



1 Animal	Sevual Penroduction	Glands	is now	called semen.			dioxide) pass from embryo's blood into mother's blood.	
The new ergenisms pro		Urethra	is now called semen. dioxide) pass from embryo blood into mother's blood and from the placenta. ra The tube the semen leaves the body through. Umbilical Cord Carries the embryo's blood and from the placenta. ra The tube the semen leaves the body through. Umbilical Cord Carries the embryo's blood and from the placenta. rat Tube lined with cilia (tiny hairs). Gesta- tion Pe- riod The time from fertilisation until birth. s Where the baby will develop if the egg is fertilised. The time from fertilisation until birth. a Part that leads from the cervix to the outside. When an embryo develops a full of organs we call it a foetus (arou 8 weeks). ultra- male start to produce sperm cells and egg cells in fe- male start to mature. Produce images of foetus to chec sound for problems. 3. Becoming Pregnant Prema- tinto the vagina. Prema- Baby born small and early. Inter- bation Semen is pumped out of the urethra. Stages of Giving Birth Contractions start and cervix begi to widen. stages of cell If fertilisation occurs the cell starts to divide form- ing an embryo which will then sink into the uterus lining. The woman is now After- birth The placenta is passed out of the vagina- end of labour. Mamma- rutrients and antibodies to prote Produces milk for babies- contair nutrients and antibodies to prote	The tube the semen leaves the body through.		Umbilical Cord		
Offspring	duced by reproduction.	Ovary	Where are rel	the egg cells develop and eased from.		4. G	Gestation and Birth	
Sexual Repro- duction	Reproduction that needs two parents to produce	Oviduct	Tube li	ned with cilia (tiny hairs).	Gesta- tion Pe-	The ti birth	ime from fertilisation until	
Gametes	oπspring. Sex cells	Uterus	Where the eg	the baby will develop if g is fertilised.	riod	Wher	a an embruo develons a full set	
Sperm	Gamete that males make	Cervix	Ring of and va	f muscle between uterus gina.	Foetus	of org	gans we call it a foetus (around eks).	
Egg	Gamete that females make	Vagina	Part th the ou	at leads from the cervix to tside.	Ultra- sound	Produ for pr	uce images of foetus to check roblems.	
Fertilisation	Sperm enters an egg cell and nuclei fuse forming a fertilised egg cell.	Puberty	When males start to produce sperm cells and egg cells in fe- male start to mature.		Scans Harm to Baby	Alcohol, drugs, cigarette smoke and viruses can pass through placenta and harm foetus.		
External Fertili- sation	The sperm and egg cell meet outside of the body.	Sexual Int	3. Bec	oming Pregnant The erect penis is inserted	Prema- ture	Baby	born small and early.	
Internal Fertili-	e.g. fish The sperm and egg cell	course		into the vagina.	Labour	The a	ct of giving birth.	
sation	meet inside the body. Large numbers of eggs	Ejaculatio	on	Semen is pumped out of the urethra.	61	contr to	actions start and cervix begins widen.	
Using External Fertilisation	are produced because many get washed away. The parents don't look after their young.	Route the takes	e sperm	Vagina → sucked up through cervix → uterus → oviduct → meets egg cell	– Stages of Giving Birth	amnio lea cervix tic	amnion breaks and amniotic fluid leaves vagina. cervix at 10cm, stronger contrac- tions pushes baby through. Umbilical cord cut	
Using Internal	Fewer egg cells produced because sperm is more likely to reach egg. The			If fertilisation occurs the cell starts to divide form-	After- birth	The p	a- end of labour.	
Fertilisation likely to reach egg. The parents usually look after their young.		Implantation		ing an embryo which will then sink into the uterus lining. The woman is now	Mamma- ry Glands	Produ nutrie from	uces milk for babies- contains ents and antibodies to protect disease	

2. Reproductive Organs

leaving the testes.

Where sperm cells are made.

Bag of skin containing the testes.

Sperm travels through here after

Fluids are added to the sperm- it

Bag containing the amniotic	Sex Hor-	Released by brain, tests &
fluid.	mones	ovaries- start puberty.
Allows oxygen, food and water to be passed from mother's blood into embryo's blood. Waste materials (like carbon dioxide) pass from embryo's	Changes to Boys During Puberty Changes to Girls During Puberty	Voice deepens, shoulders widen, hair grows, testes/ penis grow, sperm produced. Breasts develop, hair grows, hips widen, ovaries start to release eggs.
Carries the embryo's blood to and from the placenta. estation and Birth me from fertilisation until	Menstrual Cycle	Days 1-5: uterus lining lost from body (menstruation) Days 6-14: egg cell starts to mature and is released around day 14 (ovulation) Days 14+: egg cell swept to-
		cycle starts again.
an embryo develops a full set ans we call it a foetus (around ks). ce images of foetus to check oblems.		
ol, drugs, cigarette smoke and s can pass through placenta arm foetus.		and the second se
oorn small and early.		
t of giving birth.		× 9
actions start and cervix begins widen. n breaks and amniotic fluid ves vagina. at 10cm, stronger contrac- ns pushes baby through. ical cord cut.	ANO EN	DE H CO O O O O O O O O O O O O O O O O O
acenta is passed out of the - end of labour.	DEM	4
cos milk tor babios contains	6	

5. Growing Up

Watery fluid to protect grow-

ing embryo / foetus.

