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FROM THE EDITOR

"Welcome...

What happens when a school examinations system built on uniformity, consistency and regimentation is used to test students whose learning experiences over the past year have been wildly divergent, repeatedly disrupted and difficult to plan around?

Well, you apparently push the exams back three weeks and hope for the best. Any suspicions that the playing field might be somewhat tilted by a tiered system that imposes different restrictions on families in different regions at different times will then soon be allayed by the entire country having to observe tier 3 rules, AKA '2020 Lockdown Winter Edition'. See? We really *are* all in it together…

Facetiousness aside, it's been another predictably unpredictable month for the profession as this most turbulent of years finally edges to a close. I doubt that many educators would want to be a senior government figure at the moment, having to balance the competing demands of many different civic stakeholders while the COVID-19 numbers continue to climb ever higher – but a great number of educators *are* responsible for classes of students, whole schools and trusts, answering to worried students, staff and parents and thus ideally needing to be made aware of significant changes to their daily operations with more than 24 hours notice before they're due to take effect.

This month's sudden changes to the rules concerning the wearing of masks in secondary schools was, of course, preceded by the government's continued reluctance to provide free school meals to all under 16s whose parents/carers are in receipt of Universal Credit or equivalent benefit, in defiance of Marcus Rashford MBE's sustained campaigning on the issue. Many teaching staff will have seen, and continue to see for themselves the impact that growing poverty, redundancies and joblessness are having on children and young people nationwide. As trust CEO Nick Hurn tells us on p24, schools are doing what they can, right down to dispatching food parcels themselves. That's great. That's admirable. That's not something they should be having to do, given the position they're in.

And yet, here we are. School communities have had to make an accommodation with edicts being issued from the centre at short notice, and come to terms with the fact that calls for desperately needed local support will continue to land at their door – whether they're ready and able to provide that support or not.

Until next issue,

Callum Fauser
callum.fauser@theteachco.com

On board this issue:

Gordon Cairns is an English and forest school teacher who works in a unit for secondary pupils with ASD

Jennifer Wozniak-Rush is an assistant headteacher for teaching and learning, and an SLE in MFL

Dougald Tidswell is a subject leader for mathematics

Joanne Tiplady is curriculum and research lead for TEAL Trust

Gethyn Jones is a physics teacher and regular edublogger

Hannah Day is a head of visual arts, media and film

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Sign up for the weekly TS newsletter at **teachwire.net/newsletter**

Essential reading:

Self realisation

Use science lessons to acquaint students with independent learning

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Battling the bias

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The newsletter

Grab a coffee and spend five minutes exploring the lighter side of CPD...

The UNINFORMED teacher's guide to...

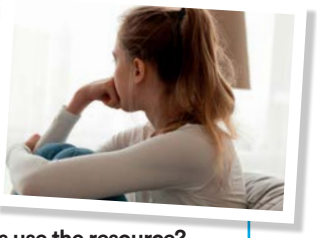
CROPPED TROUSERS

Amid all the unpredictability, societal upheaval and unending stress of 2020, it's nice to know that there are some things we can rely on to never, ever change. A recent report in the *The Mirror*, detailing how students were allegedly put in isolation for wearing shin-length cropped trousers to a Gloucester school in contravention of its uniform policy, resulted in a brief social media flare-up that seems almost comforting from the vantage point of late 2020.

Setting aside the fact that 'school upholds its rules' seems a rather quotidian concern for a national tabloid, the story prompts this distraction-hungry scribe to ponder What This Tells Us About Now. Perhaps the style of schoolboys' trousers have actually been a sociopolitical bellwether for decades, and we've just not noticed. 90s? Baggy, excess fabric – suggestive of a contentedly relaxed era of easy prosperity. 00s? Ultra-tight, fitted – a wired, anxious time that hasn't got the inclination to let it all hang loose. 10s? Non-approved supplier supermarket brands, befitting an age of austerity. 20s? We may have to cover our faces, but we'll always have our ankles.

DO SAY
"Got to give the legs some air, you know?"

DON'T SAY
"Mate, it's like, really cold, yeah?"



BEAT THE BUDGET

What are we talking about?
Secondary School COVID-19 Recovery PSHE Programme

What's the targeted age range?
11-16

What's on offer?
A PSHE teacher guide designed to help practitioners explore the topics of mental health and mental illness with years 7-11. What sets it apart is its focus on supporting young people living with a parent or guardian who has a mental illness, covering areas such as managing stress and building resilience when tackling adversity, and understanding how different environments and circumstances can affect our mental health.

How might teachers use the resource?
The guide contains four interactive sessions, each lasting around 45 minutes, with the option of extending them to 60 minutes or breaking them down into shorter sessions. The sessions are designed to be used once a week across a half term, but could potentially be covered over the course of a dedicated PSHE day.

Where are they available?
ourtime.org.uk

DON'T QUOTE ME...

"Our priority, my priority, remains keeping people in education ... our senior clinicians still advise that school is the best place for children to be."

Prime Minister Boris Johnson on 31st October 2020, during a government press conference

Think of a number...

82%

Attendance at state-funded secondary schools between 23/3/20 and 22/10/20, excluding schools on half term.
Source: Department for Education

1 in 6 Proportion of 5- to 22-year-olds experiencing mental health difficulties – up from 1 in 9 in 2017
Source: Survey of 3,570 children and young people by NHS Digital

35% Average drop in the income of PTAs due to the effects of coronavirus
Source: Parentkind

ONE FOR THE WALL

"The arc of the moral universe is long, but it bends toward justice"

Martin Luther King Jr.

Mandatory masks

The Department for Education has announced that students and adults in all secondary schools must wear face coverings when moving around sites and in communal areas, for the duration of the second national lockdown in effect from 5th November.

The new guidelines – which were issued on November 4th – effectively enforce tier 3 COVID restrictions on all schools across the country. Face coverings must now also be worn by all students in Y7 and above when travelling on dedicated school transport, as well as public transport.

The guidance further states that children classed as clinically extremely vulnerable are advised to not attend education. However, children who live with clinically extremely vulnerable individuals, but who aren't themselves, are still expected to attend. Clinically extremely vulnerable staff are advised to work from home, though staff and children who are clinically vulnerable, or who have underlying health conditions are able to continue attending school sites in accordance with current guidance.

Meanwhile, the NEU is continuing to campaign for schools to be closed to the majority of students over the lockdown period. According to the union's joint general secretary, Kevin Courtney, "We have seen a fifty-fold increase in infections in secondary schools alone since September. Schools, clearly, are an engine for virus transmission. The lockdown would be much more effective in reducing virus levels if schools and colleges were a part of it."

KEYNOTES AND CORRESPONDENCE

Forget the media-friendly soundbites – what else was in those speeches you missed?

THE HEADLINE:

Government sticks with existing free school meals arrangements

WHO? Gavin Williamson, Education Secretary
WHERE? House of Commons
WHEN? 21st October 2020

During the unprecedented and unpredictable period at the start of the pandemic, it was right that extra measures were taken to provide free school meals during the holidays, but we are in a different position now that we have welcomed all pupils back to school...

Education is the number route to opportunity and prosperity. We invest more in the education of disadvantaged children to give them the very best chance in life, both through the weighted national funding formula and the £2.4 billion annual pupil premium. We have invested £1 billion in the covid catch-up fund, including investing in the national tutoring programme, which will offer high-quality small-group tutoring to disadvantaged pupils who have fallen furthest behind.

Free school meals are, and always have been, about supporting children with a meal to help them to learn when they are at school or, indeed, currently at home learning. However, it is our support through universal credit and our comprehensive welfare system that supports families. I have outlined a significant series of actions from across government to support families who may otherwise struggle in the light of a pandemic, including £9 billion in welfare, £53 billion for job support measures, £63 million for local authorities to help those with urgent needs and £350 million to help the most disadvantaged students to catch up at school. Those are just a few things that this government have put in place to support those who are most disadvantaged. They represent a direct financial response to the pandemic and demonstrate that the government are doing everything possible to support those who need help.

THE HEADLINE:

Union criticises government's free school meals position, urges change

FROM? Mary Bousted and Kevin Courtney, joint general secretaries, NEU
TO? Gavin Williamson, Education Secretary
WHEN? 27 October 2020

NEU members are witnessing the negative impacts of hunger and malnutrition: if a child hasn't eaten, they cannot concentrate, learn or fulfil their potential. This connects very directly to whether children and teenagers learn well.

During the pandemic, schools are working closely with their local communities to reach out to all families who need extra support. But the right national policies must be put in place. We urge you to commit to tackling holiday hunger by providing Free School Meals during school holidays to all children whose families are eligible for Universal Credit.

SAVE THE DATE

17-20 NOVEMBER Schools & Academies Show 2020 Online | 28 JANUARY Mental Health & Wellbeing Conference 2021 Live Online | 15-20 FEBRUARY National Theatre Drama Teacher Conference

17-20 NOVEMBER

Schools & Academies Show 2020 Online
Online
schoolsandacademiesshow.co.uk

This year's Schools & Academies Show will be taking place virtually. Those taking the time to connect to the event's dedicated online platform will get to hear from a host of leading education experts and practitioners on the most pressing topics in UK education, and pick up valuable practical advice at a series of drop-in sessions.

28 JANUARY (9.20AM TO 3.30PM)

Mental Health & Wellbeing Conference 2021 Live Online
Online
bit.ly/ts98-mhw

Delgates tuning in to this live online conference will get to hear from a range of leading mental health practitioners presenting expert guidance and best practice advice on a host of different areas including CBT, whole school mental health approaches and supporting parents/carers.

15-20 FEBRUARY

National Theatre Drama Teacher Conference
Online
bit.ly/ts98-ntdtc

At this virtual conference organised by The National Theatre, drama teachers will have numerous opportunities to learn new skills and explore novel teaching approaches. The event will include interactive workshops, panel discussions and masterclasses, with contributions from the likes of Katie Mitchell, Marianne Elliot and Justin Audibert.

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- Carole Dean,
Deputy Headteacher,
The Stonehenge School

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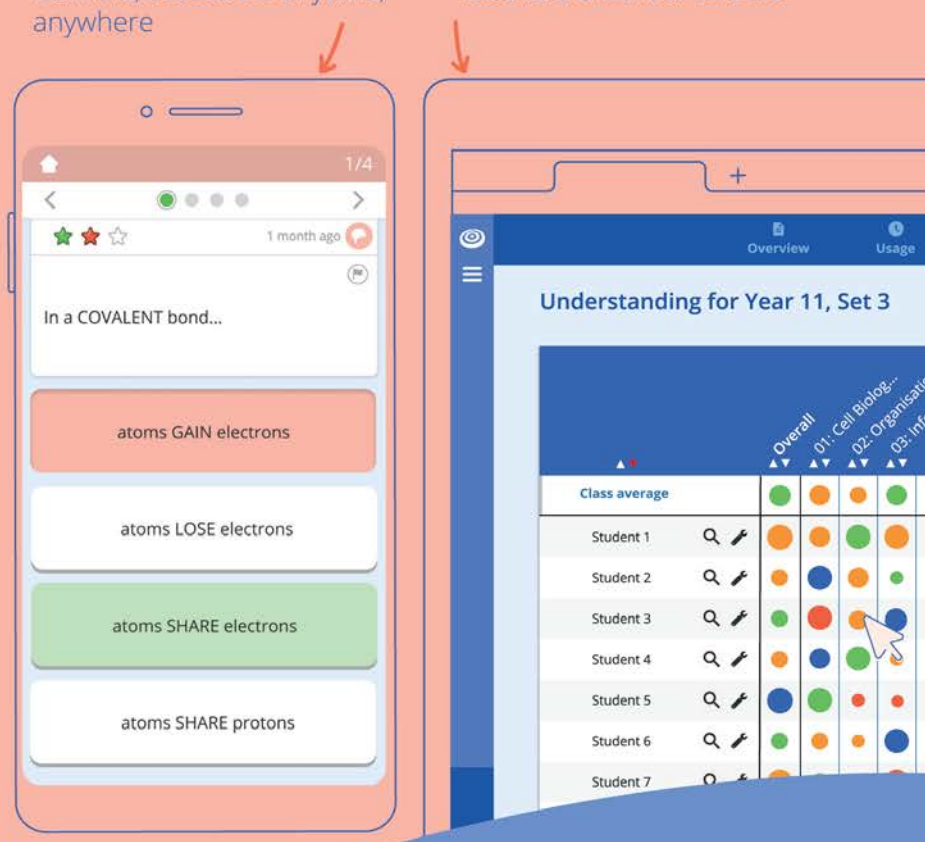

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MATHS CORNER

Intriguing problems to inspire curiosity

How Much Can We Spend?
nrich.maths.org/6650

A country has decided to have just two different coins. It's been suggested that these should be 3z and 5z coins.

The shops think this is a good idea, since most totals can be made.

2 × 3z + 1 × 5z = 11z

7 × 3z + 2 × 5z = 31z

Unfortunately, some totals can't be made – for example, 4z.

Which totals *can* be made?

Is there a largest total that cannot be made?

How do you know?

The country has decided that they will definitely have 3z coins, but can't make up its mind about the other coin.

Experiment with other pairings containing 3z, and explore which totals can be made.

Can you find a relationship between 3z, the second coin and the totals that can and can't be made?

Other countries have also decided to have just two coins, but instead of the 3z coins they have chosen a different prime number.

Can you find a relationship between pairs of coin values, and the totals that can and can't be made with them?

NRICH provides thousands of free online mathematics resources covering all stages of secondary school education - completely free and available to all. You can access the latest secondary curriculum map and check the latest Live Problems at nrichmaths.org/9451 - the NRICH team looks forward to receiving your students' solutions and publishing some of the best ones on the website!

A FEW MINUTES OF DESIGN

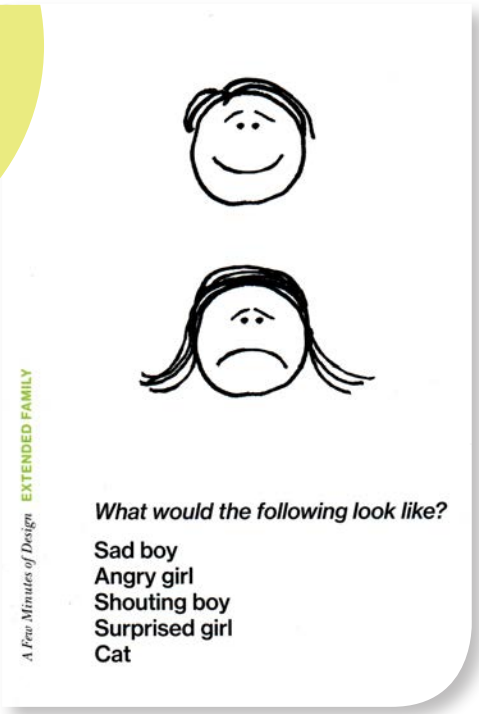
#11 EXTENDED FAMILY

How have these pictures been simplified to make symbols?

Are they made of solid shapes or lines?

What visual features does each one use?

What makes them a family?



Draw your own symbols to continue the series, keeping the same visual 'language' of simplification, line, shape and style as the original members. Now draw a symbol that does not belong to the family.

Get Into Film

CURRICULUM LINKS:
Media Studies, PSHE Education

Kayla Day is a shy, awkward and introverted teenager trying her best to navigate the pitfalls of middle school whilst also cultivating an internet persona on YouTube and Snapchat. Although her online presence is confident and dynamic, she is still given the 'Most Quiet' award at her school assembly, whilst her single father struggles to connect with her.

After unsuccessful attempts at flirting during a classmate's pool party, Kayla is taken under the wing of a kind high school student, Olivia, and discovers that her teenage problems may have only just begun. The film provides thoughtful and often humorous insight into how online interactions affect people's perception of themselves and others, and how these challenges can manifest in a young person's sense of identity.

Discussion questions:

- How would you describe Kayla as a protagonist? Where does she appear to be at her most authentic?
- How does the film depict the experience of using social media? Is it an authentic depiction? What challenges are there when portraying the internet in cinema?
- The film could be considered an example of the teen film genre. However, do you think it's aimed at a teenage audience or at adults?

