HOW CAN WE DEAL WITH INVASIONS IN LLŶN?

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 explore the term 'invasion' before finding out about invasive species in the UK. They research one of the species given and present their findings to the class. Learners look at ways in which non-native species invade and some ways of dealing with invasions. They study cane toads as biological control before using AI to write a poem about these creatures. Learners look at how organisms become invasive species and consider non-native invasive species in Wales. They find out about Himalayan balsam and its place (or not) in Llŷn.

CURRICULUM FOR WALES

Areas explored:

- 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.
Means of recording evidence of Himalayan balsam, e.g. smart phones, tablets, cameras, maps, etc.

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.
- 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

WHAT IS AN INVASION?

Explain to learners that this task should help them to understand about non-native invasive species.

Screen 3

This screen gives different definitions of the term ‘invasion’. Ask learners to consider the definitions to decide who they agree/disagree with and why.

Screen 4

Ask learners to discuss and give their own definition of ‘invasion’ and type it in the box.

Screen 5

Ask learners to consider the definitions of ‘invasion’ from the Cambridge Dictionary. Then, to discuss the questions posed.

Focus questions

- How similar is your definition to these ones?
- How are these definitions different to your definition?
- How could you amend your definition to improve it?

Screen 6

Explain to learners that in nature, we have 'invasions' from species that are not natural in their own environment. We call these species 'non-native'.

Most non-native species are harmless but around 10-15% become invasive and cause problems for native species. Ask them to discuss the question posed.

Focus questions

- What types of problems might non-native species cause for native species? List as many ideas as you can.

Screen 7

This screen gives a list of invasive species in the UK. Inform learners they are going to find out about one of these invasive species and present their findings to the class in a one-minute presentation.

Screen 8

Ask learners to use the QuADS grid to plan and organise their research.

Screen 9

Here are some questions for learners to discuss about organising their presentation.

Focus questions

- How will you present the information you have gathered? Why?
- How could you use ICT in your presentation? Why use it like this?
- Where will you look for good quality images to include? Why? Would these images be free? How do you know? Would they have a copyright? What makes you think that?
- Have you gathered enough information to present some of it mathematically? Why do you think that?
- How will you make sure your presentation is only one minute long?

Screen 10

Invite learners to present their findings about a non-native invasive species.

Screen 11

The final screen in this task offers learners a chance to use one or more of the sentence starters provided to reflect on the task - I understood the issue better when...; One thing that needs to change here is...; One of the key causes of the issue is...; A good way to find out more about this could be...; Our research has made me realise...; After my online research, I now understand...; I've seen something like this before when...; One thing I still don't understand is...; Our issue is really about....

TASK 2

HOW DO NON-NATIVE SPECIES INVADE?

Explain to learners that this task will support their understanding of how non-native species invade and some ways of dealing with invasions.

Screen 3

Ask learners to listen to the audio clip by pressing play. Then, to discuss the questions posed.

Focus questions

- What can you hear?
- What do think is making these sounds? Why?
- Where could this be? Why do you think that?

Screen 4

This screen gives information about cane toads (the sounds on the previous screen). It describes how they were introduced to Australia from Hawaii in 1935. At the time, grey-backed cane beetles were destroying sugar cane plantations. People hoped the toads would act as a biological control and eat the beetles.

Screen 5

Invite learner to read the poem about cane toads and ask for their thoughts.

Screen 6

Invite learners to read the poem about cane toads again and discuss the questions posed.

Focus questions

- How does the poem make you feel about cane toads? How does the poem do this?
- What are the good features of the poem? Why are these good features?
- Is there anything in the poem that you don't think is good? What is it? Why?
- What could you change to improve the poem? Why would that improve it?

Screen 7

Inform learners that they are going to use Chat GPT to help them to write a poem about cane toads. Before they start, ask them to discuss the questions posed.

Focus questions

- What are the most important words or terms you want your poem to include? Why?
- How are you going to ensure Chat GPT uses these words or terms?
- What characteristics of poetry will you ask Chat GPT to use? Why use these?
- What other instructions will you give Chat GPT? Why?

Screen 8

Invite learners to use Chat GPT to write their poem. Then, to review the completed poem and try reading it aloud. Ask them to consider the questions posed.

