

RESERVOIRS, DAMS AND CHOLERA

SUPPORT MATERIALS

If you need further support on specific aspects of outdoor learning these materials can enhance the engaging experiences you are providing. They can support you as you design, plan and implement your curriculum. Outdoor learning is a great way to develop learners' integral skills (creativity and innovation, critical thinking and problem-solving, personal effectiveness, planning and organising). You will want to focus on why learning matters and ensure you are meeting your learners' needs.

These materials show a path that could be taken through the activity. This is not meant to be prescriptive. You should adapt your approach depending on your learners' needs and interests and your local area.

OVERVIEW

Learners consider what they know about reservoirs and use maps to explore where Pontsticill reservoir was built and what was there before. They learn about how other towns and villages in Wales were lost as reservoirs were built. Learners consider what reservoirs and dams are used for, explore why and how beavers build dams, reporting their findings to the class and build a temporary dam outside. They consider the pros and cons of reintroducing beavers and explore where beavers might be reintroduced in Bannau Brycheiniog National Park. Finally, learners consider what they know about cholera and its causes and produce a digital poster to reduce the incidence of cholera in Merthyr in the 1800s.

CURRICULUM FOR WALES

Areas explored:

- Expressive Arts
- Health and Well-being
- Humanities
- Languages, Literacy and Communication
- Science and Technology

Activity also incorporates aspects of cross-curricular skills outlined in the LNF and DCF.

RESOURCES



Internet enabled device and internet access.

A suitable outside space, e.g. stream (natural or made in the playground) where a temporary dam could safely be built.

Access to [Find out what every symbol means on an OS Explorer map - OS GetOutside.](#)

DOING THE ACTIVITY



- Most tasks require learners to work in pairs or groups.
- Encourage learners to share their ideas, and through open questioning, explain and justify their ideas when possible. Focus questions have been suggested to guide learners through the tasks.
- Some tasks might be more effective if pairs or groups of learners have access to an internet enabled device.
- When taking learners outdoors, it is essential that the [Countryside Code](#) is adhered to and any relevant risk assessments have been carried out with risks mitigated.

TASK 1

HOW WERE RESERVOIRS BUILT IN BANNAU BRYCHEINIOG?

Explain to learners that in this task they will consider what they know about reservoirs and use maps to explore where reservoirs were built and what was there before they were built.

Screen 3

Ask learners to look at the photograph read the text and discuss the questions posed.

Focus questions

- What is this a photograph of? How do you know?
- Where is the photograph taken from? Why do you think this?



Screen 4

Ask learners to read the information about Pontsticill reservoir and discuss the questions posed.

Focus questions

- What do you know about the Pontsticill reservoir?
- How can you work out how tall 110ft is in metres? How tall is 110ft in metres?
- What do you think a megalitre is? Why?

Screen 5

Ask learners to access the map and discuss the questions posed.

Focus questions

- Where is Pontsticill reservoir on the map?
- How far is Pontsticill reservoir from school? How can you work it out?
- What other reservoirs can you see in Bannau Brycheiniog National Park?
- Which of these reservoirs is nearest to school? How far is the reservoir away from school?

Screen 6

Ask learners to access the modern and 1901 maps and discuss the questions posed.

Focus questions

- What was there before the Pontsticill reservoir was built? Make a list.
- What do you think happened to the farms and houses that were there before?
- How would you have felt if you had to move out of your home for the reservoir to be built?

Screen 7

Invite learners to read the article [The forgotten UK town submerged underwater with many buildings still standing](#).

Focus questions

- Why do you think Taf Fechan was sacrificed?
- What do you think the article means by 'when the conditions are just right' when it talks about seeing many of its former buildings and structural foundations?
- The reservoir was completed in 1927. How do you think the ancestors of Taf Fechan residents feel when they see remnants of the town?

Screen 8

Invite learners to watch the first 3 minutes of the video [MTSC Pontsticill Reservoir Drought 1989](#) and discuss the questions posed.

Focus questions

- What remnants of Taf Fechan are found?
- Why do you think these are the only remnants found?
- If you could dig into the mud, what else might you find?

Screen 9

Invite learners to watch the video [Cofiwch Dryweryn - the story behind the words. The flooded village of Capel Celyn](#) and discuss the questions posed.

Focus questions

- When was the reservoir completed?
- How were Liverpool Council involved with the flooding of the village?
- How do you think did the events in Capel Celyn led to Welsh devolution and Welsh being taught in Welsh schools?
- How would you feel if another country decided to flood your town or village against your country's wishes? What might you do to try and stop it?

TASK 2

WHAT ARE RESERVOIRS AND DAMS?

