Marvellous Mud Snails

A Guide for Primary Schools

buglife Scotland

heritage lottery fund

LOTTERY FUNDED

Marvellous Mud Snails

Welcome to your education pack!

This has been created as part of the Marvellous Mud Snails project by Buglife Scotland. By being part of the project and captive rearing the Pond mud snail in your school you are helping us create a healthier population of these snails in Scotland, which are currently only known from seven sites in this country. Buglife will be creating new pond homes for them in local council areas, which, at the end of your time looking after the animals your school will be able to come along to and release the snails back into their natural habitat.

Throughout this pack you will find information and discussion topics alongside session plans for the themes covered in Marvellous Mud Snails. In **bold** you will find added information for an older age group (P4 and up) or discussions you may wish to have if you have time.

Lesson plans can be combined or elements taken from each to create one to suit your needs. The accompanying Resource Pack for Primary Schools is where you will find all photo, drawing and template resources for the lesson plans.

This education pack meets the National Curriculum for Excellence links for the following:

Curriculum Links

· I have observed living things in the environment over time and am becoming aware of how they depend on each other. SCN 0-01

· I explore and appreciate the wonder of nature within different environments and have played a part in caring for the environment. SOC 0-08a

· I can identify the possible consequences of an environmental issue and make informed suggestions about ways to manage the impact. SOC 3-08a

· Working on my own and with others, I use my curiosity and imagination to solve design problems. EXA 0-06a

· I can use exploration and imagination to solve design problems related to real-life situations. EXA 1-06a

LESSON PLAN ONE 1 – 1.5 hours	THEME	ACTIVITY
	Homes and habitats Introduction to Invertebrates	Who am I? Pond protection game Snail shell facts
	EQUIPMENT	**RESOURCE PACK**
	'Who am I?' picture cards Snail facts templates	Page 2-5 Page 6

What is an invertebrate?

In short, invertebrates are animals without a backbone. Humans have backbones - if we have a feel down our back we'll feel the bumps of our spine. Our spine is part of our skeleton and this means we are carrying our skeleton on the inside of our body. Invertebrates make up 95% of all animal life on earth and the majority have **exoskeletons** which mean they carry bones on the outside of their body (our Pond mud snail and animals like worms are the exception to this). If we think about our old clothes getting too small for us as our body grows, an invertebrate also out-grows its old 'skin' and creates a tightly packed new exoskeleton underneath the old one, and when it is ready it will burst out of the old one, leaving it behind.

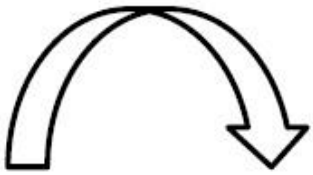
A healthy British pond can be home to up to 115 invertebrates, some of which only complete part of their **lifecycle** in the pond, whilst others need an aquatic environment for their whole life.

Life Cycles

There are two different types of transformation (or metamorphosis) which invertebrates go through from the stage of being an egg, to becoming an adult. These are known as incomplete and complete metamorphosis.

Explain that there are two forms of juvenile invertebrate. A 'nymph' is the word used to mean the juvenile or baby version of some adult underwater invertebrates whose overall form already resembles that of the adult (incomplete).

The 'larva' of a species looks completely different from the final adult form and will undergo several changes (complete).



Incomplete - Dragonfly Life Cycle

- Eggs are laid in water
- Nymph stages appear, feeding in water for up to 2 years
- Nymphs climb out of the water, transforming into recognisable adult form.

Complete – Water Beetle Life Cycle

- Their life cycle includes four stages, from eggs they become larvae, feeding and growing larger with time by discarding the outer covering of their body (moulting).
- As pupa they form a cocoon and become inactive, starting to develop into adult beetles.
- Adults emerge as recognisable water beetles after a few weeks.

Activity 1:

'Who am I?'

- A picture card game with various invertebrates at different life cycle stages. Asking the class questions to prompt them along the way.

Start the game holding up one card at a time and asking the question 'Who am I ?'
You can give some clues (i.e expecting to see a dragonfly around water, with bright colours on the body) and after each guess give the real answer and some facts about each listed below.

