**Dal y Gwynt - Eye of the Storm**

| **Theme: Energy old and new** |
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| **AOLE** | **STRAND** | **Suggested learning experiences:** |
| **Science and Technology** | **Energy** | ContextWhat is energy?Discuss energy from the point of view of ourselves, How do we get energy and how do we use it?How much energy do you use?<https://carbon-calculator.climatehero.org/?source=Google-max2&gad_source=1&gad_campaignid=22474263988&gbraid=0AAAAAD-SQMWcscZezsgCRodxnMZNNaYGw&gclid=Cj0KCQjw0qTCBhCmARIsAAj8C4ZRXoJB3jerUvGZFU3iFZR3jPJdXSHrq2o8fKw2i6c0LZ1bV5NSHVYaAkzLEALw_wcB>This is quite involved and pupils may not know many of the answers but might be worth sending home as homework or doing a whole one as a class to investigate the type of questions that are asked. What about energy that we use every day? identify different types of energy, discuss how we heat, light and fuel our homes[How is electricity made? | Source to Home | Learning Made Fun](https://www.youtube.com/watch?v=SjKNNGXjPqY)[Electricity – KS2 Science curriculum - BBC Bitesize](https://www.bbc.co.uk/bitesize/articles/zsj9r2p#zhpmcxs)A set of general information cards is in the resource folder with basic information to start research.  |
| **Humanities****Science and Technology** | **Pre Industrial revolution** | * In the past much of the work was done by manual labour, horse and cart, or water power.

[Gower Heritage Centre](https://www.gowerheritagecentre.co.uk/)The Gower Heritage Centre do good visits and could cover a tour of the mill with the working water wheel, old weaving shed and loom, old farm tools driven by horse or manual labour and is a good place to consider what it was like pre the industrial revolution. The water wheel was versatile and was used for many community jobs such as sawing timber, driving woodworking and farming tools as well as milling flour.They also have a range of wellbeing workshops if you wanted to cover some health and wellbeing at the same time. * St Fagans virtual wworkshops are free:

[Fron Haul: A Journey Through Time (Virtual Workshop)](https://museum.wales/learn/activity/726/Fron-Haul-A-Journey-Through-Time-Virtual-Workshop/)* Also consider wind power:

[Listed Windmills in Wales – Cymdeithas Melinau Cymru Welshmills Society](https://welshmills.org/listed-windmills-in-wales-2/)* Discuss: some forms of old fashioned power are now considered to be new power.
* What happens when we have a power cut: make a list of all of the things in school or home that wouldn’t work if the power went down. Can you think of any solutions?

[Tourists stranded after power cuts in Spain and Portugal - BBC News](https://www.bbc.co.uk/news/videos/cjr7g5xp031o)There are lots of articles that show just how disruptive a power outage can be after this year’s cut in Spain and Portugal* Compare daily tasks such as washing clothes or cooking to see how we use power
* Coal was used locally for heating homes and in some occupations such as blacksmithing. Wood was the other key source for heating homes, cooking and water.

[St Fagans National Museum of History](https://museum.wales/stfagans/)* Much of this is well documented at St Fagans
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| **Humanities****LLC** | **The Industrial Revolution** | * Coal became king, and Wales. because of rich deposits of high quality coal, became a central force in driving the IR.
* [Land of Forges and fire: Merthyr Tydfil in the 1800s](https://www.youtube.com/watch?v=VEe2x2DqYwk)
* This film is a great tool to show how the landscape and nature of the Welsh Valleys changed rapidly.
* Using a combination of the pictures in the resources, the maps linked below and the film above, you could work on:
* listing the changes
* making comparisons
* generate nouns and adjectives around a picture as a basis for creative writing

[Map of Merthyr Tydfil, c. 1830 | Peoples Collection Wales](https://www.peoplescollection.wales/items/10079#?xywh=-313%2C41%2C1178%2C640)<http://www.alangeorge.co.uk/> This is a wonderful collection of old maps and photos, great for exploring and to use as a basis for creative writing* [When coal was king: Virtual workshop](https://museum.wales/learn/activity/575/When-Coal-was-King-Virtual-Workshop/)
* Big Pit visit:

<https://museum.wales/learn/schools/visit-our-museums/bigpit/>* This changed our landscape, communities and status (see Industrial Legacy in the Climate Crisis resource)
* As coal reserves started to dwindle or become harder to access, other power sources came to the fore
* Oil (petrol), gas, hydro electricity, and nuclear power
* [Britain's Largest Battery A MASSIVE Lake in Wales | Fully Charged](https://www.youtube.com/watch?v=McByJeX2evM)

(hydro video for reference)* Environmental impact: these industries have less direct impact on our environment, rather the effect is hidden in the form of air and water pollution. However there is still an environmental cost and the case of the Brecon pipeline is a great one to practise your debating skills.

