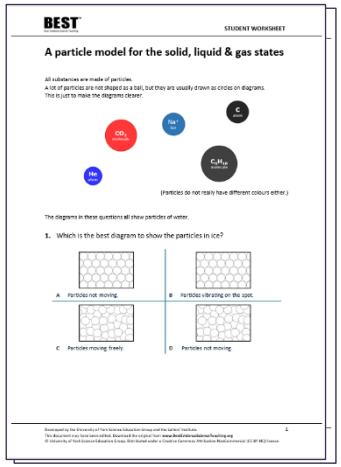
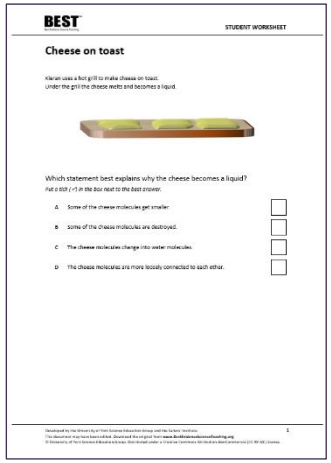
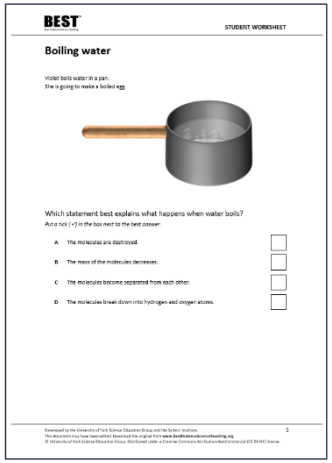
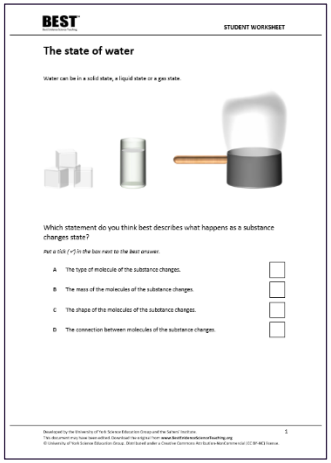
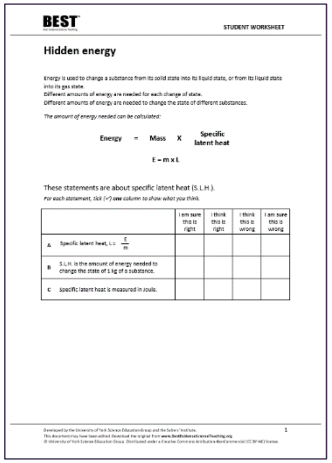
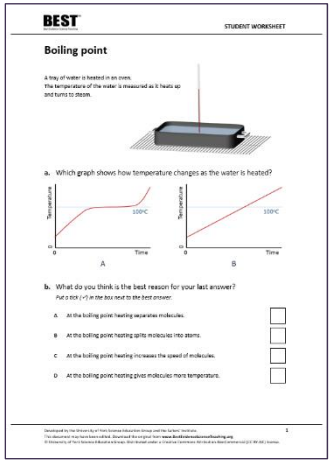
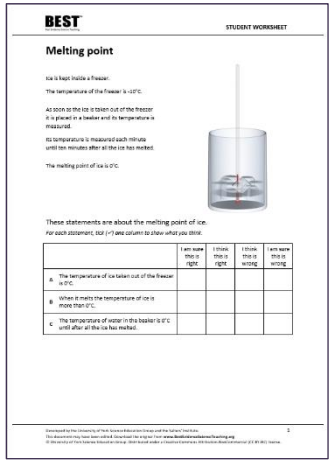
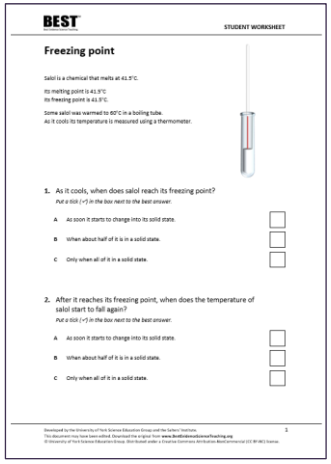
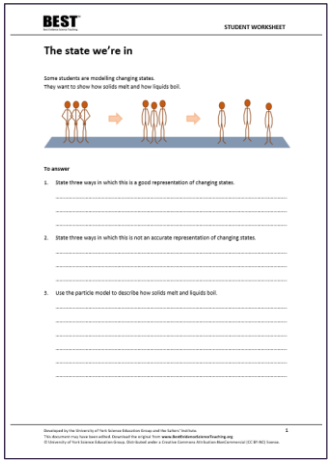
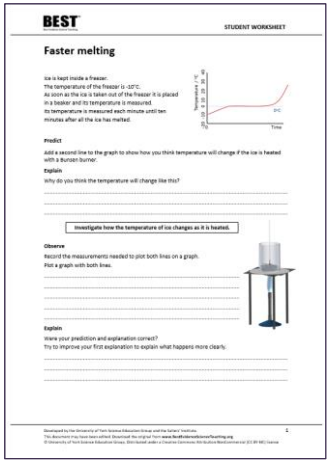
Physics > Big idea PMA: Matter > Topic PMA3: Energy of moving particles

Key concept (age 11-14)
PMA3.3: Specific latent heat

Learning focus	Specific latent heat (of a particular change of state) is the amount of energy needed to change the state of 1 kg of a substance without changing its temperature.				
As students' conceptual understanding progresses they can:	CONCEPTUAL PROGRESSION				
	Describe the arrangement and movement of particles in a substance in the solid, liquid and gas states. **P**	Use the particle model to describe what happens to a substance when it changes state. **P**	Make and understand calculations using the equation E = m x L	Interpret a heating curve and explain physical changes to a substance that is heated from the solid state to the liquid state, or from the liquid state to the gas state.	Interpret a cooling curve and explain physical changes to a substance that is cooled from the gas state to the liquid state, or from the liquid state to the solid state.
Diagnostic questions	A particle model for the solid, liquid and gas states	Cheese on toast Boiling water The state of water	Hidden energy	Boiling point Melting point	Freezing point
Response activities		The state we're in		Faster melting	

Key:

P Prior understanding from earlier stages of learning

A particle model for the S, L & G states	Cheese on toast	Boiling water	The state of water	Hidden energy
				
Simple multiple choice	Simple multiple choice	Simple multiple choice	Simple multiple choice	Confidence grid
Boiling point	**Melting point**	**Freezing point**	**The state we're in**	**Faster melting**
				
Two-tier multiple choice	Confidence grid	Simple multiple choice	Critiquing a representation	Predict, explain; observe, explain PEOE