

# Edexcel (A) Biology A-level

## 3.6 to 3.10 + 3.15 - Reproduction

### Flashcards

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# How are mammalian eggs adapted for function?



## How are mammalian eggs adapted for function?

- Zona pellucida (protective coating) to prevent polyspermy.
- Haploid nucleus to restore a full set of chromosomes at fertilisation.



# How are mammalian sperm adapted for function?



## How are mammalian sperm adapted for function?

- Contain many mitochondria for energy required for moving.
- Acrosome (head) contains digestive enzymes which break down the zona pellucida of the egg.



Describe the process of mammalian fertilisation.



## Describe the process of mammalian fertilisation.

1. Acrosome reaction = enzymes in acrosome digest the zona pellucida. Sperm nucleus enters the egg cell.
2. Cortical reaction = causes zona pellucida to harden, preventing polyspermy.
3. Nucleic fusion = restoring full set of chromosomes, forming a diploid zygote.



# What is a locus?





# What is a locus?

The fixed position on a chromosome occupied by a gene.



# What is meant by autosomal linkage?



## What is meant by autosomal linkage?

Where two or more genes are located on the same (non-sex) chromosome, so are inherited almost as if they were the same gene. The closer the loci, the closer the linkage, as the genes are less likely to be recombined.



# What is meant by sex-linkage?



What is meant by sex-linkage?

Where an allele is located on one of the sex chromosomes, meaning its expression depends on the sex of the individual.



# What is meant by polygenic inheritance?



What is meant by polygenic inheritance?

Where a characteristic is determined by several different genes at different loci.



Describe the two types of phenotypic variation.





Describe the two types of phenotypic variation.

- Continuous = variation exists as gradual changes over a range e.g. height.
- Discontinuous = variation exists as distinct categories e.g. blood group.



Suggest factors that cause a phenotype to show continuous variation.



Suggest factors that cause a phenotype to show continuous variation.

1. If the characteristic is determined by more than one gene.
2. If the environment has an effect on the phenotype.



In which ways does meiosis ensure genetic variation?



In which ways does meiosis ensure genetic variation?

Produces non-identical gametes through;

1. Crossing over of alleles between chromatids.
2. Independent assortment of chromosomes.



Explain the role of mitosis.



Explain the role of mitosis.

Produces genetically identical daughter cells. Useful for growth, repair, and (in prokaryotic cells) asexual reproduction.

