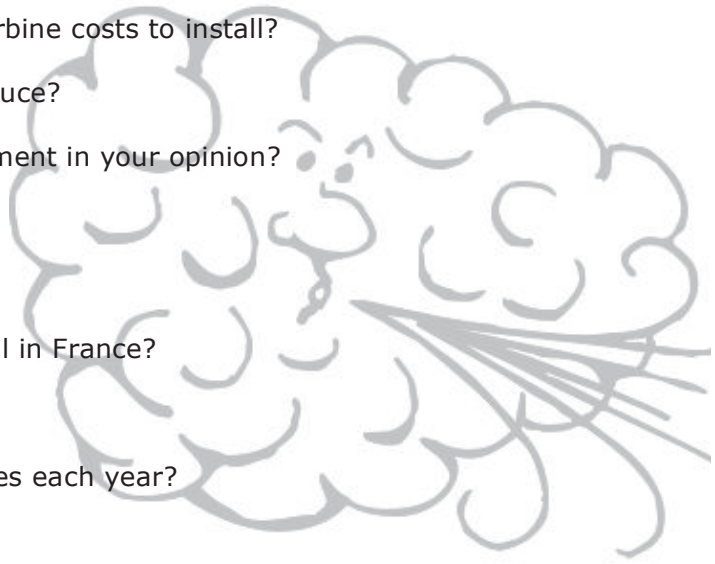
Harness the Power

Is the answer to our future energy needs blowing in the wind? Is this the wind of change? How much energy could wind turbines offer us if we chose to use it and why does this change come so slowly?

Activity One - How much do you know about this subject? Answer the questions in teams… let's see who gets the most answers right!



1. How **much** money do you think a wind turbine costs to install?
2. How **much** energy do you think they produce?
3. What threats do they pose to the environment in your opinion?
4. How often do they need to be replaced?
5. How big are wind turbines?
6. How **many** wind turbines are there in total in France?
7. How **many** are located near you?
8. How **many** birds are killed by wind turbines each year?
9. How **much** time do they take to install?
10. How do they work?

Activity Two – In the questions above we use the word much in some sentences and many in others. This is because of COUNTABLE AND UNCOUNTABLE NOUNS.

Countable nouns are the names of separate items which can be counted. They can normally be used with the indefinite article **a** / **an** and in the **plural** with **numbers**, **many**, **few**, **some**, **any**.

Uncountable nouns are the names of materials or collections of other things which in English we regard as masses and not as separate items. **Uncountable nouns** are not normally used with the indefinite article **a** / **an** or in the plural.

We need to use **much** / **little** with **uncountable nouns**, **many** / **few** with **countable nouns** and that we use **some** / **any** with both **countable** and **uncountable nouns**.

- There is not **much** wind today. There are not **many** gusts of wind.
- I felt the wind. I felt a gust of wind. ~~I felt **a** wind~~
- There were just one or two gusts of wind. ~~There were one or two winds.~~
- There is more wind today than yesterday. ~~There are more winds.~~

Activity Three - Now let's study this article from the New York Times to find out more about this subject. Part 1 – **Wall Dictation** (see the framed part of the text)

Part 2 - Pay attention to your intonation and stress when **reading**. *Take turns.*

THE NEW YORK TIMES: May 30, 2012

Wind power is one of the fastest-growing sources of energy around the world. It is popular because it is abundant and provides many communities with a clean, local source of electricity. In the United States, which passed Germany to become the country producing the most wind power, the Department of Energy has estimated that wind power could account for 20 percent of the nation's electricity supply by 2030.

The American Wind Energy Association said the growth of wind power was helped by a federal stimulus package that extended a tax credit and provided other investment incentives for the industry. According to the association, wind projects account for more than a third of all the new electric generation installed in recent years, while over the last six years, domestic wind turbine production has grown twelve fold, to more than 400 facilities in 43 states.

Wind's Promise and Problems

The development of wind power has two main problems. First, the wind does not blow all the time, so there must be backup power plants (often fuelled by natural gas) ready to turn on instantly if the wind slackens.

