

# Concept Index of KISS Topics, years 7-10

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## Year 7 Topics

<u>Topic No.</u>	<u>Concepts</u>	<u>PhMaster page</u>	<u>OnScreen slide</u>	<u>Topic No.</u>	<u>Concepts</u>	<u>PhMaster page</u>	<u>OnScreen slide</u>
<b>01.7B VARIETY OF LIFE</b>				<b>04.7E THE EARTH IN SPACE</b>			
What is life?		02	03	Astronomy		02	03
Criteria for classifying		03	05	The Solar System		03	05
History of Science		04	08	Day & night, years & seasons		04	07
Technology & Science		04	09	Phases of Moon		05	10
Five kingdoms		05	10	Sun, Moon & the tides		06	12
Dichotomous keys		06	12	Eclipses		07	14
Plant kingdom		07	15	The Sun		08	17
Animal kingdom		09	19	Stars, galaxies & nebulae		09	19
Classes of vertebrates		11	23	History of Astronomy (brief)		10	22
Summary of classif. scheme		12	25	Technology, society & Science		11	25
Kingdoms, Phyla, Classes, etc		13	26				
Species		14	27				
Scientific names		14	28				
				<b>OnScreen "Discussion/Activities" = 3</b>			
				<b>Worksheets = 7 + Topic Test</b>			
<b>OnScreen "Discussion/Activities" = 4</b>				<b>05.7E EARTH RESOURCES</b>			
<b>Worksheets = 7 + Topic Test</b>				Resources: renewable, natural..		02	03
				Atmosphere, lithosphere, etc.		03	05
<b>02.7B LIVING ENVIRONMENTS</b>				Water cycle		04	08
Ecology & Ecosystems		02	03	Human impacts on water cycle		05	10
Adaptations		03	05	Water conservation		06	11
Producers & consumers		04	08	Energy resources		07	14
Food chains		05	10	Electricity from fossil fuels		08	16
Decomposers		06	12	Electricity from renewables		09	17
Food webs		07	15	Problems with fossil fuels		10	19
Human impacts on ecosystems		08	17	Strategies for change		12	23
Different viewpoints		10	19	Renewable fuels		12	24
Fire, flood & drought		12	22	Choices for the future		13	26
Managing the environment		13	23	Ethanol & carbon capture		14	27
An Australian scientist		14	25	Coal Seam Gas & Fracking		15	29
				<b>OnScreen "Discussion/Activities" = 4</b>			
				<b>Worksheets = 7 + Topic Test</b>			
<b>OnScreen "Discussion/Activities" = 3</b>				<b>06.7P FORCES</b>			
<b>Worksheets = 8 + Topic Test</b>				What is force?		02	03
				Safety devices in cars		02	04
<b>03.7C SEPARATING MIXTURES</b>				Measuring forces		03	05
What is a mixture?		02	03	Force & movement		03	06
Scientific models		02	04	Simple machines		04	07
Mixtures around us		03	05	Force, work & machines		04	09
Natural and made resources		03	06	Friction		06	11
Solutions & suspensions		04	08	Force & Isaac Newton		08	16
Solute, solvent, dilute, conc.		05	10	Contact & field forces		08	17
Water as a solvent		06	12	Gravity		09	18
Sieving		07	16	Mass & weight		09	19
Flotation & sedimentation		08	17	Orbits & weightlessness		10	20
Centrifuging		08	18	Magnetic forces		11	23
Filtration		09	20	Magnetic attraction & repulsion		12	25
Evaporation		09	21	Magnetic compasses		12	26
Distillation		10	22	Electromagnets		13	27
Chromatography		11	25	Magnetic fields		14	29
Crystallisation		11	26	Scientific models & theories		15	32
Obtaining resources by sep'tion		12	27	Electrostatic force		16	34
Separations at home		13	29	Electroscopes		17	37
				Charging & discharging		17	36
				Scientific knowledge impact		19	41
				<b>OnScreen "Discussion/Activities" = 5</b>			
				<b>Worksheets = 11 + Topic Test</b>			

