Here are all the learning outcomes for what you have covered in the course so far. It is helpful to go through this list and tick off what you are familiar with using the colour codes.

- Green light – happy with my knowledge
- Amber light – needs some work
- Red light – needs a lot of revision

Don't expect to know all of these, this is a very detailed list, H1 students should be 85% green lights for instance.

	Linear Motion	Green light	Amber light	Red Light
1.	Define and give the units for mass, length and time			
2.	Define and give the formula and units for speed, velocity and acceleration			
3.	Define and give the unit for displacement			
4.	Describe how to measure velocity and acceleration Using a ticker tape timer			
5.	Use distance –time to solve problems			
6.	Calculate the slope of the graph to measure speed/velocity			
7.	Use the equations of motion to solve for speed, distance, time and acceleration			
8.	**Derive the 3 equations of motion**			
9.	Use and velocity time graphs to solve problems. Calculate the slope to measure acceleration			
10.	Define Acceleration Due to Gravity			
11.	*Experiment:* Measure g using suitable apparatus and know how to do appropriate calculations to solve for g from			
	Vectors			
1.	Distinguish between vector and scalar quantities			
2.	Identify everyday examples of vectors			
3.	Identify the vector nature of physical quantities- represent a vector quantity on a diagram			
4.	Use the parallelogram and triangle law to find the resultant of two vectors			

	Force Mass and Momentum	Green light	Amber light	Red Light
1.	Define and give the unit of Force, Mass and Momentum			
3.	Define the unit of Force – the Newton			
4.	State Newton's Three Laws and be able to describe how to demonstrate these laws in everyday life			
5.	Discuss everyday examples of these laws such as seat belts, rocket travel, sports and ball games			
6.	Show that F = ma is a special case of Newton's Second Law			
7.	Know that Friction is a force that opposes motion			
8.	Discuss the importance of friction as an everyday force such as in walking and the use of lubricants			
9.	State the principle of conservation of momentum (not the formula!)			
10.	*Experiment:* Verify the principle of conservation of momentum			
11.	Perform calculations using the fact that momentum in conserved such as in collisions, acceleration of spacecraft and jet engines.			
12.	*Experiment:* Perform an experiment to show that a is proportional			

	Gravity	Green light	Amber light	Red Light
1.	State Newton's Law of Gravitation			
2.	Compare the gravitational forces between the Earth and the Sun and between the Earth and the Moon			
3.	Know that weight(W) = mg			
4.	Use the formula F = $\frac{G M_1 M_2}{d^2}$			
5.	**Derive the formula g =** $\frac{GM}{R^2}$			
6.	Calculate the value of g on other bodies in space for example the moon.			
7.	Explain why the moon has no atmosphere			
8.	**Discuss how satellites maintain orbit**			
9.	**Define the period of an orbit**			
10.	**Derive the relationship between the period, the mass of the central body and radius of the orbit**			
11.	**Discuss geostationary or parked orbits**			

	Pressure and Density	Green light	Amber light	Red Light
1.	Define and give the units for density and pressure in liquids and gases			
2.	Define the Pascal			
3.	Know that pressure is a scalar quantity			
4.	Calculate pressure at depth due to a liquid			
5.	Define Boyles Law, Archimedes Principle and the Law of Flotation			
6.	Demonstrate the effect of atmospheric pressure by means of the collapsing can experiment.			
9.	Recall that pressure in a liquid at a given depth is the same in all directions and increases with depth			
10.	Be able to perform calculations to show the use of Boyles Law			
11.	Perform an experiment to verify Boyle's Law			
12.	Demonstrate Archimedes Principle and the Law of Flotation			
13.	Know what a Hydrometer is and how works			
14.	Know the relationship between atmospheric pressure and the weather			

	Moments	Green light	Amber light	Red Light
1	*Experiment:* Prove the laws of equilibrium			
2.	Define the moment of a force			
3.	Demonstrate that the sum of the moments about any point is zero			
4.	Know the conditions needed for equilibrium			
5.	Perform calculations to show static and dynamic equilibrium			
6.	Define lever			
7.	Define couple			
8.	Use the formula for the moment of a couple (Torque)			

