

Review B2.7 Cell division and inheritance

<i>Can you...?</i>	😊	😐	😞
B2.7.1 Cell division			
Identify where pairs of chromosomes (which contain genetic information) are normally found in body cells			
Describe how body cells divide by mitosis, including copying of the genetic material and division to form two identical body cells			
State that mitosis occurs during growth or to produce replacement cells			
Compare the number of chromosomes in body cells and sex cells (gametes)			
Identify the reproductive organs as testes and ovaries			
State that meiosis is the type of cell division that forms gametes			
(HT) Describe meiosis in terms of copying of genetic material, followed by the cell dividing twice to form four different gametes			
Describe the process of fertilisation			
Interpret genetic diagrams, including family trees			
Define the term 'differentiation'			
Describe when differentiation occurs in plants and animals			
Identify human embryo and bone marrow cells as stem cells, and describe how they can be used			
Give an example of a condition that could be treated using stem cells			
Describe how asexual reproduction leads to the production of offspring with the same alleles as the parents			
B2.7.2 Genetic variation			
Define the term 'allele'			
Explain how sexual reproduction leads to variation, in terms of alleles			
Describe how a single pair of chromosomes in humans determines sex, and identify the chromosome pairings in males and females			
Define the term 'dominant allele'			
Define the term 'recessive allele'			
Describe the shape of the DNA molecule as a double helix			
(HT) Explain how genes code for combinations of amino acids in proteins			
Explain why DNA fingerprinting can be used to identify individuals, using the idea of unique DNA			
(HT) Construct genetic diagrams and predict the outcomes of crosses, using the terms 'homozygous' 'heterozygous' 'phenotype' and 'genotype'			
Predict or explain the outcome of crosses between individuals for any combination of dominant and recessive alleles			
Make informed judgements about the social and ethical issues concerning the use of stem cells from embryos in medical research and treatments			
B2.7.3 Genetic disorders			
Identify some disorders as inherited			
Describe how polydactyly – caused by a dominant allele – is inherited			
Describe how cystic fibrosis – caused by a recessive allele – is inherited, and explain why an individual may be a 'carrier' without having the disorder themselves			
Evaluate the economic, social and ethical issues surrounding embryo screening to test for alleles that cause genetic disorders			