<https://www.inscapes.org.uk/blogs/projects/gas-pipeline-in-the-brecon-beacons?srsltid=AfmBOoq2Deky7MwcrfmMAQPfpElAFqDkxXUpfJH904_nxiZd4D4QcVKt>* Gas, coal and oil are all known as carbon fuels and it is these that are causing the planet to warm up and climates to change. As the fuel is burned to make electricity or to power machinery, the carbon that has been stored is released into the air.
* [Causes of climate change - BBC Bitesize](https://www.bbc.co.uk/bitesize/articles/zvnm2v4#zdcrg7h)
* [Explore fossil fuels and renewable energy - BBC Bitesize](https://www.bbc.co.uk/bitesize/articles/zntxgwx#z8whn9q)

(causes of Climate change)[Climate change - Humanities Geography age 8-11 - BBC Bitesize](https://www.bbc.co.uk/bitesize/topics/z6gycxs/articles/zcjk7v4#z8mj6rd)Climate change Bitesizesee more on this in the Climate Crisis unit |
| **LLC**oracy, presentation**LLC****Humanities****Technology**Opportunities to research and Debate | **New forms of Energy** **Swansea Tidal Lagoon** | The push to find, use and promote new forms of energy comes with the realisation that burning fossil fuels is actually damaging our earth is a number of ways: * water, air and soil pollution
* carbon release into the atmosphere
* waste products not being properly disposed of
* desecration of the earth due to mining

New forms of energy production:* Water
* Hydro
* Tidal
* Wind
* Solar
* Biomass

[Renewable energy - BBC Bitesize](https://www.bbc.co.uk/bitesize/articles/zgkvdnb#z7twp9q)[What is renewable energy?](https://www.alliantenergykids.com/renewableenergy/renewableenergyhome)[What are the different types of renewable energy? | National Grid](https://www.nationalgrid.com/stories/energy-explained/what-are-different-types-renewable-energy)[How does solar energy work? - BBC Bitesize](https://www.bbc.co.uk/bitesize/articles/zq6bydm)[Biomass Energy](https://www.alliantenergykids.com/renewableenergy/biomassenergy)* research the different forms of new energy and produce infographics, powerpoints or posters with the features of each one
* Discuss:

 \*Are the new energies new?\*What are the advantages and disadvantages of renewable energy (there is a sheet in the resources to help with this or you could try out a conscience alley)\*New forms of energy are often called renewables, Why?* investigate the Swansea Tidal Lagoon
* [Tidal Lagoon Swansea Bay introduction](https://www.youtube.com/watch?v=u_nB-7gc_Ws)

[Swansea Bay Tidal Lagoon (SBTL) | Tethys](https://tethys.pnnl.gov/project-sites/swansea-bay-tidal-lagoon-sbtl)[Swansea Bay Tidal Lagoon: Renewable Energy Innovation | Institution of Civil Engineers (ICE)](https://www.ice.org.uk/what-is-civil-engineering/infrastructure-projects/swansea-bay-tidal-lagoon)[https://www.swansea.gov.uk/article/11538/1.7-billion-Blue-Eden-project-announced-for-Swanse](https://www.swansea.gov.uk/article/11538/1.7-billion-Blue-Eden-project-announced-for-Swansea)aResearch the lagoon and the implicationslist the interested parties who could include:\*homeowners wanting cheap electricity\*businesses in Swansea wanting cheap electricity\*birdwatchers\*fishermen\*eco groups wanting to keep a natural environment\*people who could be involved with building the lagoon \*people who could be involved in working on the finished lagoon such as cafe and leisure workers\*banks and investors\*residents who live nearby\*lobster and oyster farmers who want to set up businesses in the lagoonEach group to think of their argument/ point of viewhold a debate to allow everyone to speak. Encourage listening and responding rather than everyone just saying their piece. Other practice debates on smaller issues help children to get the hang of this. [https://learning.parliament.uk/en/session-workshop/outreach-school-assemblies/?\_gl=1\*98y8zf\*\_up\*MQ..\*\_ga\*MTA3OTA1ODczNS4xNzQ5NTYxMDcx\*\_ga\_Z8805N234K\*czE3NDk1NjEwNzEkbzEkZzAkdDE3NDk1NjExMDEkajMwJGwwJGgw\*\_ga\_9684J19FT4\*czE3NDk1NjEwNzEkbzEkZzAkdDE3NDk1NjExMDEkajMwJGwwJGgw](https://learning.parliament.uk/en/session-workshop/outreach-school-assemblies/?_gl=1*98y8zf*_up*MQ..*_ga*MTA3OTA1ODczNS4xNzQ5NTYxMDcx*_ga_Z8805N234K*czE3NDk1NjEwNzEkbzEkZzAkdDE3NDk1NjExMDEkajMwJGwwJGgw*_ga_9684J19FT4*czE3NDk1NjEwNzEkbzEkZzAkdDE3NDk1NjExMDEkajMwJGwwJGgw)The Houses of Parliament will come and do a school visit. They are brilliant and when I was teaching they took an assembly and then came to y6 and taught us how to debate properly. A fantastic visit and I think its free.  |
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| **Science and Technology**Opportunities to design, make and compare | **How do they work?****Make green energy generators** | [Wind Turbine Project for Kids](https://www.steampoweredfamily.com/wind-turbine-project/)Make your own renewable energy generators[Solar-power projects for kids you can try at home](https://www.bricks4kidz.com/blog/solar-power-projects-for-kids-you-can-try-at-home/)[Five Easy Solar Power Experiments for Kids | STEAM | solar4STEM](https://www.solar4stem.com/blog/five-easy-solar-power-experiments-for-kids-steam-stem)[S4E4: Make your own Water Wheel! | Nanogirl's Lab | STEM activities for kids](https://www.youtube.com/watch?v=ziU6Krb3YiE)[HPL STEM: Water Wheel](https://www.youtube.com/watch?v=eifaKPnuiO4)[Science / Design & Technology KS2: Experimenting propulsion with water rockets - BBC Teach](https://www.bbc.co.uk/teach/class-clips-video/articles/zfc9wty)DT activitysheets7-11-1.pdf (in the resource folder)different short makes to demonstrate new types of power generation |
| Science and Technology | **circuits** | This may be a good opportunity to fit in your traditional circuits work.  |