Head online to intofilm.org to discover more

Retweets

Who's been saying what on Twitter this month?

Marcus Rashford MBE @MarcusRashford
Since March, 32% of families have suffered a drop in income. Nearly 1 million have fallen off the payroll. This is not dependency, this a cry for help. There are no jobs!! 250% increase in food poverty and rising. Nobody said this was simple...

#teacher5aday @teacher5aday
It feels like we've been at work since the start of March. My downtime was a few weeks in August which will take its toll if I'm not careful Without sounding cliché, this is the marathon to end all marathons and pace / stamina will be vital #teacher5aday #slowchat8

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Links to BBC Bitesize website for additional support

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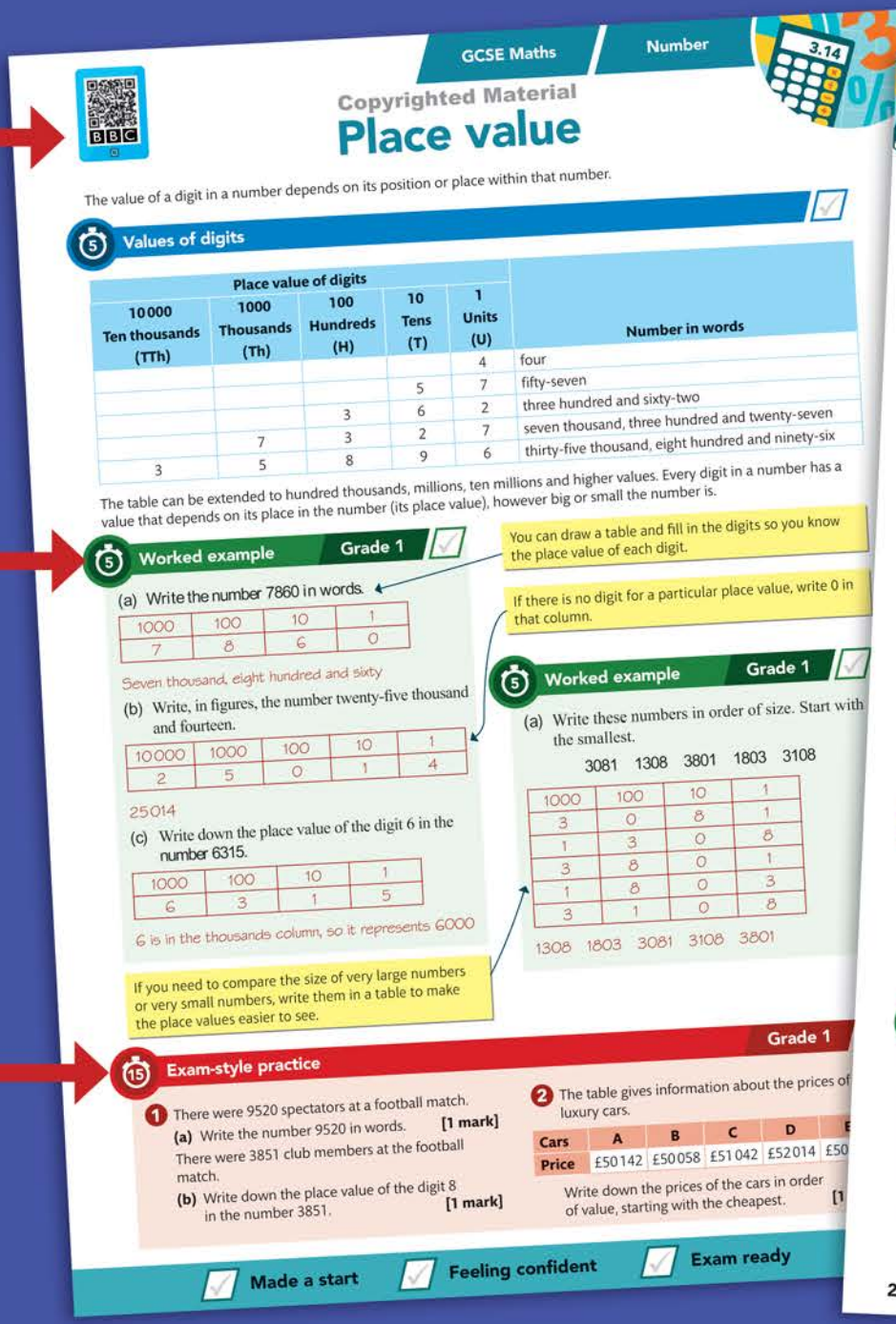

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study ... for GCSE

BBC

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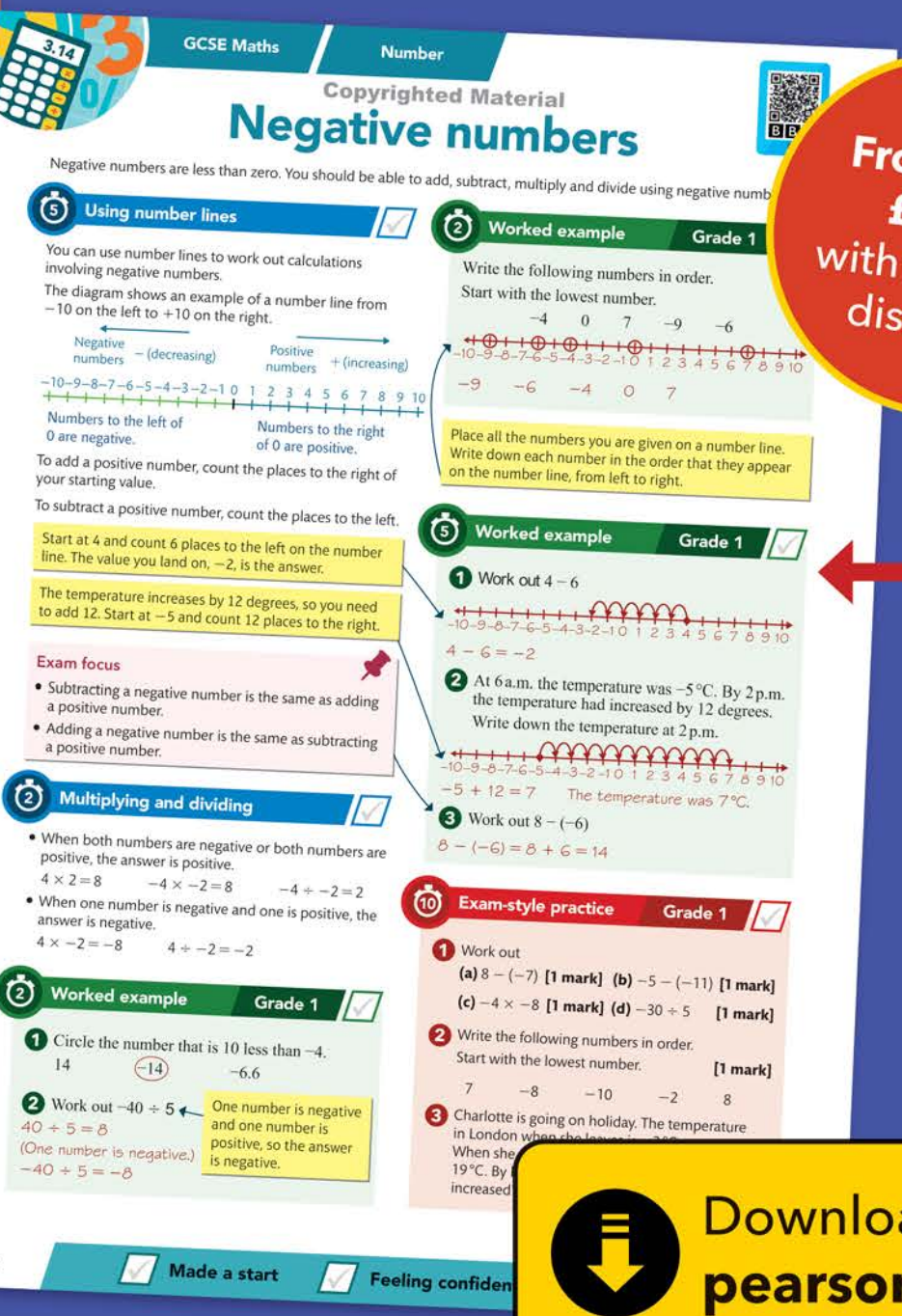

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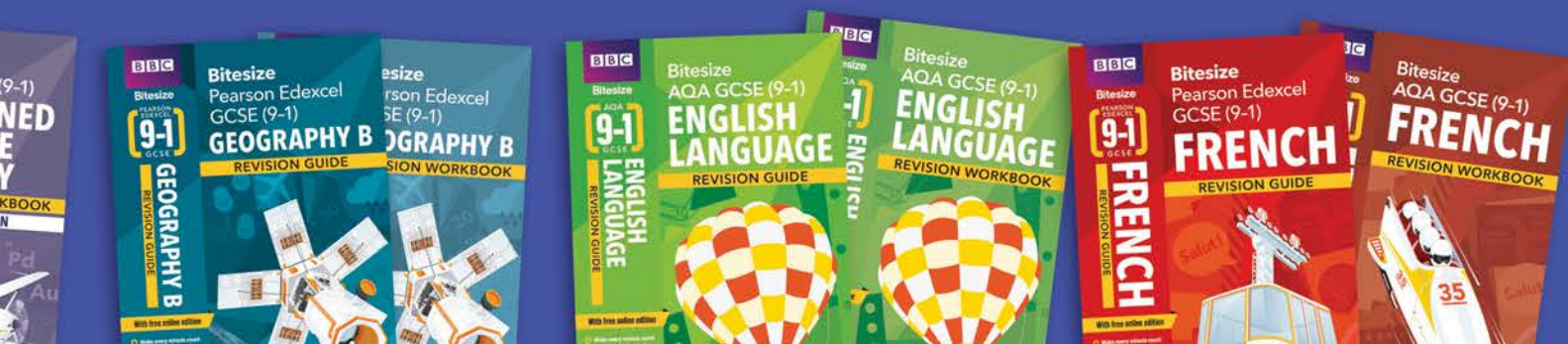

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The Vocab Clinic

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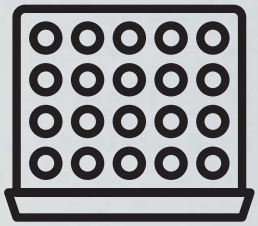


TRY THIS TODAY: CONNECT 4

Students seldom learn words in lists. Intuitively, we make connections between words and ideas. Whether it's reading a textbook in science or a poem in English literature, we need to explicitly nudge our students to make those connections. The 'Connect 4' strategy provides a simple way of isolating and emphasising key vocabulary to connect.

In history, for example, you could select the four words 'continuity', 'monarchy', 'power' and 'conservatism' to prime a given topic. You can then ask students to make as many connections between the words as possible – the more the better.

Cracking the academic code

Sophisticated academic writing rarely includes errors. Accurate spelling is an obvious and important indicator of skill and successful writing, so one focus for our novice students is to avoid erring with commonly confused words.

It's helpful to first identify the most common pairings that deceive students. Errors between words like 'accept' and 'except', or 'effect' and 'affect', are so common that we should aim to explicitly teach and display such pairs, while also identifying homophones like 'aloud' and 'allowed'. More subtle differences – 'amoral' and 'immoral', for example – can be covered in RE and in English.

DO THEY KNOW?

A new word is added to the dictionary every two hours

ONE FOR: GEOGRAPHY STUDENTS

CAPITAL

Derives from: Latin – 'capitalis', meaning 'of the head'
Means: A main city or town that functions as a seat of government and/or administrative centre
Related terms: Central, epicentre, locus, foremost, principal, sovereign and metropolis.
Note: The words 'cap' and 'capital', are both linked to the head

I DON'T THINK IT MEANS WHAT YOU THINK IT MEANS...

CONSERVATION

In physics = *something that doesn't change, often used in relation to energy and momentum*

In geography = *the care and preservation of natural resources for the benefit of future generations*

One word at a time

If you were to try and describe 2020 in one word, many would agree if you went with 'disaster'. It's a commonly understood word, though its origins are less well known. Many will be familiar with the prefix 'dis', denoting 'bad', but the root of the word comes from the Latin 'astrum', meaning 'star'. A disaster is therefore effectively an 'ill-starred fate'. Ancient beliefs bound up in astrology and fate are still subtly woven throughout our more modern and rational times – now 'natural disasters' and unnatural acts get labelled with this star-crossed word.

Alex Quigley is a former teacher and the author of *Closing the Reading Gap and Closing the Vocabulary Gap*; he now works for an educational charity committed to supporting disadvantaged children

The educational case for exams

In the midst of a public health crisis, we need formal exams more than ever, says **Alex Standish**...

Following a year of school closures and mass self-isolation for health reasons, students in Y11 and Y13 have experienced unprecedented disruption to their GCSE and A Level courses. Does this mean that next summer's examinations should be cancelled? If they are, how can we avoid a repeat of last summer's 'teacher-assessed grades versus algorithm' farce? How should we assess students' achievements when their education has been disrupted to such varying degrees?

At the time of writing, the government has decided to push the 2021 exams back three weeks, but otherwise leave the existing exam arrangements largely unchanged. Some teachers, at least, aren't keen on this course of action.

Performativity culture

The campaign group Worth Less, for example – which represents headteachers from 78 English LAs – has argued that without 'far-reaching change', the stress of putting this year's cohorts through exams will lead to a 'mental health crisis'. According to Jules White, head of Tanbridge House School in Horsham and leader of Worth Less?, "The government must strike a much better balance to maintain standards whilst looking after children's mental health. The idea that pupils will simply 'catch up' on months of lost learning is neither realistic nor workable." (see http://bit.ly/ts98-exams).

The view that exams place too much stress on children has been around for a while, and is linked to a growing emphasis on mental health and wellbeing in schools. However, one reason why exams have become more stressful than they need to be is because schools (albeit led by government) are using results in the wrong way – to measure their collective performance, rather than that of individual students. This means that students become responsible not only for their own results, but those of the school – and they know it!

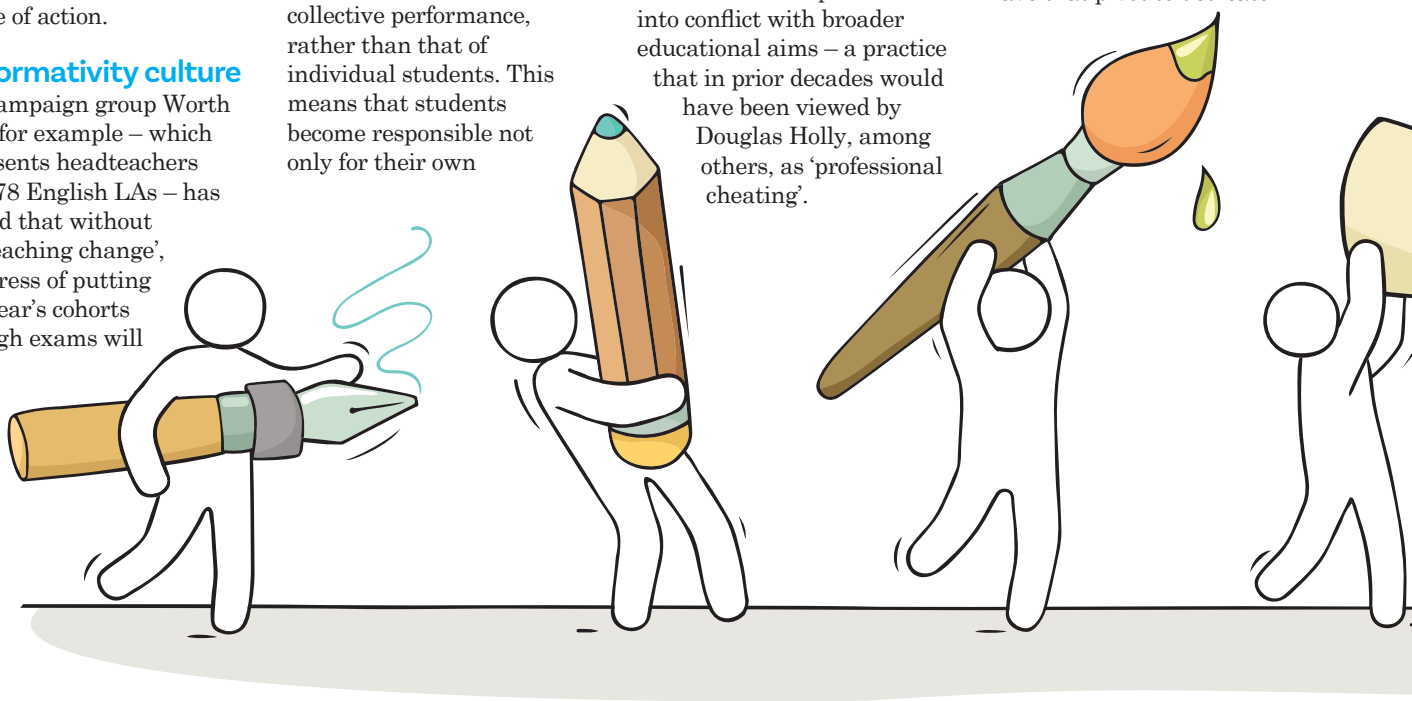
In a research paper titled 'Good Education in an Age of Measurement' Gert Biesta outlines a 'performativity culture' where "Means become ends in themselves, so that targets and indicators of quality become mistaken for quality itself." In too many schools, exam specifications have replaced curricula, while 'teaching to the test' has become the norm, devaluing the idea that the pursuit of knowledge has an intrinsic value.