	Work Energy and Power	Green light	Amber light	Red Light
1.	Define and give the unit of work			
2.	Define the joule			
4.	Give real life examples of work such as lifts and escalators			
5.	Perform simple calculations involving force and displacement in the same direction only			
6.	Define and give the units for energy.			
7.	List, demonstrate and describe the different forms of energy			
8.	Outline sources of both renewable and non-renewable energy			
9.	Know that mass is a form of energy and that $E = mc^2$			
10.	State the principle of conservation of energy and Give 2 examples of how energy can be converted from one form into another (eg in a speaker)			
12.	Know how to be efficient with energy in homes			
13.	Define power as the rate of doing work and give the appropriate unit			
14.	Be able to complete Power and work calculations			
16.	Calculate % efficiency by using the formula $PE = \frac{Power\ output}{Power} \times 100$			

	Temperature	Green light	Amber light	Red Light
1.	Define temperature and give its unit			
2.				
3.				
4.	Know the relationship between the Celsius and the Kelvin scale			
5.	Define thermometric property			
6.				
7.	Show how you can use a thermometric property to measure temperature			
8.	Discuss the differences between thermometers and why we have a standard thermometer			
9.				
10.	Perform an experiment to plot the calibration curve or a thermometer using a laboratory mercury thermometer as standard			
11.	Know the practical use of thermometers including clinical thermometers, oven thermometers, boiler thermometers and temperature gauges in cars.			

	Heat	Green light	Amber light	Red Light
1.	List the three states of matter			
2.	Know that heat is form of energy which causes a rise in temperature			
3.	Define and give the units for heat capacity			
4.	Define and give the units for specific heat capacity			
5.	Perform simple calculations using the formula $Q = mc\Delta\theta$			
6.	Know the operation of storage heaters and why you need large heat capacity bricks within them			
8.	Define and give the units for latent heat			
9.	Define specific latent heat of fusion and vaporisation			
	Discuss the use of a heat pump			
14.	Define conduction			
15.				
16.	Be able to explain a simple experiment to compare conduction in different materials			
17.	Define U values and discuss their use in domestic situations			
18.	Define convection			
19.	Discuss convection in Domestic hot-water and heating systems			
20.	Perform experiments to show convection in liquids			
21.	Define radiation and the solar constant			
.	*Mandatory Experiments*			
1.	Calibration curve of a thermometer using the laboratory mercury thermometer as a standard			
2	Measurement of specific heat capacity of water			
3	Measurement of the specific latent heat of fusion of ice			
4	Measurement of the specific latent heat of vaporisation of water			

	Waves and Wave Motion	Green light	Amber light	Red Light
1.	Distinguish between mechanical and electromagnetic waves			
2.	Define longitudinal and transverse waves			
3.	Give examples of longitudinal and transverse waves including radio waves, seismic waves and waves at sea			
4.	Define and give the units for the frequency, amplitude, wavelength and velocity of a wave			
5.	Perform calculations using the formula $c = f\lambda$			
6.	Define Reflection, Refraction, Diffraction, Interference and Polarisation.			
7.	Describe simple demonstrations using slinky, ripple tank, microwaves, *or* other suitable methods to show wave phenomenon			
8.	Distinguish between constructive and destructive interference			
9.	Define coherent sources			
10.	Define stationary waves and describe how they occur			
11.	Give the frequency and wavelength of a stationary wave			
12.	Stationary waves; give the relationship between inter-node distance and wavelength			
14.	Know what Doppler effect is and give applications of it			
15.	Perform calculations using the formula $f' = {}^{fc}/(c \pm u)$			
16.	Use the Doppler effect to explain the Red shift of stars, ultrasound, weather forecasting and Speed traps			

	Sound	Green light	Amber light	Red Light
1.	Define reflection, refraction, diffraction and interference			
2.	Recall that sound is a longitudinal wave			
3.	Perform simple demonstrations of interference for example using a signal generator and two loudspeakers			
4.	Calculate the speed of sound in various media			
5.	Demonstrate that the speed of sound requires a Medium (bell in a jar)			
6.	Discuss acoustics and the reduction of noise using destructive interference			
7.	Know what noise pollution is			
8.	Define amplitude, loudness, frequency, pitch, quality and overtones.			
9.	Discuss the frequency limits of audibility and its use in devices such as a dog whistle			
10.	Define resonance. Demonstrate resonance using tuning forks or any other suitable method			
11.	Give everyday examples of resonance such as person on a swing and Barton's Pendulum			
12.	Describe how your vocal chords resonate in your larynx.			
13.	Define natural frequency and fundamental frequency			
14.	Discuss vibrations as the cause of sound in musical instruments			
15.	**Define and give the formula for the fundamental frequency of a string**			
16.	**Give the relationship between frequency and length on a stretched string**			
17.	**Describe and draw the node and antinode on a stretched string**			
18.	**Define harmonics**			
19.	**Perform an experiment to measure the variation of the fundamental frequency of a stretched string with length**			
20.	**Describe the use of a sonometer to verify f ∝ 1/l where T and μ are fixed**			
21.	**Perform calculations using the formula** $f = \frac{1}{2l}\sqrt{T/\mu}$			

