



THE CHALK STREAM CHALLENGE

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 is a suggested route along The River Chess giving lots of info on 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 Chess Chalk Stream challenge was adapted for The River Chess by the Chilterns Chalk Streams Project (CCSP) with funding from Smarter Water Catchment.





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 global 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 'gin-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.

With support from the Chess Smarter Water Catchment Initiative, a collaboration of 9 key stakeholders are using funding from Thames Water to share the story of these chalk streams. Originally created by the 'Watercress and Winterbournes' project in Hampshire, we thank them for permission to adapt the challenge for the Chilterns. We have created a suggested route for youth groups to explore within the River Chess Valley.





WHAT'S SO SPECIAL ABOUT THE RIVER CHESS?

Chalk, created over 100 million years ago made out of shells and tiny sea creatures called coccoliths, is porous meaning it can hold rainwater like a sponge (Aquifer). Water levels in Chalk Streams can change at a much slower rate than those that are formed on a non-porous base such as clay.

Rich in minerals due to the filtration through the chalk, the water emerges from the ground in the form of 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 species.

It is a natural occurrence for certain stretches of the river to become dry, this can happen by late summer, due to a drop in the water table, 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 agricultural purposes like farming, industry including watercress and milling, transportation and fishing. Abstraction, removing water for our use, is another big threat for the River Chess. 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 Chess, 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 short shower, we can reduce our consumption and help to save the River Chess from over abstraction.

Pollution, is another big threat to the River Chess. Pollution can come from many sources and take many shapes and forms, from tiny particles of sediment from the fields to litter. The River Chess partnership is working with farmers to reduce sediment inputs to the crystal-clear waters of the Chess. Thames Water has one sewage treatment works on the River Chess. This has recently had an upgrade to increase the amount of sewage that can be treated there, sometime when it rains a lot, however, 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.

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.
- Field 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 CHES (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 Time the flow of the river

You will need:

- A stopwatch (or phone with timer on)
- Something to float (a stick, dog biscuit or mushroom! – make sure its biodegradable in case it floats away)
- A measuring tape (optional)
- At least 3 people

Measure out 5 metres or less (use could measure with steps if you don't have a tape).

1 person stands on the bank with the timer. 1 person stands at the beginning with the floating item on the measured length and one stands at the end. Once the timer starts the floating item is dropped in when it reaches the end stop the timer.

Try it in a few places. Where does it flow fastest? Slowest?



Time taken to travel ____ m

Repeats	Time (seconds)
1	
2	
3	
4	
5	

2.2 Water clarity

Chalk streams are fed by underwater spring and therefore should be crystal clear. However, this is not always the case.

Check the clarity of the water using this simple experiment

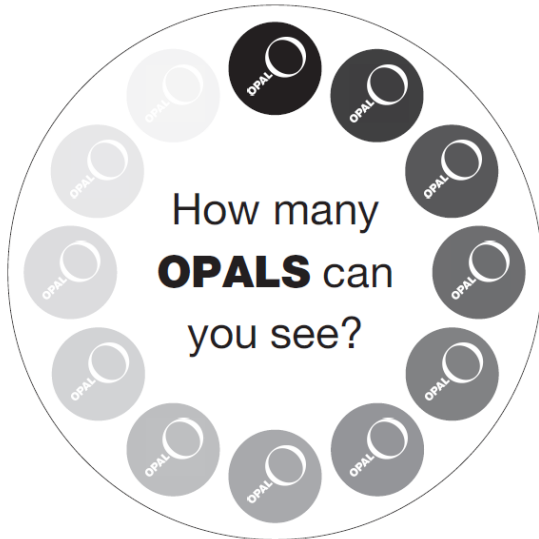
You will need:

- The below picture cut out
- A 2L plastic bottle

Fill a bottle of water with the water from the stream. Hold the circle on the bottom of the bottle. Look through the top of the bottle. How many opals can you see?



Try in a few different places. If the water was less clear in some of your locations have a think about why. What is making the water cloudy?



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.

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 **River dipping**

This can be delivered with CCSP education staff, or you can do it independently. If you are carrying out the activity independently, please download the river dipping guide.





We also have a loan kit with equipment you need. Please contact us to book this and arrange collection.

If you can't get to the river or are carrying this out in the winter months an education officer may be able to visit your group with a sample of river invertebrates to study. Please contact us for availability.

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 here. You will also need glue and collage materials.

4.2 Make a boat – Download the instructions here. Can you hold a race on the river once you have made it? (make sure you only use natural materials in case it floats away) Or have a go at floating in the sink!

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 lsilverstone@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- water flow		What measurements did you record?	
Section 2- Geography- water clarity		How clear was the water?	
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 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?





ORDERING BADGES

To order badges either as a group or as an individual please make payment of £1 per badge plus £3 postage (if needed)

Payment to

Account Name: Chilterns Conservation Board

Sort Code: 40-08-39

Account Number: 51803905

Please reference your payment with "CSCB" and the name of your group (or surname if individual)

Badges can also be collected with arrangement from the Chiltern Society in Chesham. Please inform us if you would like to collect.

Please fill in the online form to complete your order

<https://forms.office.com/e/7QRTKQmB6Z>

We also can provide downloadable certificates- please send in your form and we can email this to you.

For any queries or to share your work please get in contact!

Laura Silverstone

Education and Engagement officer

Chiltern Chalk Streams Project

lsilverstone@chilterns.org.uk