Through overzealous exam preparation and coaching children on how best to answer specific questions, teachers are simultaneously removing responsibility for passing exams from students and discouraging them from thinking for themselves. This misuse of exams puts them into conflict with broader educational aims – a practice that in prior decades would have been viewed by Douglas Holly, among others, as 'professional cheating'.

Work ethic

We should acknowledge that the system is placing undue importance on students' exam results, but a better way forward would be to change the system of accountability, rather than cancel exams completely. We want young people to be in good health, mentally and physically, but concerns with 'mental health' have the potential to conflict with the legitimate need to put students under the academic pressure necessary for them to succeed and progress.

One interesting lesson we've learned from this year's cancelled exams is just how much they mattered to the students taking them. Emma, a GCSE student from Faversham, recalls how she felt after exams were cancelled: "We no longer have that pivot to dedicate



Join the CONVERSATION

The Academy of Ideas Education Forum gathers monthly to discuss trends in educational policy, theory and practice. Find out more at academyofideas.org.uk/forums/education_forum

our time and studies to… and we're unable to find other work and areas of study ourselves which give us the same work ethic". Another student told me that she'd prefer exams over teacher assessment because, "They provide a focus and an endpoint to concentrate on," and are 'fairer'.

The examination itself is an opportunity for pupils to demonstrate what they know, understand and can do. In this sense, they teach young people to take responsibility for their own success and offer a pathway to the next stage of education or training. While teachers will do their best to ensure students are well-prepared, it's the individual student themselves who has to revise, prepare and perform in the exam.

Many students don't actually have a problem with putting themselves under pressure to get the grades in exams that will often define the next stage in their life. Working under pressure is also an important life lesson in the transition from childhood to adulthood.

Moreover, the fact that grades can be such a determinant in young people's lives is a good argument for why teachers shouldn't be awarding them. As teachers, we'll often invest ourselves in the students we teach. We help them to grow, mature and improve, and therefore want them to succeed. It's an attachment that's inherent to the pedagogical relationship, but one that also makes teachers less objective when it comes to evaluating students' overall achievement, which is why most educational jurisdictions keep their teaching and examinations separate.

Objective assessment

Objective assessment of what young people know, understand and can do is what gives grades their social value. Employers will look for a foundation of GCSEs as a proxy measure of basic skills and the ability to apply oneself.

So what about those lost months of in-school teaching, and those students studying at home because they have to self-isolate? It's true that some schools and students have made a better job of working online over the summer term than others. Independent schools were generally quicker to transition to live online classes, whereas many state schools were initially reluctant to do so due to 'safeguarding rules'.

But in no year has there ever been a truly level playing field for students. We know that teaching quality and educational resource provision varies between sectors and from school to school, and that it's not unheard of for year groups to have to contend with disruption to their courses. Four months before my daughter's GCSE chemistry exam, for example, her teacher left to go on maternity leave and the school was unable to find a new chemistry teacher. Both school and students had to do their best in trying circumstances.

Yet the fact remains that our current Y11 and Y13 students have all experienced *massive* disruption to their education, and may yet experience more. We must decide on the best way forwards, but to suggest that exams place 'unnecessary stress' on students right now amounts to an abdication of responsibility for putting young people under pressure to succeed and reach their potential.

My argument is that exams, as *summative assessment*, are an integral part of education, providing valuable experience of taking responsibility for your own progress. Yes, our current exams must do more to reward independent thought and creativity, rather than regurgitation of content. And yes, exams aren't the *only* way of validating students' achievements – we should remain open to using a combination of assessment methods, especially at times like these.

However, by showing young people that we value their education enough to sustain a system of education and examination that provides them with a pathway to their future, we teach them a valuable lesson. That's what German schools were able to do this past summer, despite similar lockdown restrictions and schools closures (see **http://bit.ly/ts98-exams2**).

ABOUT THE AUTHOR

Alex Standish is an associate professor of geography education, teacher trainer at UCL Institute of Education, and co-editor of *What Should Schools Teach? – Disciplines, subjects and the pursuit of truth, 2nd Ed.*, due for publication in the New Year by UCL IOE Press; follow him at twitter.com/alexstandish9

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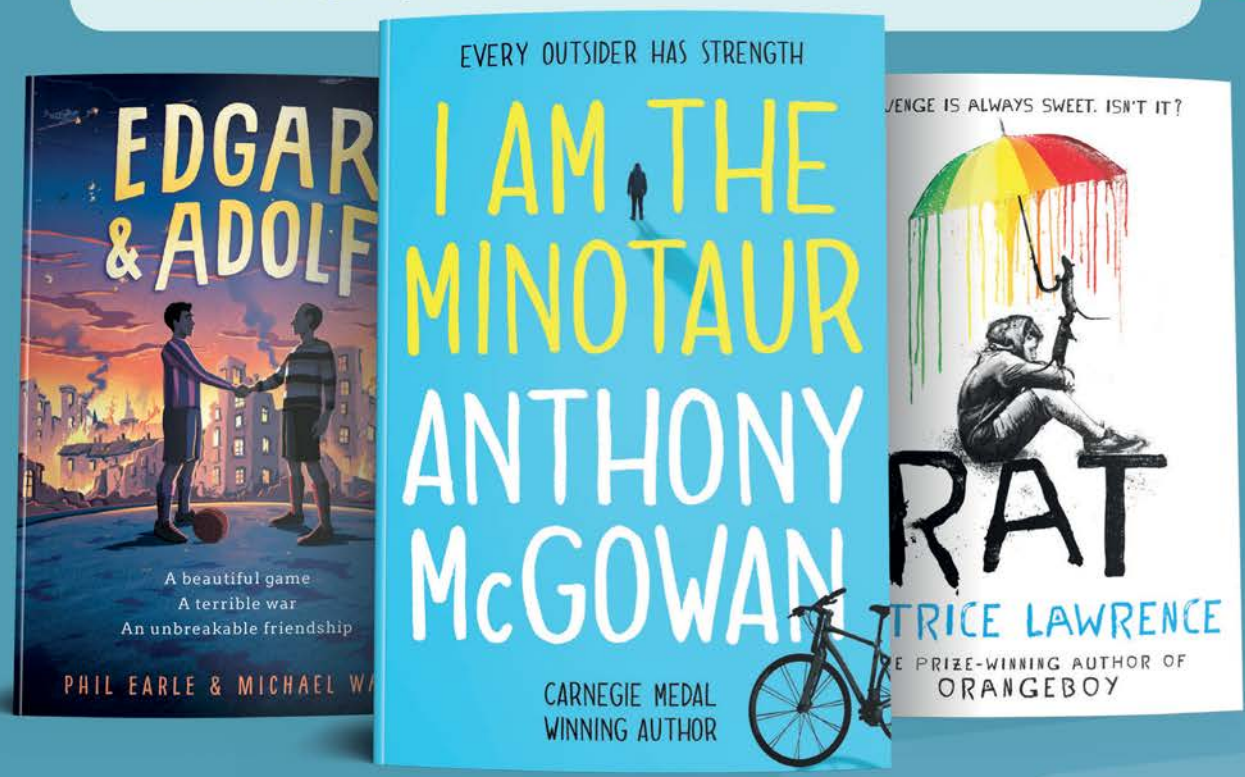

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We can all agree on the need to avoid the mistakes of exam season 2020, but with its promise of 'business as usual' next year, is the government creating a hostage to fortune?

David Didau

Love 'em or hate 'em, exams have been an immutable fact of life for as long as anyone can remember. The towering twin edifices of GCSEs and A levels dominate the educational landscape, casting much of what goes on in schools into deep shadow...

...until they don't. Over the course of this year, any such certainties have been swept away by a global pandemic. For the first time in living memory, exams were cancelled and replaced with centre assessed grades (CAGs) – and we all know how well that decision turned out!

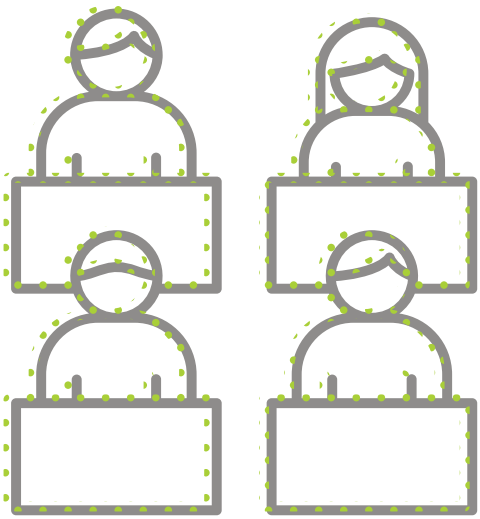
Sidestepping for a moment the rights and wrongs of 'trusting teachers', 2020 really has been unprecedented. No one had any idea what to expect, so outright cancellation became the only game in town. It may be entertaining for armchair experts to play hindsight bingo, but at the time there was no better alternative. The extraordinary subsequent botching of how students were awarded their grades is a long and sorry tale that's been dealt with at length elsewhere – suffice to say that whatever else happens in the near future, we can at least agree that no one wants a repeat of that particular dog's breakfast.

No exceptions

So, what should happen next year? Appalling as last summer was, we at least now have a precedent. We know we can, if needs be, cancel exams again. Should that be the decision taken, we also know that we'll need time to ensure that next year's centre assessed grades are fairer and more robust. At the time of writing, the government has vowed that the 2021 exam season will go ahead, come what may. I too hope that can happen – but making such a firm commitment now seems rather like spitting in the eye of fate and daring the virus to do its worst...

With some parts of the country already in Tier 3 of local lockdown measures, forcing many schools to send home exam classes for two weeks at a time, the prospect of sitting exams as normal feels to many less fair than it ever has. What if your school has to close and move lessons online? What if your bubble needs to self-isolate and misses out on some invaluable face-to-face interactions?

One response might be to say that exams have always been unfair. Some students are unfortunate enough to be taught in failing schools, so that regardless of their own efforts, they're unlikely to do as well as those lucky souls living in leafy suburbs, or who have parents able to afford a private education. Life has never been fair. This year, while maybe a little less fair than before, is no exception.



Unedifying spectacle

The rejoinder to that is to simply ask why we shouldn't cancel exams again – in fact, why don't we take the opportunity to scrap exams altogether? We'd surely be better off just trusting teachers – who, after all, will know their students far better than any examiner or algorithm.

Well, the sad fact is that due to the way in which schools are held accountable, the pressures on schools to deliver great results are enormous. This year we had the unedifying spectacle of many schools boasting of 'record results', and saying how proud they were of the grades *they had handed out*. With exam grades seen as so integral to schools' success, it's hard to trust schools to be entirely impartial. We have a long – and recent – history of gaming, grade inflation and a few well-publicised cases of actual cheating, which makes it hard to keep faith that something which means so much to schools can be left entirely in their hands. The temptation to massage is simply too great.

Even worse, teachers are, like everyone else, unwitting victims of well-understood cognitive biases. If children are well-spoken and smartly dressed, we also tend to assume that they're cleverer. We don't mean for it to happen, but marginalised children are routinely disadvantaged further by teacher assessment. Exams, for all their problems, act to narrow the gap between the most and least advantaged.

What should concern us most is that *exams are the worst possible way of assessing students' educational achievements, except for all the others*. If we cancel exams, fair though that might seem, we'll be acting to widen the already yawning chasm between the richest and poorest people in society.

David Didau is an independent education consultant and writer. He blogs at learningspy.co.uk and is the author of several books, the latest of which is *Making Kids Cleverer: A manifesto for closing the advantage gap* (£14.99, Crown House)

A resurgent pandemic, lack of resourcing, a centralised system prioritising regulator 'visits' over meaningful support – who'd want to be a headteacher right now?

Melissa Benn

"Never before has the job of running a school been so challenging."

"The job ... has become so incredibly difficult that I am genuinely worried we will have no headteachers left going into 2021/22."

Those are just two of many statements I've heard in recent weeks, direct from state school heads and other school leaders, governors and trustees, all of whom are trying to deal with the fallout of this terrifying pandemic. Are we approaching a perilous turning point, where educating the nation's children is becoming a job too far?

It's not hard to see how we've got here, given the extraordinary events of these past few months. From the first lockdown in March, with scarce preparation time, heads had to keep schools open for the exceptionally vulnerable and children of key workers, while simultaneously organising online learning for everyone else.

Many already underfunded state schools struggled to even reach, let alone teach, a tranche of pupils lacking everything from functioning laptops to adequate living space and appropriate parental support. In some poorer areas, schools effectively became a fourth emergency service, providing food and various forms of practical and emotional support to families in need.

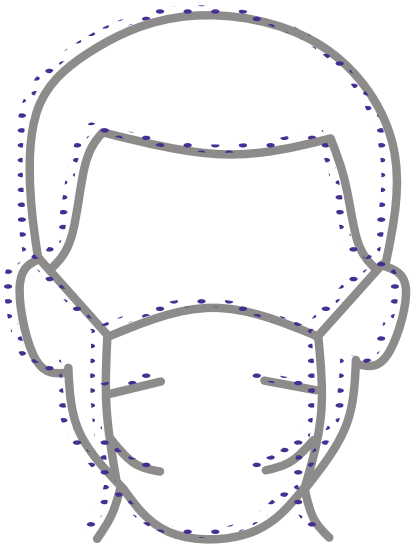
Headteachers remained on the front lines over summer, contending with the consequences of this year's A level and GCSE results debacle, and they've stayed there throughout autumn, doing the best they can in the face of patchy test and trace systems and inconsistent DfE advice. All while managing high levels of anxiety among their staff, pupils and parents.

Growing resistance

It's the story of a profession with many members at near breaking point, that's desperate for clearer direction from the centre and constantly in need of more resources. And yet, the crisis might also play a pivotal role in shifting in the balance of forces in education.

Longer term, the lessons learned from the pandemic could galvanise heads – those not yet driven out, at least – into being much more bold. On a purely practical level, headteachers are starting to self-organise and offer each other mutual support. Just last month, a group of ex-heads and governors set up HeadRest UK (@Headrest_UK) – a free confidential helpline for school leaders. It's a brilliant idea, and one that's more thoughtful and in-touch than anything the government might have come up with itself.

More generally, there's a growing sense of resistance to what many school leaders deem to be inappropriate pressures directed out from the centre at a time of emergency. This autumn, Ofsted resumed what it calls 'visits', as opposed to inspections – but even these have attracted criticism from a number of figures across the profession.



According to influential sector leaders, including Alison Peacock of the Chartered College of Teaching, now isn't the time for overworked heads to be preparing for Ofsted visits, which she sees as being lower down on headteachers' priority lists. In comments shared with *Tes*, she described Ofsted as currently 'irrelevant', adding, "This might just be their demise. Because if you are more worried about keeping your school safe and doing everything you need to do with a skeleton amount of staff, actually Ofsted arriving is kind of almost the last of your worries."

