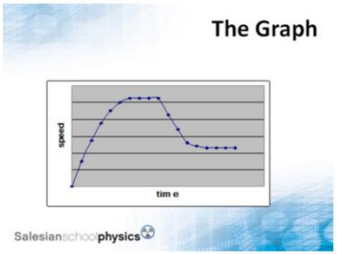
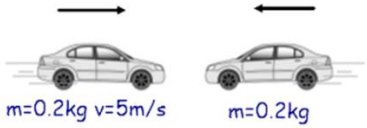
Year 11 SoW and homework plan Autumn 2

Lesson	Outcomes	Activities/homework
P10 Weight and Terminal Velocity	State the difference between mass and weight Define terminal velocity Explain what happens to the resultant forces in terminal velocity	In groups of two.... One of you has to mime the meaning of mass to the other person...The other has to mime the meaning of weight... You both have to write down a definition of them... Demo of and pictures of a mass falling through a liquid filled tube. What is going on here... can you explain it? Draw the diagram showing the forces on the object and what is happening as it travels through the fluid... http://www.passmyexams.co.uk/GCSE/physics/air-resistance-terminal-velocity.html Pictures of a sky diver at various stages Using the diagrams put in the forces and explain what is happening to velocity, drag, air resistance and terminal velocity where appropriate...  Explain what is happening to a parachutist in this graph
P10 Forces and braking	State the opposing forces to a car in motion Identify the factors that affect braking and stopping distance Calculate braking force	In groups of four: Everyone must take notes in their books.... Everyone must take part in the presentation... Include: The forces experienced by the car: what effect this can have on the velocity. What the braking force of a car depends on and how that relates to F=ma What makes up the stopping distance of a car. What factors affect stopping distances.

		How do crumple zones in a car improve car safety? There are reaction rulers to demonstrate your ideas if needed You need to present for around 3 mins
P10 Momentum (H)	Calculate momentum State the unit of momentum State the Law of Conservation of momentum	Why is it a good idea to avoid a large object moving quickly? Cartoon of rugby players. Using these clues and working in pairs can you come up with a definition of what momentum is? You need to know: How we calculate it You can ask me 10 yes or no questions to find out this information. What it is measured in. Use this formula to work out the units... What other way of writing this may we come across in a GCSE paper? Whiteboards. A car has a mass of 1500kg and is travelling at 25m/s. What is its momentum? Code buster – conservation of momentum A 2.5kg trolley moving at 1.2m/s is pushed into a stationary 1.5kg trolley and they stick together after the impact. a: Calculate the momentum of the 2.5kg trolley before the collision b: calculate the velocity of the two trolleys straight after the impact Momentum is a vector so direction is important.... How did we work out resultant force when forces were in opposite directions?  a. What is the value of the momentum of the car on the left? Show your calculations. The momentum of the car on the right is 1.5 times larger than the momentum of the other car. What is the total momentum at the moment of collision?
P10 Forces and elasticity	Define what is meant when an object is elastic	Broken pieces – definition of elastic

	Define the limit of proportionality Carry out Hooke's Law	Graph showing spring deformation – they come up with definition of limit of proportionality Required Practical – Hooke's Law