



The Story of Westmill Lesson 3

This guide is designed to accompany and complement:

- Presentation: **The story of Westmill**
- Single page lesson plan: **The story of Westmill**
- Worksheet: **The story of Westmill** (including activities and possible extension tasks or homework)

The guide goes into greater detail than the single page lesson plan and includes suggested resources and elaborates on each slide in the presentation.

Presentation Tips:

- When opening the PDF presentation, you can select how it is displayed. If you wish to **click through** as opposed to scrolling (which gives you more control as you progress and is more like a conventional ppt) it is best to show it in **'full screen mode'** (press 'escape' to exit).
- All associated documents are attached to the presentation. To find these, click on the **paperclip icon** in the left-hand toolbar.
- When viewing the presentation, presenter notes from this delivery guide are also available for reference if you hover the cursor over the small orange callout icon in the top left corner. **Fig.1**

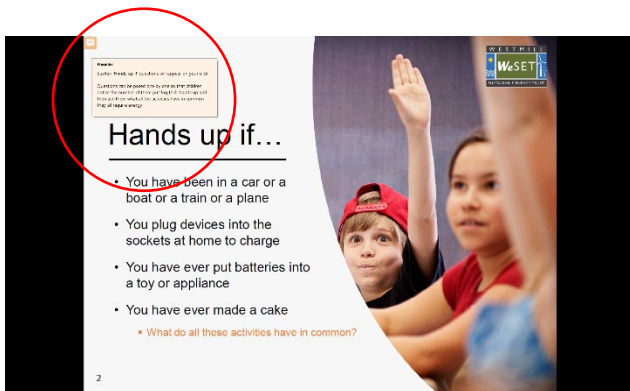
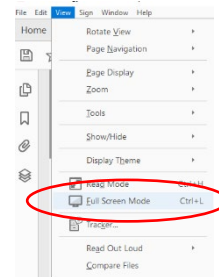


Fig.1

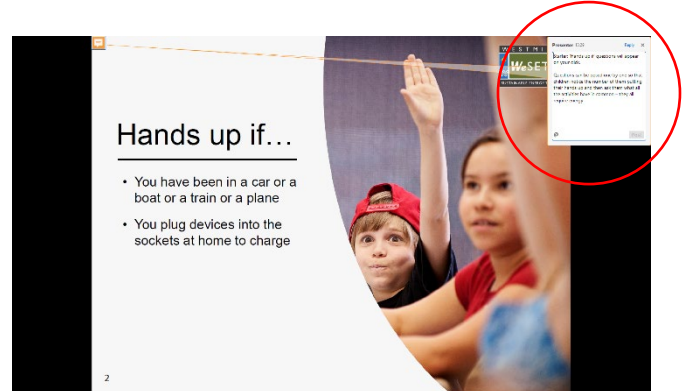


Fig.2

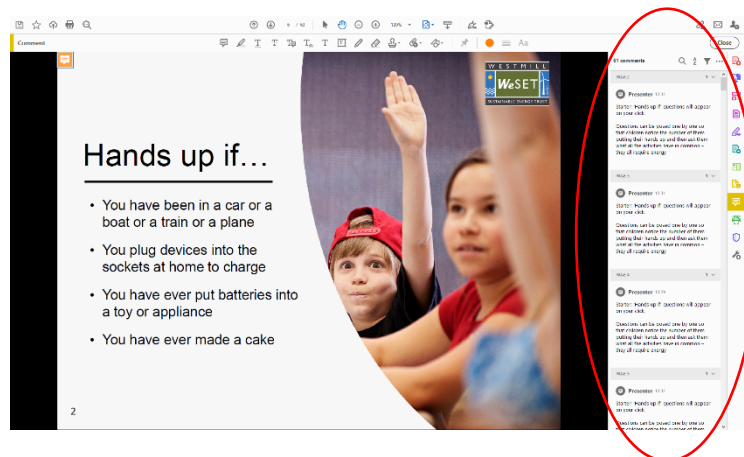


Fig.3

- If you **right click** on that icon it will open a small window showing presenter notes in the top right of the page. **Fig.2** If you right click and scroll down, you can also choose to click **'show comment app'** which opens a panel on the right of the page showing all the presenter notes as you scroll through. **Fig.3**



