



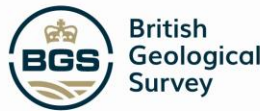
CatchmentCARE Education Programme Legacy Document

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CatchmentCARE

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1. Introduction to the CatchmentCARE Education Programme

The long-term sustainability of the river restoration actions depends on greater community knowledge and appreciation of the rich natural habitats of our rivers, streams and lakes. The CatchmentCARE project included a series of activities aimed at:

- supporting community engagement, knowledge transfer and project legacy outcomes
- advancing initiatives that took an innovative approach to Knowledge Exchange (KE), bringing together stakeholders with innovative visions of sustainable catchment management.
- Supporting actions that were inclusive of stakeholders across multiple sectors e.g. farmers, anglers, and tourism, who worked together to enhance KE and build their capacity to support sustainable land use in their catchment.

The CatchmentCARE project aimed to promote bottom up approaches which took into account local needs, knowledge, experience, and instilled further commitment of the community to their local area and their sense of identity.

The education element of the project fell under the Communications and Marketing section of the project which aimed “To raise community awareness in relation to water quality and the river environment”. This was to be achieved by developing “Catchment events i.e. river walks, and developing a new educational programme on water quality delivered to 30 schools (900 pupils).

With this in mind and from a very early stage in the project, CatchmentCARE Officers had a plan to design, develop and deliver a series of bespoke Curriculum based Education programme that would help young people across the 3 Catchments learn about their local rivers and inspire them to take action to protect them into the future.

River Education and the Curriculum

The Northern Ireland Curriculum aims to empower young people to achieve their potential and to make informed and responsible choices throughout their lives. It aims to develop the young person as an individual, as a contributor to society and as a contributor to the economy and the environment. The curriculum places increased emphasis on Education for Sustainable Development (ESD) and asks pupils to:

- Think globally act locally;
- Cut down on waste and prevent pollution;
- Save energy and natural resources;
- Look after the local environment;
- Encourage biodiversity and understand its importance to us.

The curriculum also specifies under the ‘*World around Us*’ subject that “Every young person should have the opportunity to develop a sense of awe and wonder of the world around them”. It was therefore essential the CatchmentCARE developed and delivered a River / Water Quality based education programme to as many schools as possible throughout its lifetime in order to help develop our future generations with sustainability in mind, who will care for and have empathy with and want to protect the natural world including our local rivers and catchments.

It was also felt that the project had an excellent opportunity to help train the educators (teachers) so that they have the skills and confidence to teach environmental and river based education outside of the classroom as a legacy element to the work. At the outset of the CatchmentCARE project a figure of 30 schools and 900 children was set as a realistic and achievable target to aim for, this figure as you will see throughout the course of this document was to be well and truly exceeded in both quantity and quality of the programmes delivered between 2019 - 2022

2. CatchmentCARE Pilot Education Programme

Early in 2019, Officers from CatchmentCARE partners, Armagh, Banbridge & Craigavon Borough Council, Lough's Agency and Inland Fisheries Ireland convened to develop plans for a Pilot Education Programme to be delivered in the spring and summer of the same year.

It was decided that the focus would be on Primary School age pupils with a potential to move into Secondary Schools in a future programme. The group began to look at what areas of the CatchmentCARE linked into the current Northern and Southern Irish Curriculums and what other similar education programmes were already being delivered by organisations across the Catchments.

In March 2019, a tender was developed and sent out to the market to procure a suitable organisation to deliver the pilot programme. The River Blackwater Catchment Trust (RBCT) won the tender to deliver the work on the 1 April 2019 and immediately began to engage schools based on the preparatory work done by the CatchmentCARE team.

The task for RBCT was to design and deliver a seven-week long programme suitable for children at Key Stage 2. The staff of CatchmentCARE designed the programme and provided the nominated schools with provisional dates, which meant that the contract could be delivered within the 10 weeks available before the school year finished in June 2019.

The proposed programme and lesson plans were agreed with the CatchmentCARE Education Officer soon after the River Blackwater catchment Trust were appointed.

2.1 Pilot Programme Overview & Delivery



Programme delivery began on Tuesday 2nd April 2019 and followed the plan mapped out in the tender document, delivering a two-hour lesson from 10.00am to 12noon and a second two-hour lesson from 1.00pm and 3.00pm. However, the schools were anxious to allow as many children as possible to benefit and participating pupils included P5, P6 and P7 pupils.

The schools taking part in the pilot programme were -

- **Arney Catchment** - Florencecourt & St Mary's Primary Schools
- **Blackwater Catchment** – Carntall & St McCartans Primary Schools, Clogher & Augher Central Primary School
- **Finn Catchment** - Scoil Naisiunta Colmcille, Fintown , Scoil Naisiunta An Choimin, Commeen & Scoil Naisiunta Tabhog, Cloghan

Local Environmental Educator, Alyn Jones visited the schools where he delivered a range of topics such as:

- General introduction to water
- The water cycle
- Local rivers and associated wildlife
- River studies and measurements
- Water and River pollution
- Riverbank erosion and how it affects the river system.



The programme included several site visits, including a local river close to the schools, where pupils carried out monitoring and invertebrate studies as well as a visit to Marble Arch Caves where the children learned about the underground cave system and discovered how groundwater flows and moves both temporally and spatially. The pupils also constructed a story map of their local river system and worked with Gardiner Mitchell Photography to narrate drone footage and wildlife footage of the river. The pilot programme was seven weeks long and culminated in a final celebration event in the Mellon Country Inn on the 19 June. All lessons were curriculum linked and enabled teachers to use the material in follow up lessons on other topics particularly in relation to STEM.

