

**Science: Cells and Reproduction**

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| 1. Cells - Key Words | | |
|  | Organelle | Function |
| 1 | Nucleus | Controls the cell  Contains genetic material |
| 2 | Cell membrane | Controls the exchange of substances in and out of the cell |
| 3 | Cytoplasm | Where chemical reactions occur |
| 4 | Cell wall | Supports the cell |
| 5 | Chloroplasts | Where photosynthesis occurs |
| 6 | Vacuole | Contains cell sap |
| 1  6  5  2  3  Animal Cell  Plant Cell  4 | | |

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| 1. Specialised Cells | | |
| Cell | Function | Adaptation |
| Sperm Cell | To fertilise the egg | -Tail to swim towards the egg  -Head pointed to burrow inside the egg |
| Red Blood Cell | To carry oxygen around the body | -No nucleus so can squeeze through tiny capillaries  -Contain haemoglobin to join to oxygen and transport it. |
| Root Hair cell | To absorb water and minerals from the ground | -large surface area so more water can be absorbed  -No chloroplasts so there is a larger vacuole |

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| 1. Reproductive Organs (Female) | | |
|  | Organ | Function |
| 1 | Oviduct | Where fertilisation takes place, sweeps the egg towards the uterus |
| 2 | Ovary | Stores and matures the egg |
| 3 | Uterus | Where the embryo develops |
| 4 | Cervix | Ring of muscle that holds baby in place during pregnancy |
| 5 | Vagina | Where sperm enter the body during sexual intercourse. |
| 1  2  3  4  5 | | |

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| 1. Reproductive Organs (Male) | | |
|  | Organ | Function |
| 1 | Sperm duct | Tube that carries sperm cells from the testes to the penis |
| 2 | Testis | Site of sperm production |
| 3 | Scrotum | Skin sack containing the testes |
| 4 | Penis | Inserted into the vagina to transfer sperm |
| 4.  3.  2.  1. | | |



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| 1. Puberty | |
| This is the period of adolescence when the body changes in preparation for reproduction | |
| **Changes to boys** | **Changes to girls** |
| Penis grows larger | Periods start |
| Testes start to produce sperm | Hips widen |
| Chest and back broaden | Ovaries start to release egg cells |
| Hair grow on chest and face | Breasts develop |

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| 1. Menstrual Cycle | | |
| **Keyword** | | **Meaning** |
| Hormone | | A chemical messengers in the body |
| Menstruation | | When blood passes out of the vagina, also known as a period |
| Ovulation | | When a mature egg is released from the ovary |
| Fertilisation | | When the nuclei of an egg and sperm cell fuse |
| Menstrual Cycle | | The process of menstruation and ovulation which usually takes 28 days in human females |
| **Days** | **Event** | |
| 1 – 5 | Uterus lining breaks down, period starts | |
| 5 – 14 | Uterus lining starts to build up again ready for implantation | |
| 14 | Ovulation | |
| 14 – 28 | Uterus lining remains thick | |
| 28 | If no pregnancy occurs the cycle starts again | |

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| 1. A Healthy Pregnancy | |
| Lifestyle Factor | Effect on Pregnancy |
| Smoking | Smoking causes reduces oxygen to the fetus leading to low birth weights, premature births and even death. |
| Drinking Alcohol | This can affect the brain of the foetus and cause low birth weights, miscarriages and still births. |

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| 1. Pregnancy | | |
|  | Organ | Function |
| 1 | Placenta | Organ that exchanges substances between the mother’s blood and the fetus’ |
| 2 | Fetus | Name for an unborn baby |
| 3 | Umbilical cord | Transfers products from the mothers blood to the fetus and vice versa |
| 4 | Amniotic fluid | Fluid surrounding the baby that protects the baby from damage inside the uterus |
| 2  1  4  3 | | |

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| Challenge Questions | |
| 1 | What substances pass from the mother’s blood to the fetus? |
| 2 | What are the main stages when a woman goes into labour? |
| 3 | Compare the structure of a plant and animal cell |
| 4 | The world oldest woman to conceive naturally and give birth is Dawn Brook, aged 59 in 1997. Other women over 59 have given birth after having IVF. Evaluate the use of IVF for women over 50. |