20 minutes to fill?	You could use the introduction 'are you living sustainably?' and then show the 'we can make a difference' video clip [2m58s] followed by 'operation sustainability' [5m25s] to start a discussion about the environment crisis, consumerism and the part we can all play	Slide 2 Slide 5 Slide 8
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Slide number refer to the numbers on the slides themselves	<p>This presentation is designed to allow the presenter/teacher to pitch it as appropriate to higher KS2 or lower KS3 (approximate age range 6 – 12 years). Questions that are on the slides have been differentiated by colour in this guide, with red being most challenging.</p> <p>🏆 Those marked with this icon may not appear on the slide and are optional, higher level questions.</p> <p>🌀 Points marked with this icon may not appear on the slide but can be used as a starting point for a personal investigation activity and for extension where appropriate.</p> <p>Advisory! All videos are linked to external players (usually YouTube) these have been chosen to complement and reinforce learning and have been chosen carefully. However, we would advise that you watch them yourself prior to showing them to ensure that you are happy that the content is right for your children or class.</p>	Suggested resources	WeSet resources
2	<p>Starter: Are you living sustainably? This is an opportunity to begin to explore the impact of human activity on our planet.</p> <ul style="list-style-type: none"> • What does the word sustainable mean? – for something to be sustainable it must be able to be maintained at a level that does not use up the world's resources or causing damage • Do you think you live your life in a sustainable way? – children can suggest and share ways in which they think they already live sustainably, this could be anything from walking or riding a bike to school to being vegan/vegetarian/eating less meat or growing their own food 		PDF presentation, worksheet and lesson plan

3	<p>Most children will be familiar with David Attenborough and for some, programs like Blue Planet will have been their introduction to the issues like plastic pollution and global warming.</p> <ul style="list-style-type: none"> • David Attenborough is in his 90s, why do you think it is so important to him to make the message about climate change clear? – he cares about the planet and the wildlife and plant life it is home to, this has been his life’s work and he wants future generations to be able to enjoy it as he has. He cares about leaving a legacy, being honest about the way things are but also giving hope 		
4	<p>Greta Thunberg has had a huge impact, using her voice not only to raise awareness of the climate crisis but to hold those in positions of power to account.</p> <ul style="list-style-type: none"> • Why do you think Greta is so passionate and is angry at the lack of action? - like David Attenborough, Greta is passionate about the planet, its plant and wildlife but she is angry that there have been working signs of man-made climate change for many decades and yet so many governments and leaders have chosen to ignore it, deny it or do too little 	https://www.youtube.com/watch?v=XVlRompc1YE [1m34s]	
5	<p>You can choose whether to show the video clip as it will only commence once you have clicked on the ‘play’ icon.</p> <p>The clip runs for [2m58s] and is a powerful but ultimately positive message about climate change and what we need to do</p> <p>Depending on the age group you are working with you may or may not decide to show this</p>	https://www.youtube.com/watch?v=CMOEcUPGi9c&feature=emb_logo [2m58s]	Embedded clip in ppt

