St Inomas More RC College



Long-Term Plan: Science

		Term 1a	Term 1b	Term 2a	Term 2b	Term 3a	Term 3b		
	Topics to be covered:	Unit A: Working in the lab Unit AA: Speed and contact forces	Unit B: Particle model Unit B: Metals and non-metals	Unit C: Light Unit C: Sound Unit C: Wave properties and wave effects	Unit D: Variation Unit D: Human reproduction Unit D: Plant reproduction	Unit E: Earth structure Unit E: Universe Unit E: Gravity	Unit F: Acids and alkalis Unit F: Separating mixtures Unit F: Periodic table		
r 7	Development of scientific thinking (Uses of models, applications, risks) Experimental skills and strategies (Developing hypothesis, planning experiments, working safely, sampling, making and recording observation Analysis and evaluation (Presenting data, mathematical analysis) Scientific language, units and symbols (Scientific abbreviations and units in equations) Mathematical skills (Averages, equations, rearranging equations, angles, orders of magnitude, geometry)								
Year	Key assessment s taking	Unit A assessment Unit AA assessment	Unit B assessment	Unit C assessment	Unit D assessment	Unit E assessment	Unit F assessment		
	Key vocab	Safety Variable Bunsen burner Distance Units Direction	Solid Liquid Gas Particle Volume Movement	Wave Transverse Longitudinal Amplitude Wavelength	Cell Inherited Environmental Fertilisation	Crust Mantle Core Force Non-contact	Indicator Distillation Chromatography Properties		
	KS2 retrie	Inities for retrieval practice: eval lessons at the start of ea retrieval tasks throughout ea		1					

Long-Term Plan: Science

		Term 1a	Term 1b	Term 2a	Term 2b	Term 3a	Term 3b				
		Unit G: Current	Unit H: Cells	Unit I: Elements	Unit J: Pressure	Unit K: Interdependence	Field work				
	Topics to be covered:	Unit G: Voltage and resistance Unit G: Energy costs	Unit H: Movement Unit H: Breathing	Unit I: Chemical energy Unit I: Types of reactions	Unit J: Magnets Unit J: Electromagnets	Unit K: Inheritance Unit K: Evolution	Unit L: Digestion Unit L: Respiration Unit L: Photosynthesis				
Year 8	Key assessments Skills to be taking place: developed:	Experimental skills and Analysis and evaluation Scientific language, uni	(Presenting data, mathe ts and symbols (Scientific	pothesis, planning experim	equations)		ling observations.) Unit L assessment				
	Key vocab K	Circuit Series Parallel Efficiency	Animal Plant Carbon dioxide Oxygen	Periodic table Properties Exothermic Endothermic	Volume Particles North and South Attract and repel	Food chain Competition Genetics	Sampling Energy Aerobic Anaerobic				
	KS2 retri	oportunities for retrieval practice: 2 retrieval lessons at the start of each unit anned retrieval tasks throughout each unit									

Long-Term Plan: Science

		Term 1a	Term 1b	Term 2a	Term 2b	Term 3a	Term 3b				
		Unit M: Energy transfer	Unit N: Climate	RETRIEVAL SKILLS:	RETRIEVAL SKILLS:	Cell biology of eukaryotes and	Energy stores and transfers				
	Topics to be covered:	Unit M: Work	Unit N: Earth's resources	Cells	Atomic structure	prokaryotes					
Year 9	Topics	Unit M: Heating and cooling		Investigation skills	Energy						
	Development of scientific thinking (Uses of models, applications, risks) Experimental skills and strategies (Developing hypothesis, planning experiments, working safely, sampling, making and reco Analysis and evaluation (Presenting data, mathematical analysis) Scientific language, units and symbols (Scientific abbreviations and units in equations) Mathematical skills (Averages, equations, rearranging equations, angles, orders of magnitude, geometry)										
	Key assessments taking place:	Unit M assessment	Unit N assessment	Cells assessment Investigation skills assessment	Atomic structure assessment Energy assessment	Cell Biology assessment	Energy assessment				
	Key vocab	Energy Power Dissipation Conduction	Global warming Greenhouse gas Renewable Sustainable	Eukaryotic Prokaryotic Variables Error	Protons Neutrons Electrons Transfer	Magnification Stem cells Tumour Mitosis	Gravitational potential Kinetic Elastic Transfers				
	KS2 retrie Planned r	Conduction Sustainable Error Transfer Mitosis Transfers Opportunities for retrieval practice: KS2 retrieval lessons at the start of each unit Planned retrieval tasks throughout each unit KS3 retrieval tests KS3 retrieval tests KS3 KS3 KS3									

