Lesson 7: Siting an aluminium Smelter

Teachers' Notes

Introduction

This activity is designed to develop decision making skills. It concerns the location of an aluminium smelter and requires the students to consider factors such as employment, conservation and raw material supply.

Running the lesson

The lesson flow is controlled by PowerPoint. It contains an embedded flash movie which is interactive and therefore, the machine it runs on will need to have the flash plugin installed (Many machines these days will have this anyway). Useful tips are included in the notes on the PowerPoint slides e.g. zooming in on the island map.

If PowerPoint presentation facilities are not available, the slides can be printed out onto OHT. There are also accompanying worksheets.

Starter

Structure of the aluminium extraction cell on PowerPoint slide. Handouts are available for annotation.

Aluminium production sequence cards (– correct sequence is **f,d,e,c,a,g,b)**

Detailed chemistry suitable for higher ability also provided.

Main Activity

The PowerPoint is used to introduce the task.

First, the whole class should consider the features that a site for an aluminium smelter may have. The notes on the slide give factors which you should try to illicit. the class needs to be split as follows:

(a) 5 Aluminium Smelter Decision Teams (ASDTs) each with at least one researcher and a manager. (at least 10 people all told).

Each team has a handout which shows a detailed map of the area together with space for them to make notes on each of the factors to be taken into account when locating an aluminium smelter.. A member of the team needs to formulate questions to ask the Experts (see below) to help them to form a strong argument in favour of their site. They are at liberty to suggest changes to the sites (new roads, landscape changes etc) but must be aware that all these have cost implications.

(b) Central Government Committee (CGC): comprising the Minister of aluminium plus 3 advisors (4 people)

This committee oversees the whole process. They looking over all the evidence from the map and from the expert panel. They will probably come up with their preferred site from this. There is a handout to help them structure their decision.

(c) A panel of 8 experts (PoE), each with a different specialist knowledge on a particular factor in the siting of an aluminium smelter.

Each expert has a prompt sheet which gives them general information about the factor together with specific information about the various sites. They are told not to give information freely, but to wait to be asked the specific questions.

The activity requires a minimum of 22 people. If the class is smaller, the 'experts' could take more than one specialist area each.

The activity should take about 30-40 minutes to complete and the students should be allowed free reign to come up with whatever arguments they please. There is enough guidance on the handouts to steer the Central Government Committee to choose the best choice (which is probably site A) but its up to the other groups to change their mind!

Plenary

The plenary is a connectives task which will help to consolidate the work.

For background information on Alcan, a major player in the aluminium industry, see:

http://www.alcan.com/web/publishing.nsf/Content/Alcan+Facts+2005