



THE CHALK STREAM CHALLENGE

RIVER MISBOURNE

Discover the wonders of these rare and precious places, which are full of amazing wildlife and heritage with our Chalk Stream Challenge!

The challenge is suitable for Scouts, Guides, and similar groups or even keen individuals. It involves activities that can easily be customised to suit different age ranges. There are suggested routes along three of the Chilterns chalk streams that give lots of information along the way.

Once you have completed the challenge fill in the form on our website and order your badge!

The Chalk Stream Challenge was created by two volunteers as part of the Watercress and Winterbournes Landscape Partnership Scheme. The scheme, funded by the National Lottery Heritage Fund, focuses on the headwaters of the Rivers Test and Itchen in Hampshire, and encourages children and young people to explore and learn about their local chalk stream. The Misbourne Chalk Stream Challenge was adapted for the River Misbourne by the Chilterns Chalk Streams Project (CCSP) with funding from Mending the Misbourne.





BACKGROUND INFORMATION

Did you know that there are 9 Chalk Streams in the Chilterns National Landscape? Considering there are only around 300 Chalk Streams in the whole wide world this is pretty impressive! Chalk Streams are often described as 'England's Rainforest' because across the country we have 85% of this national total. They provide rare spaces for a whole host of wonderful creatures and plants to live in harmony with each other. Like water voles, brown trout, damsel and dragonflies, water crowfoot and mayflies.

The Chalk Streams in the Chilterns eventually all run into the River Thames and finally into the ocean. Sometimes parts only flow in the winter, these rivers are called 'Winterbournes'. However, what they all have in common is that the water that feeds these streams comes from the ground where the bedrock is chalk. The chalk rock acts as a giant sponge under the ground storing water which we eventually see running through the streams. This sponge is called an 'Aquifer'.

Our rivers have been shaped by us and past human activity. Satellite imagery and the latest technology can show us the patch-work of industries that used the crystal clear water as a means of transport, farming and production such as milling of grain or paper. The watercress industry continued in the Chilterns until very recently.

WHAT'S SO SPECIAL ABOUT THE MISBOURNE?

The chalk of the Chiltern hills was created over 100 million years ago when shells and tiny sea creatures called coccoliths fell to the bottom of a tropical sea that covered this area for 20 million years!

Chalk is porous, meaning it can hold rainwater like a sponge (Aquifer).

The water is filtered through the chalk so is rich in minerals and emerges from the ground through springs at a constant temperature year-round. This trait encourages a wide range of aquatic (water loving) plants to grow, this in combination with good water quality leads to healthy populations of invertebrates and fish.

It is natural for certain stretches of the river to become dry, this can happen by late summer where rainfall has not recharged the aquifer. One of the challenges faced by Chalk Streams is global warming, which is affecting rain patterns and recharge rates. This could mean that some of the rivers we see now are dryer for longer periods or even dry out where they never had before.

Chalk streams have been modified for generations to supply us with water for agriculture like farming, industry including watercress and milling, transportation and fishing. Abstraction, removing water for our





use, is another big threat for the River Misbourne. Over abstraction leaves the river without enough water to support a healthy ecosystem.

We use water in our homes to drink, flush our toilets, brush our teeth, shower, clean our clothes and even to wash our cars and or water the garden. On the River Misbourne, Affinity Water provides us with this water. If you can reduce the amount of water you use to do these things, like turning the tap off when you brush your teeth or having a shorter shower, we can reduce our consumption and help to save the River Misbourne from over abstraction.

HS2 work near the River Misbourne has put pressure on the whole catchment- the land, streams and chalk underground that all share the same water. The tunnel works and construction areas have affected the landscape, breaking up paths, hedges and habitats that wildlife use to move safely. Maintaining these natural links is important for supporting wildlife and protecting the long-term health of this rare chalk stream ecosystem.