6	<p>Whilst there is a lot on social media which is scary or bleak, it is important to emphasize that we (the human race) are in a position to make a difference and a small voice can make big waves (Greta Thunberg).</p> <ul style="list-style-type: none"> • What positive actions can you take in your day to day life to work towards combatting climate change? – children may share a variety of suggestions, these may also be covered in the activity on the following slide which is also <u>Task 1 on the accompanying worksheet</u> 🦋 What is the name of the British activist movement known for their action for climate change and do you feel that their method of protest is effective? – Extinction Rebellion – their method of direct protest is controversial, and many people have objected to the disruption they have caused however their message is a clear one, that we are in crisis and we and our governments must act now. The video link shows a range of perspectives on this 	https://www.youtube.com/watch?v=HDhNORITOU [3m36s]	
Hand out Worksheet 1 Energy			
7	<p>Task 1 This slide can be used alone or in conjunction with the worksheet where children can write their answers in the table provided for recorded formative assessment</p> <p>An example has been given to help children understand the activity</p> <ul style="list-style-type: none"> • Identify the types of energy transformations that provide power for the items or actions pictured and ask them what the outcome will be? – answer bubbles will appear one by one on the click of the mouse <p>Answers may vary in detail depending on the age group</p>		Worksheet 3 The Story of Westmill
8	<p>You can choose to show the video clip as it will only commence once you have clicked on the ‘play’ icon</p> <p>The clip runs for [5m25s] and initiates a discussion about the consumer society and our role in creating a more sustainable future</p>	https://www.youtube.com/watch?v=RMX3bcTlxqY [5m25s]	Embedded clip in ppt

9	<p>Co-operatives as the name implies are built on the idea of cooperation and mutual benefit. Common goals may include fair working conditions, fair pay, fair pricing for the consumer, access to renewable energy, inclusivity, equality etc</p> <ul style="list-style-type: none"> • How is this structure different from non co-operative businesses? - Instead of being owned by shareholders, a cooperative is owned by a range of stakeholders from the people who use the company's services, its employees to those who run the co-op. Everyone owns an equal portion of the business and that means that all votes carry equal weight. Any profits are split with the stakeholders, reinvested in the company or in many cases invested in the local community 		
10	<p>Co-operatives promote fairer business practices.</p> <ul style="list-style-type: none"> • What methods do you think co-ops use to enable members have their say? – They hold meetings for members, these may be AGMs (annual general meetings) or more regular meetings. Many also use online forums and voting tools • Can you think an example of a co-operative local to you? – If local, some children may know the wind or solar co-ops at Westmill but most will know the Co-operative group including food, travel, energy, healthcare, legal services, funeral services, schools etc 		
11	<p><i>Information courtesy of Midcounties Co-operative</i></p> <p>OUR ETHICAL VALUES: Democracy: Taking a vote and having a say Openness: business being open about success and areas to improve, able to see society profit online, with each other Equality: Everyone's vote is equal, job opportunities, Equal pay for Equal work. Social Responsibility: Community interaction, Reducing Co2, raising money for local community/charity, Green Pioneers”</p> <ul style="list-style-type: none"> • How you become a member of the Midcounties Co-op and what other benefits are available to members? - You can join online and if you are aged between 16 and 25 you can join the Young Co-operators Network. Benefits include: Earning points when you shop which are converted into your share of the profits 	<p>https://www.midcounties.coop/membership/#:~:text=You%20can%20apply%20to%20become,by%20phone%200800%20435%20902</p>	

12	<p>You can choose to show the video clip as it will only commence once you have clicked on the 'play' icon.</p> <p>The clip runs for [3m22s] and introduces the idea of co-operative schools</p> <p> Does your school run in this way? If not, what systems could be put in place to make your school a co-operative school? What benefits do you think this might have?</p>	https://www.youtube.com/watch?v=6WKAYOT6VT4	
13	<p>Westmill is an area of farmland just off the A420 near Watchfield. It is known known for its community owned renewable energy projects and especially for the five turbines which have become a landmark.</p> <ul style="list-style-type: none"> How do you think the wind and solar co-ops encourage visitors who want to learn about renewable energy (RE)? – Both projects have held open days and events as well as publicising the projects online and through other media. They offer opportunities for adult and school groups to visit and benefit from guided tours of the wind farm and solar array 		
14	<p>Due to its elevated position, the site at Westmill was an ideal place to train pilots in what were called blind landings, landings in low visibility, stormy or windy conditions.</p> <ul style="list-style-type: none"> Why was this type of training necessary in the UK the early 1940s? – due to the outbreak of WW2 in 1939  When it was used as an airfield, what would have been erected so that pilots could see the direction of the wind? – A windsock 		

