







# Contents

## Why a science of learning?

- Neuroscience, psychology and education: Emerging links Annie Brookman-Byrne and Michael SC Thomas
- Applying the science of learning in the classroom Paul Howard-Jones, Konstantina Ioannou, Ruth Bailey, Jayne Prior, Tim Kay and Shu Hui Yau

## Making learning stick

- Optimising learning using retrieval practice Megan A Sumeracki and Yana Weinstein
- Retrieval practice in use: Multiplechoice testing in the primary classroom Stuart J Garner
- Cognitive Load Theory and its application in the classroom Dominic Shibli and Rachel West
- Threshold concepts and cognition in science: #CogSciSci Niki Kaiser
- The application of spacing and interleaving approaches in the classroom Jonathan Firth
- Six ways visuals help learning Oliver Caviglioli
- Learning to learn: Using evidence to enhance knowledge retention and improve outcomes Caroline Creaby, Kate Mouncey and Karen Roskilly
- Key Stage 3 science: Wasted years no longer Adam Boxer

Retrieval, interleaving, spacing and visual cues as ways to improve independent learning outcomes at scale

> Lukas Feddern, Flávia Schechtman Belham and Stephen Wilks

## Mind, mindset and learning

- 37 Adolescent sleep and educational performance Rachel Sharman, Gaby Illingworth and Russell Foster
- Challenging the myths of mindset Carol Dweck, Sherria Hoskins, Joanna Nye, Frances Warren. Emily Mason-Apps, Victoria Devonshire, Mathilde Chanvin, Daniel Müllensiefen, Peter Harrison, Francesco Caprini and Amy Fancourt
- The problematic interface between research, policy and practice: The case of attainment grouping Becky Francis and Becky Taylor
- Does it have to look like that? Students in mixed attainment **English classrooms** Lorna Damms
- Mindfulness in schools: Is it just another trend? Jennifer Baker-Jones, Liz Lord and Willem Kuyken
- Foundations for learning: Guided play for Early Years maths education Rebecca Merkley and Daniel Ansari
- Pretend play and the development of children's language skills Tanya M Paes and Michelle R Ellefson

#### Building a science of learning

- 64 Bridging the gap between evidence and classroom 'clinical practice': The potential of teacher-led randomised controlled trials to advance the science of learning Eleanor Dommett, Ian Devonshire and Richard Churches
- This is the new myth Christian Bokhove
- 72 Interdisciplinary bridging: A design-based research approach to enhancing the learning sciences in primary Initial Teacher Education Kendra McMahon and Peter J Etchells
- What can education learn from neuroscience? **Education Endowment Foundation**
- The problem with learning styles: Debunking the meshing hypothesis in English language teaching Carol Lethaby and Russell Mayne
- 81 Bridging the gap between mind, brain and education research and practice: One school's replicable model Glenn Whitman and Ian Kelleher
- Applying research in special educational needs to the classroom: Social, emotional and mental health and sensory processing Alice Jones Bartoli
- Talking it through: Using specialist coaching to enhance teachers' knowledge from speech and language sciences Rachel Lofthouse, Jo Flanagan and Bibiana Wigley