Pollution, is another big threat to the River Misbourne. Pollution can come from many sources and take many shapes and forms, from tiny particles of sediment from the fields to litter. The River Misbourne partnership is working with farmers to reduce sediment inputs to the crystal-clear waters of the Misbourne. Thames Water has a sewage treatment works on the River Misbourne, at Gerrards Cross. When it rains a lot, this can overload the sewage treatment works causing untreated sewage to be pumped into the river. This is not good for the river invertebrate and fish populations.



HOW TO EARN YOUR BADGE

- Everyone needs to complete Section 1
- Under 7s need to complete at least one other activity from sections 2,3 or 4.
- 7-11 years old need to complete at least two other activities from sections 2, 3, or 4.
- Over 11s should complete at least 3 other parts from activity 2, 3, or 4. For older children it would be useful to have a notebook & pencil to hand so they can record their findings and observations.

YOU WILL NEED – WHEN YOU GO OUT EXPLORING

- The route map and description.
- An OS Explorer map can be useful for looking for local industry and heritage features and expanding the trail if required.
- Filed guides on flowers, plants, birds and water life are not necessary but may be of use.
- Spotter sheets can be downloaded for:
 - Chalk stream animals
 - Chalk stream plants
 - General spotter sheet
- Pencil and paper
- Good footwear and weather appropriate clothing.



ACTIVITIES

SECTION 1 – GET TO KNOW THE RIVER MISBOURNE (TO BE COMPLETED BY EVERYONE)

1.1 Walk the suggested route

Or

1.2 Walk a stretch of chalk stream local to you- you will need to note the location (from where to where) and approximate length.

SECTION 2 – RIVER GEOGRAPHY

2.1 Play pooh sticks!

What you need

A bridge over a stream or river

A stick per player

How to play

1. Each player chooses a stick.
2. Stand on one side of the bridge.
3. Count down together: "**3, 2, 1, GO!**"
4. Drop your sticks into the water from the same side of the bridge at the same time.
 - o Don't throw them, just let them fall.
5. Quickly walk or run to the other side of the bridge.
6. Watch for the sticks to appear from underneath the bridge.
7. The winner is the player whose stick comes out first and travels past the bridge.

Fun challenge ideas

- Predict which stick will win before you start.
- Test different sizes and shapes of sticks.
- If you through in at different places does it affect the results?
- See how water speed affects the results.
- Chalk streams should be fast flowing. Why does the water flow faster/ slower in different places?

Safety reminders

- Stay well back from the edge of the bridge.
- Never climb over railings.
- Play only where an adult says it is safe.

Did you know? Winnie-the-Pooh and his friends played Pooh Sticks on a bridge in Ashdown Forest, Sussex, inspiring generations of children to enjoy this simple riverside game!



SECTION 3. RIVER LIFE

3.1 Plant spotter (spring or summer is recommended for this activity)

This could be undertaken at the same time as your walk. Using the Chalk Stream Challenge spotter sheet walk along the river and see what river plants you can see.

If you see any of the non-native invasive plants please take a photo and email us with location.

3.2 Bird spotter

This could be undertaken at the same time as your walk. Using the Chalk Stream Challenge spotter sheet walk along the river and see what river birds you can see. Use your ears too! Make sure you stop regularly to look and listen.

3.3 River spotter sheet

This could be undertaken at the same time as your walk. The spotter sheet includes things that can be seen along the suggest route. It includes natural and manmade points on interest.

3.4 Brass Rubbing-

You will need:

Plain paper and some crayons (the chunky ones work better!)

Can you find the 10 brass rubbing animals along the route? Put your paper over the animal and rub the crayon lengthwise over until the image appears. Write down the name of the animal/ plant.

3.5 Meadow bug hunting (summer months)

You will need:

Bug spotter sheet and bug pot (not essential)

Please note Cows may be present in the meadow May- October

Carefully explore the meadow and look on flowers, grasses and leaves for insects and other tiny creatures. Use a magnifying glass if you have one, count how many different bugs you can spot, and draw or write down your favourites. Listen carefully- can you hear crickets or grasshopper? Look out for butterflies. Please look gently, do not pick up anything that might sting, and always leave the bugs and their homes where you found them. Look out for cows and where you step!