Added to this is the government's announcement that exams should go ahead next summer, with just a three-week time delay. This decision has sparked considerable anger, particularly from heads in disadvantaged areas, where high levels of COVID will surely keep children out of school just as it did in spring and summer. Compare this to Scotland, where the devolved government chose to scrap the 'National 5s' GCSE exam equivalent in favour of teacher assessment.

A bigger say

In the short term, the nation's headteachers have a crisis to handle – but in the longer term, they may well emerge as a more potent collective force and start demanding a much bigger say in the future direction of school policy.

Many have made it clear they want to see a broader curriculum, a greater role for teacher assessment and more meaningful learning for the significant tranche of students currently left behind by our relentless, exam-driven system. As they set about making the school system once again fit for purpose, and as public and political sympathy for them grows, their voices will only be amplified all the more.

Melissa Benn is a writer; her latest book is *Life Lessons: The Case for a National Education Service*, published by Verso

This difficult school year has so far been full of contradictions and compromises – but as long as we can all rely on each other to show cooperation, we'll get through it together

Vic Goddard

I'm writing this at the end of an incredibly difficult half term for everyone working in schools, awaiting official confirmation of new lockdown details which – as now seems to be the way with these things – have been leaked, prior to the government announcing them. It would be accurate to say that we've just emerged from a half term where schools have done everything they can to deliver education to our young people in as safe an environment as they could possibly create.

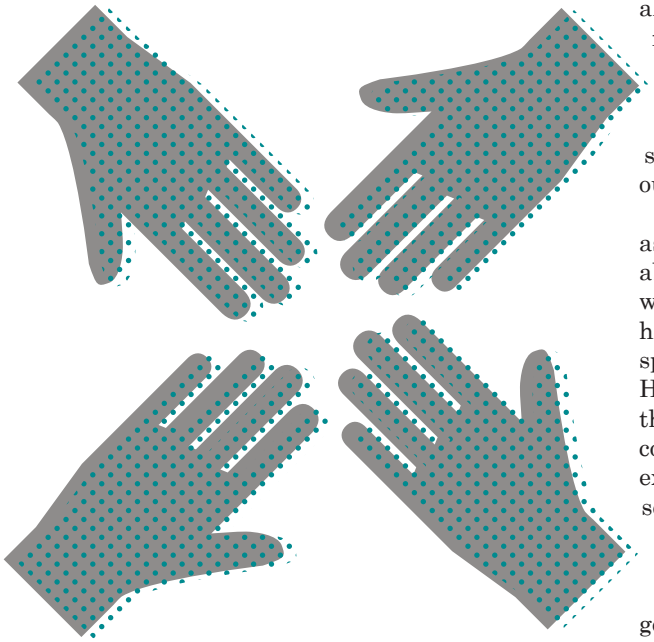
The biggest challenge we've had to face hasn't been putting procedures in place to protect staff – we're teachers, after all, and hence good at organising systems. No, the biggest challenge has been trying to rationalise the contradictions in government guidance which mandate certain measures within most workplaces that schools apparently don't need to observe.

Limits to compromise

I think the whole country now clearly understands the importance of the education profession to the wider economy, as well to the mental health and wellbeing of our children, and that's before you even get to the importance of the education itself. Needless to say, however, education staff aren't immune to the anxiety of potentially taking home the virus to loved ones, or indeed the sadness of being unable to visit elderly relatives out of concern for their safety. This makes the achievements of last half term all the more remarkable.

There's little doubt that school staff are being asked to compromise their own safety in order to do the job. Current safety advice is to avoid being inside buildings with over 1,000 other people; by simply continuing to perform our roles, we in the teaching profession are accepting this compromise, but there are limits. The present term will finish shortly before Christmas. The prospect of remaining in school right up until a few days before Christmas will likely entail yet more compromises with our families.

I don't want this to read as a big 'woe is us' moan. I do, however, want us to be proud of what we're doing as part of the national effort. Most of us will have decided to become teachers in order to make a difference in the communities we serve; having such a purpose is a privilege right now, when so many others are worried for their jobs and how they're going to pay the bills. Education staff are very much on the front lines of this pandemic, and it's important that those in power recognise that.



Crucial interdependence

Much has been said lately about the pressures bearing down on headteachers, but I'm not sure this is the right focus. Staying up to date with a vast volume of rapidly changing information is difficult, of course, and hardly helped by the government's timings, but that's not what keeps me awake at night. The bottom line is that whilst I have staff who are willing to make the compromises being asked of them, everything else is achievable.

If we stop to think about how we'd cope without any site, kitchen or office staff, we can clearly see how crucial this interdependence is in order for schools to operate. Cooperation across all staff is the single biggest factor in determining how successful we'll be in dealing with the current situation – not the number of sanitiser stations we have or the size of our bubbles.

Quite rightly, our professional associations are raising concerns about the levels of risk and workload we presently face, and hopefully they'll be successful in speaking up on our behalf. However, this doesn't diminish the job we have to do for the country. There aren't the words to express my gratitude, and that of school leaders across the country, to staff in all roles across our schools. The coming half term isn't going to be any easier – so good luck, and be well.

Vic Goddard is headteacher at Passmores Academy – as seen on Channel 4's *Educating Essex* – and the author of *The Best Job in the World* (Independent Thinking Press, £14.99)

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WHAT I LEARNT AT SCHOOL

Chris Riddell was all set for a path leading to academia, before an inspiring art master gave him 'permission' to choose a rather different course...

I went to what was then Archbishop Tenison's Grammar School in Kennington, just opposite the Oval cricket ground. I was a shy, retiring type, to the extent that my form master once wrote in my school report, '*Riddell is disturbingly quiet.*' I was a good student, quite industrious, but mainly because I wanted to blend in and not be noticed. Of course, that only served to attract attention and turned out to be not quite the winning strategy I thought it was.

My two brothers attended the same school – one was in the year below me, the other in the year above – and both built up considerable reputations as being sporty types you didn't mess with. That meant I was completely immune to any sort of bullying, despite being very studious and what one might now term as a 'geek'.

The school was very big on sport, but because I considered myself an 'arty type' I never wanted to join any teams. I actually used to truant during sports lessons and sports days, when I'd sneak across the river to the Tate Gallery and spend the afternoon there. I didn't like breaking rules, but there were times when I just thought '*No, I really must...*'

I remember we had a psychotic physics master who used to throw his board rubber at us, and a music teacher who was fairly mild-mannered but highly strung. I remember him once thrashing a pupil who had climbed on to the school's rather fine grand piano.

But standing out amongst them all was my art master, Jack Johnson. He was an inspirational teacher, but *quietly* inspiring. I was in the small group taking art A level, and we'd often simply sit with Jack during art classes, having cups of tea, chatting and looking through some books. It was like meeting an artist in his studio – he himself had been trained in fine art and worked as a cartoonist for several newspapers, and had a huge influence on me.

He observed that I loved drawing and painting and suggested I apply to art school. All I could say at first was '*...can I?*' The very idea went completely against everything the school had mapped out for me, but Jack simply explained that I could go to art school if I wanted to, and it turned out to be a transformative moment. Pursuing a career in the arts was a bizarre choice back then, but it was the best thing I ever did – though these days, my younger self would have been better off training to do something in 'cyber', apparently…

The *Goth Girl* books I've done are a repository for various memories dating back to my school days – my fixations with Romantic poets, history and arcane sporting activities, among many other things.

More recently, I've illustrated a new edition of *Alice's Adventures in Wonderland*, which was a hugely influential book for me. I'd pore over John Tenniel's original illustrations endlessly, particularly the White Rabbit on the frontispiece. I opted to illustrate this version as if doing so for a contemporary author and went down a completely route for the most iconic characters – my Mad Hatter is a girl with long hair.

I've also compiled and illustrated a poetry anthology, *Poems to Save the World*, which reaffirmed my love for how words and pictures can work on a page. I relish any opportunity to illustrate poetry, as it offers a way of getting inside a poem and illuminating it – and yet we have education ministers telling us there's not a requirement for poetry to be included in the curriculum any more. It's a form that's so important, so accessible in some senses, and so creative – I think we give up on that at our peril.

Chris Riddell is an author, illustrator and the political cartoonist for *The Observer*, and was the UK Children's Laureate between 2015 and 2017; follow him on Instagram via @chris_riddell, on Twitter via @chrisriddell50 or visit chrisriddell.co.uk


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3 things we've learnt about... THE 'NEW NORMAL'

Having experienced a tumultuous start to this academic year, how are teachers now finding their daily routines? **Laura McInerney** crunches the numbers...

1 You enjoy being in school – though it's harder

Teaching under COVID isn't easy, but teachers have nonetheless enjoyed returning to the classroom. In early autumn, even amid uncertainty around face masks and social distancing rules, 80% of teachers said they'd enjoyed their weeks when asked at the end of a Friday. Curiously, headteachers were those most likely to strongly agree with this – over half in the category – compared to just one third of classroom teachers. That latter finding is all the more surprising, given that headteachers worry more about their jobs, and tend to score high on anxiety measures and working hours throughout the pandemic. It could be that headteachers are more stressed, but also happier than others to take on difficult challenges. Another group showing high anxiety during lockdown were private school teachers doing live video lessons, but having returned to school they're now back to being some of the least worried staff of all.

2 Pupil behaviour seems about normal

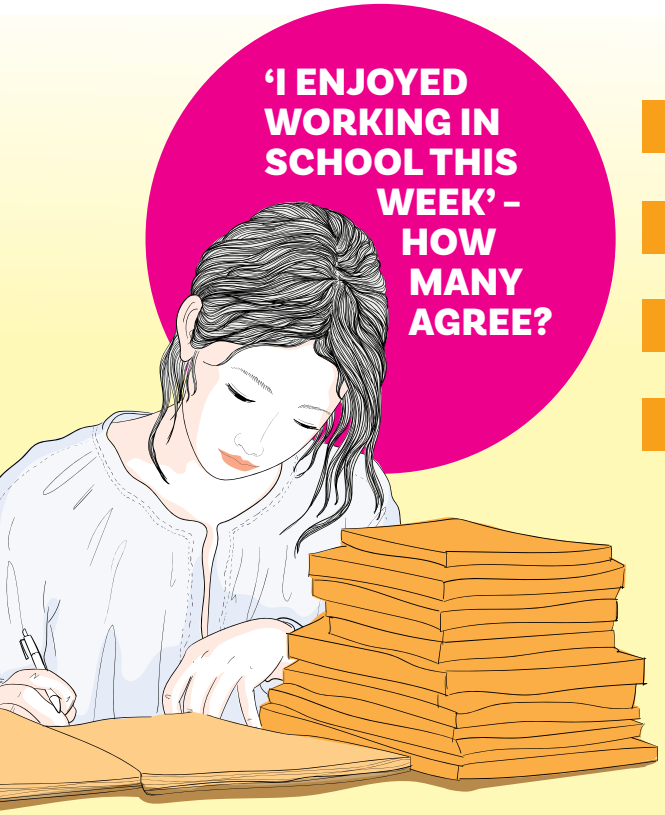
You might expect that after six months at home – in some cases, without any adult eyes on them – pupils might struggle with behavioural expectations, but the data suggests otherwise. Newspapers may have reported that children could no longer hold pens, but thousands of teachers told us that things were pretty normal. When asked on a Friday afternoon if the last lesson had to stop at any point due to poor behaviour, 25% teachers agreed. That sounds bad, but it's actually what we found at the same time of year in 2018 and 2019.

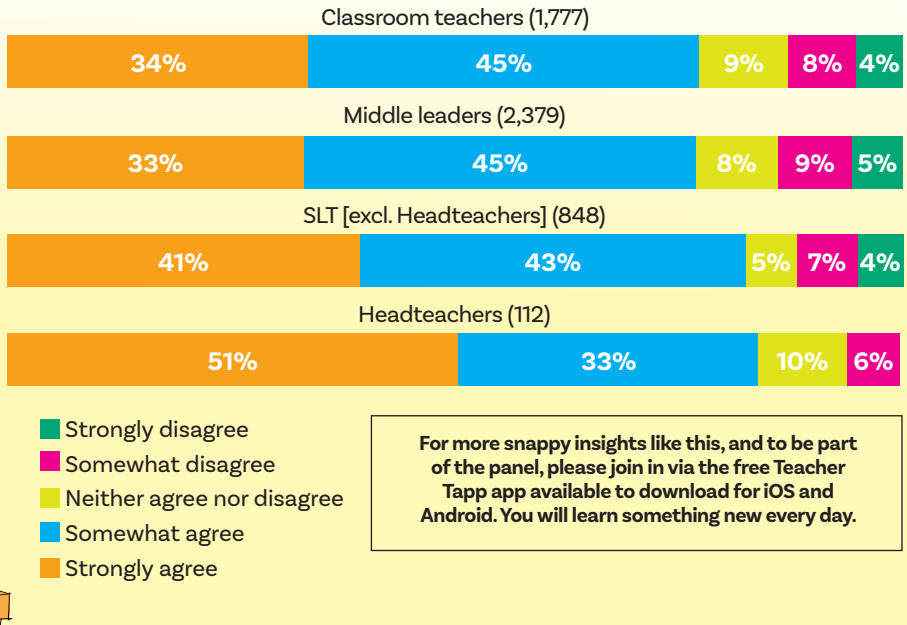
A bigger problem is that the proportion gets worse throughout the year, the number of 'last lessons' disrupted sometimes hitting as high as 41% by April, with new teachers bearing the brunt. One odd benefit of the new rules is that pupils are now less likely to be late to lessons – presumably because more schools are now requiring students to stay within home classrooms or specific corridors in the school.

3 However, teachers are socialising less...

Pupil beahviour might be largely as expected, but teachers' lives have become far less predictable. 70% of schools have moved to staggered starts, with half implementing staggered breaks. As staffrooms are repurposed due to social distancing needs, it's harder than ever for teachers to hang out together. Previously, 30% of teachers would eat their lunch in the staffroom – that figure's now down to just 19%. In terms of what that means for PPE time, some teachers on social media commented that their schools were so short of space that they had to work in their cars!

On the plus side, however, even amid all this disruption, teacher friendships haven't changed much. Half of teachers still say they have a best friend among their colleagues at school, which is in line with results from all previous years. Even a virus can't change our need for a BFF!





For more snappy insights like this, and to be part of the panel, please join in via the free Teacher Tapp app available to download for iOS and Android. You will learn something new every day.

CLASSROOM LIFE

"Allowances aren't being made"

Nick Hurn, CEO of the Bishop Wilkinson Catholic Education Trust, shares his experience of responding to 2020's series of tough and constantly evolving challenges

Our initial response to lockdown was somewhat mixed and uncoordinated. Each school had its own particular approach and differed in terms of their capability. Some were able to offer very good ICT and remote learning provision to their students; others, not so much.

And yet every school, even those that were initially under-resourced or less prepared, has got to the point where their students can access remote learning and lesson materials with a reasonable level of support. From that early mixed approach we've since made massive strides, learnt from our best examples and sought to raise standards across the trust to the same high level.

Frequent disruptions

Being based in the north east, we've experienced frequent disruptions and had to cope with numerous student bubbles being sent home. As such, we've needed to be very cautious and carefully maintain our own track and trace systems.

All of our students work in bubbles, and will either stay in a particular location with staff coming to them, or move around the school one at a time. If someone should test positive, we'll immediately identify which groups the individual was with, phone round parents, check registers to see who they've been in contact with and review their movements on the days prior and immediately after them being tested. Discussions will then be had with the relevant LA's public health team, after which a decision will be made as to which groups have to isolate.

We've tried to ensure our remote teaching resembles the classroom experience as closely as possible – for example, by issuing teachers with Wacom tablets so that they can easily present formulas and equations in maths, physics and chemistry lessons. We also use some materials produced by the Oak National Academy programme and BBC Bitesize, and make a point of teaching students how to use the online facilities and resources available to them. It's one thing to say that something is online, but quite another as to whether the students are using it effectively or not.