Mayfly Nymph:

- The mayfly would have started life looking like this. This nymph is found in rivers and streams and is very flat to fit right underneath stones when looking for food.

Mayfly:

- Has long tails and flimsy wings, hardly ever goes too far from the water, which is where they would have spent their nymph stage.
- The mayfly can take between two months to two years to become adult and yet some only live for 2 weeks once fully grown.

Dragonfly Nymph:

- Can live underwater for up to 2 years before fully grown.
- Has large bulging eyes to watch for food, feeds on other animals in the pond, preparing for life on surface.
- These creatures were around long before dinosaurs roamed the Earth.

Dragonfly:

- We should be familiar with these around our ponds. They are top predators as adults and have huge eyes to hunt, they can see in colour like humans, and fly in figure of 8 motion with wings to swoop on their prey.
- There are 36 dragonfly species in the UK, and they are among the world's oldest flying insects.
- To become an adult the nymph must climb out of the water, where it has spent its whole life until now. Once on dry land it goes through a terrific transformation. The exoskeleton **cracks** open and releases the insect's abdomen, which is packed in like a telescope. Its four wings come out, and they dry and harden over the next several hours to days.
- Dragonflies are our friends as they eat lots of midges each day.

Midge Larvae:

- This is the juvenile stage of an animal we know in Scotland really well, midges!
- Midge larvae love wet mud at the bottom of ponds.
- There are thousands of midge larvae and because of the numbers of them, they act like earthworms, breaking down the soil and all dead matter. By eating plant matter that is decaying at the bottom of the pond, they help keep it nice and healthy.

Midge:

- Most midges do not bite, but the Highland midge does, and this is the one we'll be most familiar with out of the 40 species in Scotland.
- Only the female Highland midge can bite, as she needs a meal of blood to keep her strong and help her make her eggs.
- Without midges other animals would struggle to find food as they are so abundant.
- Dragonflies, bats and birds all love to eat midges.

Whirligig Beetle:

- These are very fast movers in the water, scooting along the surface.
- They are predators of the pond, catching other smaller, slower insects.
- Their eyes are split which allows them see above and below water at same time.
- They carry a big bubble of air under their case to breathe.
- If they were human-sized they could swim at 180mph!

Pond Skater:

- These hunt by feeling vibrations in their velvet-covered feet, they have a waxy coating of waterproof hairs which keeps the feet dry as the pond skater propels itself forward with its middle pair of legs, using the back ones to steer and the little pair at the front to grab their prey.
- Scientists are currently studying the tiny hairs to find the perfect waterproof substance, to create a perfect waterproof jacket for example.

Ramshorn Snail:

- This is also a pond snail, can we see a difference in the Pond Mud Snail and this one?
- It gets its name because of the shape of the shell which always coils to the right; it looks like horns of a sheep.
- There are around 40 species of freshwater snail in the UK so we can find lots of differences

Activity 2:

Pond Protection

- A physical game to warm up to focus on underwater life and habitat loss.

- Pick two children to be Pond mud snails, the rest of the class are ponds, and one is the 'Pond Remover' who is filling in the ponds or building over the top with houses.
- When a Pond is tapped by the Remover it has been filled in and the child sits down.
- The Snails are trying to eat and live safely and can only stand with a Pond that is still standing. Think of the game like a version of tig, running around between the ponds is encouraged and the children don't have to stand with the same Pond for the whole time.
- Keep the game going until the Ponds are gone and the Snails have nobody to stand with and discuss what has happened.
- Play the game for a second time turning your Removers into Buglife Officers who work to restore the Ponds, like we will be doing in the project – digging new ponds for the snails to live in - when the Officers tap the fallen ponds, they come back to life and the Snails can keep eating and living happily.

Ask which version is better?

Briefly discuss why it is important to keep animals' homes and habitats safe, and the work that organisations like Buglife do to protect creatures.

Activity 3:

Introduction to your Pond mud snails

- An introduction to the Pond mud snail plus a listening exercise to create the 'Snail Facts in a Shell' picture which can be displayed on the wall. Have the class listen carefully to the introduction and make notes on 5 cool facts they pick up on. In their best handwriting, help the class copy these onto the template, and colour in the body of the snail, ready to display.

