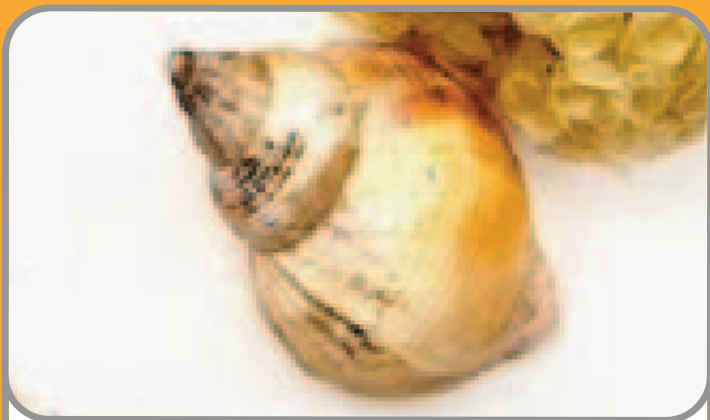
Once the larvae have become miniature adults they leave the capsule via the terminal plug, although if this exit is blocked by other hatchlings they may bore through the capsule wall. Hatchlings may be termed crawl-aways

growing

As the crawl-aways grow they are pretty lazy! They move mostly at night (males more than females) but rarely far, no more than 30cm from where they were born. If there's plenty of food (barnacles etc) they won't move far at all, only a bit of effort to spawn as adults.

SNAIL EGGS

You can find these egg cases, capsules and collars on sandy shores. Take a look next time you're there.



Common whelk



Netted dog whelk



Necklace shell



Egg cases



Egg capsules



Egg collars

COLLECTING SHELLS

What to do

The empty shells you find on the beach once belonged to Molluscs - soft bodied animals without internal skeletons. Some Molluscs live on the shore, others live in the sea, but you may find their shells washed up on the sandy shore.

Some will be gastropods (sea snails) which have a single, usually coiled shell like whelks and winkles. Some will be bivalves which have two (bi) shells (or valves) held together by muscles.

1

All you need is a bucket or waterproof container. Search in the strandline where objects from the sea get left behind by the tides, on rocks, under seaweed and stones, in pools and on the sand. A sieve can also be handy on sandy shores.

2

Check every shell you pick up carefully to make sure there is no animal still living in it. These could be molluscs or hermit crabs. If there is still a creature in the shell, put it back where you found it. **Place empty shells only into your bucket.**

3

When you get home, clean your shells in warm water. You can use a soft paintbrush to get off any sand from the inside. Leave them to dry overnight on newspaper or similar.

4

Once dry. You can brush a thin coat of varnish on each shell, this will preserve their colours. Upcycle containers from home like a shoebox for your shell collections. Using an identification guide, label each one with their names.



MAKE SEA SNAIL FOOD



In nature, sea snails need to take in dissolved calcium and bicarbonate from seawater and their food to make their shells.

With these ingredients they secrete 'calcium carbonate' in the mineral form of calcite or aragonite that hardens on the outside of their bodies and begins to form a hard outer shell.

BUT, climate change has changed our oceans. They are now more acidic. This ocean acidification dissolves calcium. This means sea snail shells are dissolving and becoming soft and no good to protect them and the food sources they need are not providing enough of the right ingredients for sea snails to make their shells in the first place.

HELPING TO HARDEN THE SHELLS OF SEA SNAILS AGAINST CLIMATE CHANGE

WHAT YOU NEED - COLLECT FROM THE STRANDLINE

1. Cuttlefish internal shells (for the calcium)
2. Dried seaweeds (for the salts (bicarbonate))



WHAT YOU DO

With a rock, break it all up into tiny pieces, like a powder and sprinkle it over the rocks where the sea snails feed near the rockpools

DOG WHELK COLOURS

Dog whelks come in all colours, not just white! Cut out our colour wheels below and pop into a bucket and go in search of dog whelks on the beach.

