Review B1.7 Genetic variation and its control

Can you…?	☺	😐	☹
B1.7.1 Why organisms are different			
State that genes carry the information that results in plants and animals having similar characteristics to their parents			
State that genes are passed on in sex cells (gametes) from which the offspring develop			
Describe how asexual reproduction can be used to produce individuals that are genetically identical to their parent			
State that genes operate at a molecular level to develop characteristics that can be seen			
Describe where chromosomes, which carry genes, can be found inside cells			
State that different genes control the development of different characteristics			
Describe how inherited genes, environmental causes, or combinations of the two can lead to differences between species and between individuals of the same species			
B1.7.2 Reproduction			
Describe sexual reproduction as the fusion of male and female gametes, resulting in mixing of the genetic information from two parents and variation in the offspring			
Describe asexual reproduction as the production of genetically identical clones from a single parent, as there is no mixing of genetic information so no variation in offspring			
Describe how new plants, genetically identical to their parents, can be produced quickly and cheaply by taking cuttings from older plants			
Outline the cloning technique of tissue culture			
Outline the cloning technique of embryo transplants (splitting apart cells from a developing animal embryo then transplanting the identical embryos to host mothers)			
Outline adult cell cloning, including: removal of a nucleus from an unfertilized egg cell; insertion of a nucleus from an adult body cell; use of electric shock to cause the cell to divide to form embryo cells; implantation of the developing embryo to the womb of an adult female to continue its development			
Describe how genes from the chromosomes of organisms can be ‘cut out’ using enzymes and transferred to the cells of other organisms in the process of genetic engineering			
Interpret information about cloning techniques and genetic engineering techniques, when given data to work from			
Describe how genes can be transferred at an early stage of animal, plant or microorganism development so that they develop with desired characteristics			
Outline how this can be used to produce genetically modified (GM) crops, such as those resistant to insect attack or to herbicides, which usually show increased yields			
Outline concerns about GM crops including the effect on wild flowers and insects, and uncertainty about the effects of eating GM crops on human health			
Make informed judgements about the economic, social and ethical issues concerning cloning and genetic engineering, including GM crops			