Introduction to Pond mud snails

"Our class/school are very lucky and have been picked to help us save a very rare species of animal in Scotland. We will be looking after them right here in the classroom, watching them grow, breeding them and at the end we'll let them go into specially created ponds which they can live in."

What is a Pond mud snail?

- The Pond mud snail is very rare in Scotland. They are only found in a few places across the country and you are actually in one of the lucky places right here in (*your council area*) to have them.
- **Pond mud snails have a fancy scientific name called *Omphiscola glabra*. This comes from the Latin word 'glaber' which means smooth and hairless. As you can see they have perfectly smooth shells and are very small creatures.**
- They won't grow beyond 15mm which is about the length of your fingernail.
- They live in and out of the water and need oxygen to breathe, just like humans, so you'll see them spending a lot of time above the water surface and climbing up the sides of their tank.
- The adult snails that you have can be both mum and dad to the babies, so all the snails in the tank are able to lay eggs.
- Babies start like little parcels of jelly with maybe 10-20 tiny snails inside. To start with they'll be almost see-through in colour, but start to change from grey to brown until they're ready to hatch out.
- After 10 days you should see them begin to hatch.

Why they need our help?

The Pond mud snail, like lots of animals today, is struggling to survive. The ponds or habitats that they like to live in, small ponds with lots of plants to eat that dry out in the warmer months, are being lost – so they no longer have a home.

- Sometimes farmers will **drain and fill** in ponds with soil so they can farm and grow crops or graze their animals on it.
- Ponds can be cleared as part of a new building project to create houses or a shopping centre for example.
- Sometimes the ponds that are nearby can be **polluted with chemicals** which come from the fertiliser that farmers use to help their crops grow.

- If a pond is left in **a field that has lots of cows** or sheep they can affect it by drinking in, accidentally disturbing or going to the toilet in the snails' home.

Why should we care?
So why do you think it's important that we care about animals that need help, even if they are as small as our mud snails?

- **RECYCLE -** They eat a large amount of **algae and decaying matter** such as dead, rotting leaves, which clog up the pond and suck out all the oxygen. Snails help create better water quality by eating the algae.

Algae - Simple plant life found in almost all ponds, responsible for starting the food chain for animals like invertebrates, fish and ducks.

- **BE EATEN -** They are important members of the **food chain**. (Dinner for other animals who find it hard to survive without them).

Food Chain - Bats, birds, dragonflies, fish all use invertebrates such as snails, beetles and worms for a vital food source. In turn the larger insects eat the smaller ones who depend on the algae and plant life in healthy ponds to survive.

- **BIODIVERSE -** They are a healthy part of nature, members of this planet just like us and promote **biodiversity.** It wouldn't be very interesting or good for the environment if we just had one type of everything.

Biodiversity – The variety of all plant and animal life in a particular environment or habitat. The quality or health of the environment can be measured in some ways by the different kinds of life that are found.

Everything needs a habitat that it feels comfortable living in, just like we feel comfortable in our homes and it would be unfair to take this away from the animal. With your help Buglife are creating new pond homes for the Pond mud snail and other creatures.

LESSON PLAN TWO 1 hour	THEME	ACTIVITY
	Responsible citizens Life cycles	Pond-dipping
	EQUIPMENT	**RESOURCE PACK**
	OPAL Survey and ID Guide Drawing worksheets **Extra:** Pond trays, bug pots, pond nets, pencils, clipboard, plastic spoon, hand lens.	Page 7 Page 8-9

Outline: An introduction to underwater life with outdoor practical session of pond-dipping at local pond, nature reserve or park. This can be done as part of the OPAL survey pack on water health to give a measurable outcome to the session.

OPAL ID Guide and recording form
https://www.opalexplorenature.org/WaterSurvey

Please complete a risk assessment appropriate to the age and ability of your group before starting this activity.

Session: Set up small groups with their equipment and depending on age an adult with each group who can do the pond-dipping or supervise children as they dip.

