

Year 8 HT4

Name: _____

Learning Objective	Learning Ladder Link (%)					KS3 revision guide	HW
	40%	50%	60%	70%	80%		
1. I can use the atom model to explain how static electricity works in relation to electrons.		Q1	Q1	Q1	Q1	98	1
2. I can describe the difference between conductors and insulators in relation to electron movement.	Q4 Q6			Q1		95	
3. I can identify circuit components from their symbols	Q1 Q2	Q2 Q3				96	
4. I can identify complete and incomplete circuits and link this knowledge to explain how electricity flows around a circuit	Q3	Q2		Q6		96-97	2
5. I can identify and draw series and parallel circuits		Q5	Q2			97	
6. I can explain how to measure current and voltage in series and parallel circuits.		Q4			Q5	96	3
7. I can compare voltage, current, power and resistance for components in series and parallel circuits.		Q6	Q2 Q3 Q4	Q2 Q3 Q4		96-97	
8. I can describe the magnetic field around a magnet	Q5 Q6		Q5			99	4
9. I can compare permanent magnets and induced magnets in terms of the magnetic field.						99	
10. I can explain how an electromagnet can be made.				Q6 Q7		100	5
11. I can describe where electromagnets are used in everyday life and how to make one stronger.					Q7	100	
12. I can apply my knowledge about electricity to calculate power ($P=IV$) and resistance ($R= V/I$)				Q5	Q2 Q3 Q4		

Knowledge organiser

	Topic:	Introduction of circuits (P.16)
1	State how objects can become charged with static electricity (extension only)	Rubbing two surfaces together transfers charge (electrons)
2	Name the device used to create static electricity (Ext)	Van de Graaff generator
3	Define "electrical conductor"	Material that allows electricity to flow through it easily
4	Define "electrical insulator"	Material that does not allow electricity to flow through it easily
5	Name the circuit component used to measure current	Ammeter
6	Name the circuit component used to measure potential difference	Voltmeter
7	Name the circuit component that transfers chemical energy store to electrical energy	Cell
8	What is the name for more than one electrical cell	Battery
9	Name the circuit component used to reduce the current	Resistor
10	Name the circuit component used to turn the current on and off	Switch

	Topic:	Properties of circuits (P.17)
1	Define "current"	Flow of electricity
2	Define "potential difference" (or "voltage")	Energy carried by the flow of electrical charge
3	State the units of current	Ampere (Amp)
4	State the units of potential difference	Volt (V)
5	Define "series" circuit	Components in a circuit are all in one loop
6	Define "parallel" circuit	Components in a circuit are in separate loops
7	Define "resistance"	Slows down the flow of electricity
8	State the units of resistance	Ohms
9	State the equation used to calculate resistance	$R=V/I$, Resistance= potential difference/current
10	State the equation used to calculate electrical power	$P=IV$, Power=current x potential difference

	Topic:	Magnets (P.18)
1	Define "magnetic force"	Non-contact force from a magnet or magnetic material
2	Define "permanent magnet"	An object that is magnetic all of the time
3	Define "magnetic material"	Material that becomes magnetic when in a magnetic field, but does not stay magnetic when it is removed
4	Define "magnetic field"	The area around a magnet in which a magnetic material will experience a magnetic force
5	Define "magnetic poles"	The ends of a magnetic field, called north-seeking (N) and south-seeking (S)
6	State the direction that magnetic field lines flow	From the north-seeking to the south-seeking poles
7	State what happens when two 'like' magnetic poles are placed near each other (e.g. N and N)	Repel
8	State what happens when two 'unlike' magnetic poles are placed near each other (e.g. N and S)	Attract
9	State the instrument used to find the direction of a magnetic field	Compass
10	What do magnetic field lines close together show?	A strong magnetic field

	Topic:	Electromagnets (extension only) (P.19)
1	Define "electromagnet"	A non-permanent magnet turned on and off by controlling the current through it
2	Define "solenoid"	Wire wound into a coil, part of an electromagnet
3	Define "core"	Soft iron core which the solenoid is wrapped around
4	State three ways that the strength of an electromagnet can be increased	Increase the current, increase the number of coils in the solenoid, the core
5	State three uses of electromagnets	Bells, circuit breakers, loudspeakers
6	State the reason that an electromagnet creates a magnetic field	A wire carrying a current produces an magnetic field
7	State what happens to the strength of the magnetic field with increasing distance from the electromagnet	Decreases
8	Name two things that have similar shape magnetic fields	Permanent magnet and electromagnet

9	State two advantages of using an electromagnet instead of a permanent magnet	1. Can be turned on and off, 2. can increase the strength
10	Which materials are required to make an electromagnet in the classroom?	Battery, wire, crocodile clips and an iron core