A key issue that concerns me right now is that allowances aren't being made for the effects the pandemic is having in certain local populations compared to others, and the impact of that on next year's exams. Some of our students have spent four weeks in isolation, returned to school for a fortnight and then needed to isolate again, missing massive chunks of their learning in their process. And yet these students are going to be examined in exactly the same way as students in those parts of the country that have been barely affected at all, by comparison

We need a slimmed-down curriculum that everybody can work towards, complete clarity as to what schools need to cover, and the time and opportunity to do that, whatever restrictions might be in effect across any given locality.

TRUST STATISTICS

Number of schools: 13 (eight primary, five secondary)

Areas: Northumberland, Sunderland, Durham and Gateshead

Total student population: approximately 8,000

Future expansion: 48 schools to be added by 2022

Above and beyond

A proportion of our students' parents are highly engaged in their children's learning, but we've often heard from others who would like to be more engaged and able to assist their children, but don't know how. We've found the parental communications platform Free Flow Info to be a really good vehicle for providing them with information and sharing various resources.

It's more well-established in the trust's primary schools, but it's helped us find effective ways of supporting parents at secondary too. In English, for example, students might be studying a text like *An Inspector Calls* and be assigned a summarising activity for homework. A member of staff can use Free Flow Info to present parents with the key points their children should know about, and send parents their subsequent comments on the student's completed work.

"WE NEED A SLIMMED-DOWN CURRICULUM THAT EVERYBODY CAN WORK TOWARDS, COMPLETE CLARITY AS TO WHAT SCHOOLS NEED TO COVER, AND THE TIME AND OPPORTUNITY TO DO THAT, WHATEVER RESTRICTIONS MIGHT BE IN EFFECT ACROSS ANY GIVEN LOCALITY."

NICK HURN, CEO

Needless to say, the past few months have been an incredibly stressful time for our staff. I get quite cross when I hear people suggest that teachers haven't been in school or performing their roles, because it's simply not true. What I've seen across our schools has been amazing, including staff organising deliveries of food parcels and many other things that go above and beyond the job.

I do worry about the prospect of burnout and our staff's overall levels of mental health, which is why we're very careful to support all our staff – particularly single parents who may be needing to self-isolate with their children at home, because there's nobody else available to take care of them. In those situations we'd look to grant a paid leave of absence whenever we can. Our staff are ultimately our biggest and most important resource – if we don't provide them with sufficient care and support, what can we hope to achieve?

Future planning

One of the biggest challenges of this whole affair has been the constant churn, change and updates to the rules, like the introduction of the tiers system and its implications. We've managed all of that so far, but it's been hard.

Blended learning is now a critical part of our future planning. If, God forbid, we're facing another year of pandemic-related lockdowns, then we're at least now prepared for it. We've implemented a strategy across the trust that allows every school to deliver a very high standard of tuition via Sharepoint, Google Classroom and Teams.

Longer term, we expect a number of our post-lockdown changes to remain in place. For instance, it's unlikely that we're going to assemble 50 people together in one space again for a meeting any time soon – but considering how many such meetings largely consist of information sharing, why would we need to? We still hold meetings, albeit not as frequently as before, among staff who are generally much more comfortable using Teams and Google than previously.

Out of this awful pandemic has come a great deal of innovation. We've implemented approaches we've wanted to pursue for a number of years, particularly the online resources we're now able to offer students, supported by excellent video explanations from our best teachers (see 'The view from the school'). This type of distance provision will never replace classroom teaching, but it's enabled us to provide interactive lessons for students on long-term absence due to COVID-19, or any other reason.

Some good things have come out of this, and I've been really encouraged and impressed with what I've seen happening across our schools.

The view from the school

JONATHAN PARKINSON IS THE HEADTEACHER OF ST THOMAS MORE CATHOLIC SCHOOL

"What we're currently asking staff to do is record every lesson they teach. At the base level, you can just use Google Hangout's built-in record button, but a few of us geeks in the school are now starting to use OBS Studio (obsproject.com) – open source broadcast software that enables livestreaming to YouTube.

As I'm teaching, I'll identify certain sections of the lesson, be it a Q&A or a five-minute explanation, and note down the time when I reach them. When I later come to edit the recorded lesson, I can scroll through, quickly find my explanation point and cut it out to form a separate clip very easily.

That way, I can convert a lengthy lesson into a concise series of clips that can be used in a Google Assignment, and essentially go from teaching live, to editing the lesson down into something more accessible children for unable to be there, to sending it out, all within 15 minutes."

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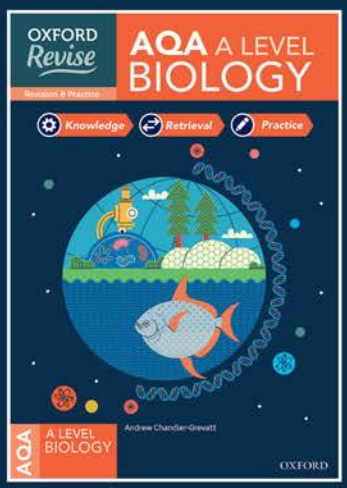

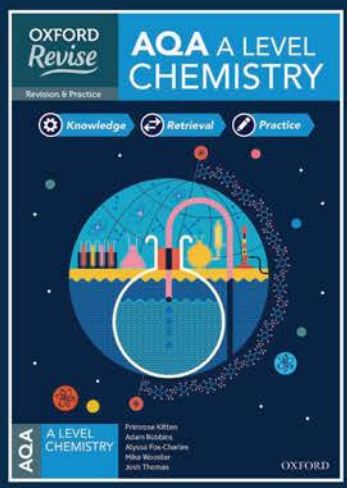

Ideal for consolidation work throughout the year, not just at exam time

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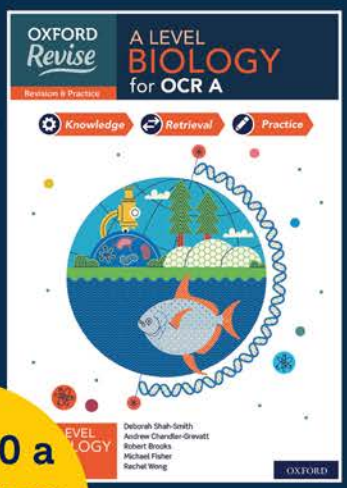

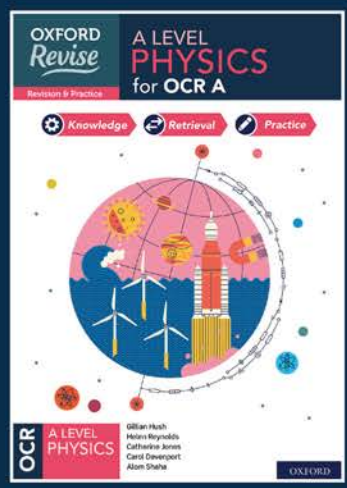

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We look at how science can be an exceptional arena for engaging pupils' imaginations, career ambitions and development as self-directed learners

How should we engage students in the study of science?

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Free resource!

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Creative spark

A subject that demands curiosity, investigative skills and flashes of inspiration from those studying it will naturally benefit from a creative approach to teaching it, says **Paul Weeks**...

Remember you're a rat," I say encouragingly to the anxious looking Y7 student now trapped between some rearranged desks. She looks around hesitantly and then, rat-like, starts to slowly explore her surroundings.

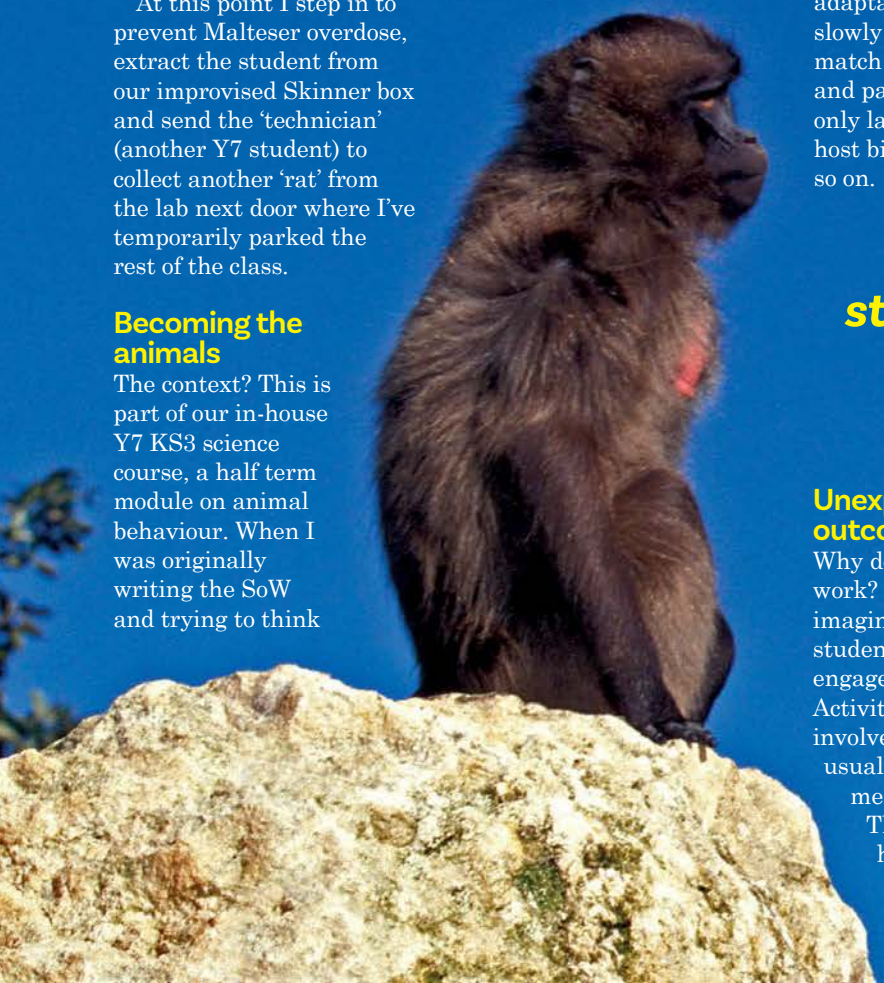
There's not much to see, apart from a small electrical button. She picks the button up suspiciously – looks at it, sniffs it, and tentatively presses it. Two things then happen. A bulb on the desk lights up and a volunteer behind the desk presents her with a Malteser. She gives a huge grin and immediately presses the button again. Another Malteser!

At this point I step in to prevent Malteser overdose, extract the student from our improvised Skinner box and send the 'technician' (another Y7 student) to collect another 'rat' from the lab next door where I've temporarily parked the rest of the class.

Becoming the animals

The context? This is part of our in-house Y7 KS3 science course, a half term module on animal behaviour. When I was originally writing the SoW and trying to think of lesson plans that could go beyond simple invertebrate choice chambers, I came to a realisation. It would be impossible for us to keep enough lab rats to do a class investigation on learning behaviour, but a simple alternative would be to have the students become the study animals themselves.

This single thought opened up boundless possibilities. We couldn't take the children to Africa to study primates, but we could bring the African savannah to school by turning the class into a troop of baboons (adult males, adult females and their young) being studied by a small subset of scientists. The latter would be tasked with observing the baboons' interactions, making deductions and seeing if the genetic data (acquired by 'darting' the baboons with paper aeroplanes in order to obtain 'DNA samples') supported their conclusions on maternity and paternity.



Similarly, we couldn't spend 10 years studying cuckoo/host interactions in the wild, but we could compress an evolutionary arms race into a lesson by role playing the host birds defending their nests, and the cuckoos trying to dump their eggs into said nests undetected. With each 'generation' the cuckoos are allowed an evolutionary innovation, and thus the adaptations of the cuckoo slowly evolve – eggs that match the host eggs in size and pattern, cuckoos that only lay their egg after the host birds start laying and so on.

"Six years on at A Level, students will still remember that time they were put in a Skinner box in Y7"

Unexpected outcomes

Why does this approach work? Well, as you can imagine, it's great fun – the students are immediately engaged and interested. Activities of this type involve a break from the usual routine and are memorably different. The students will go home and tell their parents about what they've done, who will then relay that to you at the next parents' evening.

It also works from a learning perspective. Six years on at A Level, students will still remember that time they were put in a Skinner box in Y7, rapidly pressing a button that rewarded them with chocolate. Most important of all, the students are involved and engaged with their own learning. They have to not only really think, but think *creatively* – the hallmark of all the best scientists.

The tasks described above may be fun, but they're also challenging and can lead to some unexpected learning outcomes. Take our baboon scientists, for example. They had to make deductions from short DNA profiles when attempting to match the infants with their parents, and were quickly able to confirm that the female baboons were indeed the mothers of the infants they most associated with, but they couldn't work out who the fathers were. None of them seemed to fit. Why?

At first, I couldn't understand the difficulty. Once you realise that all the bands from a baby must match bands in either the mother or father, and that you have to account for all

bands present, it's just a simple logic problem – isn't it? But, no, they remained baffled. Why the mental block?

And then one of them had a flash of insight. '*Hang on*', she said, '*are baboons different to humans? Can one father have several 'wives?*"

It was a brilliant lightbulb moment, one you want to capture, bottle and share with the world. They'd been trying to match up mothers and fathers with their offspring as discrete family units. This hadn't worked, and they were consequently getting frustrated and confused. Yet suddenly, with this new way of looking at the world, they could make sense of it all. They rapidly worked out that the alpha male was not only the father of four of the six offspring, but had – shock horror! – sired them with *four different females*…

Overturning preconceptions

This was quite sweet – such innocence! Such well brought-up students! – but I love anything that startles students out of preconceived views of the universe. They had framed baboon society as being essentially the same as conventional middle class, western human society, and subconsciously made certain assumptions. Which didn't match the evidence. So something had to give. It was wonderful to see – partly because their preconceptions of the world had been overturned, but mainly because they had made a discovery for themselves. You know, like *science*.

The notion that students should be able to learn through discovery runs throughout all of my teaching, and I've found that role play can open up a multitude of possibilities. I like giving A Level students original data and getting them to work out metabolic pathways for themselves, but it's equally possible to retool standard practical work for the same ends.

My Y9 introduction to enzymes provides virtually no theoretical background whatsoever. The students certainly don't hear anything about 'enzymes' – I simply give them a brief description of hydrogen peroxide and how, over time, it degrades to water and oxygen. They then carry out a simple series of experiments with hydrogen peroxide, yeast, potato and liver. They love the excitement of the bubbles and the mess, but the key learning point comes when they've boiled the yeast/potatoes/liver. They're expecting more of the same – heat speeds things up, right? – but suddenly the reaction that was previously so much fun isn't happening. That's *funny* (the most exciting phrase in science, according to Isaac Asimov), and needs explaining. Voila – you've just created the learning framework for enzyme theory, which will now gently plop into the receptive gaps that have formed in your students' brains.

I'll end with one final, compelling reason why I like this approach. Never mind that it's fun, motivating, different and memorable – it *works*. It works not just by enthusing students about science and the scientific method, but actually enhances learning in a way that copying notes from a PowerPoint presentation can never hope to achieve.

After the baboon lesson I always ask the class what they've learned, and the resulting list is invariably long. Dominance hierarchies, stress hormones, grooming behaviour, DNA profiles and how to interpret them, baboon society, field biology, how to communicate without speaking – not bad for a Year 7 class, eh?

