Physics > Big idea PFM: Forces and motion > Topic PFM4: Measuring and calculating motion

Key concept (age 14-16)

PFM4.2: Acceleration

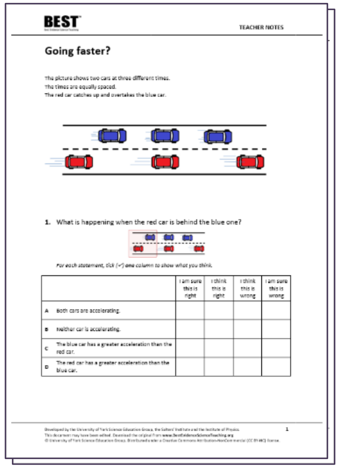
Progression toolkit: Acceleration

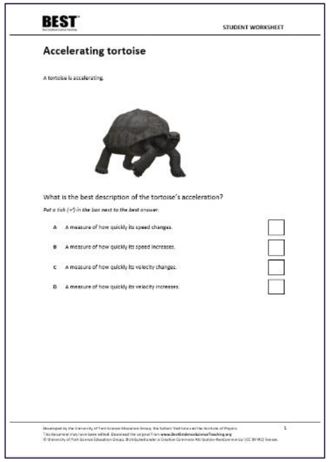
Learning focus	Acceleration, like displacement and velocity, is a vector quantity. Acceleration measures by how much velocity changes in a given time interval.				
As students' conceptual understanding progresses they can:	CONCEPTUAL PROGRESSION → Recall that acceleration in one dimension describes the motion of an object that is speeding up or slowing down. **P**	Describe acceleration and differentiate between displacement, velocity and acceleration.	Calculate and describe acceleration in one dimension from the equation $\mathbf{a} = \Delta v / \Delta t$	Recognise that in one dimension, velocity and acceleration may be in different directions.	Rearrange the equation a=(v-u)/Δt to calculate a velocity or a time.
Diagnostic questions	Going faster	Accelerating tortoise Accelerating cars	Thinking about acceleration	Down, up, down Going in the right direction	New arrangements
Response activities	Faster, slower	To the top of the hill and down again	Calculating acceleration	Which way now?	Calculating with steady acceleration

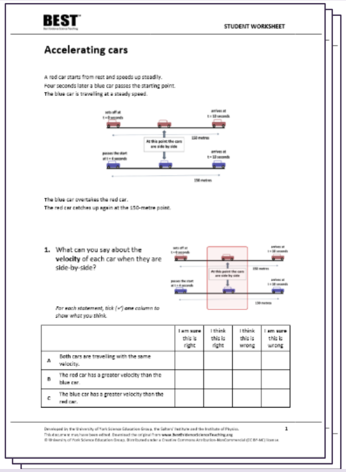
Key:

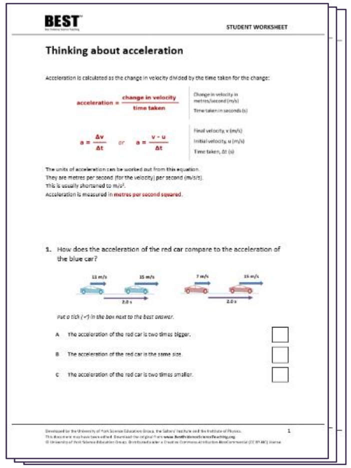
P Prior understanding from earlier stages of learning

