



Mayfly in the Classroom ²⁰¹¹

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Following on from last year's successful pilot project, this year five more schools took up the challenge. The map (below, right) shows the location of the schools within the Eden catchment. This year 113 children ranging from 4 - 11 years old and 12 parent helpers were involved in the project.

The children spent two weeks looking after mayfly nymphs they had collected from the river. The nymphs were cared for in specially constructed aquaria built by the children. They fed them, monitored the water levels, oxygen levels and water temperature and kept tabs on whether any adult mayflies had emerged.

During this time the children learnt all about the mayfly, its habitat, lifecycle, food and predators. They learnt about the links between aquatic and terrestrial habitats and that the mayfly needs a healthy river to survive.

They recorded their daily checks on recording charts and in the form of a daily diary and created a range of creative and colourful wall displays to accompany the project, all of which helped strengthen their listening, writing and recording skills. They also had a wonderful outdoor learning experience, visiting the river to handpick their mayfly nymphs and returning two weeks later to release the adults.

Once again, all five schools felt that the Mayfly in the Classroom project had been an amazing learning experience for their pupils and that they too had learnt a great deal.

Building the aquaria

The project started with the children being introduced to the different types of mayfly nymph, from stone-clingers to agile darters and burrowers. They then learnt about the mayfly's lifecycle, its habitat and how mayflies fit into the larger food web in the river habitat.

The children then set about building their own mayfly aquaria. This consisted of cutting the top of a two litre plastic bottle and inserting a length of air tube through a hole in the bottle top. An air stone was attached

to one end of the tube before the top of the bottle was turned upside down and set into the bottom half of the bottle. It was then pegged in place to make it secure.

The other end of the tube was then cut and attached to a four-way gang valve. This process was repeated three times to create a four-bottle aquarium. The four-way gang valve allowed the children to alter the flow of oxygen to each of the bottles independently.

After building the aquaria the children walked down to the river and began the search for mayfly nymphs. They carried out 'kick sampling', a technique used to collect river insects and small fish, and emptied these into trays. They then selected the best mayflies (the ones that were getting ready to emerge as adults).

The children found out that another good way to collect the mayfly nymphs was to simply turn over the rocks in the shallows. Stone clinger nymphs in particular could often be found hiding on the under-side of these stones.



School	Class	No. of children	No. of parent helpers
Asby Endowed	Rec - Y2	22	1
Stainton	Y5	24	3
Cummersdale	Y5/6	18	1
Calthwaite	Rec - Y2	23	2
Bolton	Y3 - 6	26	5
TOTAL		113	12

"This project addresses work on life cycles and habitats in a water environment and enables the children to follow the animals in a natural environment and understand more clearly how the nymph and mayfly fit into the food chain."
Y5 Teacher, Cummersdale Primary School



Finding mayfly nymph and rubber duck



Cummersdale Primary School



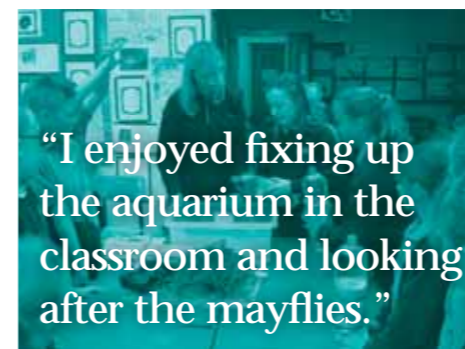
Bolton Primary School



Making the aquarium



"The best part was going to the river and collecting the mayfly nymphs."



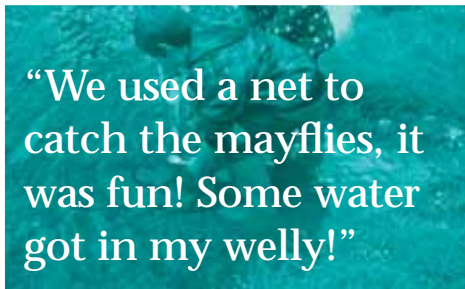
"I enjoyed fixing up the aquarium in the classroom and looking after the mayflies."



First phase of construction completed!



Mayfly nymphs settled in their new home



Once eight suitable mayfly nymphs had been collected, the children returned the rest of the mayfly nymphs and any other river creatures they may have found to the river. Once back at school stones were put into the of the bottles to provide shelter for the nymphs and the algae on the stones also provided food. The bottles were then filled about two thirds with river water and a thermometer was fitted.

The water level was also marked on the outside of each bottle so that the children could see if the water level dropped due to evaporation. If this occurred, they could then top up the aquaria with fresh river water.

The nymphs were then ready to be transferred to their new homes!

Looking after mayflies

Two mayfly nymphs were carefully put into each of the four bottles. The bottles were then placed in a large plastic container which was half-filled with water to keep the aquaria cool.

A thermometer was attached to the inside of the plastic container. If the temperature in the bottles rose too high, the water in the container could be cooled using ice blocks which in turn would reduce the water temperature in the bottles.

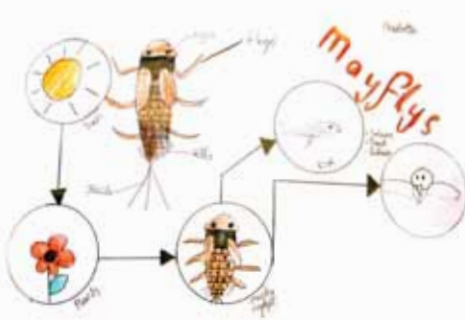
A piece of air tube was then attached to the four-way gang valve and the other end was attached to an air pump. This enabled oxygen to be steadily pumped into the bottles.

During the two-week period the children regularly checked oxygen and water temperature levels and adjusted them when necessary. They also checked the water levels and topped the bottles up with fresh river water. The stones were replaced after the first week to give the nymphs a fresh supply

of food. Emerging adult mayflies were put in a plastic container and this was placed in the fridge. Why? Adult mayflies only live for a few hours. But by putting them in the fridge they can live for up to a week as the drop in temperature brings about a form of dormancy.

After two weeks 'in the classroom', many of the mayfly nymphs had emerged as adults. The children dismantled their aquaria and any remaining mayfly nymphs were put into a container.

Once at the river, the mayfly nymphs were carefully released back into the river and the adult mayflies were released along the river bank, usually onto the underside of a leaf on a tall plant or tree. Following the release, a follow-up session was carried out. This gave the children the opportunity to recount their experiences of the project and what they had learnt over the two weeks, and most importantly what they had liked most about the project.



A river food chain
- Stainton Primary school

"It was a really good project that combined practical science skills and some maths. It was extremely well organised and easy to manage and the children learnt a lot from it, particularly about our local river environment and the wildlife that lives in it."
Headteacher, Bolton Primary School