2.2 Content of the Programme delivered

1. Introduction to Water

Topics covered:

- Introduction to the CatchmentCARE programme (what it is and why is it important?)
- Why is water important– Experiments with states of water and salt and fresh water
- Exploration of everyday water usage– home, school and recreation– experiments with water filtration and school water mapping
- Basic introduction to rivers Inc. new vocabulary
- Water cycle– evaporation, transpiration, precipitation
- Planning and mapping exercise. Begin wall displays

2. River Visit

Visit to a nearby river with Catchment CARE Officer to look at the health of the river, the habitats and surrounding ecosystems.



Topics covered in River Visit:

- Study how a river works and flows both temporally and spatially.
- Study velocity of a river through depth, width and speed
- Look at a river section analyses
- Mapping a river section
- Studying biodiversity of river (invertebrate study and indicator species determining water quality).
- Issues affecting rivers– pollution/ phosphates/ erosion of banks
- Identify dangerous and invasive species.

3. River Study - Classroom base

Topics covered:

- In depth look at how rivers are formed– activity based session
- Map work to answer question son each river system– how long is the river? What towns does it flow through? Where is the source/ mouth? What type of industry/ farming does it support? What type of leisure and recreational activities are on the river? What are the problems facing the river?
- History mapping activity– Early settlers along the river through to modern day human usage.
- All to be mapped on big display.

4. Water Underground

A Field trip to Marble Arch Caves was organised for all the participating schools.

Topics covered:

- Tour of underground cave system
- Filtration of water
- A temporal study
- Spatial study.

5. Man's Impact on Rivers

A study on the human impact on a water course was carried out in the classroom.

Topics covered:

- Where does pollution come from? Forms of pollution– chemical/ physical etc. What can we do to reduce pollution entering a river system?
- Begin a clean campaign around the school (ECO-SCHOOLS)
- Display photos on display map.

6. Sharing the experience



Finishing up and finalising the pilot programme:

1. Investigating further project work which would directly benefit the local river
2. Finalising display and artwork to be used at the Celebration Event
3. Telling the story of their local river
4. Developing a script and voice over for Drone film
5. Working with video production expert to develop their own Catchment River Video.

Visit to Marble Arch Caves

All the children participating got a chance to visit Marble Arch Caves. The visit allowed us to facilitate links between the Catchment CARE team and the education team at the Marble Arch Caves. The guided tour of underground cave system was an excellent way to examine how groundwater filters through the ground and forms caverns underground filtering the water as it goes. It is a great example of a temporal and spatial study it demonstrates that our water is not only affecting the surface including agricultural land but the very bedrock on which we stand, and conversely that our use and misuse of our water and waterways does not only affect the surface environment but the underground habitats too.

The Marble Arch visits also made the connection to British Geological Survey (BGS) and Geological Survey of Ireland (GSI), two partner organisations in the CatchmentCARE project.



River Visits

The Catchment CARE Officers in Blackwater and Arney found and scoped out a safe accessible location on the river. For the Blackwater this was a small stream that flows through Fardross Forest between Clogher and Fivemiletown. As can be seen from the photographs, the river visits were the highlight of the programme.

It was the perfect location to make the classroom discussions a practical reality. Both sites were perfect for school science projects and invertebrate indicators that show the health or problems in their local river.

Video production

After the contract was awarded, the CatchmentCARE team appointed a separate agency to gather photographs and video clips of the school programme to support the promotion campaign to engage people in the care of their local river. The RBCT team were happy to support and co-operate with this additional element of the programme. After initial discussions this expanded to produce an overview story of each river with drone footage. The RBCT team spent time planning with **'Gardiner Mitchell Photography'** at each of the schools filming, acting as liaison between the film crew and the schools and in some cases returning after the initial programme was completed. Three different versions of a script were produced to include specific features in the landscape and rivers in each area. The RBCT team built in additional time to organise for the pupils to provide a voice over to the video, as well as providing an additional workshop to allow the Blackwater schools to go back to the river to shoot the video footage.

The video footage really provided a way of crystallising the Catchment CARE message for the local schools and it was a fantastic output for the programme and highlight of the celebration event.



The films can be viewed by visiting the CatchmentCARE YouTube Channel:
Click title to view:

[Arney Catchment Education Film](#)

[Blackwater Catchment Education Film](#)

[Finn Catchment Education Film
English Language version](#)

[Finn Catchment Education Film Irish
Language version](#)

2.3 Education Pilot Programme Celebration Day

Following on from the completion of the CatchmentCARE education pilot programme, a celebration day was held in the Mellon Country Inn, Omagh on Wednesday 19th June.

The event saw the eight participating schools come together and show case the excellent work that had carried out throughout the course of the project. Some amazing displays were on show including –

- Water cycle and ground water models designed by pupils from Florencecourt & St Mary's Primary Schools in the Arney Catchment
- Some amazing poetry and literacy work completed by Cartnall, St McCartan's and Augher Central Primary Schools in the Blackwater Catchment and
- River story maps and interesting information on the wildlife found in and around the Finn river by Scoil Naisiunta Colmcille, Fintown , Scoil Naisiunta An Choimin, Commeen & Scoil Naisiunta Tabhog, Cloghan in the Finn Catchment.

Alyn Jones from the River Backwater Catchment Trust spoke to the audience about the huge amount of work that had been done by the schools. He praised the children's (and teachers) enthusiasm and engagement throughout the seven-week programme and flagged up the new education programme which will be running in the Autumn of 2019.