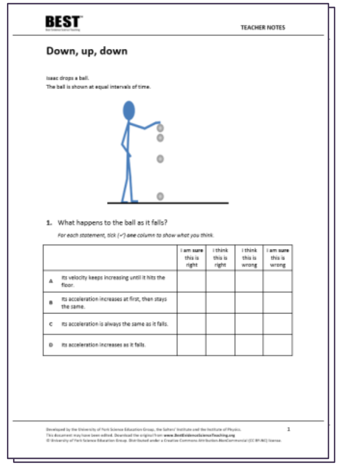
B Bridge to later stages of learning

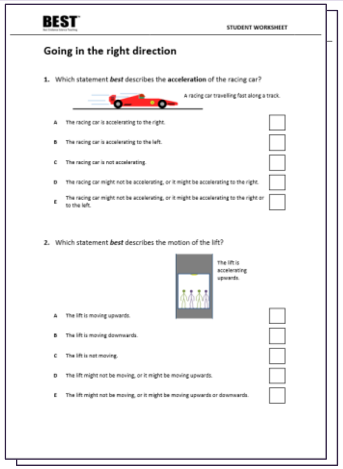
Going faster

Confidence grid

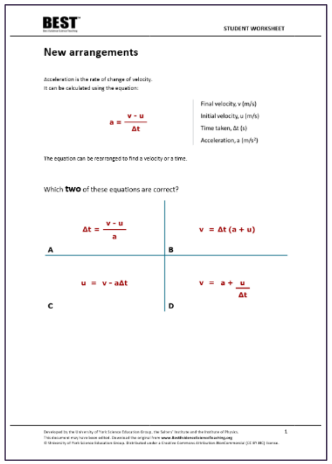
Accelerating tortoise

Simple multiple choice

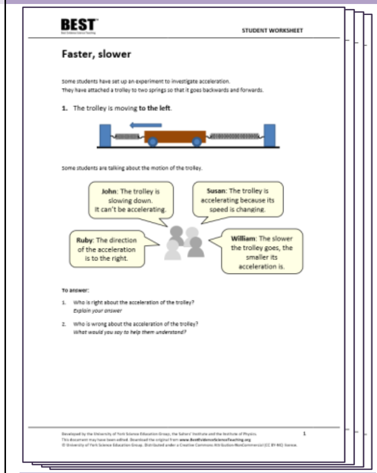
Accelerating cars

Confidence grid

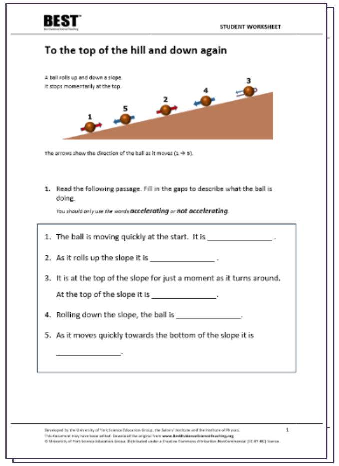
Thinking about acceleration

Simple multiple choice

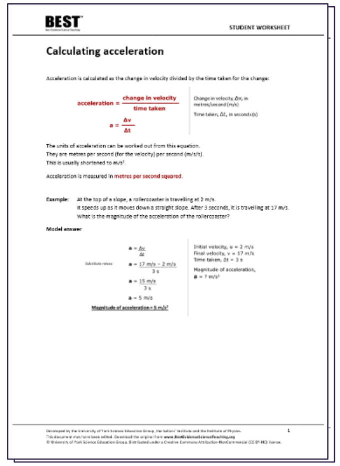
Down, up, down

Confidence grid

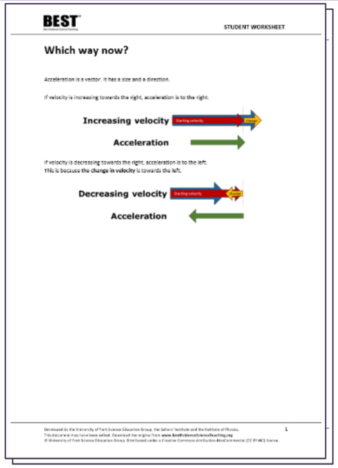
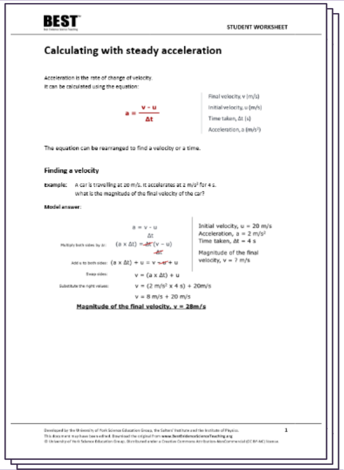
Going in the right direction

Simple multiple choice

New arrangements

Simple multiple choice

Faster, slower

Talking heads

To the top of the hill and down again

Focused CLOZE

Calculating acceleration

Application and practice - calculations

Which way now?	Calculating with steady acceleration
	
Application and practice	Application and practice - calculations