22.	**Describe harmonics in closed pipes**			
23.	**Draw diagrams to shown harmonics in closed pipes**			
24.	**Describe and draw a diagram of a stationary wave in a pipe closed at both ends**			
25.	**Define and give units for sound intensity**			
26.	**Define the threshold of hearing**			
27.	**Know the upper and lower limits of the thresholds of audibility**			
28.	**Know that doubling the sound intensity increases the sound intensity level by 3dB**			
29.	**Describe how sound intensity level is measured and the use of a sound level meter**			
30.	**Discuss noise pollution and the need for ear protection**			
31.	**Discuss why the dB(A) scale is used**			
32.	**Define resonance. Demonstrate resonance using tuning forks or any other suitable method**			
33.	**Give everyday examples of resonance such as person on a swing and Barton's Pendulum**			
34.	**Describe how your vocal chords resonate in your larynx**			
35.	**Define natural frequency and fundamental frequency**			
36.	**Know that vibrations are the cause of sound in musical instruments**			
37.	**Define and give the formula for the fundamental frequency of a string**			
38.	**Give the relationship between frequency and length on a stretched string**			
39.	**Describe and draw the node and antinode on a stretched string**			

	Optics	Green light	Amber light	Red Light
	Laws of Reflection			
1.	Recall that light is a form of energy			
2.	Differentiate between luminous and non-luminous objects			
3.	Define reflection			
4.	State the Laws of reflection			
5.	Be able to represent the angle of incidence, the angle of reflection and the normal ray on a diagram			
6.	Perform an experiment to demonstrate the Laws of Reflection			
	Mirrors			
7.	Describe how an image is formed by plane and spherical mirrors			
8.	Recall that real is positive sign convention			
9.	Describe how a virtual image is formed			
10.	Perform simple exercises on mirrors by ray tracing or use the formulas $\frac{1}{u}+\frac{1}{v}=\frac{1}{f}$ Magnification = $\frac{height\ of\ image}{height\ of\ object}$ or $\frac{v}{u}$			
11.	Give practical uses of both concave and convex spherical mirrors			
12.	Describe how to locate an image in a plane mirror by method of no parallax			
13.	Draw diagrams of images formed in concave and convex mirrors			
14.	Perform an experiment to measure the focal length of a concave mirror			
	Laws of Refraction			
15.	Define Refraction			
16.	State the Laws of Refraction			
17.	Demonstrate refraction using a ray box or laser			
18.	Be able to represent the angle of incidence, the refracted ray and the normal ray on a diagram			
19.	Describe what happens when a light ray travels form one medium through another			
20.	Define the Refractive Index			
21.	Perform calculations to determine the refractive index of various substances			

22.	Perform an experiment to verify Snell's Law and hence measure the refractive index of Glass			
23.	Give practical examples of refraction eg: real and apparent depth of fish in water			
24.	**Define and calculate refractive index in terms of relative speed**			
	Total Internal Reflection			
25.	Demonstrate Total Internal Reflection			
26.	Define critical angle			
27.	State the relationship between the critical angle and the refractive index			
28.	Discuss the transmission of light through optical fibres			
29.	Discuss the use of total internal reflection in road signs, mirages, prism reflector			
30.	Discuss the use of optical fibres in medicine in telecommunications and medicine			
	Lenses			
31.	Show how images are formed by single thin lenses both convex and concave			
32.	Show using diagrams how the image changes as the position of the object changes			
33.	Perform simple exercises on lenses by ray tracing or use the formulas $\frac{1}{u}+\frac{1}{v}=\frac{1}{f}$ Magnification = $\frac{height\ of\ image}{height\ of\ object}$ or $\frac{v}{u}$			
34.	Recall that the power of a lens is $P = 1/f$			
35.	Perform calculations where two lenses are in contact using the formula $P_{Total} = P_1 + P_2$			
36	Perform calculations where two lenses are in contact using the formula $\frac{1}{F\ Total}=\frac{1}{F1}+\frac{1}{F2}$			
37.	Discuss the eye as an optical structure and the defects of long and short sightedness			
38.	Discuss how light is controlled when entering the eye and how images are formed on the retina			
39.	Define the power of accommodation			
40.	Discuss the use of spectacles to correct long and sort sightedness			
41.	Perform an experiment to measure the focal length of a convex lens			