CatchmentCARE partner organisations, community groups and environmental educators all turned out to see the displays and chat to the children about their river journeys.

The highlight of the event was the launch of three specially commissioned river catchment films, produced by local photographer, Gardiner Mitchell. The films included drone footage of the Arney, Blackwater and Finn rivers, interspersed with shots of local wildlife and film of the pupils taking part in river studies, trips to Marble Arch Caves and carrying out classroom project work, all voiced over by the young people themselves!!

The messages coming out of the films, from the children were very clear, ***we love our local river and all the wildlife that relies on it and we need to look after in for the future – our future!! – Will You Help Us Look After It??***

3. Education Programme Phase 2

Development of Programme

In early 2020, plans were put in place to build on the success of the 2019 pilot education programme. The plan was to continue working with the 8 schools that participated in the pilot programme to incorporate elements into the core school curriculum through a series of teacher training events and curriculum planning activities. We also had plans to engage with 6 new schools who would avail of the pilot programme, receiving in-school visits and visits to local rivers.

The programme should have started in February 2020 but because of Covid 19 the programme was postponed until schools would allow visitors back into the classroom / run off site school trips.

By March it became obvious that the in-schools programme was going to be severely disrupted by Corona virus, as schools quite understandably were not allowing visitors into the classroom or run off site trips during the pandemic. Rather than mothball the programmes however, CatchmentCARE Officers in partnership with the River Blackwater Catchment Trust and other educators began developing a unique and bespoke series of on-line river-based education programmes and resources for schools to use in the classroom across the 3 Catchments.

“*The River*” as the programmes came to be known as, were intended to be a fun and informative look at rivers packed with activities, crafts, interviews and experiments to help young people understand more about their local rivers. It was decided that there would be five episodes in the first series, each accompanied by a teacher’s pack and teacher notes. The programmes were also to be linked to the NI curriculum at KS2 (P5 – P7) and the ROI curriculum (Classes 3, 4 and 5). The five episodes are as follows -

3.1 ‘The River’ Series 1



Between March – July 2020, the RBCT and Educators, Alyn Jones and Stephen Crabbe were busy pulling together the contents for the programmes and of course editing and producing the final episodes. The result of all the hard work was a fun and informative look at rivers over 5 episodes, jam packed with activities, crafts, interviews, and experiments to help students understand more about their local river. In addition included with each

episode was a teacher pack which included a teacher's notes sheet [an overview of the episode, information, activities, new vocabulary and curriculum links included in each video], photocopyable worksheet [reinforcing the learning or developing the learning in the videos] and activity sheet [more activities to do or make in connection with the theme of that episode].



By September 2020, Series 1 of 'The River' was ready to be launched into schools. The rollout was initially targeted at 19 schools, comprised of the original 8 pilot programme schools, 6 new schools which were supposed to be engaging in the pilot programme plus an additional 5 schools who were supposed to be taking part in a Community Incentive Scheme (CIS) education programme, which had also been impacted by Covid Lockdowns.

The chosen schools were as follows:

Arney Catchment

- Florencecourt Primary School, Florencecourt
- St Mary's Primary School,
- Gaelscoil Na Clocha Liatha, Blacklion
- St Columba's Primary School, Belcoo

Finn Catchment

- Scoil Naisiunta Colmcille, Fintown
- Scoil Naisiunta An Choimin, Commeen
- Scoil Naisiunta Tabhog, Cloghan
- Ballylast National School, Castlefinn
- St Columba's Primary School, Clady

Blackwater Catchment

- Carntall Primary School, Clogher
- St McCartans Primary School, Clogher
- Augher Central Primary School, Augher
- Bush Primary School, Dungannon
- Windmill Integrated Primary School, Dungannon
- Newmills Primary School, Dungannon
- Armstrong Primary School, Armagh
- Mount St Catherine's Primary School, Armagh
- Our Lady's Primary School, Tullysaran
- St Jarlaith's Primary School, Blackwatertown

3.2 The River Series One - You Tube Links

An introduction advert for 'The River' can be viewed on our You Tube channel at:

www.youtube.com/watch?v=QgLntTEUYsk&feature=youtu.be

Episode One:

"The River- where it all begins". By the end of this episode the students will have learned what a river is, what a catchment is, the difference between saltwater and freshwater, have explored the water-cycle and measured rainfall.

Link can be found here - <https://youtu.be/1ThVYoyF42c>

Episode Two:

"How to build a river". By the end of this episode the students will have learned that all rivers are not the same, but all have a range of characteristics, have explored river dynamics, have explored the stages of river development (early, mature and old age).

Link can be found here - <https://youtu.be/Y1jBcBb2lvg>

Episode Three:

"Creatures of the river". By the end of this episode the viewer will have learned about the river as a habitat, indicator species, have explored kick-sampling, food webs, vertebrates and invertebrates.

Link can be found here - <https://youtu.be/TRtHcrZDGto>

Episode Four:

"The magic moving river". By the end of this episode the viewer will have learned that the river course is not static but aims to find a straight path to the ocean. They will explore the geological obstacles in the way and how rivers are not always on the surface but impact below ground too. Viewers will also learn mapping skills.

Link can be found here - <https://youtu.be/q5P4h7O5WCY>


Episode Five:

"All my fault". By the end of this episode the viewer will have learned how rivers have been viewed as a convenient way to dispose of waste and how they can contribute (both positively and negatively) to this issue. Viewers will learn how nutrients, oil and detergents can disrupt the river habitat and how planting certain vegetation can remove unwanted nutrients before it enters the water course.