SECTION 4. RIVER FUN – THESE ACTIVITIES CAN BE DONE AWAY FROM THE RIVER SO IDEAL FOR THE COLDER MONTHS

4.1 Caddis fly craft – Can you give a caddis fly a case using natural materials? You can download the printable sheet . You will also need glue and collage materials.

4.2 Canals and narrowboats

You will need:

- Printed Narrowboat art download
- Pens, pencils or paint

Find out about canals and how they are different to chalk streams. Do some research on traditional canal art work and have a go at designing your own chalk stream themed narrow boat.

4.3 Cooking – make water cress soup! All ingredients should be shop bought and not foraged from the river.

Ingredients

- 20g butter or margarine
- 100g white onion, finely chopped
- 1 garlic clove, finely chopped
- 300g watercress, tough stalks removed
- sea salt and freshly ground black pepper
- 100g spinach leaves
- 500ml boiling water
- 500g ice cubes
- 100ml crème fraîche (or dairy free equivalent)



Method

1. In a large saucepan on a medium heat, melt the butter and gently cook the chopped onion and garlic for 2-3 minutes, or until soft and translucent but not coloured.
2. Increase the heat to high, add the watercress and a pinch of salt, cover with a lid and cook for 30 seconds. Add the spinach and cook for 1-2 minutes, or until wilted.
3. Pour in the boiling water and simmer for 2-3 minutes, then remove from the heat and add the ice.
4. Pour half the soup into a food processor, and blend until smooth. Transfer the soup into a clean pan, then repeat with the remaining soup.
5. When ready to serve, reheat the soup and season, to taste, with salt and freshly ground black pepper if required. Serve the soup with the crème fraîche swirled through.

4.5 Write a poem

Can you write a poem about the river? You could include some of these techniques:

- Acrostic poem- this is where is spells out word down the side of the poem- you could choose Chalk stream as your word.
- Rhyming words- this means the words sound the same like:
Smooth it glides upon its travel,
Here a wimple, there a gleam –
O the clean gravel!
O the smooth stream!
Robert Louis Stevenson, 'Looking-Glass River'.
- Alliteration this is when you string together words which have the same first letter or sound, like
"The rippling river rushed relentlessly, roaring over rocks and rippling through the reeds."

If you write a poem we would love to read it- please include with your completed form.

4.6 Make a poster

Chalk streams are under threat from pollution and high water use. Can you choose an issue and make a poster about it?



ENTRY FORM

Completed the activities? Please now fill in this form and email to chalkstreams@chilterns.org.uk

Name of Child	
Group if applicable	
Age	

CHALK STREAM WALK-

Did you walk the suggested route or one of your own?

If you did your own route please tell us the location and approximate miles

WHICH OTHER ACTIVITIES DID YOU COMPLETE?

Activities	Please tick		Notes
Section 2- Geography- pooh sticks		What did you observe?	
Section 3- River life- Plant spotter		What plants did you spot?	
Section 3- River life- Bird spotter		What birds did you spot?	
Section 3- River life- River spotter		What did you see that was interesting?	
Section 3- Brass rubbing		Please share your rubbings!	
Section 3- Meadow bugs		What did you spot?	
Section 4- River fun- Craft		What craft did you do?	
Section 4- River fun- cooking		Did you enjoy your soup? How would you describe the taste?	
Section 4- River fun- write a poem		Please send us the copy of your poem	
Section 4- River fun- make a poster		Please send us the copy of your poster	

How did you hear about the Chalk Streams Challenge Badge?

IF YOU WOULD LIKE TO ORDER A BADGE PLEASE FILL IN THE FORM ON OUR WEBSITE