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## Year 8 Topics

<u>Topic No.</u>	<u>Concepts</u>	<u>PhMaster page</u>	<u>OnScreen slide</u>	<u>Topic No.</u>	<u>Concepts</u>	<u>PhMaster page</u>	<u>OnScreen slide</u>
<b>07.8B LIVING CELLS</b>				<b>10.8C ELEMENTS &amp; COMPOUNDS</b>			
	Cells, units of life	02	03		History of "elements"	02	03
	Discovery of cells	02	04		Elements & Periodic Table	03	05
	Cells under the microscope	03	05		Atoms & elements	05	08
	Plant & animal cells	04	06		Technology affects Science	06	11
	Movement in & out of cells	05	09		Modern research for elements	06	12
	Diffusion	05	10		Science makes connections	07	13
	Unicellular & multicellular	06	11		Why support Science research?	07	14
	Micro-organisms	07	14		Metals & non-metals	08	16
	Microbes, good & bad	08	16		Chemical symbols	09	15
	Knowledge changes society	09	18		Chemical compounds	10	20
	Impacts of Science & Tech.	10	20		Chemical reactions	11	22
	Genetic information	11	23		Compounds v. mixtures	13	25
	Cell division, Mitosis	11	24		Chem. v. physical change	13	26
					Elements, compnds & mixtures	14	28
	<b>OnScreen "Discussion/Activities" = 3</b>				<b>OnScreen "Discussion/Activities" = 3</b>		
	<b>Worksheets = 7 + Topic Test</b>				<b>Worksheets = 8 + Topic Test</b>		
<b>08.8B PLANTS &amp; ANIMALS</b>				<b>11.8E THE EARTH</b>			
	Structure of multicellular life	02	03		Structure of the Earth	02	03
	Cellular respiration	03	07		The lithosphere	02	04
	Photosynthesis	05	10		Minerals	03	06
	Methods of Science	06	12		Mineral Wealth & Science	04	08
	Body systems of Plants	07	15		Igneous rocks	05	10
	Leaf structure	07	16		Sedimentary rocks	06	12
	Xylem, phloem & "veins"	08	17		Metamorphic rocks	07	14
	Human body systems...				Fossils	08	15
	...introductory overview	09	20		Weathering & Erosion	09	18
	Case Studies:				Soil formation	11	22
	Respiratory systems	10	21		Erosion Landscapes	12	25
	Sexual & asexual reproduction	12	26		The Rock Cycle	13	27
	Meiosis & sexual reproduction	13	28				
	Internal & external fertilisation	14	31		<b>OnScreen "Discussion/Activities" = 3</b>		
	Male & female repro. systems	15	34		<b>Worksheets = 6 + Topic Test</b>		
	Pregnancy & birth	16	36				
	<b>OnScreen "Discussion/Activities" = 6</b>			<b>12.8P ENERGY</b>			
	<b>Worksheets = 8 + Topic Test</b>				Types of energy	02	03
<b>09.8C SOLIDS, LIQUIDS &amp; GASES</b>					Energy transformations	03	05
	States of matter	02	03		Sound energy	04	07
	Changes of state	03	05		Light energy	05	09
	Moving particle model of matter	04	08		Heat energy	06	12
	Effect of heat on particles	05	10		Conduction, convection, radiation	07	14
	Heat expansion	06	13		Electrical energy	08	17
	Gas pressure	07	15		Elect. conductors & insulators	08	18
	Air pressure	08	17		Circuits, voltage & current	09	19
	Density	09	20		Conservation of energy	10	22
	Density during change of state	10	22		Efficient energy use	11	23
	Water's density anomaly	11	25		Simple machines	12	25
	Density & flotation	12	26		Forces & "Work"	12	27
	Diffusion	12	28		Work & energy	14	28
	<b>OnScreen "Discussion/Activities" = 4</b>				<b>OnScreen "Discussion/Activities" = 5</b>		
	<b>Worksheets = 8 + Topic Test</b>				<b>Worksheets = 11 + Topic Test</b>		