	Wave Nature of Light	Green	Amber light	Red Light
	Diffraction and Interference			
1.	Define diffraction and interference			
2.	Use a suitable method of demonstrating the wave nature of light			
3.	Perform calculations using the formula **$n\lambda = d \sin \theta$**			
4.	Discuss how colours can be produced by interference such as on petrol film and soap bubbles			
5.	**Derive the formula $n\lambda = d \sin \theta$**			
6.	Describe a diffraction grating			
7.	Define the grating constant			
8.	Perform an experiment to measure the wavelength of light			
	Light as A Transverse Wave Motion			
9.	Define polarisation			
10.	Demonstrate polarisation			
11.	Discuss stress polarisation and the use of polaroid sunglasses			
	Dispersion			
12.	Define dispersion			
13.	Demonstrate dispersion by the use of a diffraction grating and a prism			
14.	Demonstrate and describe how light from a prism may be recombined using a second prism to form white light			
	Colours			
15.	State the primary, secondary and complimentary colours			
16.	Describe how colours can be combined and mixed together			
17.	Discuss how these effects are used in television and stage lighting			
	The Electromagnetic Spectrum			
18.	Describe the electromagnetic spectrum			
19.	State the relative positions of radiations in terms of wavelength and frequency			
20.	Describe and demonstrate how UV and IR may be detected			
21.	Discuss the effect of electromagnetic radiation and the greenhouse effect, IR and its use in night visors			
	The Spectrometer			
22.	Describe and demonstrate the use of the spectrometer			
23.	Give the function of each of its parts			

	Electrostatics	Green light	Amber light	Red Light
	Electrification by contact			
1.	Define static electricity			
2.	Demonstrate charging by rubbing together dissimilar materials			
3.	Demonstrate the forces between charges			
4.	State and the unit of electric charge the coulomb			
5.	Define conductor and insulator			
6.	Discuss the domestic applications of static charge for example, dust on television and static on clothes			
7.	Discuss the industrial hazards associated with static electricity such as in flour mills and fuelling aircraft			
	Electrification by Contact			
8.	Demonstrate using an insulated conductor and a nearby charged object			
9.	Describe how charges can be separated by induction			
	Distribution of charge on Conductors			
10.	Recall that total charge resides on the outside of a metal object			
11.	Recall that charges tend to accumulate at points			
12.	Describe point discharge			
13.	Demonstrate charges on metal objects and point discharges using a van der Graff generator			
14.	Discuss the flow of charge in lightning and in lightning conductors			
15.	Describe the use and action Electroscope			
16.	Discuss and describe the use of a gold leaf electroscope to detect and determine if a charge is positive or negative			
	Forces Between Charges			
1.	Define Coulomb's Law			
2.	Know that this is an example of an inverse square law			
3.	**Use Coulomb's law to calculate the size of the force between co-linear charges**			
	Electric Fields			
4.	Define electric field			
5.	Discuss the ideas of lines of force			
6.	Describe the vector nature of an electric field			
7.	Demonstrate electric field patterns using oil and semolina			

