

## Teaching ideas for Chapter 10, *Genetics II*

This is a relatively short topic in the HL core and forms a natural extension to the work covered in Chapter 4, *Genetics I*.

### Practical activities

- Supply students with modelling materials to construct simple representations of meiosis, which can cause confusion if it is not clearly visualised. Students should identify maternal and paternal chromosomes and demonstrate how crossing over and random orientation contribute to variation in gametes.
- Provide students with as many examples of dihybrid crosses as possible to practise their skills. These can be found in the student Coursebook and in the Chapter 10 Support and Extension worksheets.
- Ask students to research and discuss Mendel's work from a historical perspective. Why was his work not recognised sooner? How was he able to share his work with the outside world? There is the opportunity to link to TOK (see below).
- Video providing good visual sources of information on continuous variation and polygenes are widely available online. For example:  
[www.greatpacificmedia.com/#human\\_genome\\_dvd](http://www.greatpacificmedia.com/#human_genome_dvd)
- Many articles available on the internet are a good starting point for considering risks and benefits of exposure to sunlight and the importance of vitamin D production in the skin. For example:  
[www.bupa.co.uk/individuals/health-information/health-news-index/2010/hi-270810-vitamin-d-deficiency](http://www.bupa.co.uk/individuals/health-information/health-news-index/2010/hi-270810-vitamin-d-deficiency)  
[www.ncbi.nlm.nih.gov/pmc/articles/PMC1495109](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1495109)  
By carrying out their own reading, students can develop an understanding of the complex issue of skin colour versus vitamin D requirements.

### Links to TOK

- Mendel's work provides a good opportunity to discuss scientific communication and methodology today and compare it with that more than a century ago.

### Links to ICT

- Students can conduct internet research on polygenes and consider international aspects of biology and the selective advantage of dark or fair skin in different parts of the world.
- Students may like to consider the accuracy of the statistics provided by Mendel to support his research. It has been suggested that these are too accurate to be true.