**48 Worksheets, 24 Discussion/Activities, 6 Topic Tests**

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## Year 9 Topics

Topic No.	Concepts	PhMaster page	OnScreen slide	Topic No.	Concepts	PhMaster page	OnScreen slide
<b>13.9B</b>	<b>HUMAN BODY</b>			<b>16.9C</b>	<b>CHEMICAL CHANGES</b>		
	Structure of multicellular life	02	03		Mixtures, elements, compounds	03	05
	Human body systems	04	07		Chemical compounds	04	07
	Skeletal system	05	08		Observing chem.reactions	05	10
	Digestive system	06	10		Chemical & physical changes	06	12
	Circulatory system	07	12		Reactions & equations	06	13
	Respiratory system	08	14		Conservation of Mass	07	14
	Excretory (urinary) system	08	15		Endothermic & exothermic	08	15
	Nervous system	09	17		Decomposition	09	17
	Endocrine system	09	18		Combustion & corrosion	10	19
	Male Reproductive system	10	21		Introduction to ions	12	24
	Female Reproductive system	11	22		Polyatomic ions	13	26
	Pregnancy & birth	11	23		Precipitation reactions	14	28
	Hormones & reproduction	12	24		Acids & bases	15	30
	Body systems work together	13	27		Acid reactions	16	32
	Diseases	14	28		Photosynthesis & Respiration	18	36
	Pathogens	15	30		<b>OnScreen "Discussion/Activities" = 4</b>		
	Barrier defences	15	31		<b>Worksheets = 10 + Topic Test</b>		
	Immune system	16	32	<b>17.9E</b>	<b>PLATE TECTONICS</b>		
	Immunity & vaccination	17	35		Structure of Earth, lithosphere	02	03
	An Australian scientist	18	37		Seismology	03	05
	Effects of radiations on health	19	39		Contin. Drift to Plate Tectonics	04	08
	<b>OnScreen "Discussion/Activities" = 6</b>				Tectonic plates	05	10
	<b>Worksheets = 13 + Topic Test</b>				Plates move apart	05	11
					Plates collide,		
					Subduction & Mtn building	06	12
<b>14.9B</b>	<b>ECOSYSTEMS</b>				Evidence for moving plates	09	18
	Ecology & Ecosystems	02	03		Changing map of the world	11	23
	Adaptations	03	05		Tectonic history of Australia	13	26
	Producers & consumers	04	08		Impacts of tectonic events	15	30
	Food chains	05	10		<b>OnScreen "Discussion/Activities" = 5</b>		
	Decomposers	06	12		<b>Worksheets = 8 + Topic Test</b>		
	Food webs	07	15	<b>18.9P</b>	<b>WAVES &amp; ENERGY</b>		
	Relationships: mutualism, etc.	08	16		Types of energy (revision)	02	03
	Changes in population size	09	18		Waves carry energy	03	05
	Human impacts on ecosystems	11	23		Science can reject theories	05	08
	Different viewpoints	13	26		Science & new technology	05	09
	Aborigine Land Management	14	28		Wave amplitude	06	12
					Wavelength & frequency	07	13
					Wave equation	08	15
					Electromagnetic waves	09	17
					Light and colour	10	19
					Absorption & reflection	11	22
					Refraction & Lenses	12	24
					Heat energy & particle model	14	29
					Conduction & convection	15	31
					Electrical energy	17	35
					Conductors & insulators	17	35
					Electrical circuits	17	36
					Voltage, current & resistance	18	37
					Ohm's Law	21	44
					Series & parallel circuits	23	47
					Electrical energy & power	24	49
					Impacts of electricity	26	52
					Society influences science	26	53
					<b>OnScreen "Discussion/Activities" = 6</b>		
					<b>Worksheets = 17 + Topic Test</b>		
<b>15.9C</b>	<b>ATOMS</b>						
	Atoms & atomic structure	02	03				
	Atoms & elements	03	05				
	Elements in the Periodic Table	04	07				
	Mass of atoms	05	09				
	History of atomic discovery	06	12				
	Testing scientific models	08	15				
	Isotopes	09	18				
	Nuclear reactions	10	19				
	Discovery of Radioactivity	11	20				
	Alpha & Beta decay	12	22				
	Radioisotope occurrence	13	24				
	Nuclear energy	14	26				
	Uses of radioactivity	15	28				
	Nuclear problems & hazards	16	30				
	<b>OnScreen "Discussion/Activities" = 4</b>						
	<b>Worksheets = 7 + Topic Test</b>						