One state that offers a potential solution is Hawaii, where its officials want 70 percent of energy needs to be met by renewable sources like the wind, sun or biomass by 2030. At a 30-megawatt wind farm in Oahu, where the wind supply is gusty and erratic, the plan is to install a 15-megawatt battery to smooth out the flow.

The Hawaii installation is designed to succeed at a crucial but obscure function: frequency regulation. The battery system can also be used for arbitrage, storing energy at times when prices are low and delivering it when prices are high.

The second problem with wind is that it sometimes blows the hardest in remote plains, far from cities that need the energy. In Texas, the leading state for wind power production (followed by Iowa and California), the wind is strongest on the mesas and high plains of West Texas, hundreds of miles from big cities like Dallas and Houston. Building transmission lines is expensive and difficult.

The idea of building wind farms offshore, in the sea, is gaining momentum. Putting turbines in the water is expensive, but the advantage is that the wind blows much harder off the coasts, and unlike wind over the continent, which often blows hardest at night, offshore breezes can be strong in the afternoon, matching the time when people are using the most electricity. Offshore turbines can also be located close to the power-hungry populations along the coasts, eliminating the need for new overland transmission lines. And if the turbines are built far enough from shore, they do not significantly alter the view — a major objection from many local opponents.

The lure of Atlantic wind is very strong. The Atlantic Ocean is relatively shallow, even tens of miles from shore, unlike the Pacific, where the sea floor drops away steeply. Construction is also difficult on the Great Lakes because their waters are deep and they freeze, raising the prospect of moving ice sheets that could damage a tower.

Nearly all of the East Coast governors, Republican and Democratic, have spoken enthusiastically about coastal wind and have fought proposals for transmission lines from the other likely wind source, the Great Plains.

Europe has already ventured into offshore wind territory — there are wind turbines off the coasts of Denmark, Britain and seven other European countries. China's first offshore wind farm is a 102-megawatt venture near Shanghai, with more in the pipeline.

In the United States, at least half a dozen offshore wind projects have been proposed in the shallow waters off the East Coast and the Great Lakes. But the projects face many hurdles. The proposal to build Cape Wind farm off Cape Cod stalled for nine years before the federal government approved it in 2010. The project pitted coastal Indian tribes, business interest and homeowners against the developer and proponents of alternative energy.

Next: The Atlantic Wind Connection

In October 2010, Google and Good Energies, an investment firm specializing in renewable energy, each agreed to take 37.5 percent of the equity portion of a project known as the Atlantic Wind Connection. The project would create a 350-mile underwater spine that could remove some critical obstacles to wind power development.

The system's backbone cable, with a capacity of 6,000 megawatts, equal to the output of five large nuclear reactors, would run in shallow trenches on the seabed in federal waters 15 to 20 miles offshore, from northern New Jersey to Norfolk, Va. The notion would be to harvest energy from turbines in an area where the wind is strong, but the hulking towers would barely be visible.

Energy experts anticipate a growing demand for the offshore turbines to meet state requirements for greater reliance on local renewable energy as a clean alternative to fossil fuels.