Long-Term Plan: Combined Science: Higher Tier

		Term 1a	Term 1b	Term 2a	Term 2b	Term 3a	Term 3b			
	ed:	Biology: Cell biology (recap Y9 term 2 and 3 and movement of molecules)	Biology: Bioenergetics	Biology: Organisation	Biology: Organisation	Biology: Infection and response	Biology Infection and response			
	Topics to be covered:	Chemistry: Atomic structure and periodic table	Chemistry: Bonding, structure and properties of matter	Chemistry: Bonding, structure and properties of matter; Quantitative Chemistry	Chemistry: Quantitative Chemistry	Chemistry: Chemical changes	Chemistry: Chemical changes; Energy changes			
		Physics: energy (recap Y9 term 2 and 3 and efficiency onwards)	Physics: Electricity	Physics: Electricity	Physics: Particle model of matter	Physics: Particle model of matter	Physics: Atomic Structure			
		Development of scientific thinking (Uses of models, applications, risks)								
	Skills to be developed:	Experimental skills and strategies (Developing hypothesis, planning experiments, working safely, sampling, making and recording observations.)								
		Analysis and evaluation	Analysis and evaluation (Presenting data, mathematical analysis)							
	Skil dev	Scientific language, unit	s and symbols (Scientific a	abbreviations and units in	equations)					
D T		Mathematical skills (Ave	erages, equations, rearrar	nging equations, angles, o	rders of magnitude, geom	etry)				
Year	B	Cell Biology assessment	Bioenergetics	Electricity assessment	Organisation assessment	END OF YEAR	Infection and response			
۲e	assessments taking place:		assessment			ASSESSMENTS	assessment			
	ts t	Energy assessment		Bonding, structure and						
	ssment place:		Atomic structure and	properties of matter	Quantitative Chemistry	Particle model of matter	Atomic structure			
	pla		periodic table	assessment	assessment	assessment	assessment			
	asse		assessment							
	Key						Chemical changes assessment			
		Diffusion	Respiration	Enzymes	Enzymes	Pathogen	Pathogen			
	ab	Osmosis	Photosynthesis	Organ	Organ	Immunity	Immunity			
	vocab	Efficiency	Current	Current	Density	Density	Isotope			
	Key	Resources	Potential difference	Potential difference	State	State	Decay			
	×	Nucleus	Covalent	Moles	Moles	Reactants	Exothermic			
		Electron shell	Ionic	Concentration	Concentration	Products	Endothermic			
		nities for retrieval practice:								
		retrieval tasks throughout e	ach unit							
		eval tests								
	Do now 1	focussing on previous units								

Long Term Plan: Combined Science Foundation Tier

erimental skills and s lysis and evaluation (ntific language, units	Presenting data, mathem and symbols (Scientific al	othesis, planning experim atical analysis) bbreviations and units in ging equations, angles, or	Physics: Particle model of matter Chemistry: Chemical changes nents, working safely, samp equations) ders of magnitude, geome		_
elopment of scientifi erimental skills and s lysis and evaluation (ntific language, units :hematical skills (Ave	trategies (Developing hyp Presenting data, mathem and symbols (Scientific al rages, equations, rearrang	othesis, planning experim atical analysis) bbreviations and units in ging equations, angles, or	equations)		_
•			ders of magintade, geome	ci y j	
rgy assessment nic structure and odic table ssment	Bonding, structure and properties of matter assessment	Electricity assessment Organisation assessment Quantitative assessment	Particle model of matter assessment Chemical changes assessment	END OF YEAR EXAMS	Infection and response assessment Atomic structure assessment Energy changes assessment
usion losis iency burces leus tron shell for retrieval practice:	Respiration Photosynthesis Current Potential difference Metallic Ionic	Enzymes Organ Current Potential difference Relative formula mass Concentration	Density State Energy Reactants Products Electrolysis	Pathogen Immunity Vaccination Isotope Decay Half-life	Pathogen Immunity Isotope Decay Endothermic Exothermic
ie usi ie usi ie usi ie st	c structure and lic table ment ion sis ncy rces us on shell r retrieval practice: tasks throughout ea s	c structure and lic tableproperties of matter assessmentionRespirationionRespirationsisPhotosynthesisncyCurrentrcesPotential differenceusMetallicon shellIonicretrieval practice:tasks throughout each units	c structure and dic table smentproperties of matter assessmentQuantitative assessmentionRespirationEnzymesionRespirationEnzymessisPhotosynthesisOrganncyCurrentCurrentrcesPotential differencePotential differenceusMetallicRelative formula masson shellIonicConcentrationretrieval practice:Itasks throughout each unitsS	c structure and lic table mentproperties of matter assessmentQuantitative assessmentChemical changes assessmentQuantitative assessmentCuantitative assessmentChemical changes assessmentionRespirationEnzymesDensitysisPhotosynthesisOrganStatencyCurrentCurrentEnergyrcesPotential differencePotential differenceReactantsusMetallicRelative formula massProductson shellIonicConcentrationElectrolysis	c structure and lic table imentproperties of matter assessmentQuantitative assessmentChemical changes assessmentQuantitative assessmentQuantitative assessmentChemical changes assessmentAnnotation assessmentionRespirationEnzymesDensityPathogensisPhotosynthesisOrganStateImmunityncyCurrentCurrentEnergyVaccinationrcesPotential differencePotential differenceReactantsIsotopeusMetallicRelative formula massProductsDecayon shellIonicConcentrationElectrolysisHalf-life