And best of all – they hadn't written a single thing down…

ABOUT THE AUTHOR
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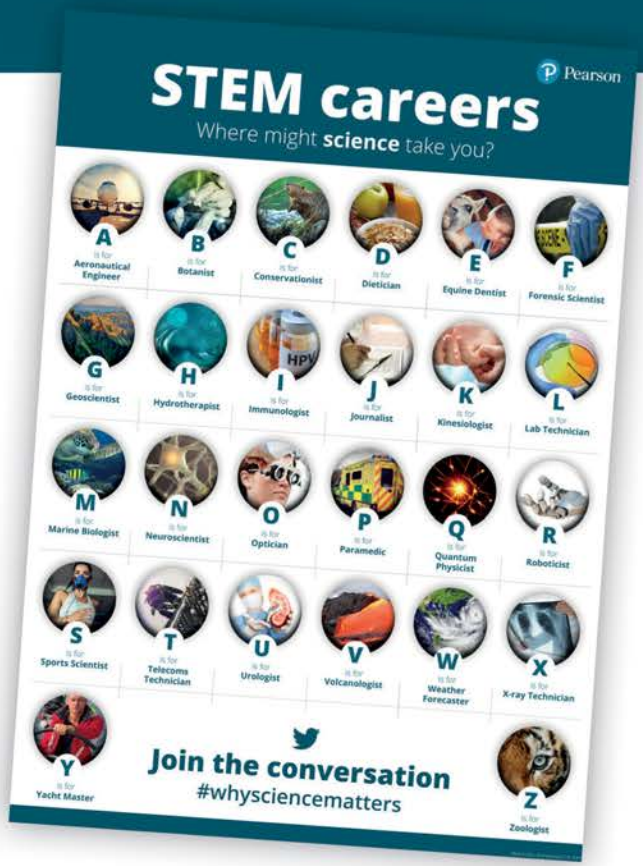
Pearson

Their future in STEM: A-Z



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Ditch the stereotypes

The 'nerd scientist' cliché isn't just tired – it's actively stopping students with an aptitude for science for realising their career ambitions, says **Caitlin Brown**

The myth of the 'nerdy scientist in a lab coat' has persisted for decades. Many will see this as a funny and harmless thing, but for young people in KS3 considering their future careers, it's a damaging, unrepresentative and unappealing stereotype that can negatively affect their view of careers within science and wider STEM education. Dispelling such a well-established narrative won't be easy, of course, but there are some steps that can be taken in the classroom to at least lessen the likelihood of young people allowing negative stereotypes to affect their career decisions.

Mixing up the ways in which science lessons are delivered is one way of challenging such narratives. Project-based learning (PBL) is ideal for this, because of how it can show the depth and breadth of what careers in science actually look like. A well-organised PBL activity can help young people appreciate both the excitement that science-related careers can offer, and the sheer variety of ways in which science can play a role in many different sectors.

Getting started

PBL is a method of teaching that encourages students to identify real-world problems and create solutions for them, emphasising a hands-on approach to learning.

The projects students end up tackling might range from an art restoration exercise, to monitoring water pollution and anything in between. The multidisciplinary nature of PBL lets students who wouldn't necessarily describe themselves as having a natural interest in science to see its applications across an array of other subjects and sectors, be it the arts, sport or even fashion.

The 'nerdy scientist' stereotype is further damaging because it usually denotes an older white man with crazy hair, and often paints science careers as being only for the highest achieving students – hardly an accessible image for teenagers thinking about their future careers. For undecided students and those who who have already dismissed the idea of pursuing a career in STEM, these misconceptions could make the idea of studying STEM subjects seem altogether pointless.

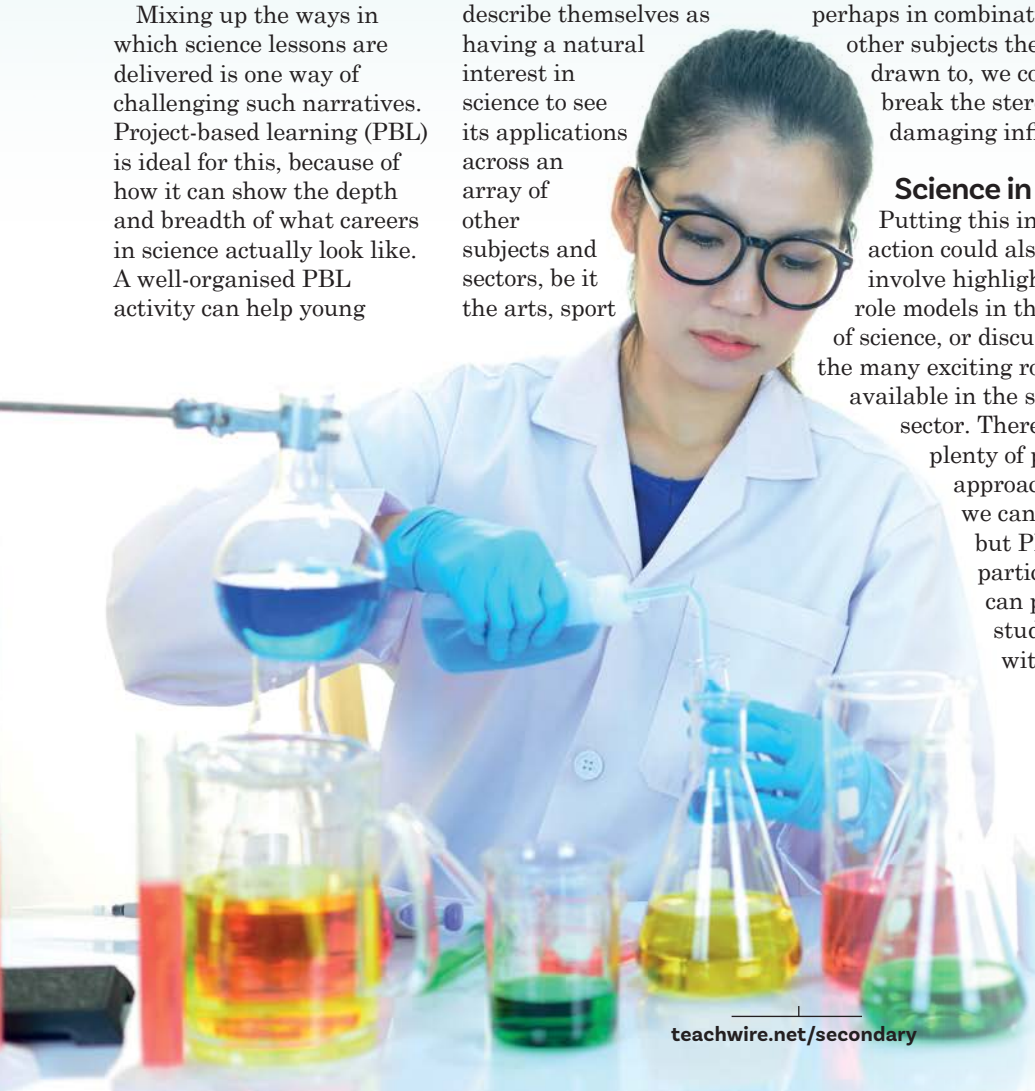
However, if students can be taught to apply their science learning and existing skills to everyday challenges, perhaps in combination with other subjects they're drawn to, we could break the stereotype's damaging influence.

Science in action

Putting this into action could also involve highlighting role models in the field of science, or discussing the many exciting roles available in the science sector. There are plenty of positive approaches we can take, but PBL in particular can provide students with first-hand experience of what being a scientist is truly like, and the variety of careers science can lead to. It's not just future scientists who should be encouraged to take an interest in science but everyone, since it's relevant to all aspects of our lives.

Opportunities to get young people involved with PBL science activities can take the form of independent home learning and classroom projects, as well as national programmes such as the CREST Awards (crestawards.org) and The Mayor's London Scientist Programme. Participating in such projects can tackles students' preconceptions about science being only for select few, by dint of how collaborative and inclusive they are.

However we choose to do it, it's important that outdated views of science and scientists be critically examined and eventually overturned, especially seeing as we're now living in an age that depends heavily on science and science-based skills. PBL and similar approaches can help young people better comprehend just how wide-ranging the applications of science really are, and the multitude of career paths and ways of understanding our world that will open up to them as a result.



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FIFA for the *Physics Win*

Gethyn Jones explains how a four-letter mnemonic can help your students make short work of GCSE physics calculations...

Is your physics department improvement plan barking up the wrong tree? If it includes such hallowed, yet shop-worn phrases as '*Improve six-marker extended writing answers*' then it may well be.

In the latest specifications for both GCSE physics and the physics sections of GCSE combined science, 40% of the marks are for calculation questions. Statistically, physics students are twice as likely to be asked to complete a multistep calculation for six marks than they are to write an extended answer in prose.

But how should we support our students? How do you move from a situation where the majority of students don't even attempt to answer the simplest calculation exam questions, never mind the more challenging multistep ones?

We've found 'FIFA' to be an invaluable tool for giving students the confidence to begin making incremental progress, which over time can lead to significant improvements. What is FIFA? It's a simple mnemonic that we encourage our students to use for every calculation, standing for 'Formula'; 'Insert values'; 'Fine-tune' (a deliberately vague term that occasionally equates to 'rearrange'); and 'Answer'.

Let's illustrate its use by considering a typical 5-mark physics question – one which, prior to the FIFA initiative, the majority of our students wouldn't have touched with a barge pole:

'A car is travelling at 29m/s and has a kinetic energy of 525 600 joules. Calculate the total mass of the car. Show clearly how you worked out your answer and give the unit.'

Step 1 – write down the Formula

The required formula here, of course, is the kinetic energy equation: $\mathbf{E_k = 0.5 \times m \times v^2}$.

Higher paper candidates will have to recall this from memory. One argument which helped convince our students to memorise the 23 equations for GCSE physics was an analysis of a previous paper, which showed how a candidate who answered only the calculation questions correctly while leaving every other question blank would still have passed with a high grade 5. Calculations really can make or break a student's success in GCSE physics and science.

Many mark schemes will award a mark for correct recall of the appropriate equation. Even if our students did nothing else beyond this, they would have scored 1/5. This is worth emphasising, as some students can be paralysed by their desire for perfection – '*I'm not going to get any marks for this, so what's the point?*'

Replying with, 'But you'll get at least one mark, so... why not?" will be a surprisingly powerful encouragement to many students (even if they won't admit it out loud).

Step 2 – Insert the values

Next, students extract the numerical values from the question. For this example, the second line that students write would be **525 600 = 0.5 x *m* x 292**

This would gain a mark on many mark schemes, provided the correct values had been substituted into the correct relative positions. With the two lines they've written so far, our students will have scored 2/5, even if they make no further attempts at the question.

At this point, many teachers would encourage students to circle, highlight or colour-code the numerical values in the question. I'm agnostic on that, because such a process 'butters no parsnips' – that is, gains no marks. I tend to

THE QUESTION

A car is travelling at 29m/s and has a kinetic energy 525 600 joules.

Calculate the total mass of the car. Show clearly how you worked out your answer and give the unit.

Standard approach:

$E_k = 0.5 \times m \times v$

$m = \frac{E_k}{0.5 \times v^2}$

$m = \frac{525\,600}{0.5 \times 292}$

$m = \frac{525\,600}{0.5 \times 841}$

$m = \frac{525\,600}{420.5}$

$m = 1250\text{kg}$

FIFA approach:

Formula: $E_k = 0.5 \times m \times v^2$

Insert values: $525\,600 = 0.5 \times m \times 29^2$

Fine tune: $525\,600 = 420.5 \times m$

$\frac{525\,600}{420.5} = m$

Answer: $m = 1250\text{kg}$

view it more as a displacement activity than a useful and effective action, but if students enjoy the colour coding, then I've no objections – providing they gain that second mark.

Step 3 – Fine tune

The term 'fine tune' was partly chosen for its ambiguity. Essentially, what we mean here is '*Do what you gotta do.*' Sometimes that might mean 'rearrange'; in other instances, it might mean 'convert units' (such as kilojoules to joules). Occasionally it will mean 'simplify!'

(Incidentally, we found that the concept of 'tuning' and 'fine-tuning' a radio set had to demonstrated to a generation of students more used to digital, rather than analogue entertainment!)

Back in step 2 we left our calculation answer as **525 600 = 0.5 x *m* x 292**. The third line of our calculation should therefore be **525 600 = *m* x 420.5**, since 0.5 x 29^2 is 420.5. The students are now encouraged to work incrementally and sequentially, sub-step by sub-step, to complete the fine-tuning stage.

When I first started using the FIFA system, it was strange to discover that students who'd normally run screaming from the room if asked to rearrange the simplest three-term equation can easily take almost identical problems in their stride – but only when the symbols have been replaced with numbers...

The next (and in this case, final) sub-step is to rearrange (line 4): **525 600 / 420.5 = *m*.**

Step 4 – Answer

The fourth and final step of FIFA is to calculate the final answer and state the unit. In this case, the fifth and final line of the answer will be **m = 1250kg** which would gain the full 5/5 marks.

The correct final answer and unit on its own would also get 5/5 marks, of course, but the point of the FIFA system is to help students gain incremental marks along the way. It makes climbing what, to many students, seems like a very steep hill more manageable, as even a partially correct response will result in a significant confidence boost.

I'd recommend trying the FIFA system with students who struggle with fluency in mathematics, because chances are they'll struggle a little less as a result of using it. If you're of the *'rearrange first'* mindset, think of FIFA as cognitive stabiliser wheels – it can prevent a few knocks and bruises, and help students gain a little confidence before being ultimately discarded – though not, one hopes, before it's served its purpose…

ABOUT THE AUTHOR

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'REARRANGE FIRST!'

That's the phrase I'd have once squawked alongside the majority of physics teachers, firmly of the belief that the second step of our example question above should involve the following:

$$m = \frac{E_k}{0.5 \times v^2}$$

However, there's a problem with this approach. In the majority of mark schemes, any errors in rearrangement or the subsequent calculation will result in zero credit. The 'safety play' is to always insert the numerical values straight into the equation before any rearranging attempts for 2/5 marks, rather than risk rearranging incorrectly and dropping back to 1/5 marks.

Rearrangement is also more cognitively demanding on students' mental resources, since they have to remember which of the symbols represent the unknown value and which represent the known, both before and during the rearrangement process – something second nature for expert teachers, but harder than generally acknowledged for novices! But if we substitute first, it becomes crystal clear what quantities are known, freeing up working memory for dealing with other aspects of the problem.

SELF-REGULATION AND SCIENCE

Dr Andrew Chandler-Grevatt explains how subtle shifts in focus and self-regulation strategies can deliver better outcomes in your science lessons

With face-to-face teaching becoming ever more challenging in our post-COVID schools, many teachers have started looking more closely at how to develop students' abilities at tackling tasks more independently. Even beyond those immediate concerns, the broader picture is that independent learning remains a highly valued characteristic among school leavers and is widely recognised as an important life and work skill.

Science lessons are an ideal environment in which to develop students' self-regulation skills – here, I'll explain why.

What is self-regulation?

There has been significant research interest into self-regulation, particularly in terms of how it can be best taught to students. The definition of 'self-regulated learning' isn't set in stone, but can vary widely when applied to learning. The form of self-regulation that science teachers will likely want to develop is 'academic self-regulation' – that is, a set of strategies students can apply when planning how they will learn, monitoring their learning and evaluating how successful their learning has been.

While there is some crossover with metacognitive strategies, I'll be concentrating here on academic self-regulation before outlining a five-year approach to developing independent learners.

The Education Endowment Foundation has previously stated that self-regulation strategies can increase student progress by an equivalent of seven months. Its 'Metacognition and Self-regulated Learning' guidance report (see bit.ly/ts98-eef-meta) highlighted just how important both self-regulation and metacognition skills are, and emphasised the useful role they can play across different subjects, given the difficulties students often encounter when applying generic skills to highly specific tasks.

"Self-regulation strategies can increase student progress by an equivalent of seven months."

Self-regulation can be a complex concept to grasp, but it's possible to introduce it to science lessons by making a few simple shifts in focus. The main overriding strategy for self-regulation is the 'Plan, Monitor, Evaluate' cycle, each stage of which can be applied to a student's learning process – so let's examine how three particular shifts in focus can go on to affect the use of common science lesson activities.

1. Learning new content

A primary focus within science lessons will obviously be the acquisition of new knowledge. One common homework activity, for example, might involve asking students to learn the symbols for the first 20 elements of the periodic table – in itself, a potentially daunting task.

However, enacting a small shift from simply *setting* the task to presenting a strategy of *how to achieve* the task can increase students' chances of success. Introduce your learners to the aforementioned Plan, Monitor, Evaluate strategy by posing the following questions:

- How will you go about this task? (*Planning*)
- How will you check your progress? (*Monitoring*)
- How will you know that you've succeeded – or what you need to do to succeed? (*Evaluation*)

The teacher can introduce some ideas for achieving this, and the students could be invited to suggest some strategies they might have used in their learning before. In this instance, flashcards could be made with the element names on one side and their corresponding symbols on the other for self-test purposes. Students could check their progress by browsing through the flash cards in a random order – once with element names face up, then with the symbols face up, and finally with a mix of names and symbols showing.

