

Nature champions

Time needed for activity

You could work on this over a number of lessons; first investigating and researching the history and significance of a local natural area before presenting the findings. Allow a couple of hours for each session.

Location

Indoors

Context

Theoretically, should a valued local area of natural environment be developed into a retail shopping centre? Or should it be preserved for future generations to enjoy and wildlife to thrive? This desk-based activity sets the scene for learners to become nature champions, investigating and researching the history and significance of a local natural area before presenting their findings using persuasive language.

Natural Resources Wales' purpose is to pursue sustainable management of natural resources in all of its work. This means looking after air, land, water, wildlife, plants and soil to improve Wales' well-being, and provide a better future for everyone.

Curriculum for Wales

Science and Technology

- **What matters -** Computation is the foundation for our digital world.

Humanities

- **What matters -** Enquiry, exploration and investigation inspire curiosity about the world, its past, present and future.

Maths and Numeracy

- **What matters -** Geometry focuses on relationships involving shape, space and position, and measurement focuses on quantifying phenomena in the physical world.

Language, Literacy and Communication

- **What matters -** Expressing ourselves through languages is key to communication.

- **What matters -** Informed, self-aware citizens engage with the challenges and opportunities that face humanity, and are able to take considered and ethical action.



Digital Competency Framework

Completing this activity provides opportunities to meet the following strands of the Digital Competency Framework.

Interacting and Collaborating

- Communication.
- Collaboration.

Producing

- Planning, sourcing and searching.
- Creating.
- Evaluating and improving.

Objectives

- Learners develop their ICT skills by completing online research into their chosen nature area.
- Learners acquire new environmental/landscape/historical knowledge.
- Learners develop research skills.
- Learners plan and prepare their argument, developing their speaking skills and ability to express themselves verbally in front of a group.
- Learners develop critical listening skills and the ability to respond to what others are saying.

Resources and equipment

- Resource card – Nature champions letter – this letter is available in Word so you can edit to make it relevant to your local area
- Access to the internet
- Software such as Word/Google Docs, PowerPoint/Google Slides

Please note

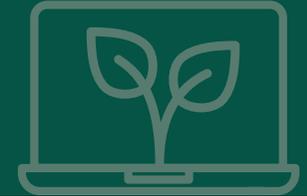
This desk-based activity prompts your learners to carry out some online research about a local nature area. To maximise the learning opportunities and to gather more evidence for their case to protect the local nature area, why not take your learners out to complete a survey of the site by investigating soil, water, air quality; use a mammal tunnel or trail camera to collect more data on local wildlife; or conduct an invertebrate survey.

The websites we've suggested are all free and easy to use however other websites are available which you may wish to investigate.

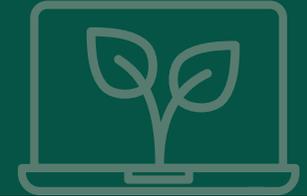
What to do

Explain to your learners that the school has received a letter informing them that a local natural area is going to be turned into a retail shopping centre with a large car park. Read out the letter (Resource card – Nature champions letter) to your learners and discuss their thoughts and reactions to the news. How will this impact local users? How will the local wildlife be affected?

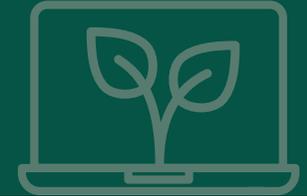
Explain that they will need to put their digital skills to good use and research the key information, background and history of their chosen natural area in order to put forward an argument as to why the area should be saved. Split your learners into pairs or small groups and ask them to either pick and mix from the websites listed below to research their nature area or give each group a specific angle to research.