15	<p>Throughout the 1970s and 1980s there were a number of ‘free festivals’ all over the UK in venues that included Windsor Great Park and here at Westmill. Like festival today they were multi-day events with music and arts and festival goers would camp out. Unlike today’s festivals they were free to enter however participants were expected to get involved in anything from providing entertainment to preparing and distributing food.</p> <p>Whilst there was awareness of and concern about climate change amongst those in power, a great deal of those who started to make lifestyle changes in response were part of the so called ‘counter culture’ those who might have gone to a free festival.</p> <ul style="list-style-type: none"> • How do you think local people felt about the festival? – there were very mixed feelings, some people got involved whilst others disliked the disruption and noise it brought. It was not at all well organised as festivals are now. Some people in the Swindon area still remember the festival! 		
16	<p>Adam Twine has been farming at Westmill since 1983 and during that time he has changed much of the farm to organic. Adam has always been concerned about environmental issues.</p> <ul style="list-style-type: none"> • What challenges do you think Adam may have had to overcome on his journey? – some people with local business felt they might be negatively affected by the development, some were concerned about the cost of electricity produced by the wind farm, some people objected to how the wind turbines would look, some people were concerned about noise, various objections delayed planning permission 		
17	<p>You can choose to show the video clip as it will only commence once you have clicked on the ‘play’ icon</p> <p>The clip runs for [6m22s] and introduces Adam Twine and the Westmill wind turbines on an open day</p>	https://www.youtube.com/watch?v=3ZN5WJRI_c [6m22s]	

18	<ul style="list-style-type: none"> • Why do you think the turbines were delivered to the site in sections? – each turbine is around 50 meters in length and so would be too bulky to transport in one unit <p>Wind turbines are very bulky structures and therefore they are manufactured and moved in sections. Even then, a single rotor blade can need an extra-long flatbed lorry and a convoy to convey it safely by road.</p> <ul style="list-style-type: none"> • How do you think offshore wind turbines are delivered and installed? – They are delivered in sections by a specially designed ship called a seajacking ship which is then partially jacked out of the water to act as a platform for the parts, cranes and workers 		
19	<p>You will learn more about the Westmill turbines on your site visit or by taking our virtual tour. Each of our five turbines was named by local schools.</p> <p>The Wind Warrior from Longcot & Fernham, Gusty Gizmo from Southfield School, Highworth, Huff ‘n’ Puff from Shrivenham, Spinner X from Watchfield and Zeus from South Marston. Other wonderful ideas were Turning Green, the Watchfield White Whizzup and Wind Charmer.</p> <ul style="list-style-type: none"> • How do you think the turbines are kept in securely in position? – deep concrete and steel foundations are laid before construction • Why do you think the towers are made from hollow and not solid sections? – Firstly, this reduces the use of materials and the overall weight of the structure making it easier to move, construct and secure; secondly the hollow tower provides space for ladders which give engineers access to the working parts at the top 		
20	<p>You will learn more about the Westmill solar array on your site visit or by taking our virtual tour.</p> <ul style="list-style-type: none"> • What does the word ‘array’ mean? – array is the term used to describe many panels grouped together. An individual unit is called a photovoltaic cell, a panel is made up of multiple PV cells, an array is made up of multiple panels 		