- Fill the tray with 3cm of water and dip your net around in the water moving across different areas: surface, bottom, among plants. Now tip the contents of your net into the sorting tray to see what you have caught.
- Use the plastic spoon to collect any creatures found and put them into bug pots for a closer look.
- Use the Common Pond Invertebrate Super Facts sheet provided on **Page 9**, alongside any other picture identification guides.
- The OPAL survey checklist can be completed at the end, marking off a tick for each kind of animal found and adding up the points to find out how healthy your pond is.
- To encourage children to participate in citizen science these can be uploaded on the OPAL website when back inside the classroom.

Questions to ask

What kinds of animals might you find in a pond?

Direction: Would expect answers of duck, swan, fish (easy/surface animals). Get the children thinking about invertebrates and underwater life using the useful words below. They can expect to see life cycles in the form of nymphs and larvae and predators such as beetle larvae and water

boatman. There are herbivores and carnivores in the pond community so include these themes when discussing what the children have found in their tray.

Useful words

Invertebrate

An animal with no backbone. As humans we all have backbones (the children can feel down their spine to check). Invertebrates make up 95% of all animal life on earth, and a healthy British pond can be home to up to 115 invertebrates, some of which only complete **part of their lifecycle** in the pond, whilst others need to stay in the water for their whole life.

Predators

Can we name one? What does it mean? An animal which naturally eats other animals, hunts them and they form the main part of the diet. Something like a tiger, but remember the tiny predators in the pond like the beetle larvae with pinching jaws, and the whirligig beetles that move fast. Like other habitats, if you move slowly in the pond, you are more likely to be dinner.

Producers and Consumers

Green plants are termed **producers** as they convert energy from the sun into food for themselves by a process called photosynthesis.

Consumers are animals that get their energy directly or indirectly from plants. Primary consumers or **herbivores** eat plants as their source of energy.

Animals that eat other animals are secondary consumers called **carnivores**, which are **predators.**

In a food chain secondary consumers eat primary consumers to obtain their energy

Omnivores eat both plant and animals.

Detritivores eat dead organic matter (plants or animals) to survive.

Back in the classroom:

- Upload your survey results to the OPAL website, to take part in an on-going large scale citizen science project**.** **https://www.opalexplorenature.org/surveys**
- Use the **Super Predator** sheet from your Resource Pack to think about the adaptations you saw in the field (large jaws, bulging eyes, wings, sticky feet) and create a new SuperBug.
- Using the A4 handout from your Resource Pack, draw a picture of **'My Favourite Water Bug'** and bonus points for children who can answer the question at the bottom of the page 'What is an Invertebrate?

Common Pond Invertebrates Super Facts

Below is a list of the most common animals you'd expect to find in a pond, you can check these against the identification guide. These are simply quick and easy facts to discuss with the children while the pond-dipping activity is taking place.

Crustaceans (animals that are related to crabs and shrimps)

- **Daphnia or Water fleas** – microscopic free swimming crustaceans that mainly feed on algae. These are the most common animal in the pond and vary in colour from orange to almost transparent.
- **Cyclops** – similar in size to Daphnia. Termed Cyclops as they only have one eye like the giants in Greek mythology.
- **Waterlouse or Hoglouse** – related to woodlice (slaters), these live at the bottom of the pond feeding on dead organic matter. Essentially they are the hoovers of the pond, cleaning it up so it stays healthy for us and the other animals.
- **Freshwater shrimp** –they have fourteen legs and are seen all year round. They eat algae and have a lifespan of approximately 9-12 months.

Worms - Annelids

- **Flatworm –** simply absorbs oxygen through its skin, so no part of its body can be far from the surface. Some are **predators** which eat other small invertebrates. They have special mouth pieces to eat the animal whole, in parts or to just suck out the body fluids!
- **Hairworms –** looks like a tiny, long, thin strand of hair.

Insects

Insects have six legs and three body part: the head, thorax (equivalent to our chest and shoulders) and the abdomen.

