** A level Year 2** Eduqas Component 2

**Application of Reproduction and Genetics**

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|  |  | R | A | G |
| 1 | the Human Genome Project and its extension to the 100K Genome Project |  |  |  |
| 2 | the ethical issues surrounding the use of this knowledge and its application to the screening of embryos for genetic disorders e.g. cystic fibrosis, Huntington's disease, thalassaemia |  |  |  |
| 3 | how the genomes from other organisms have also been sequenced, including the mosquito, *Anopheles gambiae* and the *Plasmodium* parasite that it transmits and that better methods to control malaria may be developed as a result |  |  |  |
| 4 | the use of PCR and electrophoresis to produce a genetic fingerprint; the  forensic use of genetic fingerprinting |  |  |  |
| 5 | the formation of recombinant DNA by insertion of foreign DNA into bacterial plasmids and the cloning of the bacteria to produce useful molecules as illustrated by insulin |  |  |  |
| 6 | issues surrounding the use of gene technologies to produce genetically  modified crops by inserting a gene from one organism into another to convey disease resistance e.g. in GM tomatoes or a desired characteristic e.g. in GM soya |  |  |  |
| 7 | the advantages and disadvantages of using gene therapy for the treatment of disease as illustrated by muscular dystrophy |  |  |  |
| 8 | the use of genomics and its possible impact on healthcare of the future |  |  |  |
| 9 | the issues surrounding the use of stem cells for replacing damaged tissues and organs |  |  |  |