

Date:	Subject: Science	Topic: BSKC		PoS Ref. AT4	Teacher:	
Sequence of	Focus of the session:					
session in						
scheme of work:	To enable students to understand what factors affect the acceleration of a vehicle and then apply that understanding					
Expectations (Learning Outcomes):				Equipment/resources needed:		
Group Expe	ctations		AT/Minimum	Nuffield mechanics trot	lleys or equivalent	
Level				Mechanics tracks		
				Bench/ track mounted pulleys		
All Can design and carry out experiments to find factors that affect the acceleration of a vehicle Can interpret experimental data to identify key factors that limit acceleration Understand that Mass is a limiting factor in acceleration				String		
			5	Stopwatch	Stopwatch	
			5	100-1000kg masses in 100g units	100g units	
			5	Access to spreadsheet		
			5			
			5			
Understand that H	ne bigger the force, the hig	her the acceleration				
Can suggest how co	ars could be made to incre	ase acceleration				
			6			
Most			6			
, ,	friction can limit accelera		6			
Can suggest design	requirements for the go ka	ert that maximise				
Skills to be develo	ped: Investigation, measuring, taking data		Assessment: Understanding of the limiting factors, ability to			
			apply to the go kart write up	- – Through the plenary q/o	a and experimental	
Differentiation: By objective; differentiated data collection sheets; spreadsheet with acceleration calculator			Cross Curriculum Development (Literacy, Numeracy, Citizenship) Numeracy, data calculations, teamwork			

Lesson	Teaching and learning activity	Learning Outcomes	Individual/SEN
Starter	Which is quicker - starter sheet with pictures of animals, cars and	Understanding of the	Starter support sheet
	F1 car - students to list them in order of which is quickest	difference between top speed	explaining top
		and acceleration. Thinking	speed and ability to
	Collation of ideas on board - did you use top speed or acceleration -	starter to develop experiment to	accelerate
	what's the difference?	investigate acceleration	
Core			
	Introduce theme and objectives— "What influences acceleration" —		
	Q/A responses on board	Understanding of calculation	
	How can we find out?	of acceleration with regard to	Laptop with
	Introduce equipment - safety considerations. Explain the use of	the experiment	spreadsheet pre
	spreadsheet to calculate acceleration - give the formula on the		programmed
	board, explain how to programme the formula and what needs to	Controlled, effective	
	measured.	investigation	
			Experiment design
	Working in teams of 3 - 10 minutes to design your experiment.		support sheet
	What are you going to do and how does that help you answer the		
	question?		
	Experiment design check		
		Application of understanding	
	Students to carry out experiments and collect data	to new situations	
	Extension for early completers –		
	What would you advise McLaren to do in order to increase the		
	acceleration of their F1 car?		
	What would you advise the British Cycle sprint team to do to		
	improve their acceleration off the line?		
	, , , , , , , , , , , , , , , , , , ,	Understanding and	
	Clear away equipment	application of F=ma	
	Com www.g cypropriory	approximate of 1-mm	