Long Term Plan: Biology

		Term 1a	Term 1b	Term 2a	Term 2b	Term 3a	Term 3b			
	Topics to be covered:	Cell biology (recap Y9 term 2 and 3, movement of molecules and culturing microbes)	Bioenergetics	Organisation	Organisation	Infection and response	Infection and response			
	Skills to be developed:	Development of scientific thinking (Uses of models, applications, risks) Experimental skills and strategies (Developing hypothesis, planning experiments, working safely, sampling, making and recording observations.) Analysis and evaluation (Presenting data, mathematical analysis) Scientific language, units and symbols (Scientific abbreviations and units in equations) Mathematical skills (Averages, equations, rearranging equations, angles, orders of magnitude, geometry)								
Year 10	Key assessments taking place:	Cell Biology assessment	Bioenergetics assessment	Organisation assessment 1 (human organisation)	Organisation assessment 2 (plant organisation)	END OF YEAR ASSESSMENTS	Infection and response assessment			
	Key vocab	Diffusion Osmosis Active transport Semipermeable	Aerobic Anaerobic Limiting factor Enzyme	Organ System Structure Function	Organ System Structure Function	Pathogen Immunity Defences Monoclonal antibody	Pathogen Immunity Defences Monoclonal antibody			
	Planned r KS3 retrie	ities for retrieval practice: etrieval tasks throughout each val tests ocussing on previous units	unit							

Long Term Plan: Chemistry

		Term 1a	Term 1b	Term 2a	Term 2b	Term 3a	Term 3b				
	Topics to be covered:	Atomic Structure and Periodic Table	Bonding, structure and properties of matter	Quantitative Chemistry 1	Chemical Changes including some Quantitative Chemistry	Chemical Changes including some Quantitative Chemistry	Energy Changes				
10	Development of scientific thinking (Uses of models, applications, risks) Experimental skills and strategies (Developing hypothesis, planning experiments, working safely, sampling, making and recording observation Analysis and evaluation (Presenting data, mathematical analysis) Scientific language, units and symbols (Scientific abbreviations and units in equations) Mathematical skills (Averages, equations, rearranging equations, angles, orders of magnitude, geometry)										
Year 1	Key assessments taking place:	Atomic structure and Periodic Table assessment	Bonding, structure and properties of matter assessment	Quantitative Chemistry 1 assessment	Chemical Changes 1 assessment	END OF YEAR ASSESSMENT Chemical Changes 2 assessment	Energy Changes assessment				
	Key vocab	Proton Neutron Electron Groups Properties Patterns	lonic Covalent Metallic Intermolecular forces Properties Electrostatic forces	Relative atomic mass Relative formula mass Isotope Conservation of mass Moles Equation	Oxidation Reduction Reactivity Metal Acid Displacement	Titration Concentration Electrolysis Half equation	Exothermic Endothermic Reaction profile Energy				
	Planned KS3 retrie	PatternsElectrostatic forcesEquationDisplacementDisplacementOpportunities for retrieval practice:Planned retrieval tasks throughout each unitKS3 retrieval testsDo now focussing on previous units									