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## Year 10 Topics

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<b>19.10B GENETICS &amp; EVOLUTION</b>				<b>22.10E GLOBAL SYSTEMS</b>			
	Genes & DNA. Replication	02	03		Mother Earth	02	03
	Cell division: mitosis	04	07		Atmosphere, lithosphere, etc.	03	04
	Science & society	05	10		Water cycle	04	06
	Genes, chromosomes & DNA	06	12		Carbon cycle	05	08
	Sexual & asexual reproduction	07	14		Global climate & plate tectonics	06	11
	Meiosis, chromosomes, sex	08	16		Greenhouse on Mars & Venus	06	12
	Mutations	10	21		More global cycles	07	13
	Intro.to Genetics, simple crosses	12	25		Evidence for the Greenhouse	08	14
	Pedigrees	13	28		Assessing global warming	10	17
	Linking genes to cell division	14	29		Feedbacks & tipping points	11	19
	Genetics v. environment	14	30		Impacts of global warming	13	21
	Scientific theories	15	31		Deep ocean currents	15	24
	Evidence for Evolution	16-21	32-41		Depletion of the ozone layer	17	26
	Darwin's Theory of Evolution	22	43		Impacts of science on society	18	29
	Variation, isolation, biodiversity	24	47		Science & economics	18	30
	Extinction	25	49				
	Observing Evolution	27	52				
<b>OnScreen "Discussion/Activities" = 6</b>				<b>OnScreen "Discussion/Activities" = 4</b>			
<b>Worksheets = 15 + Topic Test</b>				<b>Worksheets = 7 + Topic Test</b>			
<b>20.10C PATTERNS of CHEMISTRY</b>				<b>23.10P MOVING</b>			
	Atoms & elements	02	03		Speed & how to measure it	02	03
	Periodic table patterns	05	09		Average & instantaneous speed	03	05
	Decisions about new materials	08	15		Distance-time graphs	04	07
	Electron orbits & ion formation	09	17		Acceleration	05	09
	Ionic compounds	12	23		Equations of motion	06	11
	Names & formulas, Valency	14	26		Forces, balanced & unbalanced	07	12
	Multi-valence & Polyatomic ions	15	29		Newton's Laws	08	15
	Covalent bonding & compounds	17	34		Force & acceleration	08	16
	Chemical reactions & equations	19	38		Speed & Velocity	10	20
	Balancing equations	20	39		Mass, weight & gravity	11	21
	Reaction patterns (revision)	21	40		Orbits & weightlessness	12	23
	Activity series of metals	24	45		Testing theories & laws	13	25
	Rate of chemical reactions	25	47				
<b>OnScreen "Discussion/Activities" = 5</b>				<b>OnScreen "Discussion/Activities" = 3</b>			
<b>Worksheets = 18 + Topic Test</b>				<b>Worksheets = 9 + Topic Test</b>			
<b>21.10E THE UNIVERSE</b>				<b>24.10P ENERGY TRANSFERS</b>			
	Solar System & beyond	02	03		Energy transformation	02	03
	Stars	03	05		Falling down, going up	02	04
	Energy from stars	03	06		Motion of a pendulum	04	06
	Astronomical distances	04	08		Conservation of energy	05	07
	Nebulae	05	09		Energy transfers in a car crash	06	09
	How we study the Universe	06	12		Energy efficiency	07	11
	Measuring star distances, temperature & chemistry	07	14		Energy Resources	09	16
	Radio telescopes	08	16		Fossil Fuels	09	17
	Difficulties getting information	08	17		Problems with fossil fuels	11	19
	Technology transforms Science	09	19		Economic dependence	12	21
	Impacts of Space Science	09	20		Strategies for change	13	24
	Star formation, life & death	10	21		Energy from renewable sources	13	25
	Supernovas & black holes	11	24		Case studies: ethanol & CCS	16	29
	Big Bang Theory & evidence	12	26				
	An Australian astronomer	15	32				
	Future of the Universe?	15	33				
<b>OnScreen "Discussion/Activities" = 4</b>				<b>OnScreen "Discussion/Activities" = 4</b>			
<b>Worksheets = 8 + Topic Test</b>				<b>Worksheets = 7 + Topic Test</b>			