Arabidopsis thaliana

Why is a tiny weed, thale cress – *Arabidopsis thaliana* – used a lot in research?

Can you give examples of how it's been used?

The genome of *A. thaliana* was determined in 2000.

Why was this important?

Why is it important to look at the genome of plants, can the information have any application in animal as well as plant genetic research?

Arabidopsis, the best characterised weed on Earth.

(Photograph courtesy of the Plant Laboratory, Department of Biology, University of York).

Top right. Research scientist at the John Innes Centre.

Bottom right. *Arabidopsis* plant in pod formation stage.

(Photos courtesy of the John Innes Centre).

And then there were leaves

All leaves, however different they look, belong to one of only two types. They are either single-veined or web-veined. Recent research suggests that all plants might use the same mechanism to control leaf formation. An interaction between two genes appears to govern leaf formation in both *Arabidopsis* and *Antirrhinum*, and a very similar interaction may influence leaf formation in the club moss *Selaginella*. Yet the fossil evidence and traditional plant classification suggest separate evolution of leaves for the club mosses and other plants.

Why do you think that *Arabidopsis* was one of the species used in this study?

What's going on here? Could exactly the same genetic mechanism have evolved twice?

You are a research scientist, think about the process of science and describe the ways in which you could present your findings to other scientists and to the general public. Does there have to be a definite answer to the question of leaf evolution?