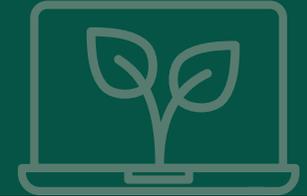
Task	Google Maps	DataMapWales
<p>Finding the site on an online mapping site/app</p>	<ul style="list-style-type: none"> Learners can find their chosen nature area by typing in the name of the town or location and navigating to the location by moving the map and zooming in. 	<ul style="list-style-type: none"> Learners should select 'map viewer' from the homepage to upload the interactive map. They can study the map, find, and locate their chosen nature area by zooming in until they are at a comfortable view. Alternatively, they can type in the name of the location they want to view in the 'search by location name' field.
<p>Using the different map layers and views</p> <p>Ask your learners to note what features exist. Can they take a screenshot of the area for inclusion in their presentation? They should include a map plus an aerial view of their chosen nature area. Ask your learners to label any important features on their map by using the 'shapes' feature on Microsoft PowerPoint/Google Slides e.g. river, lake, grassy area, woodlands.</p>	<ul style="list-style-type: none"> The different map views are available from the 'menu'. Map, satellite and terrain views are available. 	<ul style="list-style-type: none"> The background map can be changed by pressing on the map image on the bottom left of the screen. Greyscale mapping, colour vision deficiency mapping, raster mapping and aerial imagery options are available.
<p>Using data layers</p> <p>Using the spatial data layers feature on DataMapWales, learners can find out further information about their local nature area e.g. are there any listed buildings? Are there any national trails that run through the area? Is the area a Site of Special Scientific Interest?</p>		<ul style="list-style-type: none"> DataMapWales allows learners to view and combine spatial data layers from its catalogue on a map. To view the data layers available, learners should click on the 'add layer' icon and select and add the layer of spatial data they want. Alternatively, they can type in the name of the special data they want into the 'text to search' field.



Task	Google Maps	DataMapWales
<p>What's the size of the area that is under threat?</p> <p>From looking at the maps and aerial images ask your learners to guess the total area in square metres. Once they have made an estimate, they can use the online tools to cross-check how accurate it is.</p>	<ul style="list-style-type: none"> Learners will need to zoom into their chosen nature area. To measure the area, right-click on the map at the starting point and choose the 'Measure distance' option. Then add points around the location's boundary by pressing the left mouse button until the whole area has been digitised. The area to be measured is closed by clicking on the starting point. Google will automatically calculate the area highlighted. The total area will be displayed in square footage and square meters at the bottom of the screen. When finished, on the card at the bottom, click x to close. 	<ul style="list-style-type: none"> Learners will need to zoom into or 'search by location' to find their chosen nature area. To measure an area, choose the 'options' menu. A submenu will appear, select 'measure'. A new menu will appear - select the 'measure area' icon. Before they begin measuring their chosen nature area, learners should choose which unit of measurement they want to measure in from the drop-down menu. The following options are available: square feet, square metres, square kilometres, square miles, and square nautical miles. Next, learners should add points around the location's boundary by pressing the left mouse button until the whole area has been digitised. To add a finishing location, double click the left mouse button over the given end point. DataMapWales will automatically calculate the area of the location highlighted.



Task	Google Maps	DataMapWales
<p>Measuring distance</p> <p>What's the perimeter of the nature area? What's the distance between the entrance and exit? What's the length of the hedgerow that is going to be destroyed if the development goes ahead? From looking at the maps and aerial images ask your learners to guess the distance of a feature or the perimeter of their natural area in metres. Once they have made an estimate, they can use the online tools to cross-check how accurate their estimate is.</p>	<ul style="list-style-type: none"> Learners will need to zoom into the chosen nature area. To measure a distance, at the starting point of where they want to measure from, press the right mouse button and choose the 'Measure distance' option. Then add the starting point for the distance they want to measure to by pressing the left mouse button over the location. Google will automatically calculate the distance between the two points which will be displayed in kilometres and miles at the bottom of the screen. When finished, on the card at the bottom, click close x. 	<ul style="list-style-type: none"> Learners will need to zoom into or 'search by location' to find their chosen nature area. To measure an area, choose the 'options' menu. A submenu will appear, select 'measure'. A new menu will appear - select the 'measuring distance' icon. Before they begin measuring their chosen nature area, learners should choose which unit of measurement they want to measure in from the drop-down menu. The following options are available: feet, metres, kilometres, miles and nautical miles. Next, learners should add the starting point for the distance they want to measure to by pressing the left mouse button over the location. To add a finishing location, double click the left mouse button over the given end point. DataMapWales will automatically calculate the distance between the two points.