- **Backswimmers (Greater water boatman)** – fast moving **predators** who swim upside down catching prey with their jaws.
- **Lesser water boatman** – not closely related to the greater water boatman. These creatures swim the right way up and eat algae, they are **herbivores**.
- **Great diving beetle** – a large carnivore that breathes using a bubble of air on its body, easily recognisable due to its shiny, dark, black exterior. This predator eats other insects in the pond and you can spot them pointing the tip of their body (bum) out of water, to top up the air supply under their wing case.
- **Whirligig beetles** – their eyes are split which enables them to see above and below the water at the same time. They zoom through the water, if human –sized they could reach speeds of 180mph. They have a defensive chemical which smells a bit like apples which

oozes like a milky substance when they are threatened. It surrounds them in a murky cloud, allowing them to make a sharp exit. 12 species exist in Britain and the best place to see them is in Scotland.

- **Water scorpion** – not related to scorpions. They have large front legs for catching prey and a long tail which acts as a snorkel.
- **Pond skater** – lives on the surface of the pond and hunts for struggling insects by sensing vibrations. Their feet have water repellent hairs that hold tiny air bubbles to allow them to walk on water.
- **Leech** – related to worms and are **parasites,** meaning they feed on the body fluids of other animals by attaching themselves by their sucker. Only one very rare species in the UK can pierce human skin.

Larvae and Nymphs

Larvae are usually maggot-like insect young who look completely different at this stage to their final adult form.

Nymphs look *more like* adult insects but without wings and usually have jointed legs (legs made up of sections). Some nymphs indicate very good pond health.

- **Mayfly -** A number of different mayfly species lay their eggs in the pond, some take only two months to mature as adults whilst other species take two years. The presence of **mayflies in the pond shows the pond has very clean water.** Mayfly are herbivores who are very short-lived as adults, although one species can live for a fortnight!
- **Damselfly -** These nymphs live underwater for about **six months** before turning into their adult form. You can recognise them by their three leaf-shaped tails.
- **Dragonfly -** Dragonfly nymphs can live underwater for up to **two years** before turning into adults. Both damselfly and dragonfly nymphs are top pond **predators** with larger nymphs even preying on tadpoles. These nymphs have fat heads and bulging eyes.
- **Cased caddisfly –** The body of this insect is protected within a case made up of debris, usually small stones, sand, plant material and wood. In the pond you are essentially looking for a stick that can crawl and, when disturbed, will retreat back inside its case. Adults are nocturnal and short-lived.
- **Midge larvae –** The juvenile stage of these flies can be red, green, brown or transparent. They move with a wriggling motion and feed on the very bottom of the pond. They are a favourite food of the fish that live in the pond.
- **Beetle larvae –** You can recognise this larvae as it always has six legs. They are ferocious carnivores that eat other small insects.

- **Stonefly –** These have **two** thin tails and generally crawl when moving. They take 1-3 years to transform to adult size, and then only live for a few weeks. They cannot exist in polluted areas of water, so having Stonefly in your pond will show it is very clean.
- **Alderfly –** Has **one** tail and a tapering body with pincer-like jaws. Again, they are fierce carnivores and tend to be found in mud at the bottom of the pond.

Molluscs

- Who knew that snails lived in a pond? It is actually quite uncommon to find one without them. Common types include Ramshorn and Pond snails, which both have very different types of shell so they are easy to tell apart, one is a spiral (Ramshorn) and one is cone-shaped (Pond snails).
- Mollucs are part of a group called **gastropods**, literally meaning *belly foot* as they carry their stomach 'foot' on the bottom part of their body. This large muscular 'foot' helps them to move around using special slime.
- They have a special way of eating using their teeth or radula, which acts like a cheese-grater, sawing up tiny parts of plant material to allow the snail to get vital nutrients and energy.

Please use the table below when pond dipping to describe what kinds of food the animals you find will be eating.