The students can test themselves, or ask someone in their household to test them, sorting the cards into separate 'learnt' and 'to be learnt' piles as they go. For elements they keep getting stuck on, helpful memorisation methods might include drawing pictures for the elements and their symbols, or attaching them to mnemonics and acronyms.

2. Explicit modelling

A second example of a self-regulation strategy involves using physics equations to perform calculations. Instead of simply giving an equation to students, alongside some problems it can be used to solve, we can shift to promoting self-regulation by explicitly modelling the plan-monitor-evaluate process when faced with a specific science problem.

In this instance, let's take the equation used to calculate power. The teacher models each step in using the equation to perform a calculation, while clearly explaining their thinking behind what they're doing.

First, the teacher describes *how* they plan to tackle the calculation, highlighting how it's laid out on the page and how they're able to make sure that they have all the information they need. As they go through the equation, the teacher then shows how they're able to monitor what they're doing – which will include checking that the values are attached to appropriate units and identifying any conversions that may be needed. Finally, there's the need to check that the answer 'looks right.'

An increasingly common technique is the 'I, We, You' approach. The teacher models the process ('I'), the teacher and class do the next example together ('We') and then the students have a go on their own ('You').

3. Activating prior knowledge

Prior knowledge will commonly be activated using a form of retrieval practice. A shift towards self-regulation in this area would be to encourage dialogic talk that is structured and focused on the process of learning.

This can be done by giving students a list of prompts to consider and discuss, for example:

- What do we already know about photosynthesis?
- What other knowledge [big ideas or concepts] will be useful?
- What strategies have we used before when learning a new topic?
- How could we improve how we learn?

It's important to develop students' competence in selecting, using and applying self-regulation strategies to support their learning. Just like any other skill, it will need to be modelled, scaffolded and developed until it can be independently demonstrated by the student.

I hope this article has shown that implementing self-regulation strategies into your teaching needn't require making significant changes, and that small shifts in focus and expectations can lead to markedly improved levels of independence among students.

5-YEAR PLAN

Below is a pathway for developing key self-regulation skills over the five years of secondary science that consists of three stages – 'trying out', 'using' and 'applying'.

Trying out
In Y7 and Y8 the focus can be on trying out self-regulation strategies. Teachers introduce a range of self-regulation strategies during these years, modelling them and encouraging students to try them. Students begin to evaluate them and decide which ones will work best for them.

Using
By Y9 students should be making frequent use of self-regulation strategies. They will now be familiar with a range of different strategies, and with the right support, be capable of tackling new problems more independently.

Applying
By Y10 and Y11 students should be routinely applying self-regulation strategies in support of their learning. They'll use a range of self-regulation strategies that work well for them, and apply them effectively when faced with challenges. By this stage, when the time for study and revision has arrived, students will be more independent in their learning.

ABOUT THE AUTHOR
Dr Andrew Chandler-Grevatt is the curriculum editor for Activate at Oxford University Press and a senior lecturer in science education at the University of Brighton; he is also the author of *How To Teach For Progress* and *How To Assess Your Students*, both published within the Oxford Teaching Guides series. For more information, follow @Grevster73

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2 ITS DATA CAN HELP RANK STUDENTS

When exams were cancelled in 2020, teachers were put in the difficult position of having to rank their own students. While we're all hoping for a return to normality by next summer, there's no guarantee that GCSE exams will go ahead in the usual way, with centre-assessed grades potentially forming part of the assessment mix. Tassomai provides detailed and comprehensive data on students' abilities and understanding that can be used to support teacher grades.

3 IT CAN SAVE HOURS OF MARKING TIME

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KEY POINTS

Tassomai engages students through frequent quizzing and low-stakes testing with instant feedback – an approach that's proven to be effective at embeding knowledge.

The program is designed to stimulate metacognition, based on learning science and the incorporation of established techniques such as interleaving and spacing .

Parental engagement is encouraged via weekly progress reports and the 'Tree' feature, which lets parents watch their child's knowledge and understanding grow.

Schools pay for access to Tassomai on an annual basis. When used across all year groups, the maximum cost works out at £5 per student – that covers all three core subjects!

"RACIAL BIAS IS AT PLAY ALL THE TIME"

Gordon Cairns examines the extent to which unconscious racial bias may be affecting students and teachers across the education system

In a different timeline, 2020 might have been seen as the year in which wider British society became more fully conscious of racial bias. From the toppling of the Edward Colston statue in Bristol, to the outrage caused by a Black barrister, Alexandra Wilson, at being mistaken for a defendant three times within one day, 2020 has been full of stories showing how the taint of racism can infect all areas of British life, whether consciously or unconsciously.

Even the supposedly liberal profession of teaching isn't immune. According to a study published earlier this year, levels of subconscious racial bias exhibited by teachers are comparable to to any other sector of society, with three out of four teachers demonstrating implicit bias – just 0.1% less than wider society.

Acting on biases

However, Dr Lasana Harris – senior lecturer in social cognition and experimental psychology at University College London – isn't surprised that members of an ostensibly liberal profession should display unconscious racial bias. He explains that prejudice is a response, learned from the society in which we live: "Your profession doesn't make you exempt. Racism isn't based on your values, although that flies in the face of how people think about it. If you live in a racist society, you too will be racist. That is not a choice."

That said, we do have a choice in how we act on those biases: "Teachers who notice these biases are more willing to regulate them."

Professor Tracey A. Benson, co-author of the book *Unconscious Bias in Schools*, goes further, asserting that racial prejudice is so common throughout the education sector that it would be more accurate to call it 'normalised' racial bias, rather than 'unconscious'. A former school principal, he thinks it 'insane' that educators view the poorer academic performance of Black students as typical behaviour.

"In the everyday work in the classroom, in the school building and in school policy – even in the way that we interact with our students – racial bias is at play all the time," he says. "We don't even see the anomaly that we have an achievement gap based on skin colour. It is so normalised that we just accept it to be so. It's not 'unconscious', it's normalised. Unless we draw attention to it, we don't realise it's not normal."

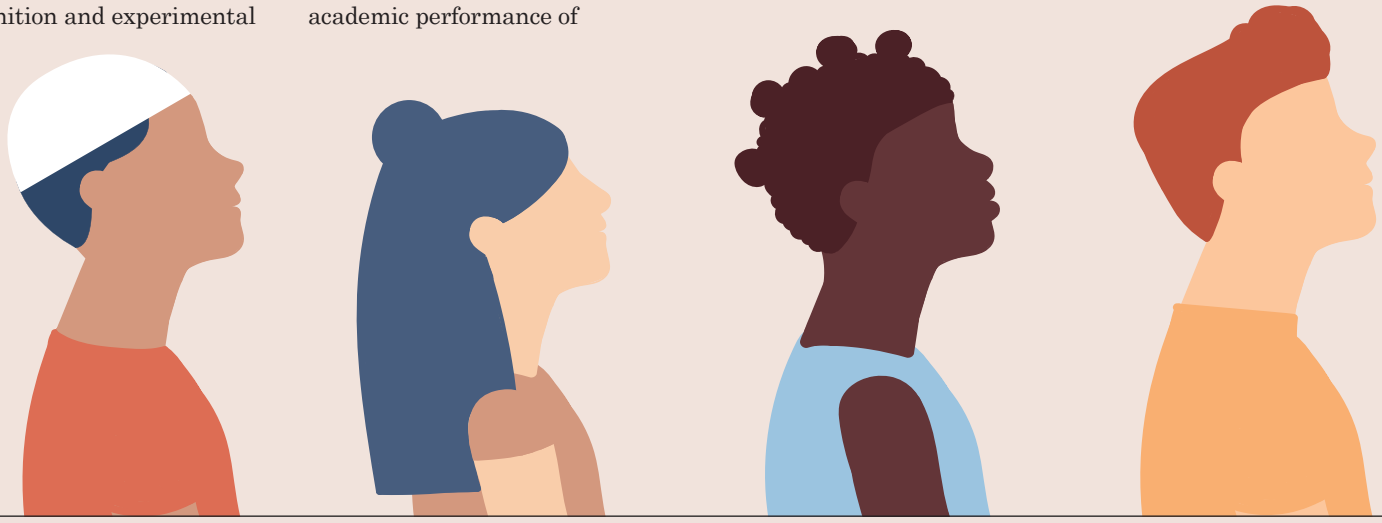
> ***"Racism isn't based on your values. If you live in a racist society, you too will be racist. That is not a choice."***

Professor Benson teaches aspiring school principals at the University of North Carolina, USA, and has, for the past five years, asked his students on placement to record how often students of a different race interact with their teacher, how many are positively praised, and how many are corrected. Describing the results to date, "99% found that white students are redirected less often, interact with the teacher more often, and receive preferential treatment in terms of the rules.

"For example, if there's a rule that students have to raise their hands to get up, it's more often that students of colour would be held to that strict standard, whereas white students would have privilege. And that's how unconscious racial bias takes place unconsciously in the classroom."

Higher expectations

Benson goes on to cite an experiment which found that teachers would



typically mark a white student's answer paper more harshly than when given the same answer paper from either a Black or Latino student: "What that study tells us is that teachers have higher expectations of white students, as they are more critical of them and expect them to do better, but think this is the best that Black and brown students can do, so give them a higher grade and more positive comments."

While the obvious effects of racial bias on students' post-school career might include lower academic attainment, Benson adds that it can also give rise to a number of other negative psychological outcomes affecting self-esteem. "People of colour end up believing 'We are less intelligent' and can develop imposter syndrome. Though you might be highly successful, you have this internal fear that you're not good enough, and this harms your psyche.

"When you're put in a highly stressful situation, your blood pressure goes up. The nervousness caused by imposter syndrome can result in health implications for people who have been on the receiving end of intensive and persistent racism. The list of racism's negative effects is very long."

Equal and opposite

One approach to reducing unconscious racial bias in schools could be to positively discriminate when employing teachers in favour of ethnic minority candidates – an approach previously endorsed in 2015 by Ofsted's then chief inspector, Sir Michael Wilshaw.

Current statistics paint a compelling picture. Over 90% of teachers nationwide are white, while one third of students are not. Professor Benson supports taking such an approach, though warns that even Black teachers – himself included – can be guilty of unconscious racial bias: "I think we have to be deliberate, and offer an equal and opposite response, if we're to continue to undo all the harm we've done."

He goes on to add that positive recruitment won't be enough, however, and that additional methods of tackling prejudice should also be employed, citing blind grading and blind referrals – two strategies known to work, though not, as yet, widely used.

Above all, he stresses that more needs to be done than simply 'being aware' of unconscious racial bias: "School principals just think conscious awareness-raising is enough. They think that if they think better and know better, they will *do* better, but that's not the case. We have to search out a strategy to interrupt the bias.

"We need to develop the ability to talk about it; to say there are people of different colours, that there is racism, and that this is what it looks like. We need to develop that capacity. The reason we find it so hard to talk about racism is that we spend the majority of our lives being told it's bad to talk about racism."

Once we're able to get our own staff and leadership comfortable in talking about race and racism, it'll be necessary to identify those areas where there are gaps in student achievement, suspension rates, participation rates and wherever other gaps might exist. If we fail to pay attention, unconscious racial bias will continue to leave a wide-ranging, negative impact in our schools and classrooms. Having developed a means of measuring that impact, it's then up to us to formulate effective strategies for mitigating it.

CHANGING THE STATUS QUO

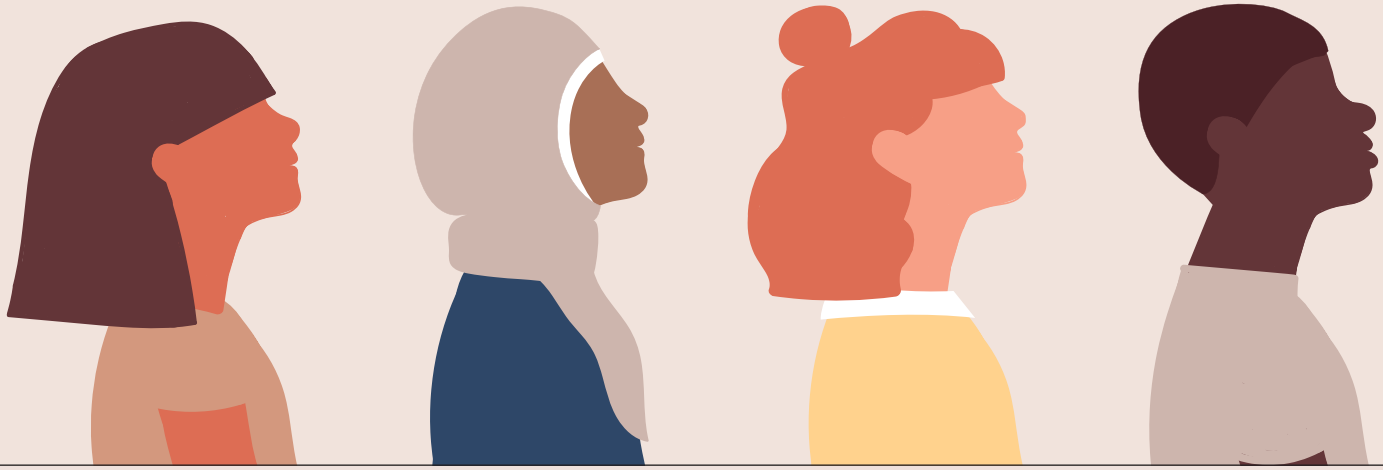
Natalie Russell, head of delivery and development at social enterprise The Black Curriculum, explains the importance of provoking social change through the teaching of Black history

"Students across the UK are not being taught Black British History consistently as part of the National Curriculum in a committed manner, despite numerous findings demonstrating its importance. When young people are not taught their history within Britain, their sense of identity, belonging and self-esteem is negatively impacted and social relations hindered.

"Self-esteem is directly linked to the associations you make with who you are and the world around you. The curriculum creates a picture in a child's head as to how the world works and gives them the skills and tools they need to operate in that world. In failing to teach students about Black British history, we are failing to teach British history accurately and failing to provide an empowering learning experience for every student."