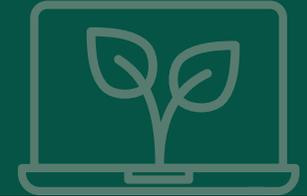


Location matters - Providing location information for their nature area

Discuss with your learners, how can they share location information for their nature area or location information for a feature in their chosen area? Street addresses don't work when you are stood in a woodland or in the middle of a field. Why try and explain "I'm roughly thirty metres north of a bench behind a really old tree" when you can give a precise location. Here are some recognised methods and some suggested websites you can use to pinpoint an exact location.

National Grid references are used to accurately pinpoint a location on an Ordnance Survey map. A series of faint blue lines on every map makes up a numbered grid that is used to create the reference. This is a simple way of finding points and places on a map, to give to others as a meeting location or to quote if you get into trouble and need to provide exact details of where you are. **BBC Bitesize** and **Ordnance Survey** have useful webpages which explain the background and purpose of grid-references.

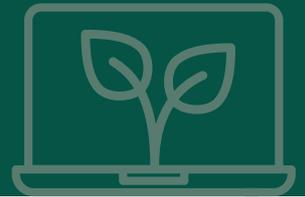
Task	Google Maps	DataMapWales	Grid Reference Finder	What3Words
<p>Coordinates are numbers which determine the position of a point in an area. Learners could give the coordinates for an ancient tree or bridge over a stream in their nature area. If you need help to explain what coordinates are and how they are used, BBC Bitesize have a useful webpage which explains the basics.</p>	<ul style="list-style-type: none"> Learners will need to zoom into the chosen nature area. Right mouse click on the location they want to give coordinates for and Google will automatically bring the coordinates up. Left mouse click on the coordinates and Google automatically copies the coordinates to clipboard for your learners to paste into a document. 	<ul style="list-style-type: none"> To display the coordinates of a given location, learners should zoom into or 'search by location' to find their chosen nature area. Once in position, they need to press the mouse icon 'show/hide coordinates' at the bottom right of the screen. To get longitude and latitude ('x' and 'y' coordinates), learners should click on the 'CRS' menu and choose the EPSG: 27700 option which is the Ordnance Survey National Grid reference system. Once selected, if they hover their mouse over the location, the coordinates will be displayed at the bottom left of the screen. 	<ul style="list-style-type: none"> Learners can zoom into their chosen nature space or search by postcode or location from the left-hand menu. Once they have an aerial view of their chosen nature space stick a pin into their given point by pressing the right mouse button. Grid Reference Finder automatically brings up the location's coordinates. 	<p>What3Words has divided the world into 3 metre squares and given each square a unique combination of three words.</p> <p>From the home page, learners can search for any place or what3words address e.g. Ruthin becomes <code>falters.motive.buggy</code></p> <ul style="list-style-type: none"> Once they have found their chosen nature area, they can zoom in to locate the exact location they want a What3Word reference for. Once in position they simply click with their left mouse button and the relevant What3Word reference will appear on screen.



Gathering people's thoughts and opinions on their local nature area

Gathering user's thoughts and views on the local nature area that is under threat might help to inform the argument for protecting it area.

Task	Microsoft Forms	Google Forms	Mentimeter	WordArt.com
<p>Create a questionnaire</p> <p>Learners write questions to gather information on, for example:</p> <ul style="list-style-type: none"> • How many people use the nature area? • How often? • What activities do they do when they spend time there? • What benefits, if any, do they feel spending time in the area gives them? 	<p>With Microsoft Forms, learners can create a questionnaire to gather a wide range of people's thoughts and opinions on their local nature areas and easily see results as they come in. From creating forms for the web to creating forms for internal use within your setting, the data that is gathered can be made into visual graphics in seconds with automatically generated reports. For in-depth analysis, the data can be exported into Excel.</p>	<p>As an alternative to Microsoft Forms, Google Forms can be used to give users an easy way to create a questionnaire that contains as many questions as they need to ask, in a variety of styles.</p>	<p>Free to set up a basic account, get your learners creating polls and get your learners gathering data and opinions.</p>	
<p>Create a Word Cloud</p> <p>A word cloud is a simple visualisation of data, in which words are shown in varying sizes depending on how often they appear in your data. Capturing and visualising sentiments in word clouds can be useful to demonstrate the depth of feeling about saving the nature area. Collaborative tools allow learners to have live word clouds that members of the public can input into.</p>			<p>An online collaborative word cloud creator which allows the user to share the word cloud with others.</p>	<p>An online word cloud art creator that enables the user to create word cloud art with ease.</p>



Researching the history of their local nature area

Get your learners researching the history of their chosen nature area. When was it established? How long have people been visiting and enjoying the area? Does the nature area feature in historic newspaper cuttings or photos? Has the site always been an area for nature, or has it been used for farming or industry in the past?