8.	Define line of force			
9.	Describe the applications of electric field including precipitators, xerography and the effect of an electric field on integrated circuits			
10.	**Define and give the unit of electric field strength**			
11.	**12. Perform calculations using the formula** $F = \frac{1}{4\pi\varepsilon}\frac{Q_1Q_2}{d^2}$; $\varepsilon = \varepsilon_r + \varepsilon_o$; $E = F/Q$			
	Potential Difference			
13.	Define potential difference			
14.	Define the unit of potential difference the Volt			
15.	Discuss the concept of zero potential			
16.	Calculate voltage in series in a circuit			
17.	Calculate voltage in parallel in a circuit			
18.	Define EMF			
19.	List some sources of EMF			
20.	Perform calculations using the formula $V = \frac{W}{Q}$ and $P = IV$			
	Capacitance			
21.	Define and give the unit of capacitance			
22.	Define the unit of capacitance the Farad			
23.	Perform calculations using the formula $c = \frac{Q}{V}$			
24.	Describe the operation of a parallel plate capacitor			
25.	Calculate the capacitance of a parallel plate capacitor			
26.	Describe how to charge a capacitor			
27.	**Perform an experiment to show that capacitance depends on the common area , the distance between the plates and the nature of the dielectric**			
28.	**Perform calculations using the formula** $c = \frac{A\epsilon o}{d}$			
29.	Describe the common use of capacitors including ○ Tuning radios ○ Flash guns ○ Smoothing circuits Filtering			
30.	Know that the energy stored in a capacitor $W=\frac{1}{2}CV^2$			

	Current Electricity	Green light	Amber light	Red Light
	Electric Current			
1.	Define and give the unit of electric current			
2.	Define the Ampere			
3.	Recall that **I = $\frac{Q}{t}$ or Q = It**			
4.	Define conductor and insulator			
	Sources of EMF and Electric Current			
5.	Recall that PD and voltage are the same			
6.	Recall that a voltage applied to a circuit is called EMF			
7.	List some sources of EMF			
	Conduction in Materials			
8.	Discuss with reference to charge carriers conduction in a. Metals b. Ionic solutions (active and inactive electrodes) c. Gases d. Vacuum e. Semiconductors			
9.	Perform an experiment to verify Joule's Law			
11.	Investigate the variation of I with V for a. Metallic conductor			
	b. Filament bulb c. Copper sulphate solution with copper electrodes d. Semi-conductor diode			
12.	Perform an experiment to investigate the variation of the resistance of a metallic conductor with temperature			
13.	Perform an experiment to investigate the variation of the resistance of a thermistor with temperature			

	Resistance	Green light	Amber light	Red Light
21.	Define and give the unit of resistance			
22.	State Ohm's Law			
23.	Perform calculations using the formula V = IR			
24.	Demonstrate that resistance varies with length, cross sectional area and temperature			
25.	Perform an experiment to measure the resistivity of a wire			
26.	Describe how to use an Ohmmeter			
27.	**Describe how to use a metre bridge**			
28.	Define resistivity			
29.	Perform calculations using the formula $\rho = \frac{RA}{l}$			
30.	Describe resistors in series and in parallel			
31.	Derive the formula $\mathbf{R_{Total} = R_1 + R_2}$			
32.	Derive the formula $\frac{1}{RTotal} = \frac{1}{R1} + \frac{1}{R2} + \frac{1}{R3}$			
33.	**Describe a wheatstone bridge**			
34.	**Give practical uses of a wheatstone bridge for temperature control and fail safe devices**			
35.	**Perform calculations to find the value of an unknown resistance using a wheatstone bridge**			
36.	**Describe how resistance varies in an LDR**			
37.	**Describe how resistance varies in a thermistor**			
38.	Demonstrate the use of an LDR in a circuit			
39.	Demonstrate the use of a thermistor in a circuit			
	Potential			
40.	Describe and demonstrate the use of a potential divider circuit			
41.	Describe the use of a potentiometer as a variable potential divider			
	Effects on an Electric Circuit			
42.	Describe the heating, chemical and electrical effects of an electric current			
43.	Define an ion and describe the electrolysis of water			
44.	Perform calculations using the formula $W = I^2RT$ and $P = I^2R$			
45.	Demonstrate the magnetic effect of an electric current			

46.	Give everyday examples of the chemical, electrical and magnetic effects of an electric current such as the advantage of EHT transmission electrical energy			
	Domestic Circuits			
47.	Describe the action of a fuse, plug MCB			
48.	Describe using a diagram how to wire a plug			
49.	Perform simple fuse calculations			
50.	Discuss electrical safety in the home including the use of the fuse box and a meter box			
51.	Describe the arrangement of ring and radial circuits, bonding, earthing and general safety precautions			
52.	Describe RCDs			
53.	Define the KW Hour			
54.	Give the use of the KW hour			
55.	Perform calculations using the KW hour			