Invertebrate	Feeding level	Invertebrate	Feeding level
Pond snail	**Herbivore/Detritivore**	**Phantom midge larvae**	**Carnivore**
Midge larvae	**Herbivore**	**Leech**	**Carnivore**
Mayfly nymph	**Herbivore**	**Flatworm**	**Carnivore**
Pea mussel	**Herbivore**	**Dragonfly nymph**	**Carnivore**
Water flea	**Herbivore**	**Water mite**	**Carnivore**
Lesser water boatmen	**Herbivore**	**Greater water boatmen**	**Carnivore**
Rat-tailed maggot	**Detritivore**	**Diving beetle**	**Carnivore**
Freshwater shrimp	**Detritivore**	**Damselfly nymph**	**Carnivore**
Freshwater hoglouse	**Detritivore**	**Water scorpion**	**Carnivore**

LESSON PLAN THREE 1 hour	THEME	ACTIVITY
	Homes and habitats Recording and monitoring	Warm-up Game Introduction to the snails Setting the tank up
	EQUIPMENT	**RESOURCE PACK**
	Snail templates Guide to Happy Snails	Page 10 Page 11-12

Activity 1:

Pin the Shell on the Snail

- The first activity is a warm-up game to get the class engaged and focused.

- Giving out the snail shell template from your Resource Pack, get the class to spend 10-15 mins colouring in their own design.
- Stick up the A3 snail body to a hard surface
- Put blu-tac on the shells and one by one the children take it in turns, being blindfolded to get as close to pinning the shell on the snail.
- A small prize or points for the winning team (house points etc) can be awarded.

Activity 2:

Disappearing Homes

- A physical activity for the whole class to get moving and see the effects of habitat loss in a simple way.

- Use the tarpaulin sheet (if Buglife staff are present), or a large sheet or blanket of your own to create the pond. This can be done indoors or outside in the playground.
- The children are mud snails living in the pond and have to be standing on the sheet at all times.
- Encourage them to get into the spirit of the game. They can be eating, chatting to other snails or sleeping.
- Once in character, fold the sheet in half, losing half of your pond which has been filled in (to make a grazing field for cows etc.)
- The children must remain on the sheet to survive
- Continue to fold and lose sections of your pond, making it difficult for the children.
- They'll have to use imagination, balance and work as a team – some might have to give 'piggybacks', hold hands and work out the best way to keep everyone as a team.
- Play until it becomes impossible to all stay on, and then have a discussion on the consequences of habitat loss.

Activity 3:

How to Look After the Snails

- An introduction session for both children and teachers to meet the snails and try out some basic handling and husbandry.

The Naming Game

Have a session at the start of the discussion to **name your snails** if you wish. Get the class to write their favourite name on a piece of paper and vote for the favourites. It will be tricky to identify who is who, but you can look out for identifying features such as colour and shape of shell.

Buglife staff will have visited your school and given a demonstration on how to look after the snails. Below is your guide to keeping the tank clean and snails healthy throughout the year.

A Guide for Happy Snails

Cleaning Routine

- ✓ Using bottled still water or rainwater collected from a water butt, you can fill the second tank with about 4cm of water.
- ✓ You can rotate between tanks each time.
- ✓ With the clean water poured in, very gently scoop out the snails one at a time with a plastic spoon or fingers and place into the new clean water.
- ✓ If there are babies hatching you will have to be very careful and may have to get a teacher to help. You can also leave the babies in the tank and move the adults to a new tank.
- ✓ Watch out for any new egg clumps that might have appeared, they are quite sturdy and can also be lifted by hand into the clean water or leave them in place and wipe around them.
- ✓ Carefully pour away the old, dirty water and wipe ready for use the next time you clean or fill up with water if you have left baby snails or eggs in the tank.

Making Snail Dinner

- ✓ Prepare the lettuce or cress by washing under the tap and tearing the lettuce into pieces about 2-3cm.
- ✓ Put around 3-4 pieces (lettuce or cress) into the tank and watch as the snails come to feed. Make sure not to over feed, you'll see when the food is gone and when it is time to feed again.

