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| **Topic heading** | **Syllabus Ref** | **Idea cluster** | **Question 1** | **Question 2** | **Question 3** | **Question 4** |
| KS4 PA  | Com - 6.3.1Phy 4.3.1 | Changes of state and particle model | What is the equation for density?A density = mass x volumeB density = volume/massC density = mass/volumeD density = volume x mass | Solids and liquids are described as incompressible because …..A the particles are too hardB they particles are too bigC the particles cannot be squashedD they are moving to much | what does sublimate mean?A process of turning from a solid to a gasB process of turning from a liquid to a gasC process of turning from a gas to a liquidD process of turning from a gas to a solid | what is the correct order of processes from solid to liquid to gas and back again?A freezing - melting - evaporating - condensingB freezing - evaporating - condensing - meltingC condensing - evaporating - melting - freezingD melting - evaporating - condensing - freezing |
|  |  |  | C | C | A | D |
| KS4 PA | Com - 6.3.2Phy | Internal energy and energy transfers | Internal energy is defined as …A the temperature stored inside a system by the particles B the energy stored in the system by the particles that make up a systemC the energy released when matter cools downD the energy created in a system | The formula for specific heat capacity is …A = mass / change in energy x temperature changeB = temperature change / change in energy x massC = change in thermal energy/mass x temperature changeD = mass x temperature change x change in energy | What is specific latent heat?A the energy needed to change the state of 1Kg of the substance with no change in temperatureB the amount of energy required to change the temperature of 1Kg of a substance by 1degree C the amount of energy required to change the state of 1Kg of a substance with only 1 degree increase in temperatureD the amount of energy required to change the state of 1Kg of a substance with a 1 degree decrease in temperature | At what point on the graph is the substance changing from solid to a liquidABCD |
|  |  |  | B | C | A | B |
| KS4 PA  | Com 6.3.3Phy 4.3.3 | Particle model and pressure | How do gases exert pressure?A The walls of the container absorb the particlesB Because Helium is less dense than airC the gas particles collide with the walls of the container, exerting a forceD because the particles get bigger | Why does increasing the temperature affect the pressure of a gas in a fixed volume?A because the particles get biggerB because the number of particles increaseC because the particles get smallerD because the particles move faster | PHYSICS ONLYUsing pV = constantIf a gas has a pressure of 2Pa and the constant is 20. What is the volume?A 10m3B 5m3C 40m3D 0.1m3  | PHYSICS ONLYWhy does the temperature of the tyre heat up when you are pumping it up?A because a force is being appliedB because particles are moving randomlyC because work is being doneD the sun is heating it up  |
|  |  |  | C | A | A | C |
| KS4 AS | Com 6.4.1Phy 4.4.1 | Atoms and Isotopes | What is the basic structure of an atom?A a nucleus containing protons, neutrons and electronsB a nucleus of electrons and neutrons with photons orbiting in shellsC a nucleus of protons and electrons with neutrons orbiting in shellsD a nucleus containing protons and neutrons with electrons orbiting in shells | Sodium has a mass number of 23 and an atomic number of 11. How many neutrons does it have?A 12B 23C 34D 11 | What is the definition of an isotope?A a charged atomB an atom with more electrons than protonsC an atom with a different number of neutrons in the nucleusD an atom with a different number of protons in the nucleus | Why do scientists share their findings?A to become famousB to check the accuracy of results C to prove each other wrongD to earn lots of money |
|  |  |  | D | A | C | B |
|  | Com 6.4.2Phy 4.4.2 | Atoms and Nuclear Radiation | Which is the most penetrating type of radioactivity?A alphaB betaC GammaD Neutron | What is the relative mass of Polonium when Radon 219 experiences alpha decay?A 219B 215C 223D 221 | Half life is defined as …A the time taken for the number of atoms to reduce by halfB how long it takes for half the atoms to undergo alpha decayC the time taken for half of the protons to be lost from the nucleus through beta decayD the time taken for the number of nuclei of the isotope in a sample to halve | Why does a radioagrapher stand behind a screen when taking x-raysA so they aren’t exposed to any radiationB to reduce their exposure to radiationC to give the patient some privacyD to not be in the X-ray |
|  |  |  | C | B | D | B |
| GCSE P Wa (1-2) | Com 6.6.1Phy 4.6.1 | Waves in air, fluids and solids | Sounds waves are …A transverseB transectC longitudinalD loud | Time period = 1/frequencyThe time is 2s. What is the frequencyA 0.5HzB 0.05HzC 5HzD 2Hz | Which is the wave equation?A wave speed = wavelength x frequencyB wavelength = wave speed x frequencyC wavelength = frequency/wave speedD frequency = wavelength/wave speed | What is the amplitude of this wave?ABCD |
|  |  |  | C | A | A | B |
| GCSE P Wa (3-6) | Com 6.6.2Phy 4.6.2 | Electromagnetic waves | What is the correct order of the EM Spectrum from High frequency to low frequency?A Ultra violet, X-rays, Infra-red, Micro B Gamma, X-rays, Radio, MicroC Visible, Infra-red, Micro, RadioD Micro, Infra-Red, Visible, Ultra-violet | What causes refraction?A Waves speed up as they enter more dense materialsB Waves slow down as they enter more dense materialsC the waves reflectoff the surface of a more dense materialD the waves pass straight through with no effect | X-rays, Ultraviolet waves AND Gamma rays are hazardous to the human body because …A you get sunburnB even a low dose effects tissuesC it depends on the type and size of the doseD because your bones absorb it | What are microwaves used for?A terrestrial TV and radioB fibre optic communicationC heating your homeD satellite communications |
|  |  |  | C | B | C | D |
|  | Phy 4.6.1.3Phy 4.6.1.4Phy 4.6.1.5 | Reflection, detection and Exploration | PHYSICS ONLY | PHYSICS ONLY | PHYSICS ONLY | PHYSICS ONLY |
|  | Phy 4.6.2.5Phy 4.6.2.6 | Lenses and visible light | PHYSICS ONLY | PHYSICS ONLY | PHYSICS ONLY | PHYSICS ONLY |
|  | Phy 4.6.3 | Black body radiation | PHYSICS ONLY | PHYSICS ONLY | PHYSICS ONLY | PHYSICS ONLY |