Physics > Big idea PMA: Matter > Topic PMA1: Heating and cooling

Key concept (age 11-14)
PMA1.2: Heating and cooling

Progression toolkit: Heating and cooling

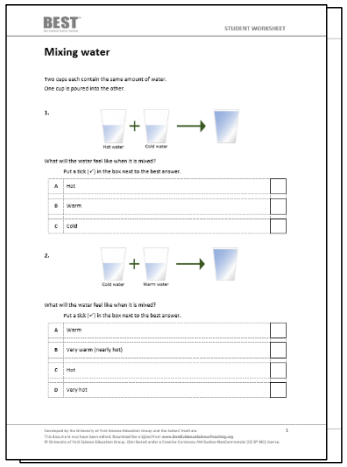
Learning focus	If two objects at different temperatures are in contact, energy will move spontaneously from the object at the higher temperature to the object at the lower temperature.				
As students' conceptual understanding progresses they can:	CONCEPTUAL PROGRESSION				
	Make qualitative predictions about the resulting temperature when hot and cold water are mixed. **P**	Make quantitative predictions about the resulting temperature when hot and cold water are mixed.	Describe how the temperature of very hot water changes as it cools.	Explain how energy dissipates as a hot object cools down.	Apply the law of conservation of energy to explain what happens to energy in novel situations. **B**
Diagnostic questions	Mixing water		Just cool?	Cooling tea	Hot house
Response activities			Cooling curve	Warm scarf	

Key:

P Prior understanding from earlier stages of learning

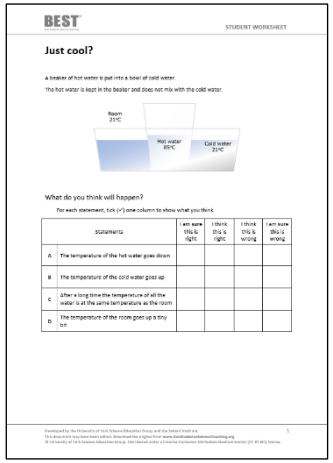
B Bridge to later stages of learning

Mixing water



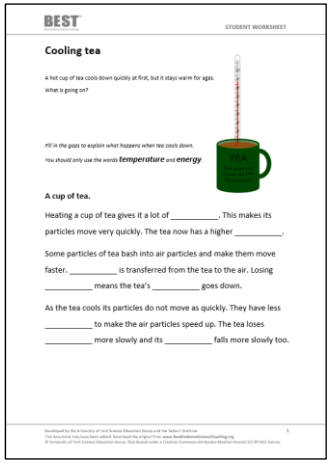
Simple multiple choice

Just cool?



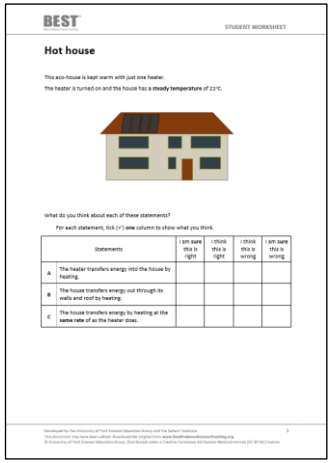
Confidence grid

Cooling tea



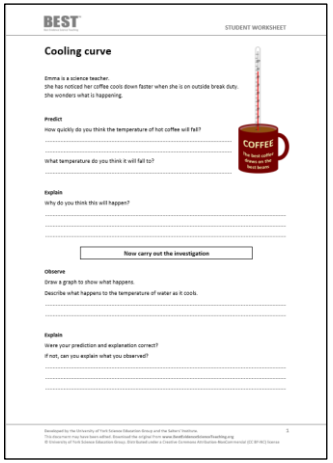
focused cloze

Hot house



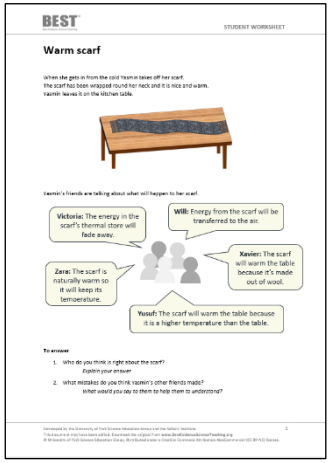
Confidence grid

Cooling curve



Predict, explain, observe, explain practical/demonstration

Warm scarf



Talking heads