Amniotic Fluid

Amnion

Placenta



			2. Particles		4. Diffusion		5. Air Pressure
Ke	eywords	Particle The- ory	A theory used to explain the different properties and ob- servations of solids, liquids and gases.	Diffusion	The movement of particles spreading out and mixing with each other without any- thing moving them.	Air Pressure	The force on a certain area caused by air molecules hitting it. Makes sure tyres are inflat-
		Particles	Tiny pieces of matter that everything is made out of.		Occurs quickly in gases be- cause they are able to move freely in all directions	High Air Pressure	ed. Can also affect the weather making it dry and
1.	Solids, Liquids and Gases	Forces Solid Parti-	the particles together. Fixed arrangement of parti-	Particle The- ory and	Diffusion is slower in liquids because the particles are still	Vacuum	A completely empty space containing no particles (not
States of Matter	The three forms that a sub- stance can be in; solid, liquid or gas.	cle Proper- ties	cles held closely together that cannot move over each other but vibrate.	Diffusion	a gas. Diffusion cannot occur in		even air). Straws work because when you suck, you reduce the
Solid Proper-	Do not flow Fixed shape Fixed volume	Liquid Parti- cle Proper- ties	Held closely together but not in a fixed arrangement and can move over each other.		solids because the particles are in a fixed positon. Diffusion of particles of es-	Straws	pressure inside the straw so the air pressure outside the straw is grater and the liquid
ties	Cannot be compressed Can Flow No fixed shape	Gas Particle Properties	Far apart from each other and free to move about in all directions.	Small Intes- tine	sential substances in our food pass through the wall of the small intestine.		is pushed up.
Proper- ties	Fixed volume Cannot be compressed	Vibrate	To move backwards and for- wards.				
Gas Prop- erties	Can flow No fixed shape No fixed volume Can be compressed	3. Brownian	Brownian Motion An erratic movement of small specks of matter caused by being hit by the				
Flow	To move and change shape smoothly. The amount room something	NIOTION	moving particles that make up liquids or gases.				k
Volume	takes up. Measured in cubic centimetres (cm ³).	Trace	Used to plot the movement of a particle and used as evi- dence for Brownian motion.				× 9
Com- pressed	Squashed into a smaller volume.	Molecule	Two or more atoms joined together in a group.	-			CO ON
Pressure	The amount of force pushing on a certain area.	Nanometre	A unit of measurement. 1 nanometre (nm) is 0.000 000 001 metres (m)]		~	HOF PS COLLAR
						SEMANO .	TUBAT



		Kinetic Ener-	Energy stored in moving	Non-	An energy resource that will	5.	Using Resources
ίKe	ey words	gy Thermal Energy	things. Energy stored in hot objects.	Renewable	run out because we cannot renew our supplies of it. An energy resource that will	Fossil Fuel Advantages	Cheap compared to the others and convenient to use in cars/vehicles
		Strain Ener- gy	Energy stored in stretched or squashed objects. Also called	Renewable	never run out (such as solar power)	Fossil Fuel Disad-	Non-renewable Releases polluting gases
		Gravitation- al Potential	Energy stored in objects in high places that can fall	Biofuels	animal droppings. Can be used as a fuel by	vantages Nuclear Ad- vantages	when burnt. No polluting gases generat- ed.
	1. Energy from Food	Energy	Energy stored inside materi-	Hydrogen	the air to produce electricity.	Nuclear Dis-	Non-renewable Very expensive
Fnergy	and repair our bodies, move	ergy	als (also called atomic ener- gy).	4. Ot	her Energy Resources	advantages	Dangerous waste materials
Lineiby	and keep warm. Food is a source of energy.	Law of Con-	The idea that energy can	Solar Power	Generating electricity us- ing energy from the Sun.	Renewable Advantages	No polluting gases Renewable
Joule	A unit for measuring energy.	servation of	never be created or de- stroyed, only transferred	Solar Panol	Flat plats that use energy	Renewable Disad-	Most not available all the time and only available in
Kilojoule	1000J = 1kJ	from one store to another.		Solar Panel	ter.	vantages	specific locations.
Diet	The food that a person eats.		3. Fuels		Flat panels that use energy	Climate	Fossil fuels are making the
Weight	The amount of force with which gravity pulls things- measured in Newtons (N).	Fuel	A substance that contains a store of chemical or nuclear energy that can easily be	Solar Cell	the Sun to produce elec- tricity.	Change	carbon dioxide given off when they are burnt.
Balanced Diet	Eating a variety of foods to pro- vide all the things that the body	Nuclear Fuels	transferred. Used in nuclear power sta- tions to generate electricity.	Solar Power Station	A large power station using the Sun to heat water to make steam which then	Efficiency	How much of the energy transferred by a machine is useful.
Nutrients	Substances needed from food.	Uranium	A radioactive metal that can		generates electricity. Generates electricity using	Using Less	Using efficient appliances, insulating homes, public
2. Er	ergy Stores and Transfers	Generate	To produce electricity.	Wind Turbine	e energy transferred from	Fossil Fuels	transport/walking/cycling
Transferre Forces	d When energy is moved from one store into another. A push, pull or twist and a	Fossil Fuels	A fuel formed from the dead remains of organisms over millions of years.	Hydroelectric Power	Electricity generated by moving water turning tur-		
Electricity	type of energy transfer. A way of transferring energy	Coal	A fossil fuel made from the remains of plants.	Geothermal	Electricity generated using heat from rocks under-		Ce UEST
	When energy is captured	0.1	A tossil fuel made from the remains of microscopic dead	Power	ground.		En KO
Stored	within an object and can be moved to another store by		plants and animals that lived in the sea.	sis	glucose + oxygen	Nd EV	AS COLL ?
Chemical Energy	Energy transfers. Energy stored in chemicals (such as food, fuel and batteries).	Natural Gas	A fossil fuel made from the remains of microscopic dead plants and animals that lived in the sea.		DE	MAIL	K Cele III