Explain to learners that in this task they will consider what reservoirs and dams are used for. They explore why and how beavers build dams, reporting their findings to the class and go outside to build a temporary dam. Finally, they consider the pros and cons of reintroducing beavers and where beavers might be reintroduced in Bannau Brycheiniog National Park.

Screen 3

Ask learners to read the information and to discuss the questions posed.

Focus questions

- Why do you think Cardiff needed more clean water during this time?
- Why do we need clean water now?
- What do we use water for at home? List as many uses as you can.

- Do we need clean water for all the things we use water for at home? Why?
- If you have visited or lived abroad, how did you get clean water? Why do you think this is different to the UK?

Screens 4-5

Ask learners to read the information on the screens and to discuss the question posed.

Focus question

- Why do you think beavers build dams?

Screen 6

Explain to learners that they will carry out an internet search about beavers and present their findings. Ask them to discuss the questions posed and to carry out their research, using the links on screen as possible starting points.

Focus questions

- What research questions are you going to answer? How will you search for information? Why like this?
- How will you know if the information you find is reliable? Why do you think that?

Screens 7-8

Following their research, ask learners to consider what they have learned by discussing the questions posed and to present their information.

Focus questions

- What have you learned about beavers?
- Why do beavers build dams?
- How do beavers build dams? What do they use? How long does it take to build a dam?
- What will you include in your short presentation? Why?

Screen 9

Tell learners they are going outside to build a temporary dam in a stream and ask them to discuss the questions posed.

Focus questions

- How do you think beavers collect materials for their dams?
- What natural materials do you think will be available near where you build the dam?
- How could you use these materials to build a dam?

Screen 10

Invite learners to go outside to build their temporary dam and to observe how it works.

Screen 11

Ask learners to discuss the questions posed.

Focus questions

- How successful was the dam? How do you know?
- Which materials were the best for building the dam? Why?
- What effect did the dam have on the flow of the water?
- How could you have controlled the flow of the water? Why would this work?
- What effects would the dam have on wildlife if you had left it in place? List as many effects as you can.

Screen 12

Ask learners to read the information about the pros and cons of reintroducing beavers.

Screen 13

Inform learners about the reintroduction of beavers in Bannau Brycheiniog National Park in 2013. Ask them to imagine they were responsible for reintroducing beavers to another part of the national park and ask them to discuss the questions posed.

Focus questions

- What type of environment would the beavers need?
- How big would the environment need to be? Why?
- What plants would need to be in the environment?
- What animals might be predators of beavers?
- Why would the environment need to be enclosed?

Screen 14

Ask learners to use the map to highlight three areas where they think beavers might be reintroduced.

Screen 15

Invite learners to start at the base of the triangle and think about the ways they worked.



TASK 3

HOW DOES RESERVOIR BUILDING LINK WITH CHOLERA?

Explain to learners that they will consider what they know about cholera and its causes and produce a digital poster to reduce the incidence of cholera.

Screen 3

Inform learners about the two devastating cholera outbreaks in south Wales, which prompted the reservoirs to be built in Cwm Taf Fawr valley and ask them to discuss the questions posed.

Focus questions

- What do you know about cholera?
- Why do you think cholera outbreaks led to reservoirs being built?

Screen 4

Ask learners to read the information and discuss the questions posed.

Focus questions

- Why do you think conditions were so poor in Merthyr?
- Close your eyes and imagine living there at this time... what can you hear and smell?

Screen 5

Ask learners to read the information about housing and cholera and discuss the question posed.

Focus question

- Why do you think Merthyr had a severe outbreak of cholera?

Screen 6

Ask learners to read the information and discuss the questions posed.

Focus questions

- How many people lived in Merthyr Tydfil in 1849? How did you work this out?
- Why do you think so many people were dying of cholera?
- What could people have done to try to stop them catching cholera?
- What could the Town Council have done to try and reduce the cholera outbreak?
Explain why each of your ideas would have worked.

Screen 7

Ask learners to look at the poster and discuss the questions posed.

Focus questions

- Which parts of the poster do you agree with? Why?
- Which parts of the poster do you disagree with? Why?
- How useful do you think this poster was at preventing the spread of cholera? Why?

Screens 8-9

Inform learners they are going to produce a digital poster about reducing the incidence of cholera and ask them to discuss the questions posed.

Focus questions

- How will you find out more about how cholera is spread?
- What are the key messages you want to include in your poster? List them.
- How can you make sure that all people will understand your poster? (Hint: not everyone could read in the 1800s)
- What images will you use? Why?
- How will you make sure you have permission to use these images?
- How will you make your poster engaging? Why is this important?

Then, invite learners to draft and produce their digital poster and compare it with others, discussing the questions posed.

Focus questions

- Which elements of others' posters do you think are good?
- How might using some of these elements in your poster improve it?

Finally, ask learners to amend their poster to improve it.