

# A Question of Taste

## Learning objectives

- Be able to define DNA as a long, thin molecule, composed of nucleotides, with a double helical structure
- Understand the base order of some of our DNA acts as a code for RNA and protein production
- Gain an understanding that DNA can be extracted and then manipulated/copied
- Understand that PCR is a technique that enables us to select specific sections of DNA and copy them millions of times
- Understand that gel electrophoresis is a way of analysing PCR results
- Develop an understanding that PCR has many applications which throw up ethical and moral questions.
- Studying our DNA can help us understand our evolutionary history
- Gain an appreciation that accuracy and minimising contamination are important scientific techniques, particularly when working with DNA

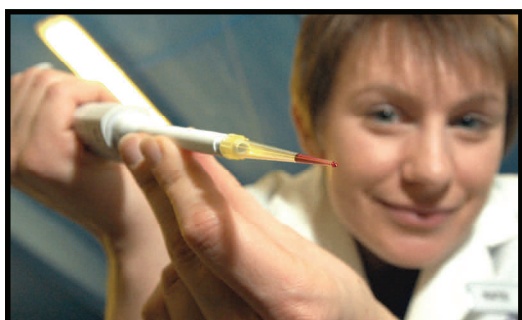
## Workshop content - students will:

- Learn about the structure and function of DNA
- Learn to use micropipettes accurately and minimise contamination
- Extract DNA from a sample of their cells
- Learn about the process of PCR
- Set up and run a PCR on their DNA
- Pour, load and run an electrophoresis gel analysis
- Analyse their results and directly compare their genotype and phenotype
- Relate their work to contemporary research on the evolution of bitter tasting in humans and chimps
- Discuss the applications of PCR including moral and ethical questions

## Curriculum/Syllabi links

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|----------------|--|
| <b>OCR</b>     | AS Unit F212 Module 1 Biological molecules<br>Module 3 Biodiversity and evolution<br>A2 Unit F215 Module 2 Biotechnology and gene technologies<br>Unit F213 & F216 Practical skills in biology 1 + 2   |
| <b>Edexcel</b> | AS Unit 1 (B6I01) Lifestyle, transport, genes and health<br>Unit 3 (B6I03) Practical biology and research skills<br>A2 Unit 4 (6BI04) The natural environment and species survival                     |
| <b>AQA</b>     | AS Unit 2 The variety of living organisms<br>A2 Unit 4 Populations and environment<br>Unit 5 Control in cells and in organisms<br>Units 3 and 6 Investigate and practical skills in AS biology/biology |

## Picture gallery



Practising with pipettes



Loading the gel



Analysing the results