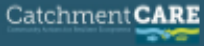
Link can be found here - <https://youtu.be/SRv2Ddu6W0U>

3.3 Examples of ‘The River’ Series 1 Teacher Worksheets

2

		
Video Programmes: Episode 2: “How to build a river”		
Description: Not every river is the same. This episode explores river dynamics, the physical similarities and variations that give every river its own distinct character.		
Item	Order	Description
Introduction		<ul style="list-style-type: none"> • Introduction to presenters, CC and recap on what discovered so far • Today's episode: Stages of river development, River features (inc. catchments), testing river speed at each stage, play pooh sticks.
Art and Craft STEM (experiment)		<ul style="list-style-type: none"> • Water wheel (template from NI water turbine) • Using angles and sections
Activity Sheets and online resources		<ul style="list-style-type: none"> • Create your own tinfoil river model and include different features
Numeracy		<ul style="list-style-type: none"> • Measure and record water speed using water wheel
Interview/ Visit		<ul style="list-style-type: none"> • Visit all three rivers. One at an early stage, one at mature stage and one at old age stage. • At early stage hosts do measurements for numeracy (Arney) • At mature stage get in boat at Argory (Blackwater) • At old age stage get Loughs agency to chat about the “story of the River” (Finn)

Notes

		
Video Programmes: Episode 3: “Creatures of the River”		
Description: Our rivers are a habitat for lots of creatures from the tiniest invertebrate up to birds that feed on the fish. We can tell how healthy our river is by the creatures that live in it.		
Item	Order	Description
Introduction		<ul style="list-style-type: none"> • Introduction to presenters, CC and recap on what discovered so far • Today's episode: Rivers aren't just channels of water, they are a place where many creatures live, invertebrates and vertebrates, all these creatures are connected.
Art and Craft		<ul style="list-style-type: none"> • Make your own river creature • NB features it should have.
STEM (experiment)		<ul style="list-style-type: none"> • Kicksampling and recording invertebrate life of the river • ABC Education Team • Food webs to demonstrate connectedness
Activity Sheets and online resources		<ul style="list-style-type: none"> • Make a pond • Survey your pond
Interview/ Visit		<ul style="list-style-type: none"> • Ballinderry Rivers Trust to see larger examples of river inhabitants

Notes

3.4 Feedback from Teachers and Pupils



The feedback we received from the schools, teachers and pupils for the 5 episodes of 'The River' Series 1 was beyond expectation. The programmes were extremely welcomed by teachers, especially during a time when teaching must have been very difficult in terms of pupil engagement in the classroom coupled with the restrictions placed on allowing children to experience the outdoors during this time. Many of the teachers commented how the programmes help to keep pupils interested in the World around Us topic and was used as an excellent vehicle for classes to explore their local rivers and biodiversity from within a classroom setting, whilst looking forward to once again being allowed to take schools trips.

3.5 'The River' Series 2

As 2021 approached and we sat and digested the success of Series 1 of 'The River' we very much hoped that the Pandemic would ease and that the CatchmentCARE Education Team would once again be delivering a physical programme back in the classroom and on our local rivers. These hopes were soon to be dashed as a new series of national and local lockdowns were to prevent us from getting anywhere near a classroom for another whole school year.

Once again, however the team took the bull by the horns and with a typical proactive approach to the whole situation set out to develop and deliver another series of 'The River'.

Series 2 as it was envisaged would contain lots of new features, great interviews, and activities based on our local rivers and would be a continuation of the learning from series 1 but we hoped, a whole lot more fun. It was also planned to include information on local contacts, individuals and organisations featured in each episode so that, in the future, schools and teachers could use them and their educational resources at their school.



With all speed and efficiency, the education team cracked on with the task and by late March 2021 all 5 Episodes of the 'The River' – Series 2 were ready, each accompanied by a teacher's pack and teacher notes. Like Series 1, all the programmes were linked to the NI curriculum at KS2 (P5 – P7) and the ROI curriculum (Classes 3, 4 and 5). Also, like Series 1, the programmes were not only sent to local schools, but were made available on the CatchmentCARE you tube channel -

3.6 The River Series Two - YouTube Links

Episode One: "Tangled". Alyn and Stephen explore the river ecosystem and habitats, they discuss species adaptation and encourage birds to the garden to survey. <https://youtu.be/RPcCx4WOOqY>

Episode Two: "Wer RU". Stephen and Alyn discuss how to use plans, maps and GIS to find our way around. <https://youtu.be/nlNOUdfES20>

Episode Three: "EIEIO". Stephen and Alyn are down on the farm and see how eutrophication affects our rivers and lakes. <https://youtu.be/z34Fbq2qDWo>

Episode Four: "School Of Rocks". Alyn and Stephen explore the connection between rocks and rivers. <https://youtu.be/JgJS6BTuD8A>

Episode Five: "Little Fishy". In this, the concluding episode of "The River", Alyn and Stephen switch their focus to freshwater biodiversity and explore the difference between freshwater and saltwater. Interviews with the Loughs Agency and Inland Fisheries Ireland help provide valuable insight into fish species and local river biology. <https://youtu.be/JODMLdDu1KA>



3.7 Feedback from Teachers and Pupils

As with Series 1, the feedback we received from schools, teachers and pupils for Series 2 was highly positive. The programmes were again welcomed by teachers, as an excellent follow on from the first series and in light of the fact that they still couldn't take their pupils outside of the classroom to experience the natural world. Many of the teachers commented how the programmes help to keep pupils interested in the World around Us topic and was used as an excellent vehicle for classes to explore their local rivers and biodiversity from within a classroom setting, whilst looking forward to once again being allowed to take schools trips.

