			Instruments that measure		Painted black because dark	5 P	aving for Energy
	8K Energy	Thermal	infrared radiation and	Solar	colours absorb and emit	5.1	The amount of energy
	The for	Images	convert into maps of	Panels	infrared radiation well.		transferred in 1 hour by an
	Iransfers		temperatures.		Designed to reduce energy	Kilowatt-hour	annliance
			When a solid is heated the		transfers and keep contents	(kWh)	Lised by energy companies
			particles vibrate more and		hot:		to measure energy use
1. Temperature Changes		Conduction	these vibrations are passed		Plastic stopper to stop	Energy Lise For	
Temperature	How hot or cold an		through the solid transferring		convection (and it is an	Lifergy Ose I of	
	object is.		energy.	Vacuum	insulator).	energy use = (kWh)	= power rating × time
	Measured in degrees	Thermal	Energy is transferred easily	Flask	Glass walls with silver		(KW) (hours)
	Celsius (°C)	Conductors	through them- metals.		coating reflect radiation		Not using as much energy
Internal / Thermal Energy	The energy stored in the	Thermal Insulators	Energy is not transferred		back in	Saving Money on Electricity / Gas Bills	will save money. Insulating
	movement of particles.		through them easily- wood /		Vacuum between walls so		houses and using more
	Measured in Joules (J)		nlastic		no conduction or convection		officient appliances will help
Factors Affect			In fluids (liquids and gases)		can occur	/ Gas bills	with this
Amount of	material		when part of it is heated it		can occur.		How long it will take you to
Internal Energy	y mass		become less dense and rises	4.	Power and Efficiency	Payback Time	save the money that an
Stored	• 111855	Convection	Cooler fluid moves in to take		The amount of energy	rayback fille	efficiency measure costs
Energy Transfer	Always from a hotter		its place and a convection	Power	transferred by an appliance	Payback Time Formula	enciency measure costs.
	object to a cooler one.		current forms		per second.		$payback time = \frac{cost of change}{cost of change}$
Evaporation	When a liquid turns into	Convection	Diagram	Watts (W)	The units for measuring		saving per year
	a gas. A way of	convection	Cools down at the surface/top by		power.		
	transferring energy.		transferring heat to surroundings		1000W = 1kW (kilowatt)		
Cooling by Evaporation	The fastest moving	Cool air/water sinks because it becomes denser	Warm air/water rises beccuse it	Power	Tell us how much energy an Lesson		Memorised?
	particles escape a liquid			Ratings	appliance transfers.	1. Temperat	ure
	to form a gas. The				The amount of useful energy	Changes	
	particles left are storing		and		transferred by a device	Changes	
	less energy so the		Varmed up again	Efficiency	compared with the amount	2. Transferring Ener	ng Energy
	temperature of the				of energy supplied to it.		
	remaining liquid is		·	Sankey	A diagram that represents	3. Controllin	g
	lower.	3.	Controlling Transfers	Diagram	energy transfers.	Transfers	
			Houses are kept warm by		Sankey Diagram Example		d d
2. Ti	2. Transferring Energy		burning fuel for heating and	Sunney Dia	4 J transferred	Efficiency	
Er Transferring he Energy co ra	Energy can be transferred by	Climates	insulating houses to keep		by light		
	heating via evaporation,		warmth inside.	40 Loursland cont		5. Paying for	Energy
	conduction, convection and	Good	Brick, wood, carpet, feathers.	second by electricity	36 J transferred		
	radiation.	Insulators	wool.		by heating		
Radiation	A way of transferring Energy	Air	A very poor conductor because				
	by heating through waves (it		the particles are far apart	Efficiency	ormula		
	does not need a medium).		Houses are kent cool by				
Emitting Radiation	All things give out (emit)	Hot	nainting them white (light and	efficiency -	useful energy transferred $\times 100\%$		
	infrared radiation, the hotter	Climates	shiny surfaces reflect infrared	total energy supplied × 100%			
	it is the more it emits.	Cimates	radiation)				
		1	raulation).				