Long Term Plan: Physics

		Term 1a	Term 1b	Term 2a	Term 2b	Term 3a	Term 3b				
	Topics to be covered:	Energy (recap Y9 term 2 and 3 and efficiency onwards) Electricity	Electricity	Particle model of matter	Atomic Structure	Revision paper 1 Forces	Forces				
	Skills to be developed:	Development of scientific thinking (Uses of models, applications, risks) Experimental skills and strategies (Developing hypothesis, planning experiments, working safely, sampling, making and recording observations.) Analysis and evaluation (Presenting data, mathematical analysis) Scientific language, units and symbols (Scientific abbreviations and units in equations) Mathematical skills (Averages, equations, rearranging equations, angles, orders of magnitude, geometry)									
Year 10	Key assessments taking place:	Energy assessment	Electricity assessment	Particle model of matter assessment	Atomic structure assessment	END OF YEAR ASSESSMENT	Forces assessment				
	Key vocab	Transfer Efficiency Resources Stores	Circuit Current Potential difference Resistance	Density Mass Volume Energy	Atoms Nucleus Radioactive decay Half-life	Scalar Vector Resultant	Moments Pressure Elasticity Velocity				
	Planned KS3 retri	Opportunities for retrieval practice: Planned retrieval tasks throughout each unit KS3 retrieval tests Do now focussing on previous units									

	Term 1a	1	Term 1b	Term 2a	Term 2b	Term 3a	Term 3b			
	Biology:	Homeostasis and	Biology: Inheritance,	Biology: Inheritance,	Biology: Ecology	REVISION	REVISION			
	response	2	variation and evolution	variation and evolution;						
red				Ecology	Chemistry: Chemistry of					
ove	Chemisti	y: Energy	Chemistry: Rate and		the atmosphere; Using					
e c	changes;	Rate and extent	extent of chemical	Chemistry: Organic	resources					
to b	of chemi	cal change	change	Chemistry; Chemical						
Topics to be covered:				analysis	Physics: Magnetism					
Top	Physics:	Forces	Physics: Forces							
.				Physics: Waves;						
				Magnetism						
	Develop	Development of scientific thinking (Uses of models, applications, risks)								
be	ਤੋਂ Experim	Experimental skills and strategies (Developing hypothesis, planning experiments, working safely, sampling, making and recording observations.)								
s to	ੁੱਛੇ Analysis	Analysis and evaluation (Presenting data, mathematical analysis)								
Skills to be	Scientifi			bbreviations and units in	equations)					
0,	Mathen			ging equations, angles, or		etrv)				
	Homeos	-	MOCK PAPER 1	Inheritance, variation	MOCK PAPER 2	GCSE PAPER 1	GCSE PAPER 2			
ace		assessment		and evolution						
d g			Rate and extent of		Ecology assessment					
assessments taking place:	Energy c	hanges	chemical change	Organic chemistry						
s ta	assessme	•	assessment	assessment	Chemistry of the					
ent				Chemical analysis	atmosphere assessment					
ssm			Forces assessment	assessment	Using resources					
sse					assessment					
Key a				Waves assessment						
≚					Magnetism assessment					
	Hormon	es	Mutation	Fossils	Adaptation	See y10 keywords	See y11 keywords			
_q	Reflex ar	с	Natural selection	Competition	Carbon cycle					
vocab	Reaction	profiles	Activation energy	Alkanes	Greenhouse effect					
Key v	Collision	theory	Reversible reaction	Fractional distillation	Sustainability					
ž	Scalar		Resultant	Transverse	Attract					
	Vector		Weight	Longitudinal	Repel					
	portunities for re	-								
Plai	nned retrieval ta	sks throughout ea	ch unit							
KS3	3 retrieval tests									
Do	now focussing o	n previous units								

Long Term Plan: Combined Science Foundation Tier

		Term 1a	Term 1b	Term 2a	Term 2b	Term 3a	Term 3b			
		Physics: Forces	Chemistry: Rate and	Chemistry: Chemistry of	Biology: Inheritance,	REVISION	REVISION			
			extent of chemical	the atmosphere	variation and response					
		Physics: Waves	change							
	red			Chemistry: Using	Biology: Ecology					
	оле	Physics: Magnetism	Chemistry: Organic	resources						
	ы С		Chemistry							
	Topics to be covered:			Biology: Homeostasis and						
	ics 1		Chemistry: Chemical	response						
	Гор		analysis							
				Biology: Inheritance,						
			Chemistry: Chemistry of	variation and evolution						
			the atmosphere							
		Development of scien	tific thinking (Uses of mode	ls, applications, risks)						
	be bed:	Experimental skills and	d strategies (Developing hyp	oothesis, planning experim	ents, working safely, san	npling, making and reco	ording observations.)			
	Skills to be developed:	Analysis and evaluation (Presenting data, mathematical analysis)								
	leve		nits and symbols (Scientific a		equations)					
	9 9		verages, equations, rearran			etrv)				
ŀ		Forces assessment	MOCK PAPER 1	Chemistry of the	MOCK PAPER 2	GCSE PAPER 1	GCSE PAPER 2			
	i.			atmosphere assessment						
	Key assessments taking place:	Waves assessment	Magnetism assessment		Inheritance, variation					
	l gu			Using resources	and evolution					
	taki		Rate and extent of	assessment	assessment					
	. str		chemical change							
	mer		assessment;	Homeostasis and	Ecology assessment					
	essi		Organic Chemistry	response assessment						
	ass		assessment;							
	(ey		Chemical analysis							
	-		assessment							
f	q	Scalar	Attract	Greenhouse effect	Mutation	As y10 keywords	As y11 keywords			
	Key vocab	Vector	Repel	Sustainability	Natural selection					
	v Va	Transverse	Collision theory	Hormones	Competition					
	ž	Longitudinal	Fractional distillation	Reflex arc	Adaptation					
ſ	Opportu	nities for retrieval practice	:							
	Planned	retrieval tasks throughout	each unit							
		eval tests								
	Do now f	focussing on previous units	2							