3.8 Examples of 'The River' Series 2 Teacher Worksheets

Catchment **CARE**
Community Action for Freshwater Environments

Teachers Notes 2021

Episode 1 Introduction

In this episode we focus on the importance of farming and how farmers can support our rivers. Alyn and Stephen visit a farm in Clogher and have a very inciteful interview with Farmer and CatchmentCARE Officer Tom Woods. They also take a trip back to AFBI to learn more about Willow harvesting with Chis Johnston and get to see some machines at work and speak to Julie Campbell of UUC about Eutrophication in Lough Neagh.

In this episode. At a glance:

Learning about the importance and scale of farming.
Interviews with Tom Woods from CatchmentCARE, Chris Johnston from AFBI and Julie Campbell from University of Ulster Coleraine.
Eutrophication and what is being done to prevent it.
Making milkshakes from local produce
Making a lollipop crane

Accompanying Worksheet:

Learning about the process of Eutrophication

Accompanying Activity sheet:

Exploring pollution with Freddy the fish

New Vocabulary in this Episode:

Eutrophication, nutrients, algal growth, willow harvesting

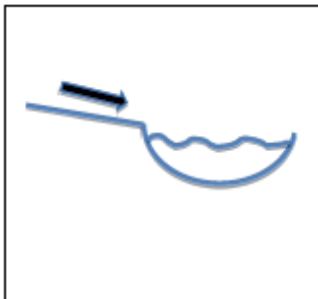
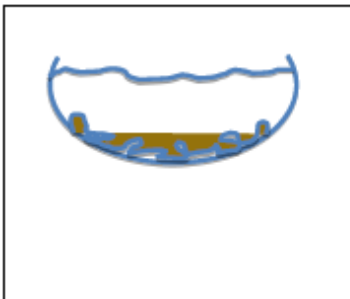
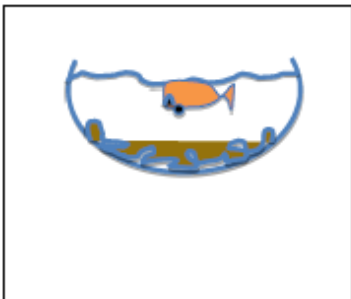
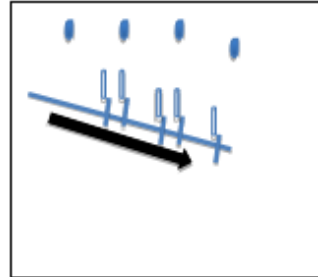
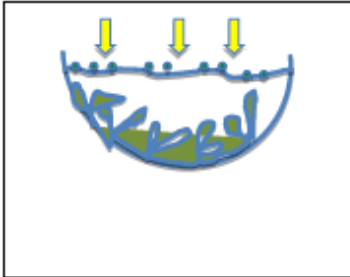
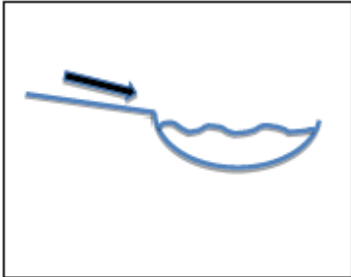
Curriculum Links NI:

The World Around Us Learning Area: Interdependence, Place, movement and energy and change over time. **Numeracy:** Number and data handling **Literacy:** Talking and Listening and reading and writing.

Curriculum Links RoI:

PLC: Communicating, Understanding, Exploring and Using. **MA:** Number, Shape and Space, Measures, Data. **SESE:** Sense of place and Space, Maps, Globes and graphical skills, Geographical investigation, Working scientifically, Designing and Making. **SPHE. ART.**

Match the notes with the correct diagrams (cut and stick notes in correct box). When complete, cut final boxes out and stick them in the correct order on the sheet provided.



Fertilisers end up in freshwater ponds or rivers

Water plants grow rapidly

Bacteria use up all oxygen in water. Other pond life dies

Water plants prevent light reaching the plants at the bottom

Fertilisers are washed off the land by rain

Bottom plants die and are decomposed by bacteria

Activity: Pollution

Age Group/Key Stage: P5-7 – KS2

Purpose: To Appreciate that we share our environment with animal life.

To identify, discuss and implement simple strategies for improving and caring for the environment.

Develop a sense of responsibility for taking care of the environment.

Materials: basin, soil, oil, salty slush, rubbish, food colouring, whiteboard, marker, goldfish template

Time: 30 minutes

Curriculum Links NI: WAU Learning area – Interdependence, Place & change over time

Curriculum Links Ro: PLC: Communicating, Understanding. SESE: Designing and making

Introduction (Read to children)

Imagine a clean river it runs through a protected wilderness area. In this river lives our friend Freddie the goldfish. How is Fred? Freddie has lived in this stretch all his life. But now he is going on an adventure and travel downstream and we are going to follow him.

Step 1

Read the story of Freddie the Fish to the class and at each stage of the pollution of Freddie's environment, invite a child up to the basin to put the polluting agent into the water filled basin with the template of the goldfish.