21	<p>Solar farms are usually located in agricultural or rural area and they vary in size from one to over 100 acres.</p> <ul style="list-style-type: none"> • Each solar panel faces south, why do you think this is? – to ensure the greatest exposure to the sun • What are the advantages of solar farms like Westmill? – large numbers of panels can be grouped together in rows to create an array that generates enough electricity to service the needs of a large number of residential and commercial properties 		
22	<p>The wind farm is 100% community owned. In the beginning, nearly 2,500 people opted to buy shares in the five turbines; most living locally so reaping the financial rewards and feeling they have ownership of energy production in their area.</p> <p>Westmill solar is the first community owned solar farm in the UK and when it was built it was believed to be the largest community owned solar project in the world.</p> <ul style="list-style-type: none"> • How do you think that people power and community action can be spread? – through visits to sites like Westmill but one of the best ways is through education and discussion 		
23	<p>WeSET has supported several local, carbon-cutting initiatives including:</p> <ul style="list-style-type: none"> • Hosting open days and sustainable energy fairs • Funding energy efficiency measures at Shrivenham village hall • Funding roof insulation and solar panels at Watchfield village hall • Hosted ‘Sustainable Surgeries’, giving independent advice to home-owners on ways to reduce their energy use • Funding solar panels on the Sports Pavilion in Watchfield • Hosted the launch of Westmill Solar Cooperative • Why do you think involvement with the local community is so important? – it makes people feel invested and proud and it also raises awareness • 👧 Why is it so important to involve young people? – Young people can contribute fresh and exciting ideas. Sustainable energy is an important part of a better future. We hope that young people will be inspired and get involved now or in the future 		

24	<p>Creating a thriving environment for wildlife is a wonderful side effect of creating renewable energy sites. As well as nesting birds, bees and butterflies, hares are often seen in the fields around the turbines.</p> <ul style="list-style-type: none"> In summertime, a wildflower meadow surrounds the solar array, what type of wildlife will this attract? – different bee, butterfly and insect species as well as birdlife 🦉 What is the word used for the act of ceasing to manage a landscape so that it goes to scrubland and eventually woodland, creating natural habitats and encouraging indigenous (native) wildlife to return? – Re-wilding 		
25	<p>The image shows events from the 10 year celebrations at Westmill.</p> <p>On Saturday 16th June 2018, a very special event was held to celebrate 10 years of community owned wind power at Westmill.</p> <p>There was live music, hot food and hands on fun, blacksmithing, kite making, pedal antics, a bouncy castle and a treasure trail. Entry was free.</p> <ul style="list-style-type: none"> Why do you think we are keen for school groups to visit us at Westmill? – So that new generations can learn about the benefits of renewable energy 		
26	<p>Task 2 This slide can be used alone or in conjunction with the differentiated worksheet where children can write their answers in the table provided for recorded formative assessment.</p> <ul style="list-style-type: none"> Ask children to use the words in the list to fill in the gaps in the sentences – once you have gone through the task, the answers will appear one by one on the click of the mouse <p>Task 3 on the worksheet is an extension task to design a poster advertising an open day to bring new people to the Westmill site</p>		Worksheet 3 The Story of Westmill
27	<p>You can choose to show the video clip as it will only commence once you have clicked on the ‘play’ icon.</p> <p>The clip runs for [2m00s] and is a nice clip to show Westmill, with visitors giving their impressions.</p>	https://www.youtube.com/watch?v=zIH04gFKtq4&feature=emb_logo [2m00s]	Embedded clip in ppt

28	<p>Plenary Quiz - What have you learnt?</p> <p>This can be done as a quick-fire hands up quiz or pupils can be given time to write down their own answers for formative assessment.</p> <ul style="list-style-type: none"> • Who began the movement 'School strike for the climate'? – Greta Thunberg • A Co-operative is a business owned by whom? – It's members or stakeholders • What was the site at Westmill used for between 1940 and 1972? - It was used as an airfield • What is the name of the landowner and farmer who decided to build a wind farm at Westmill? - Adam Twine • How many wind turbines are at Westmill? - 5 • What word is used to describe many solar panels grouped together? - Array 		
29	<p>All images used are royalty free, 'Creative Commons' and free to use for non-commercial purposes</p> <p>Sources include: https://www.freeimages.com https://pixabay.com https://unsplash.com http://westmillsolar.coop/ http://www.weset.org/ Microsoft online pictures search (Creative Commons only)</p> <p>To arrange a site visit, please go to http://www.weset.org/?page_id=126</p> <p>Or email education@weset.org</p> <p>These materials are free to use and reproduce however we respectfully ask that you do not edit them</p>		