Key	words	Particles Sound Mov- ing Through the Air Sound Wave Pressure Wave	Tiny pieces of matter that make up everything. Air particles vibrate and cause nearby particles to vibrate so the vibrations spread through the air. Formed by the moving vibra- tions. The air particles are pushed together in some place (high pressure) and spread out in	How Ears Detect Sounds	sound waves enter the ear canal. the eardrum (a thin mem- brane) vibrates. vibrations pass to the tiny bones which amplify the vibrations. vibrations pass to the liquid inside the cochlea. tiny hairs inside the cochlea detect vibrations and cre- ate electrical signals	Using High Frequency Waves Echo Echoloca- tion Sonar	Treat injuries Clean delicate objects by making tiny bubbles that loosen dirt when the burst. A reflected sound Used by animals (bats, dol- phins, etc.) to find their way around/find prey. Pulse of ultrasound is given off and reflected by the sea bed. It is then detected by	
Sounds	thing vibrating.	Sound Wave	other places The number of waves pass-	-	(impulses). impulses travel along the		sonar equipment to find the depth.	
Intensity	its volume.	Sound Wave	The distance moved by air		auditory nerve to the brain.	5.	Comparing Waves	
Pitch	The number of vibrations	Amplitude	passes.	How Micro-	Sounds make a thin sheet of materials (a diaphragm) vi-	Longitudinal Waves	direction wave is moving.	
Frequency	each second. The higher the frequency the higher the pitch.	Energy	Energy is transferred from one place to another by sound waves. They do not	phones De- tect Sounds	brate and electrical circuits convert these vibrations into electrical currents.	Transverse Waves	Particles vibrate at right angles to direction wave is moving.	
Hertz (Hz)	The units for measuring fre- quency.	Speed of Sound	Sound travels faster in solids	Decibels (dB)	The units for measuring the loudness of a sound.	As waves pass through ea Superposition other their effects add up		
Amplitude	The size of vibrations. The bigger the amplitude		close together.	Auditory	The range of frequencies an organism can hear		or cancel out.	
Humans	the louder the note. Two flaps (vocal folds)	Moving	source of sound, the energy	Infrasound	20Hz – 20000Hz in humans Sounds below 20Hz			
Making	across the windpipe vibrate Av when air moves across A	Away from A Source	ther so there is less energy	Ultrasound	Sounds above 20000Hz			
Grasshop-	them. Male grasshoppers chirp by		sounds quieter.		4. Using Sound		* 5	
pers Making	rubbing one leg against a	3.	Detecting Sounds	Using Sound	Sound is often used for com- munication.		K CO NO	
Gorillas Mak- ing Sounds	Male gorillas thump their chests or thump the ground to threaten other males.	Ear Protec- tion	Loud sounds damage our ears- people who work in noisy surroundings need ear protection. Certain soft ma- terials (carpets, curtains,	Transmitted	Energy from sound waves goes through some materi- als.		A A A A A A A A A A A A A A A A A A A	
2	2. Moving Sounds			Reflected	Energy from sound waves bounces off some materials.			
Moving Sounds	Sounds can only travel through a medium (a solid, liquid or gas).		transferred by sound waves.			MANO	CI CI	
Vacuum	A completely empty space. Sound cannot travel through.				04		A	