

Table 3: Mixing and Melting Materials CoRe by the year 1 team

PEDAGOGICAL QUESTIONS/ PROMPTS	KEY IDEA Dissolving and melting are two ways of changing materials	KEY IDEA Energy is needed to make a change
What you intend the students to learn about this idea	<ul style="list-style-type: none"> » When materials change they often look different » Melting is turning a solid into a liquid » Dissolving is a special kind of mixing. When a material dissolves, it is still there, even though it seems to have disappeared. We can use our senses to explore this » Some types of changes can be reversed but not others – sugar and salt are reversible » A solid can be a liquid. A liquid can be a solid 	<ul style="list-style-type: none"> » Energy is heat in different forms » You need to add or takeaway energy to make a change » Melting always requires the heat of energy » Dissolving is usually sped up by the addition of heat » Heat needs to be removed for the material to solidify » Some materials need less heat to melt than others
Why is it important for the students to know this?	<ul style="list-style-type: none"> » An awareness of dissolving and melting materials is relevant to our everyday life » How materials can be reused/recycled – different uses » Some changes can be reversed – cause and effect 	<ul style="list-style-type: none"> » An awareness of dissolving and melting materials is relevant to our everyday life » Energy has more than one meaning » Different uses of heat » Cause and effect » Personal safety. Awareness of safety in relation to heat in everyday contexts
What else do you know about this idea (that you do not intend students to know yet)	<ul style="list-style-type: none"> » Conservation of matter » The terms 'permanent' and 'temporary' 	<ul style="list-style-type: none"> » Fire triangle – burning: fuel/source/heat
Difficulties connected with teaching this idea	<ul style="list-style-type: none"> » Teacher knowledge and understanding of science concepts/Concepts go against children's preconceived ideas and conceptions/Abstract understanding of dissolving and mixing/Linking to developmental level and experience, ESOL, language needs/Safety issues involved with using heat to conduct experiments with young children – risk management/Resourcing and availability/Parental help required 	
Knowledge about student thinking which influences teaching about this idea	<ul style="list-style-type: none"> » Experiences will be varied » Idea that things disappear – change of state » Idea that you can't reverse a change of state » Confusion between melting and dissolving 	<ul style="list-style-type: none"> » Experiences will be varied » Understanding of the term 'energy' in relation to a heat source
Other factors that influence your teaching of this idea	<ul style="list-style-type: none"> » See difficulties connected with teaching this idea 	
Teaching procedures (and particular reasons for using these to engage with this idea)	<ul style="list-style-type: none"> » Hands-on experiments/Looking at the world around them (school and home)/Observations/Asking questions - "I wonder"/Word wall in classroom/Recording observations/Comparing observations with predictions (reflecting)/Explanations using pictures and diagrams/Picture journal and class journal/Shared writing – a record of our journey 	
Ways of ascertaining student understanding or confusion about the idea	<ul style="list-style-type: none"> » Hands-on experiments/Looking at the world around them (school and home)/Observations/Asking questions - "I wonder"/Word wall in classroom/Recording observations/Comparing observations with predictions (reflecting)/Explanations using pictures and diagrams/Picture journal and class journal/Shared writing – a record of our journey 	