1. *Freddie swims into farm country. He passes a freshly cut river bank. As it begins to rain some of the soil becomes loose and falls into the river. How does Freddie feel?*
Soil (add to basin)
2. *Freddie swims beside a large parking lot. Some cars parked there are leaking oil into the river below. How does Freddie feel?*
Oil (add to basin)
3. *During a recent cold spell, ice formed on the bridge. County trucks spread salt on the road to prevent accidents. The rain is now washing salty slush into the river. How does this effect Freddie?*
salty slush (add to basin)
4. *Freddie swims past the city park. Some picnickers didn't throw their garbage into the rubbish bin. The wind is blowing the rubbish into the river. How is Freddie?*
Rubbish (add to basin)
5. *Several factories are located downstream from the city. Although there are rules that only allow factories dump a certain amount of pollution into the river, the factory owners are not following them and end up dumping more into the river.*
Food colouring (add to basin)



4. Education Programme Phase 3 – ‘The Roadshow’

In 2020 and 2021, due to Covid restrictions the education programme went online and 2 series of programmes entitled ‘The River’ were developed and distributed to schools across the catchments and wider afield. After the great response from local teachers, principals and pupils across the country, we decided that a Phase 3 of the education programme was necessary. Development of the programme began in November 2021, the plan being to be finally allowed back in the classroom in 2022. The ‘Education Roadshow’ as it was called was planned to take place in 28 schools across the three catchments and deliver a final schools classroom visit to these schools to tie all the elements of the education programme together.



Local Environmental organisation ‘The Speedwell Trust’ won the tender to deliver the Roadshow and immediately began work to engage schools that had already taken part in the Phase 1 & 2 programmes and also to recruit new schools that had not previously participated. Between January - June 2022 Speedwell Trust along with AS JONES Education successfully planned, prepared and delivered the Environmental Education Roadshow.

The aims of the roadshow were:

1. To tie up the CatchmentCARE education programme that had been successfully delivered to schools across the three Catchment areas educating pupils about the need to look after our local rivers and water bodies.
2. For teachers to choose one of the newly created river workshops that would be delivered to the class.
3. To develop and deliver an engaging ‘ask the experts’ webinar to provide children and staff with an opportunity to ask questions and to provide final thoughts on the project.

The project involved working with children from across the three different catchments targeting a mixture of schools already on the programme along with some new schools). 26 Schools took part in the Project involving almost 700 children and 51 Staff.

The schools taking part in the Phase 3 Roadshow Programme were:

Arney Catchment

Florencecourt PS
St. Mary's PS, Killesher
Killyhommon PS
St. Columbans PS, Belcoo
St. Patrick's PS, Blacklion

Blackwater Catchment

Augher Central PS
St. McCartan's PS
Carntall PS
Windmill IPS
Bush PS
Armstrong PS
Mount St. Catherines PS
New Mills PS
St. Marys PS, Dunnamore
Aughnacloy PS
St. Mary's PS, Aughnacloy
Corrcrin NS
Knockconan NS
Churchill PS
St. Joseph's PS
Our Lady's PS, Tullysaran
St. Jarlaths PS

Finn Catchment

Ballylast NS, Castlefinn
Scoil Naisiunta Colmcille, Finntown
Scoil Naisiunta An Choimin
St. Columbas PS, Clady



4.1 The Roadshow - Programme Delivery

Each class took part in a workshop covering the 'best bits' from the original CatchmentCARE education programme. They had a choice of: River Beasties, Mapping or The Water Cycle.

The full programme delivered in the schools can be seen in the following programme outlines:

Programme 1 - River Beasties

Time	Title	Activity	Detail	Resources
10 mins	Introduction	Ice breaker - call and response	Play "The River" video tune One dresses in CC tshirt, one in safari gear, misunderstands "going on a minibeast safari" Tootsie Roll/ Boogaloo	Bluetooth speaker The River theme tune. Safari outfit
15 mins	Habitats and Ecosystems	PowerPoint	PowerPoint Presentation introducing "Who would you find in a place like this: 1. Humans e.g. mechanic, playground, old peoples home etc. 2. Variety of habitats (polar and river) 3. River habitat - show images of an otter, fish, frog, heron, crayfish.	PowerPoint, laptop & Projector
15 mins	Food Webs and Food Chains		<ul style="list-style-type: none"> Group split in two smaller circles- play an introduction game by throwing ball around the circle Spiders web - Making connections activity. Large human circle - links through commonalities - throw ball of wool to a person with same answer. Explanation- All living things are connected in an ecosystem- this will involve passing energy. 	<ul style="list-style-type: none"> 2x Balls Ball of wool
15 mins	Classifications		Dress up as scientists Play science theme Worms, Slug, Ladybird, Spiders, Woodlouse, centipede, millipede. <ul style="list-style-type: none"> Explain classes from the front inc. numbers of legs. Give out a pack of playing cards to each group. Pack contains. Class names with no. of legs, 3x creatures from each class. Groups then classify the cards they have. 	Bluetooth speaker system Names and headings posters Packs of minibeast playing cards.
15 mins	Identification		<ul style="list-style-type: none"> 5 groups given 1x picture of bird (Blutac Posters

			<ul style="list-style-type: none"> • Decision tree questions on wall. Coloured and numbered • Plumage (colour) Plumage (features) Habitat Food Size and shape • Each group follows questions around room • At end of trail they should have an identification • Explanation - things/feature that we can see on the animal when we are looking for it outside that make it unique - size, shape, colour, habitat etc. 	
10 minutes	Conclusion		<ol style="list-style-type: none"> 1. Watch the videos 2. Online session 3. Thank you very much (play title video again) 	