Focus questions

- How can we improve the poem? Why might this improve it?

Then, ask learners to redraft their poem to improve it.

Screen 9

Explain to learners that cane toads were introduced into Australia for biological control. It was thought that they would have had a positive effect by eating the beetles which were destroying sugar cane crops. Ask them to discuss the questions posed.

Focus questions

- Why was it a mistake to use cane toads for biological control?
- What should have been done before the cane toads were introduced? List as many things as you can.
- Using your list, how might doing each of these things have made people make different decisions?
- Would you have advised Australia to introduce cane toads? Why?

Screen 10

Inform learners that there are many other invasive non-native species that have been used for biological control.

Ask them to research on the internet to find out about two other examples of biological control. One that was successful and one that wasn't successful. Then, for each example, to write a brief paragraph to describe:

- why biological control was used
- what happened when the species was introduced.

Finally, they can share their research findings with the class.

Screen 11

Explain to learners that humans using species for biological control is only one way that invasive species are introduced to a new environment. Ask them to try the quiz to match each invasive species with the way it got into a new environment in the UK. You could remind learners of the presentations about these species in Task 1.

Screen 12

Show the video: Let's tackle invasive species in Wales!. Ask learners to discuss the questions posed.

Focus questions

- Why are invasive species a risk to biodiversity?
- What could you do to help tackle invasive species in Wales? How would this help?
- What else do you want to find out about invasive species in Wales? How could you do this?

Screen 13

Ask learners to access Cofnod - North Wales Environmental Information Service – to see how to report invasive species in Wales. Then, to discuss the questions posed.

Focus questions

- How could this service be useful in monitoring invasive species?
- Which invasive species are listed here that you don't know anything about? How could you find out more?
- What could you do to help report invasive species in Llŷn?

TASK 3

INVASIVE SPECIES IN LLÛN

Explain to learners that they will find out about Himalayan balsam and its place (or not) in Llŷn.

Screen 3

This screen gives information about Himalayan balsam - an invasive species in Llŷn, as well as across Wales.

Screen 4

Further information about Himalayan balsam is given here.

N.B. *Himalayan balsam's height, ease of spread and density of growth, along with its ability to grow in low light levels, means it can quickly out-compete native plants, many of which have important ecological benefits to specific insects. Also, because Himalayan balsam is so popular with bees, it's thought that other plants may receive less pollination as a result. In many areas the whole ecological balance of the landscape has been altered by Himalayan balsam, and as such it's regarded a huge problem by ecologists.*

Screen 5

Inform learners that each group is going to produce a Sway to try to persuade others to either:

- eradicate Himalayan balsam from the area

or

- control Himalayan balsam so that it can be safely used in gardens.

Firstly, they will survey the local area or Llŷn National Landscape to find where it grows. Then, they will research online to find out more about Himalayan balsam.

Screen 6

Take learners outside to survey to find where Himalayan balsam is growing. Suggest they use a map to show others where it grows and take some photographs.

N.B. *Biosecurity – it is important that seeds are not spread. Therefore, survey when flowering early in the summer.*

Screen 7

Invite learners to research online to explore its life cycle and why Himalayan balsam is seen as an invasive species.

Remind them that to carry out internet searches they need to consider:

Before researching...

- How will you carry out this research? Why?
- What search terms could you use? Which are the best? Why?
- What type of sites will be the best to look at, why?

When assessing information/data...

- How do you know the information/data is reliable? How could you find out?
- Could the information/data be biased? Why do you think that?

Screen 8

Inform learners that each group will need to find out information about...

- its life cycle
- why it is seen as an invasive species
- how Himalayan balsam has an impact on other species of plants and insects
- how Himalayan balsam numbers are currently monitored and controlled.

Ask learners to discuss the questions posed.

Focus questions

- Who is going to do what in your group? Why?
- Are you going to work in pairs or threes or individually? Why?
- How are you going to record what you find out? Why do it this way?
- How are you going to share your findings with others? Could this be done digitally? If so, how?

Then, to carry out research and produce their Sway.

Screen 9

This screen gives instructions for making a Sway.

Screen 10

Ask learners to use the reflection triangle to think about how they prepared for and produced their Sway.