



VGEC: Activity Notes

Meiosis Tutorial

A card-based tutorial that allows students to explore the role of meiosis in the generation of genetic diversity using an example involving two pairs of homologous chromosomes. The tutorial assumes that students are already familiar with the stages of meiosis.

For more information on this project, visit the project pages on the [GENIE website](#).

[Feedback](#) on this resource is appreciated.

Intended learning outcomes

- To explore the capacity of meiosis to generate genetic diversity.
- To review the stages of meiosis.
- To recognise the role of meiosis in the production of gametes.
- To understand the differences between the processes of mitosis and meiosis.

Files provided

1 Meiosis.docx/rtf/pdf	This document, which sets out the aims of the activity and the materials required.
2 StudentNotes.docx/rtf/pdf	Student notes, containing a summary of meiosis, instructions and questions for the student (suitable for uploading to student virtual learning portals).
3 Cards.pptx	A PowerPoint file containing the cards for the tutorial.
4 ResultsSpreadsheet.xlsx	An Excel spreadsheet that can be used to collate the results of the tutorial (optional).

Files available on request

MeiosisAnswerNotes.docx/rtf/pdf	A document containing answers to the questions in MeiosisStudentNotes.docx/rtf/pdf. Available from GENIE website via Answer Request form .
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Procedure

- 1 Students work through a quick review of the stages of meiosis.
- 2 The students are given copies of the cards in MeiosisTutorialCards.ppt and work through the student notes provided in MeiosisStudentNotes.docx/rtf/pdf, using the cards to answer questions about the stages of meiosis and the role of the process in generating genetic diversity. The students can work independently or in groups.
- 3 The class results can be collated using the Excel spreadsheet provided in MeiosisTutorialResults.xlsx (optional).

4 A sheet containing answers to the questions in the student notes is available on request from GENIE.

5 Materials

- Sets of the tutorial cards in MeiosisTutorialCards.pptx. Each slide contains four copies of each card, allowing the production of four complete sets. Laminating the cards makes them easier to use.
- Versions of cards 6, 7 and 8 must be printed in blue and orange on both sides of the paper. Colour versions of the cards at the end of the PowerPoint file show how this is to be done.
- A coin to toss.
- Some way of recording the class's results. One option is to use the supplied Excel spreadsheet MeiosisTutorialResults.xlsx.