Task - Find out what the local nature area looked like 10 years ago.

Google Maps has a feature available in desktop mode that lets your learners do just that.

- Ask your learners to launch Google Maps on their laptop or desktop computer and locate the area they would like to research.
- Then click and drag the small yellow person in the bottom right corner of the screen to the location of their choosing. This will display that location in Street View and the top left corner of the screen should include a clock icon.
- Learners should click on the clock and drag the slider to the point in time that they'd like to visit.

Task - Comparing historic maps to see how the landscape has changed over time.

The **National Library of Scotland** holds over 200,000 high resolution maps of the world allowing learners to compare historic maps with current day maps.

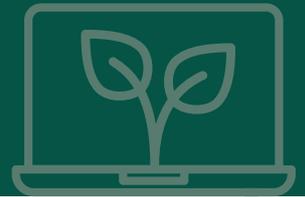
- In the 'Map images' resources, learners can access and view all the maps the library has scanned as high-resolution, colour, zoomable images. The maps date between 1560 and 1964.
- The easiest way of finding material relating to any particular location is to find by place or search by map, place name, county or parish name. The boundaries and extents of all the map images are shown as clear coloured overlays that learners can select and view.
- Georeferenced maps allow learners to view maps overlaid on a modern map/satellite backdrop. Side by side view allows learners to compare selected maps with modern map or satellite layers in a split-screen viewer.

Task - Researching and interpreting Wales' heritage through photographs, documents, newspapers, audio and video files and stories.

The **People's Collection Wales** is a free website dedicated to bringing together Wales's heritage. The collection is full of sources that link to the history, culture and people of Wales for future generations to enjoy and piece together the jigsaw that tells the story of Wales. The items contributed to the website have come from national institutions, individuals, local community groups, small museums, archives and libraries across Wales. Teachers can access the vast archive of thousands of resources from the classroom via Hwb.

The **National Library of Wales'** purpose is to make Welsh culture and heritage accessible to all to learn, research and enjoy. The library has a range of collections including film, video, books, newspapers, maps, sound, photographs and works of art. Some collections have been digitised and can be viewed online.

Coflein is the online database for the National Monuments Record of Wales (NMRW), the national collection of information about the historic environment of Wales. Coflein allows access to details of many thousands of archaeological sites, monuments, buildings and maritime sites in Wales, together with an index to the drawings, manuscripts and photographs held in the NMRW archive collections. The data can be searched by location (place name, area or Ordnance Survey map sheet), by type (the classification or function of a site, monument or building) or by keyword.



Suggested key questions

- How can you present your information to persuade the council to keep the site as part of nature?
- Can you find an alternative location for the retail park?
- What was the easiest tool to use/measurement to make? And why?
- What was the most difficult tool to use/measurement to make? And why?

Adapting for different needs/abilities

Less support

- Provide learners with a template and written set of tasks to complete.

More support

- Provide a variety of websites to visit to inform their research and allow them to compare and evaluate the information that they get from them.
- Ask your learners to evaluate the various online tools and discuss the difference between them.

Follow up activity/extension

- Set up a class debate with different learners taking a different viewpoint.
- One group of developers that want to use the site for a car park.
- Another group are from the Council that need the money generated from the sale to fund a new school.
- One group could take on the role of doctors and argue the health benefits the site offers.
- Another group represents a local history group that want to preserve the history of the site.

Looking for more learning resources, information and data?

Please contact: education@naturalresourceswales.gov.uk or go to <https://naturalresources.wales/learning>

Alternative format; large print or another language, please contact:
enquiries@naturalresourceswales.gov.uk
0300 065 3000