

Topic 3 'Voice of the genome' Resources overview

Resource type (2008 numbers)	2005 numbers	Title	Interactive component	Student sheet	Teacher sheet	Technician sheet	Description
Topic introduction			Yes (presentation)	No	No	No	An interactive presentation to give you an overview of the topic.
GCSE review			Yes (review)	No	No	No	An interactive review of the GCSE knowledge you need for this topic.
GCSE review Test			Yes (test)	No	No	No	An interactive test of how well you know the material in the GCSE review.
Activity 3.1	3.1	Cell structure and function	Yes (tutorial)	Yes	Yes	No	Lets you investigate the three-dimensional structures and functions of organelles in the cell.
Activity 3.2	3.2	Protein transport within cells	Yes (tutorial)	Yes	Yes	No	This interactive tutorial lets you investigate the role of the endoplasmic reticulum and Golgi apparatus in the processing and movement of proteins through the cell.
Activity 3.3	3.3	Gametes and fertilisation	Yes (tutorial)	Yes	Yes	No	This interactive tutorial and the accompanying worksheet relate the structures of gametes to their functions.
Activity 3.4	3.4	Fertilisation in a marine worm	Yes (video clip)	Yes	Yes	Yes	In this activity you can see fertilisation happening.
Activity 3.5	3.5	Chromosome assortment	No	Yes	Yes	Yes	Lets you see how cells reduce the number of chromosomes in a gamete and introduce variation through independent assortment and crossing over.
Activity 3.6		Observing pollen tube growth	Yes (video clip)	Yes	Yes	Yes	Lets you observe the growth of a pollen tube.

Activity 3.7	3.6	Mitosis flick book	No	Yes	Yes	Yes	You investigate mitosis by ordering pictures to make a flick book.
Activity 3.8	3.7	The cell cycle	Yes (tutorial)	Yes	Yes	No	An interactive tutorial on the events of the cell cycle.
Activity 3.9 CORE	3.8	Observing mitosis	No	Yes	Yes	Yes	You use an onion root tip squash to look at cells undergoing mitosis in this practical.
Activity 3.10	3.9	Mitosis cell count in an onion	Yes (tutorial)	Yes	Yes	No	You calculate the duration of each stage of mitosis by counting cells using a root tip squash or the interactive tutorial.
Activity 3.11 CORE		Plant tissue culture	No	Yes	Yes	Yes	Use tissue culture techniques to demonstrate the totipotency of plant cells.
Activity 3.12	3.10	Ethical concerns about stem cell research	No	Yes	Yes	No	You will have the opportunity to discuss the ethical issues relating to the use of embryonic stem cells in medical research.
Activity 3.13	3.11	<i>Acetabularia</i> experiments	Yes (tutorial)	Yes	Yes	No	You review the experiments completed using <i>Acetabularia</i> (a single-celled alga) to study the role of the nucleus and cytoplasm in development.
Activity 3.14	3.13	Induction of $\beta$ -galactosidase	No	Yes	Yes	Yes	Shows that genes may be switched on by the presence of a substrate.
Activity 3.15		Modelling flowers	No	Yes	Yes	Yes	Shows how genes control the development of flower structure.
Activity 3.16	8.21	Polygenic inheritance	No	Yes	Yes	No	Shows how characteristics are often controlled by genes at many loci.
Activity 3.17	3.14	Are we still getting taller?	Yes	Yes	Yes	Yes	Involves a height survey and the addition of data to a central SNAB data bank.

Activity 3.18		Genes or the environment	No	Yes	Yes	No	Investigates how both genotype and the environment affect phenotype.
Activity 3.19		Check your notes	No	Yes	No	No	Use this activity to check your notes for revision.
Topic test			Yes (test)	No	No	No	Interactive end-of-topic test
Topic test			No	Yes	Yes	No	Exam style written end-of-topic test.
Extension 3.1	3.1	Sperm tails	No	Yes	No	No	Read more about the detailed structure and function of the sperm tail.
Extension 3.2	3.2	Sperm competition	No	Yes	Yes	No	Read about the competition that can occur between sperm from different individuals of the same species.
Extension 3.3	3.3	Alternation of generations	No	Yes	Yes	No	Find out more about asexual reproduction that involves meiosis in this extension on alternation of generations.
Extension 3.4	3.4	Development of zebrafish	No	Yes	Yes	Yes	Use the web links to watch the development of zebrafish (or rear them yourself) and find out how these fish are being used to study development and genetics. You can also see the early stages in human development.
Extension 3.5	3.5	How one X chromosome is inactivated in every cell	No	Yes	Yes	No	Read about how in female mammals one X chromosome is inactivated in every cell.
Extension 3.6	3.6	Sex determination	No	Yes	Yes	No	Read about the role of genotype and environment in determining sex in various animals.