Programme 2 - How a River Works

Time	Title	Activity	Detail	Resources
10 minutes	Introduction	Ice breaker - parachute	Play "The River" video tune One dresses in CC tshirt, one in swimming gear and cycling gear, misunderstands "water cycle" Parachute game with river terms	Bluetooth speaker The River theme tune Bicycle, arm bands, towel, goggles, swim cap, snorkel, flippers
20 minutes	Water cycle 1	Giant Art Attack	<ol style="list-style-type: none"> 1. Ice pop states of H₂O. inc. kettle for condensation 2. Illustrate the water cycle in the middle of the hall with giant pieces 	Icepops Kettle Giant water cycle pieces
25 minutes	Water cycle 2	Giant wheel	Create 2 large water cycle wheels for display in classroom	Card Markers Split pins Glue Scissors Pictures
		BBC watercycle video	Kids use this to explain water cycle - volunteer comes to front and talks through the cycle. The water cycle - BBC Teach	Video embedded into PowerPoint
10 minutes	River stages/features	Car racing	Dress in Science costumes Use of hot wheels to illustrate the different stages of a river.	Science costumes Hot wheels set X 2

		Video of River Stages	At the beginning car moves fast, (early stage of a river, high up in mountains/lots of energy). The car will slow down until it eventually stops (shows a rivers middle to end course - flat ground and less energy - river slows down to a stop)	Video
10 minutes	River dynamics	The human river	<p>Illustrate dynamics by</p> <ol style="list-style-type: none"> 1. Line pupils up in two lines facing one another. These are the river banks 2. Have 2 pupils act as the water. They pull some of the banks into the middle with them and move them down the river. 3. Explanation- water has more energy in the early stages of a river, it erodes the banks and carries the debris downstream. The heavier particles/ items are deposited sooner and the lighter carried further. <p>Children watch video clearly highlighting river transportation</p> <p>https://youtu.be/IFh8u7xmzr0</p> <p>Underwater video of sediment transport in Akutan, Alaska by High Tide Exploration - YouTube</p>	Balls, beanbags, cones etc.
10 minutes	Conclusion	Video showing river transportation process	<ol style="list-style-type: none"> 1. Watch the videos 2. Online session 3. Thank you very much (play title video again) 	

Programme 3 - GIS and Mapping

Time	Title	Activity	Detail	Resources
10 mins	Introduction	Ice breaker- 4 square	Play "The River" video tune One dresses in CC tshirt, one in pirate outfit, misunderstands "using maps" 4 square	Bluetooth speaker The River theme tune. Pirate outfit Cones
15mins	Spatial Awareness	Spatial Awareness	<ol style="list-style-type: none"> 1. Group divided into small groups of 5 2. In turn, a player goes to the tray of 12 objects placed at the front of the hall and finds the correct object and places it in the large hoop according to the map given 3. Go until team is done. 4. Repeat with limited time with map etc 	Hoops Objects Maps
15 mins	Instructions	Blind fold game	<ol style="list-style-type: none"> 1. 1 player is blindfolded and whole group shout instructions to enable player to walk to other end of hall 2. ½ players wear blindfolds and are guided, hand on shoulder around the hall 3. ½ players wear blindfolds and are guided, voice only around the hall 	blindfolds
15mins	Symbols	Symbols	<ol style="list-style-type: none"> 1. In smaller groups players turn over a card with a symbol on it. Player decides what it might be. 2. If they know- they run to the tray in the middle of the hall and select the matching description. If they don't know, they run to the far end of the hall to read the answer and then to the tray to select the match. 	Symbol cards Description cards OS answer sheets
15mins	Grid Ref	Quiz time	<p>Play theme for quiz time Dresses up as Hiker</p> <ol style="list-style-type: none"> 1. Questions about who uses maps? 2. On PowerPoint explain how to do 4 fig grid references. 3. Give small groups a copy of a map 4. Ask a series of 10 questions 5. Group with most correct is the winner 	Powerpoint Maps Questions Hiking outfit

	What three words	Quiz	<ol style="list-style-type: none"> 1. Suggest places in school - kids tell us three words. 2. Give kids three words - answer with a river feature. 	Ipads, what three word App(downloaded on kids ipads)
10 minutes	Conclusion		<ol style="list-style-type: none"> 1. Watch the videos. 2. Online session 3. Thank you very much (play title video again) 	

The Roadshow was completed in June 2022 and the feedback from the teachers and pupils was once again extremely positive. There were many comments that were collected from classroom feedback sessions at the end of the programme – some of them are shown here:

4.2 Teacher and Pupil Feedback

Teacher Comments

- *It was excellent. Very interactive. Super enthusiastic staff who connected really-well with lively children. Thank you.*
- *Excellent facilitators, great at engaging with the class and delivered clear content in an enjoyable environment. Thank You!*
- *Excellent workshop. Children interacted with co-ordinators. Exciting and well thought out activities. Great Show!*
- *Great interaction with the children and lots of activities to create fun engagement and active learning.*
- *Hands on activities, provider engaged very well with class. Lots of various types of activities.*

Children's Comments

- *Thank you, Alyn, Jodie, and Stephen, this was the best day ever!*
- *Please come back and do more of this.*
- *I loved all the activities, especially the river creature ID game*
- *It was great to learn about ecosystems and nature.*