Temperature

- ✓ Please make sure that the snails are not too hot! A nice medium classroom temperature is ideal, below 23°C.
- ✓ Don't keep the tank in direct sunlight or next to a radiator

Happy Snail Sitting

WEEKLY CHECKLIST	THEME	ACTIVITY
	Responsible citizens Creative writing Scientific observation	An update of the weekly snail diary, recording scientific information.
	EQUIPMENT	**RESOURCE PACK**
	Information recording sheet **Extra:** Snail diary notebook	Included in welcome email

Activity 1:

Snail Diary

- Each week nominate 2 children from the class who will be in charge of the snails. They must check them weekly and monitor the progress.
- It is up to them to keep a snail diary, including recorded information and an entry written from the point of view of the snail. Set aside time at the end of the week for a class discussion, where the nominated two get a chance to share information with the rest of the class.

Information to record

✓ Number of snails

✓ Tank temperature

✓ If there are any egg clumps, and if so how many?

✓ How many pieces of food were given and how many are left?

✓ If any babies have hatched and if so how many?

✓ Any behaviour seen from the snails (i.e spent a lot of time out of the water, moved fast, spent a lot of time floating). Especially recording anything unusual.

✓ If the tank was cleaned out that week?

Creative Writing Diary Entry

The children who are looking after the snails for the week have to each include a diary entry from the point of view of one of the mud snails. This is a great imagination and character exercise and can even form part of a larger drama activity. Encourage children to imagine the voice of the snail and exciting activities it could have been up to that week. The funnier the better, children can let their imagination go wild and pretend the mud snails go on adventures once the children have left school for the day.

Examples:

'Day 12 – After lights out last night we all went to see Spiderman at the cinema across town. Taking the bus was difficult, but we managed to sneak on by sticking to the leg of someone's trousers using our slime. The lettuce we get fed here is delicious, and making us grow stronger. It feels like I grow an extra millimetre every week. Next day the class had no idea of our adventure and didn't even wonder why there was popcorn all over the floor.'

'Day 55 – Our group has now grown by 62 snails in just three months, can you believe it? We have so many little snails running around that it's getting a bit crowded. The humans who feed us have noticed and we are getting extra lettuce portions every week, but the kids just want big bars of Dairy Milk to eat! Tomorrow we are off on a group trip to the beach, hopefully to meet some of our friends that live in the sea, and maybe have a ride on the merry-go-round.'

EXTRA ACTIVITY	THEME	ACTIVITY
	Food Chain Producers and consumers	Food Chain guessing game
	EQUIPMENT	**RESOURCE PACK**
	Food chain photo cards	Page 13

Activity

Food Chain Guessing Game

- An introduction to aquatic food chains and pond life. Suitable for all ages, the description of each category can be adapted depending on age.

Introduction - So we are going to play a game about how different pond animals and plants get their energy (food).

So how do we as humans get our energy?

Expect answers like: different types of food, drinks, by sleeping etc.

That's right; we eat food which is usually a mixture of plants and meat. Some living things create their own energy, like plants for example. They get their energy from the sun. We call these types of creatures **PRODUCERS**, as they produce their own energy without consuming or eating another living thing.

Some animals eat the plants to create their energy, we call these **HERBIVORES**, and they will not eat the meat of another animal. An example of a herbivore would be a pond snail.

Finally, there are some animals that eat other animals for their energy, we call these **CARNIVORES**. Usually these types of animals are known as predators, examples from land that you may know are things like tigers, wolves and foxes. In the pond, predators are things like diving beetles and pond skaters.

Quick Chart

PRODUCER

Plants, trees or flowers which generate their energy from the sun using photosynthesis.

HERBIVORES

Creatures which eat plant matter (PRODUCERS) to get their energy. They are not predators and will not eat the meat of another living animal. Examples: Pond Mud Snail, Freshwater Mussels, Lesser Water Boatmen.

CARNIVORE

Animals which eat the meat of other animals to make up their diet and gain energy. Many carnivorous animals are also predators meaning they are at the top of the food chain and prey upon creatures that are smaller or weaker than them.

Working in groups, give out the pictures from the Resource Pack and give the children 5 minutes to decide which category the animals and plants belong to.

Answers - The examples are of shining pond weed and lily pad = PRODUCER, a pond mud snail and freshwater mussel = HERBIVORE, and a diving beetle and beetle larva = CARNIVORE.

Notes:

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