	Modern Physics			
	The Electron			
1.	Give the history of the electron			
2.	Define the electron			
3.	State the mass and the charge of an electron			
4.	State the location of an electron			
5.	Define the units of energy the eV, the KeV, the MeV and the GeV			
	Thermionic Emission			
6.	State the principle of thermionic emission			
7.	Describe the cathode ray tube and how it functions			
8.	Describe the deflection of a beam of electrons in an electric field			
9.	Discuss the applications of the cathode ray tube and its use in a CRO, television, ECG and EEG			
	Photoelectric Emission			
10.	State the photoelectric effect			
11.	Demonstrate the photoelectric effect			
12.	Perform calculations using the formula using the equation E = hf			
13.	Describe a photocell – its structure and operation			
14.	Demonstrate the action of a photocell			
15.	**Define the threshold of frequency**			
16.	**State Einstein's photoelectric law**			
17.	Describe the applications of photoelectric sensing devices in **a.** Burglar alarms **b.** Automatic doors **c.** Control of burners in central heating **d.** Sound track in films			
18.	Perform calculations using the following formula W = QV eV = ½ MV2 E = hf F = qvB hf = Φ + ½ MV2 max			
	X-Rays			
19.	Define an X Ray			
20.	Describe the hot cathode ray tube			
21.	Describe X ray production as the inverse of the photoelectric effect			
22.	Discuss the penetrating power ,properties and uses of X Rays			

	Particle Physics Option			
	Conservation of Energy and Momentum in Nuclear Reactions			
1.	Discuss the conservation of energy and momentum in nuclear reaction			
2.	Know that Radioactive decay results in two particles			
3.	Know that if momentum is not conserved, a third particle (neutrino) must be present			
4.	Perform calculations to convey sizes and magnitudes and relations between units			
	Acceleration of Protons			
5.	Describe the Cockcroft and Walton experiment			
7.	Discuss the historical nature of this experiment			
	Converting Mass into other forms of Energy			
8.	Describe the concept of "Splitting the nucleus"			
9.	Know the energy gain in the equation $^{1}_{1}H + {}^{7}_{3}Li \rightarrow {}^{4}_{2}He + {}^{4}_{2}He$ + Q 1MeV 17.3 MeV			
10.	Know that this is Consistent with $E = mc^2$			
	Converting other forms of Energy into Mass			
11.	Discuss particle accelerators with particular reference to CERN			
12.	Discuss with reference to circular accelerators and progressively increasing energy available in : a. proton-proton collisions b. p + p + energy —» p + p + additional particles			
13.	Discuss the historical search for the basic building blocks of nature			
	Fundamental Forces of Nature			
14.	Describe gravitational force as an example of an inverse square law			
15.	Describe the Strong nuclear force			
16.	Describe the Weak nuclear force			
17.	Describe the Electromagnetic force			
	Families of Particles			
18.	Discuss families of particles (baryons, leptons…..etc)			

19.	Classify particles into Leptons and Hadrons			
20.	Discuss Leptons: indivisible point objects, not subject to strong force, e.g. electron, positron, and neutrino			
21.	Discuss Baryons: subject to all forces, e.g. protons, neutrons, and heavier particles			
22.	Discuss Mesons: subject to all forces			
23.	Describe the mass between electron and proton			
	Anti-Matter			
24.	Discuss how Paul Dirac predicted anti matter mathematically			
25.	Describe e^+ positron and e^- electron			
26.	Describe how each particle has its own anti-particle			
27.	Discuss Pair production: two particles produced from energy			
28.	Discuss the production of *y* rays —> $e^+ + e^-$			
29.	Describe annihilation: Two y rays from annihilation of particles. $e^+ + e^-$ —> *2hf (y* rays) conserve charge, momentum			
	Quark Model			
30.	Describe the Quark: fundamental building block of baryons and mesons			
31.	Identify the nature and charge of a particle given a combination of quarks			
32.	Detail the Six quarks - called up, down, strange, charmed, top, and bottom			
33.	Outline the Charges on quarks: $u^{+2/3}$, $d^{1/3}$, $s^{1/3}$ Anti-quark has opposite charge to quark and same mass			
34.	Know that Baryons composed of three quarks: p = uud, n = udd, other baryons any three quarks			
35.	Know that Mesons composed of any quark and an anti-quark			