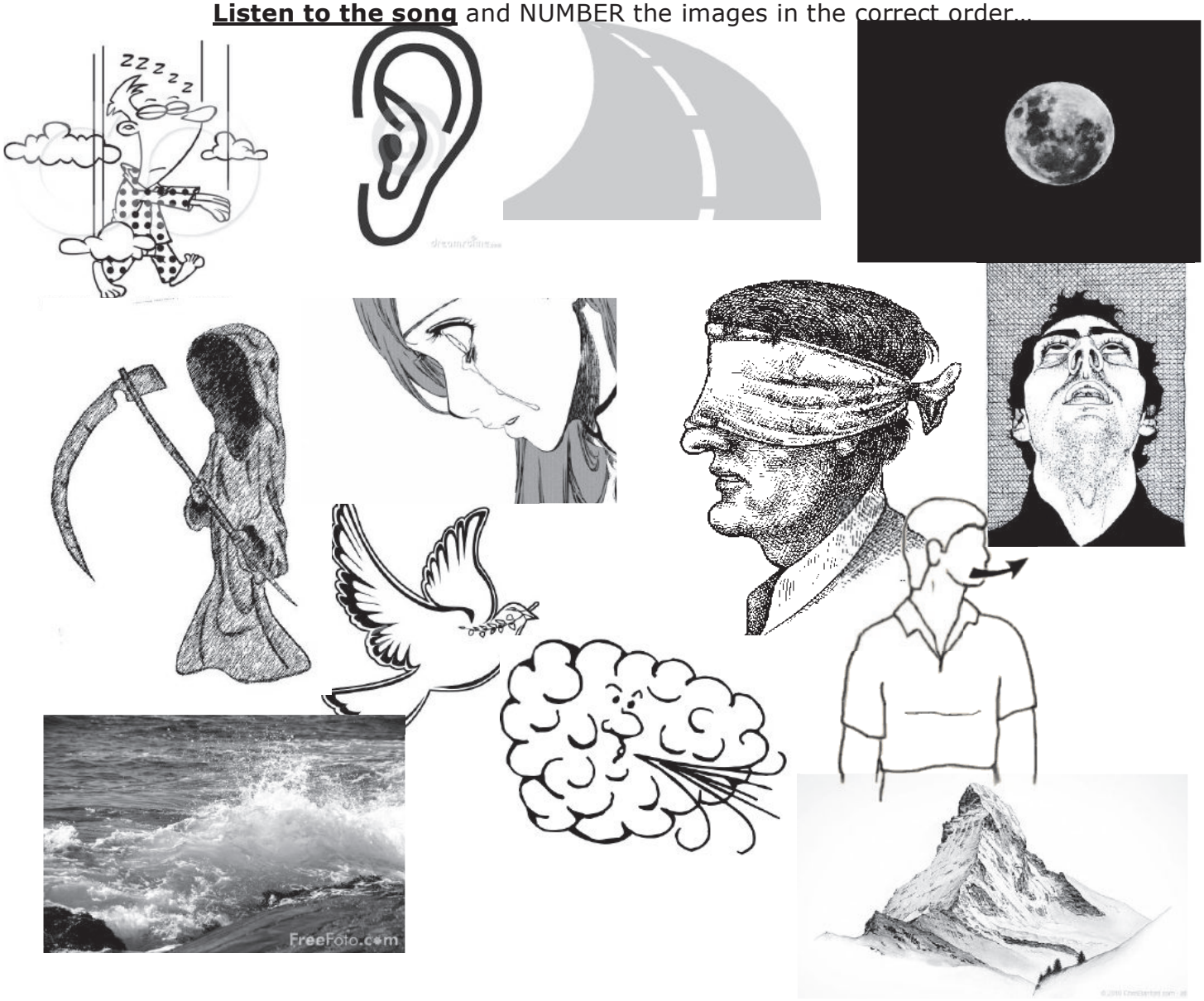
Questions – Use the following **expressions** to introduce your answers, work in pairs to prepare your answers:

It seems that	Obviously	It appears that
Basically	Clearly	It seems clear that
Essentially	Apparently	It would appear that

1. According to this article what are the obstacles to the development of wind power in the USA?
2. What solutions have been proposed?
3. How do you think wind power will develop in the coming years?
4. Why does it take a long time for new projects to be approved?
5. How do you think this situation compares to the wind power industry in France?

Activity Four – **"The answer is blowing in the wind." Bob Dylan**

Listen to the song and NUMBER the images in the correct order…



Activity Five – Brainstorm.

In pairs think up as MANY different types of sports as you can that use the wind. You have two minutes for this!



Then brainstorm as MUCH information as you can about alternative energy sources. You have another two minutes for this!

Activity Six – "The wind of change." The Scorpions.

Time for an anthem – sing along as loud as you can! The loudest team wins this challenge! (Sing half the song each.)

Activity Seven – **Debate** – in two opposing teams, for and against the use of wind turbines throughout France and offshore to replace as much nuclear energy as possible.