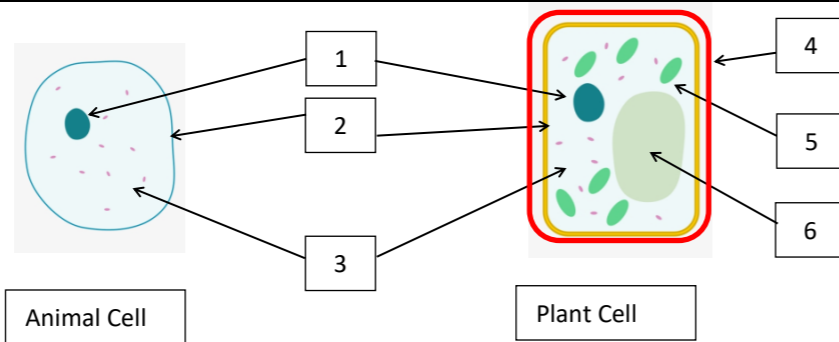


Science: Cells and Reproduction

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

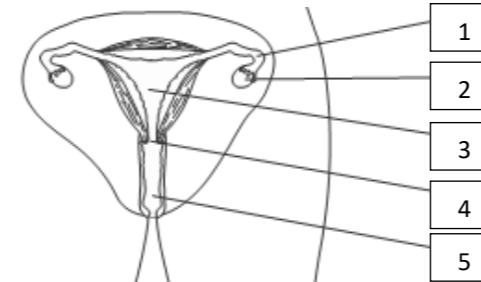


2. Specialised Cells

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

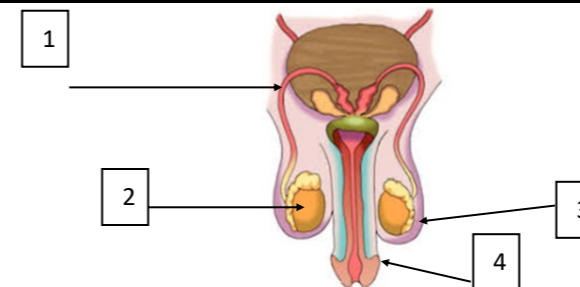
3. Reproductive Organs (Female)

	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.



4. 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



Science: Cells and Reproduction

5. 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

6. 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

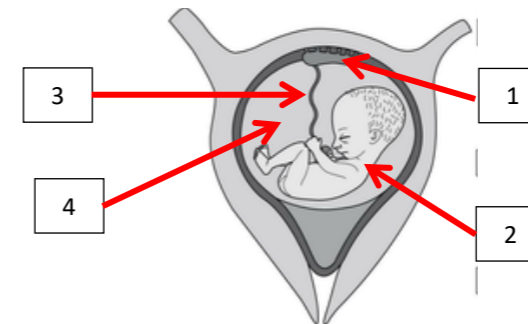
Days	Event
1 – 5	Uterus lining breaks down, period starts
5 – 14	Uterus lining starts to build up again ready for implantation
14	Ovulation
14 – 28	Uterus lining remains thick
28	If no pregnancy occurs the cycle starts again

7. 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.

8. 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



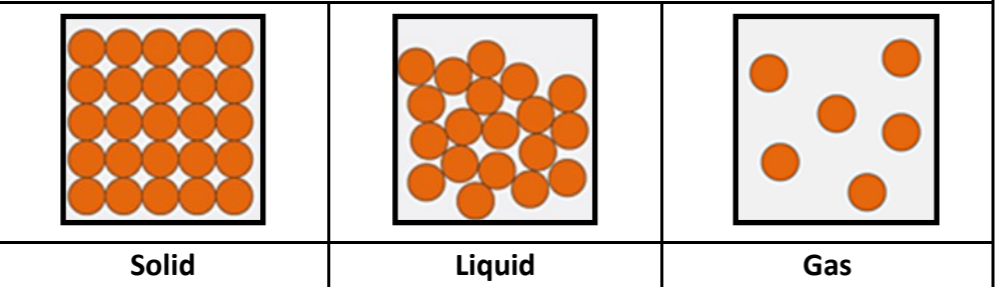
Challenge Questions

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.

