Future of low carbon energy

Teachers' notes

Lesson1: Low carbon energy – is it all about renewable energy?

This lesson focuses on providing a framework within which students can make the own informed judgements about alternative energy sources. The role of the teacher is to manage the group work, keep students on task and working to deadlines. It is important that the teacher encourages differences of opinion as there is no single solution to the renewables debate.

The Starter:

Exposure to the media and other resources during their life time means that students will already have preconceived ideas about alternative energy sources. This starter activity is designed to replace fiction with fact. Students are divided into 3 groups. Students should be encouraged to write down as many things as they think they know about the energy source they will be researching. During this activity the teacher should circulate and discuss students' answers with their group. The teacher should challenge students thinking and question them to find out why they think their answers are true.

The Main Activity:
Part One:
Before the task, students must be made aware of what they need to find out. Firstly they need to see if their own ideas are fact of fiction and then construct a definition of the energy source they are researching, give the advantages, disadvantages and impacts and finally if it is a viable option for the UK. These headings, which form the structure for the task, can either be given to the students orally or written on the board. They also need to be aware that they have 20 minutes to complete the task before one person from each group will join another group and teach them all about what they have learnt. This understanding of the next part of the activity will keep them focused and on task as they have a real deadline to meet.

If you have access to laptops, students can access the suggested resources online, if not, printed hard copies can be distributed to the groups. If students are working online they can be encouraged to look at other sources but make them aware of the time limit so they don't surf over learn. They only have 20 minutes to carry out their research and put together their results. This activity can also be supplemented by any additional information in the classroom e.g. text books, atlases. Higher level groups will probably divide up the work with pairs or individuals working on specific aspects of the task and then bringing their ideas together at the end. Lower level groups may benefit from the teacher suggesting this.

Part Two:
One student from each group (the Teacher) leaves their group and joins a different group. They then have 10 minutes to teach the group they're gone to about the energy source they have researched. They should start with the definition, then the advantages, disadvantages and impacts and if it is a viable option for the UK and finally what they discovered between fact and fiction. While the visiting student is teaching, the other students should be taken notes. After 10 minutes, the teaching student moves to the remaining group they haven't yet taught and continues. On returning to their original group, it is the job of the original group members to give the returning student information about the other three energy sources they have learnt about. This gives the remaining members of the group an opportunity to 'teach' and cement their knowledge and understanding.

Throughout both parts of this task, it is essential that the teacher circulates and spends time with each group ensuring the quality of what is being researched and taught.

The Plenary:

Students watch the media clip with Malcolm Wick, Minister for energy, in which he states that renewable energy alone is not enough. Using this as a stimulus and all the information then have learnt in the lesson, students have the opportunity to give their own opinions. The teacher should encourage students to back up their ideas with evidence and fact, but also highlight the conflicting evidence that some of the students may have found therefore questioning, what is fact? While students should be free to make their own comments, the teacher should try and direct the discussion so that it 'concludes' with the idea that there is no single solution to this problem and that rather a variety of different energy sources is the most likely option for future energy sustainability and energy security.