4.3 Summary of outputs delivered in the Roadshow

	Outputs delivered	Outputs delivered
1	A final schools classroom visit to as many schools as possible across the 3 catchments (estimated 30 schools).	30 Schools contacted and 26 agreeing to take part. Majority of schools from Blackwater Catchment. Schools contacted in other Catchment areas but at the time were still reluctant to have facilitators in their school because of Covid.
2	Further promotion of the 2 River series of programmes with associated teacher notes, activity sheets and curriculum links.	Promoted and emailed to all schools
3	Signposting for schools to an online education platform developed by Edenderry Club in Armagh as part of a separately funded Community Project.	Promoted to all schools
4	Promotion of CatchmentCARE Virtual Reality (VR) resources as part of an educational module being developed by partner organisation, BGS (British Geological Society).	Talked to teachers and many declared an interest in this
5	Signposting for schools to local environmental organisations that can help deliver river-based education programmes as a legacy to CatchmentCARE work post 2022/2023	Schools were made aware of local organisations they could contact and use to help deliver future river education programmes
6	Development & Delivery of final online 'Ask the Experts' Webinars to take place before end of June 2022	Schools were contacted about this, but it was difficult to arrange a suitable date due to so much happening during this month. Technology for delivering this element successfully was tried in a school. We have contacted the schools and they are keen for us to deliver this element in September.

5. Development of Online Education Platform (Edenderry)

The Edenderry Rod & Gun Club were funded through Phase 2 of the Community Incentive Scheme to develop an online education platform to help the group develop their own education programmes with local schools. At the time that Edenderry Rod and Gun Club applied for their project from the Community Incentive Scheme, Covid 19 restrictions were in full force. CatchmentCARE Officers had already developed and delivered a successful online Education Programme to local schools called 'The River'. With that on mind, the Edenderry club wanted to help re-inforce this education work in its own area of influence by developing an online education platform specific to Edenderry Lough. The aim was to help develop this amenity to appeal to greater usage by the wider community and encourage new visitors to the Lough including local schools and youth groups.

At the heart of this project was the improvement of water quality and the promotion of knowledge exchange with the local community and schools with a strong emphasis placed on the education of younger generations to promote learning and understanding of our local river systems and water bodies.

Website development

The main area of the project that was funded through the CIS scheme was the development of a user-friendly school facing educational website and curriculum based modules. This 'platform' contains an online course that local and wider schools can use to learn about water resources, biodiversity, pollution and other water related issues. It also contains a large citizen science-based element, encouraging classes to get out and record and monitor their local water body and feedback results to the platform.

The site contains a variety of worksheets, downloadable resources and activity pages combined with teacher notes and curriculum links. The resources connect to both the Northern Ireland and Irish curriculums and cover areas such as Numeracy, Literacy, ICT, Technology and Design and Art. The site is being used by schools now that lockdown restrictions are over and the site has enabled the club to forge links with new schools and groups, encouraging them to become involved with the conservation of Edenderry Lough.

The group went on to grow the platform and its reach even further to include individuals and groups from across the Catchment area of the Blackwater river system.

6. Conclusions and Legacy of Education Programmes

Over the 3 phases of the education programmes CatchmentCARE has helped to educate 5,600 children, encompassing 280 teachers across 172 schools.

Environmental education (EE) connects children to the world around us, teaching them about both natural and built environments. EE raises awareness of issues impacting the environment upon which we all depend, as well as actions we can take to improve and sustain it. Whether we bring nature into the classroom, take students outside to learn, or find impromptu teachable moments on a nature walk with our families, EE has many benefits for youth, educators, schools, and communities.

Benefits and Legacy of CatchmentCARE's Environmental Education Programmes

1. **Imagination and enthusiasm were heightened.**

The programmes were hands-on, provided interactive learning that sparked the imagination and unlocked creativity in those participating.

2. **Learning transcending the classroom.**

Not only did the programmes offer opportunities for experiential learning outside of the classroom, it enabled students to make connections and apply their learning in the real world.

3. **Critical and creative thinking skills were enhanced.**

The education programmes encouraged students to research, investigate how and why things happen, and make their own decisions about complex environmental issues. By developing and enhancing critical and creative thinking skills, the programmes helped to foster a new generation of informed consumers, workers, as well as policy and decision makers.

4. **State and national learning standards were met for multiple subjects.**

By incorporating CatchmentCARE education programmes into the curriculum, teachers were able to integrate science, math, language arts, history, and more into one rich lesson or activity, and still satisfy numerous state and national academic standards in all subject areas. Taking a class outside or bringing nature indoors provided an excellent backdrop or context for interdisciplinary learning.

5. **Bio phobia and nature deficit disorder were challenged.**

By exposing students to nature and allowing them to learn and play outside, the CatchmentCARE education programmes fostered sensitivity, appreciation, and respect for the environment. It combated "nature deficit disorder" ... and it was FUN!

6. **Healthy lifestyles were encouraged.**

The students involved in the programme got to be outside and active, this helps address some of the health issues we are seeing in children today, such as obesity, attention deficit disorders, and depression.

7. **Strengthened Communities.**

In conjunction with the Community Incentive Scheme (CIS), the Education Programmes promoted a sense of place and connection through community involvement.

8. Responsible action is taken to better the environment.

The programmes also helped students understand how their decisions and actions affect the environment, build knowledge and skills necessary to address complex environmental issues, as well as ways in which they can take action to keep our environment healthy and sustainable for the future.

9. Students and teachers are empowered.

The CatchmentCARE programmes also promoted active learning, citizenship, and student leadership. It empowered youth to share their voice and make a difference at their school and in their communities. The programmes also helped teachers build their own environmental knowledge and teaching skills.