Science: Particles and Separation Techniques

States of matter

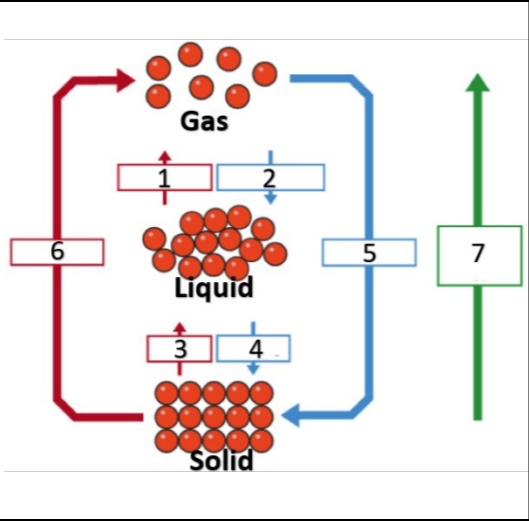
The particles of a substance do not change but the arrangement of the particles are different in each state of matter



Comparing Properties			
Property	Solid	Liquid	Gas
Fixed shape	ü	û	û
Fixed volume	ü	ü	û
Can be compressed	û	û	ü
Can flow	û	ü	ü

Changing states

- | | |
|----------|--|
| 1 | Evaporation
Liquid changing into a gas |
| 2 | Condensation
Gas changing into a liquid |
| 3 | Melting
Solid changing into a liquid |
| 4 | Freezing
A liquid changing into a solid |
| 5 | Deposition
A gas changing into a solid |
| 6 | Sublimation
A solid changing into a gas |
| 7 | Increasing energy
Energy is added to the substance |



Mixtures & pure substances

Pure substances	Mixtures
Contains one type of particle	Contains particles that are not all the same
Cannot be separated	Can be separated
Has a fixed boiling and melting point	Has a boiling and melting temperature range

Solubility Key Words

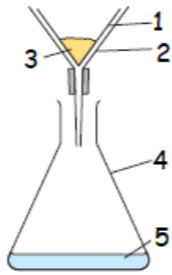
Solute	A substance that dissolves to make a solution
Solvent	A substance that dissolves a solute
Solution	A substance that is a mixture of a solvent and a solute
Solubility	A measure of how well a substance will dissolve
Insoluble	A substance that will not dissolve
Saturated solution	When the maximum amount of solute has dissolved and no more is able to dissolve

Science: Particles and Separation Techniques

5. Filtration

Separates: an insoluble solid from a liquid

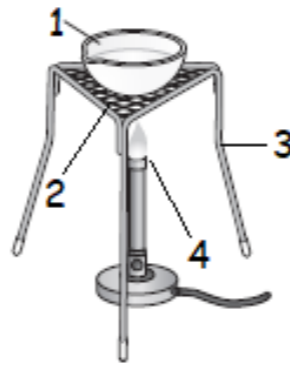
1	Filter paper
2	Funnel
3	Residue (solid)
4	Conical flask
6	Filtrate (liquid)



6. Evaporation

Separates: a soluble solid from a solution

1	Evaporating basin
2	Gauze
3	Tripod
4	Bunsen burner



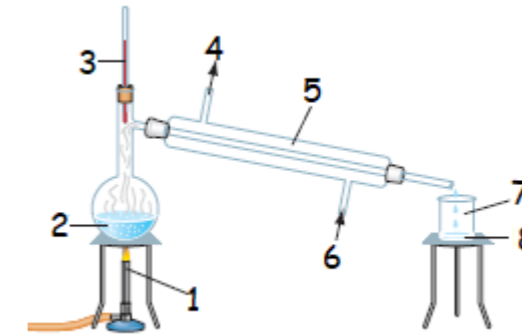
Challenge questions

1	Describe the arrangement of particles in the 3 states of matter
2	Describe and explain how you could investigate the saturation point of different solutes
3	Explain the difference between boiling and evaporation
4	Explain the changes in energy and particle arrangement as ice is heated to steam.

7. Distillation

Separates: a liquid from a solution

1	Bunsen burner
2	Solution
3	Thermometer
4	Water out
5	Condenser
6	Water in
7	Beaker
8	Separated liquid



8. Chromatography

Separates: dissolved substances in a mixture

1	Water
2	Pencil base (start) line
3	Ink spot
4	Beaker
5	Paper
6	Separated dyes
7	Solvent front