Long Term Plan: Biology

		Term 1a	Term 1b	Term 2a	Term 2b	Term 3a	Term 3b				
	Topics to be covered:	Homeostasis and response	Homeostasis and response Inheritance, variation and evolution	Inheritance, variation and evolution Ecology	Ecology	REVISION	REVISION				
	Development of scientific thinking (Uses of models, applications, risks) Experimental skills and strategies (Developing hypothesis, planning experiments, working safely, sampling, making and recording observa Analysis and evaluation (Presenting data, mathematical analysis) Scientific language, units and symbols (Scientific abbreviations and units in equations) Mathematical skills (Averages, equations, rearranging equations, angles, orders of magnitude, geometry)										
Year 11	Key assessments taking place:	Homeostasis and response assessment 1 (nervous system)	Homeostasis and response assessment (endocrine system)	Inheritance, variation and evolution assessment	MOCK PAPER 2 Ecology assessment	GCSE PAPER 1	GCSE PAPER 2				
	Key vocab	Senses Reflex Arc Automatic Synapse	Hormone Glucagon Glycogen Endocrine	Mutation Variation Natural selection Genetic engineering	Competition Adaptation Deforestation Biogas	As y10 keywords	As y11 keywords				
	Planned KS3 retri	ities for retrieval practice: retrieval tasks throughout each eval tests focussing on previous units	า unit	1							

Long Term Plan: Chemistry

		Term 1a	Term 1b	Term 2a	Term 2b	Term 3a	Term 3b				
	Topics to be covered:	Rate and extent of chemical change	Organic Chemistry	Chemical analysis Chemistry of the atmosphere	Using resources	REVISION	REVISION				
	Development of scientific thinking (Uses of models, applications, risks) Experimental skills and strategies (Developing hypothesis, planning experiments, working safely, sampling, making and recording observations Analysis and evaluation (Presenting data, mathematical analysis) Scientific language, units and symbols (Scientific abbreviations and units in equations) Mathematical skills (Averages, equations, rearranging equations, angles, orders of magnitude, geometry)										
Year 11	Key assessments taking place:	Rate and extent of chemical change assessment	MOCK PAPER 1 Organic Chemistry assessment	Chemical analysis assessment	MOCK PAPER 2 Chemistry of the atmosphere assessment Using resources assessment	GCSE PAPER 1	GCSE PAPER 2				
	Key vocab	Collision theory Activation energy Reversible reaction Equilibrium	Alkane Alkene Carboxylic acid Polymerisation	Positive ions Negative ions Chromatography Greenhouse effect	Sustainability Life cycle analysis Polymers Fertilisers	As y10 keywords	As y11 keywords				
	Planned KS3 retri	nities for retrieval practice: retrieval tasks throughout e eval tests focussing on previous units	ach unit								

Long Term Plan: Physics

		Term 1a	Term 1b	Term 2a	Term 2b	Term 3a	Term 3b
Year 11	Topics to be covered:	Waves	Magnetism and electromagnetism	Space Physics	REVISION	REVISION	REVISION
	ey assessments Skills to be developed:	Experimental skills and st Analysis and evaluation (Scientific language, units	thinking (Uses of models, ap rategies (Developing hypoth Presenting data, mathematic and symbols (Scientific abbro ages, equations, rearranging MOCK PAPER 1 Magnetism and electromagnetism	esis, planning experiments, cal analysis) eviations and units in equat	ons)		ing observations.) GCSE PAPER 2
	Key vocab Key as taki	Longitudinal Transverse Refraction Reflection	assessment Motor effect Transformers Generator effect Induced	Life cycle of a star Orbital motion Satellites Red shift	As y11 keywords	As y10 keywords	As y11 keywords
	Opportunities for retrieval practice: Planned retrieval tasks throughout each unit KS3 retrieval tests Do now focussing on previous units						