# Fact Sheet – Cell division and inheritance

| Question | Answer |
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| In which part of the cell are chromosomes found? | Nucleus |
| What do chromosomes contain? | Genes/ genetic information |
| How many sets of each chromosome are there in each body cell? | 2 |
| How many sets of each chromosome are there in each gamete? | 1 |
| How many **pairs** of chromosomes are in a **human** body cell? | 23 |
| Give the sex chromosomes of a female | XX |
| Give the sex chromosomes of a male | XY |
| Which type of cell division is used to make new body cells? | Mitosis |
| Which type of cell division is used to make reproductive cells? | Meiosis |
| Which type of cell division copies genetic material first? | Mitosis & Meiosis |
| Which type of cell division produces clones? | Mitosis |
| Which type of cell division produces gametes? | Meiosis |
| Which type of cell division produces offspring cells during asexual reproduction? | Mitosis |
| How many times does the cell divide in Mitosis? | Once |
| How many times does the cell divide in Meiosis? | Twice |
| Which two events occur when a body cell divides by mitosis? (2) | • Copies of the genetic material are made<br>• The cell divides once to form two genetically identical body cells |
| When does mitosis occur? (2) | • During growth<br>• To replace cells that are damaged or lost |
| Cells in which human reproductive organs divide to form gametes? (2) | • Testes<br>• Ovaries |
| HT - Which two events occur when a cell divides by meiosis? (2) | • Copies of the genetic material are made<br>• The cell divides twice to form four gametes |
| Define ‘fertilisation’ | When two gametes (sex cells) fuse |
| How are babies formed from the single body cell produced by fertilisation? | The body cell repeatedly divides by mitosis |

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| How does sexual reproduction lead to variation in offspring? | When the gametes fuse, one of each pair of alleles comes from each parent |
| Define 'gene' (2) | • Small sections of chromosomes/ made of DNA<br>• They are instructions for characteristics |
| Define 'allele' | Different versions of the same gene |
| Define 'dominant allele' | A person only needs one copy of this in order to have the characteristic |
| Define 'recessive allele' | A person needs two copies of this in order to have the characteristic |
| Embryo screening | Is a process used to detect genetic disorders before a baby is born |
| What is the name of the scientist who proposed how characteristics are inherited? | Mendel |
| Why was the importance of Mendel's idea (of separately inherited factors) not recognised until after his death? | Other scientists then linked Mendel's 'inherited factors' with chromosomes and the actual mechanism for inheritance |
| What is the genetic disorder polydactyly? | Having extra fingers or toes |
| What is the genetic disorder cystic fibrosis? | Disorder of cell membranes |
| Is the gene for polydactyly dominant or recessive? | Dominant |
| Is the gene for cystic fibrosis dominant or recessive? | Recessive |
| Which genetic disorder must be inherited from both parents? | Cystic fibrosis |
| Which genetic disorder can be passed on by only one parent? | Polydactyly |
| What is the name for a person who has a copy of an allele but doesn't have the associated characteristic? | A carrier |
| How could a person develop cystic fibrosis if neither of their parents have the disorder? | If both parents are carriers (have just 1 cystic fibrosis allele each) |