For more details, visit theblackcurriculum.com or follow @curriculumblack

ABOUT THE AUTHOR
Gordon Cairns is an English and forest school teacher who works in a unit for secondary pupils with ASD; he also writes about education, society, cycling and football for a number of publications



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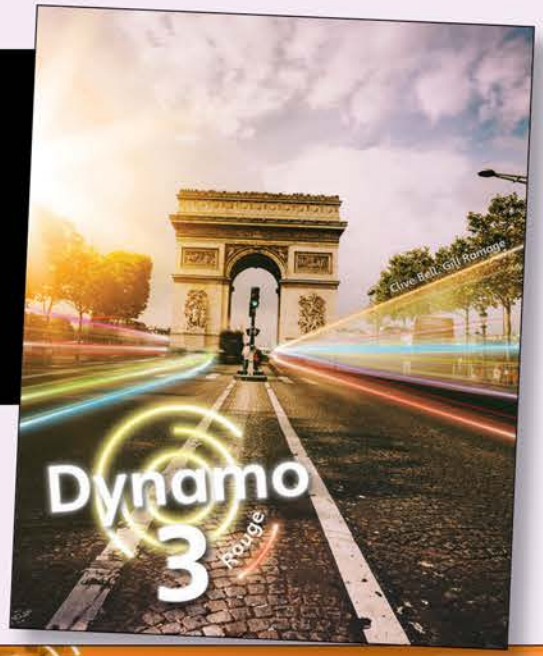

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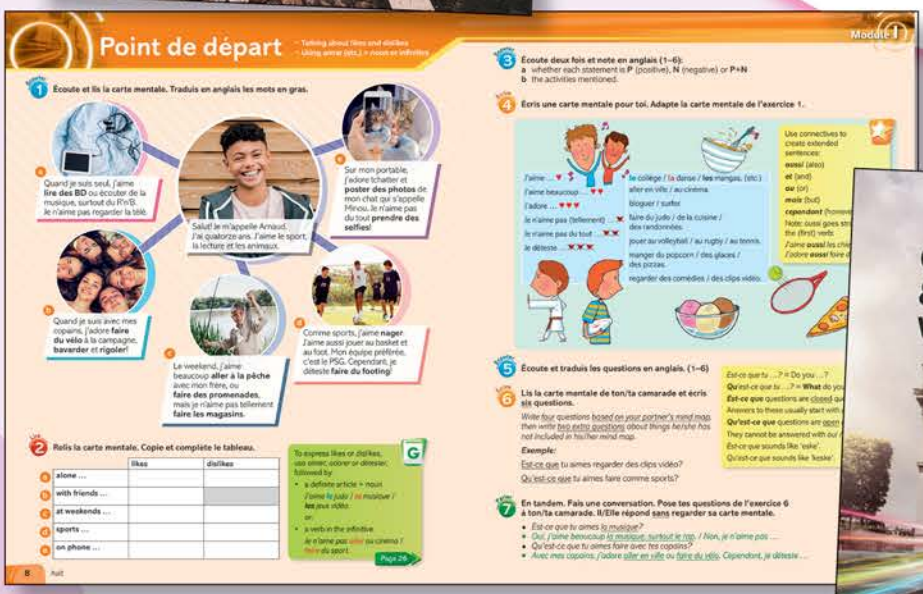

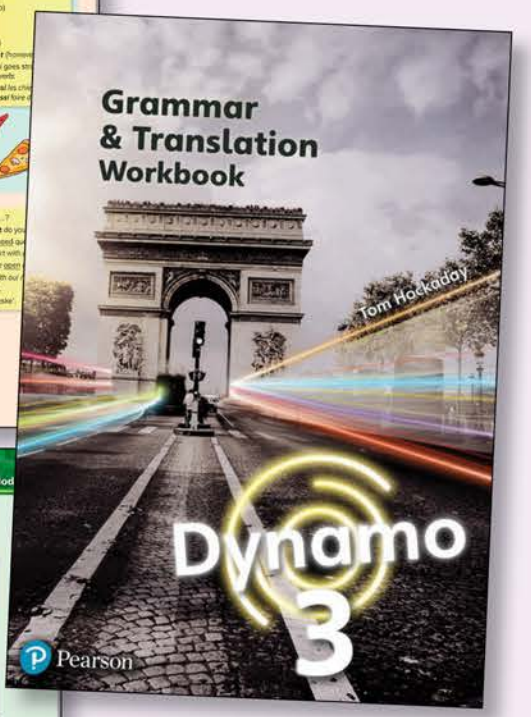

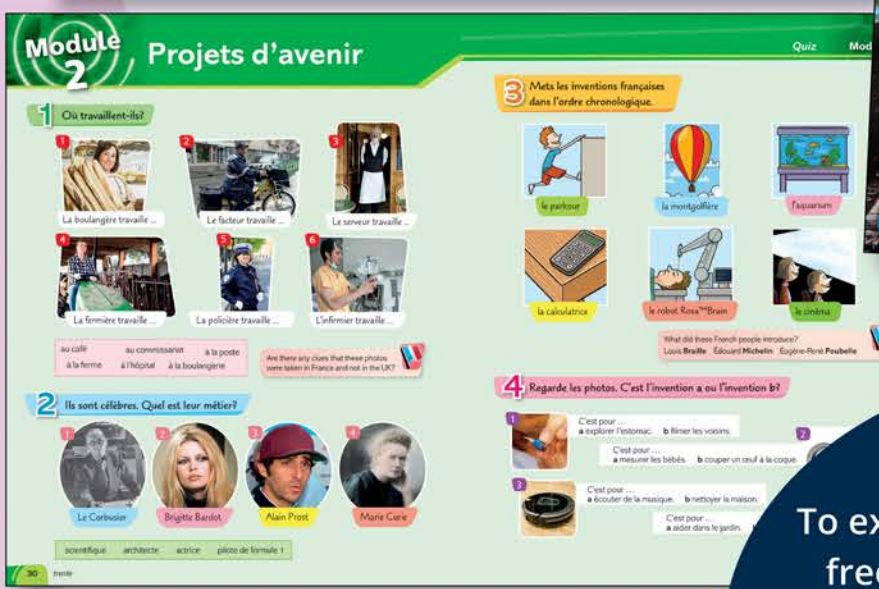

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10 tips for better PERSUASIVE WRITING

Students' responses to persuasive writing assignments can become more considered and compelling by observing some key techniques, **says Anthony Cockerill**

Over the course of my teaching career, I've found that there's a handful of topics for class discussion that never fail to get students to participate enthusiastically. Somewhat surprisingly, one of those is the topic of education itself.

I wanted to capitalise on my students' eagerness to thrash out the pluses and minuses of their own experiences of schooling, and to teach them the process of planning, drafting and editing a piece of persuasive writing. I also wanted to establish some maxims for great writing, without imposing a rigid framework or a list of success criteria.

To produce what AQA calls '*An enabling, provocative … controversial statement*' to prompt students into writing a response offering their own viewpoint, I came up this: '*Education is no longer fit for purpose.*' This, I reasoned, could be a persuasive writing firecracker.

The following suggestions draw on my experiences of teaching what I eventually called 'The Big School Debate', though I'm sure you'll also find them useful when applied to a topic of your own choosing.

1 Encourage students to plan broadly and gather ideas

Emphasise to the students that in order to sustain their argument throughout the writing, they should develop a central idea and select reasons to support it. Examiners' reports are clear that a crafted argument is crucial for success.

After screening stimulus material ranging from Sir Ken Robinson's 'Changing Paradigms' lecture at the RSA (bit.ly/ts98-persuasive1) and a *Good Morning Britain* interview with Katharine Birbalsingh (bit.ly/ts98-persuasive2), I fielded a classroom discussion in which I encouraged everyone to develop an individual response to the aforementioned controversial statement and to gather ideas in the form of a mind-map.

2 Model the sequencing and structuring.

I then gathered the students' ideas into a series of on-screen text boxes to model how we might structure and sequence their ideas most powerfully. Should we start with the strongest ideas first? Would the argument lose momentum this way? What about starting with the weakest ideas and building momentum as we go? What if we were to cluster them by theme?

The idea of clustering the ideas topically seemed like a sensible idea, but I suggested an alternative approach – grouping ideas by which mode of Aristotelian rhetoric they most suited. A student proposed that in order to sustain powerful momentum throughout, we could open with the 'ethos' of the argument to establish a sense of virtue, followed by the 'logos' of the argument (an appeal to the reader's sense of logic). Last would be the 'pathos' of the argument, appealing to the reader's emotions and contriving a powerful and lasting impact towards the end of the text.

3 Open with an anecdote

A student in my class with an enviable grasp of writing to argue came up with this brilliant way to begin his piece: 'In the southwest of China's Sichuan Province sits a small village called Atuleer, where the local schoolchildren must climb an 800m shaky bamboo ladder up the side of a mountain's sheer cliff face every single day, just to get to school.'

Another student who felt particularly strongly about school uniform produced a rather lacklustre opening, which contained the usual statistics about how many students in one school were sent home in the first week of term for flouting the rules. But after reflecting on the importance of an immersive anecdote, she retooled it: 'Doting mum Julie Fowler had only just arrived at work when the telephone call came...'

4 Build explicit paragraph links to show visible cohesion

Students often productively employ the usual suspects, such as conjunctions or

adverbials of time, within their writing. Another device that works really well is the explicit paragraph link, in which a motif or phrase in the last sentence of a paragraph is repeated in the first sentence of the next paragraph.

'We live in a society where qualities such as creativity, individualism and entrepreneurialism are highly sought after by most employers, yet we continue to prepare our children for the factory,' read the end of one student's paragraph. The next began: 'Just like in a factory, kids today arrive at school not a minute too late or else they face punishment.' This technique can help students employ much more bespoke and effective ways of linking ideas than the ubiquitous 'Firstly… Secondly… Furthermore…' approach.

5 Emphasise the importance of personal pronouns

Students can create a rapport with the reader by addressing them directly. 'We want our children to grow up fully prepared to take their place as happy and successful adults,' wrote one student. In this example, the first-person plural pronoun 'we' creates a sense of shared purpose and values, and also makes an assumption that the reader has already assented to the argument.

6 Adopt the 'tone' of the powerful.

The discourse of persuasion is the discourse of power. There are several gains a student might make in their own persuasive writing by 'borrowing' from powerful language.

I shared some examples from *The Guardian*, including the use of inverted commas to cast aspersions upon an idea, and posing a question immediately followed with a resoundingly clear answer. I also encouraged my students to experiment with Latin connectives, such as '*ergo*', '*ad nauseam*' and '*in perpetuum*' to suggest a sense of gravitas and bestow a high status 'persona' upon the writer.

7 Experiment with sentence structures to showcase high-order thinking

Particular sentence structures can allow students to showcase sophisticated thinking. Subordinating conjunctions such as 'however' can allow a student to rebuff a counterargument, as can the preposition 'despite'. A student might use conjunctions such as 'because' and 'since' to demonstrate reasoning. Opening a sentence with a simile demonstrates understanding of loaded language.

8 Change the level of formality for emphasis

A student might use parenthetical brackets to incorporate an informal joke or aside into their response. This can work extremely well, as the juxtaposition of humour or self-deprecation with the formal tone of argument can be an extremely sophisticated persuasive technique that gets the reader on side.

'In the 1980s,' wrote one student, 'I made my way through school under the constant threat of being corporally punished, due to my failure to meet the school's strict standards (I was usually to be found behind the bike sheds, fag in hand).' I thought this student used a parenthetical aside to great effect. I also loved the way they adopted a 'persona' as part of their writing.

9 Ensure students make thrifty use of persuasive devices

It's important to ensure students don't liberally scatter their responses with rhetorical devices. Similarly, responses structured around mnemonics like DAFOREST can feel artificial and constrained. Examiners' reports are clear that a sustained argument should be led by the deeper structures of the argument itself, rather than simply signposted by persuasive devices.

10 Write less, craft more

One student initially wrote over 2,000 words. The piece digressed at length about the merits of the education system in Finland, and in doing so really lost sight of the central thesis. After cutting it down considerably, the student was still grappling with an overly long and unwieldy piece of writing. Offering verbal feedback as I sat with the student at a computer we pruned it brutally, then went back to edit and craft some more.

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a 'Tips for Great Persuasive Writing' display poster for your classroom wall at

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ABOUT THE AUTHOR

Anthony Cockerill is Head of English at Boroughbridge High School, North Yorkshire; for more information, visit anthonycockerill.com or follow @thecockerill

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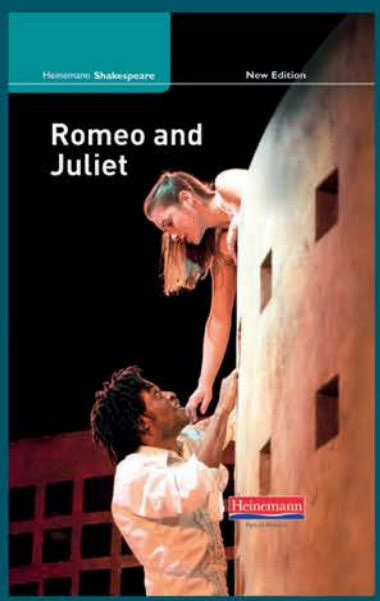

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Key Quotations

THE NURSE

Helen Mears takes a closer look at the Nurse – confidante and co-conspirator to the star-crossed lovers of *Romeo & Juliet*...

Even or odd, of all days in the year, Come Lammas-eve at night shall she be fourteen.
Susan and she – God rest all Christian souls! –
Were of an age.

(Act 1, Scene 3, lines 17-20)

We learn here that the Nurse probably knows Juliet better than her own mother. In this discussion about Juliet's age it's the Nurse who is able to state exactly when Juliet was born, comparing her with her own deceased daughter.

Go, girl, seek happy nights to happy days.

(Act 1, Scene 3, line 106)

In contrast to Lady Capulet's businesslike discussion of a match with Paris, the Nurse seems more concerned with Juliet's personal joy, urging her to go the Feast in search of happiness. There is also a sense of innuendo in her reference to 'happy nights' – something she has already alluded to in her jokes about Juliet falling on her back...

Madam, your mother craves a word with you.

(Act 1, Scene 5, line 110)

The first meeting between Romeo and Juliet is interrupted by the Nurse collecting Juliet so she can go and speak with her mother. Although the Nurse is usually on Juliet's side, this interruption, following the shared sonnet of their first meeting, is a reminder that their love will be under constant pressure from the hate that divides the two families.

His name is Romeo, and a Montague;
The only son of your great enemy.

(Act 1, Scene 5, lines 135-6)

The fact that the Nurse is the one to tell Juliet exactly who Romeo is also links their love to the hate of their families. The antithesis and oxymorons Shakespeare uses throughout the play are epitomised in Juliet's reply, "My only love sprung from my only hate!"

I'll take him
Down, an a' were lustier than he is, and twenty such
Jacks; and if I cannot,
I'll find those that shall.

(Act 2, Scene 4, lines 37-9)

When the Nurse goes to meet Romeo on Juliet's behalf to find out the plans for the rushed wedding, she is insulted by Romeo's friend, Mercutio. Her conversation with Romeo shows that she is a strong woman who is not intimidated by the sexual banter of the Montague boys.

O, my back, my back!
Beshrew your heart for sending me about,
To catch my death with jaunting up and down!

(Act 2, Scene 5, lines 50-2)

The Nurse also shows her mischievous side when she returns from her errand. Juliet is desperate to find out what Romeo has arranged, but the Nurse teases her by complaining about a range of ailments before finally giving her mistress the news she craves.

I think you are happy in this second match,
For it excels your first: or if it did not,
Your first is dead; or 'twere as good he were,
As living here and you no use of him.

(Act 3, Scene 5, lines 222-5)

Having been Juliet's confidante throughout the play, this is the moment when the Nurse abandons her. Perhaps she believes what she is saying, or is admitting that she's out of her depth now that Juliet is defying her parents' wishes. Whatever her reason, she leaves Juliet rudderless, leading directly to Juliet's decision to take the potion that makes Romeo believe she is dead, and hastening the tragic ending of the play.

Who is she?

The Nurse has served as Juliet's wet nurse and nanny since she was born. She also takes the role of chaperone on the few occasions when Juliet mixes with the wider world. She is, therefore, Juliet's closest companion and confidante. She is the person that Juliet turns to with her problems, and who she tells of her secret marriage to Romeo.

OUR EXPERT: Helen Mears is an English teacher who sits on the education committee of the British Shakespeare Association

"Deprivation Doesn't Determine Destiny"

If you want to ensure a student's difficult upbringing and background doesn't impinge on their future, you need to set the highest expectations possible, says **The Secret Headteacher...**

Along with 'consistency' and 'half term is nearly here', 'high expectations' is probably one of the most commonly heard phrases in schools. For a school to thrive and be successful, sky-high expectations are essential – but sadly not as abundant as you'd hope.

But what exactly do we mean by 'high expectations?' The indicators of schools with 'low standards' are easy to describe and sadly all too evident when walking around a failing setting. Uniform won't be adhered to and rules won't be enforced. There will be evident sloppiness on the part of students and staff, alongside poor behaviour, bullying, low attendance, low exam results, low morale and difficulties with recruitment.

Teachers won't expect, and therefore won't get high returns on homework. Students will produce low quality work or make scant effort, both of which will be tolerated. Deadlines will be missed, with no action taken. Letters to parents will contain typos. Militancy will be rife, and the low morale almost tangible.

Sky-high expectations

In contrast, *sky-high expectations* are arguably more difficult to articulate and certainly harder to see in practice. All schools will talk about having them, but not all of them do (perhaps the most noticeable exception being Michaela Community School.)

In schools with sky-high expectations there are never any excuses – not for poor behaviour, not for missing school, not for lack of effort or for low standards of work. The staff will dress smartly, speak well, love children and see their job for the joyous privilege that it is. Classrooms will brim with energy and exude professionalism. Among these teachers, there'll be no coffee cups lurking on desks where they spend most of the lesson; instead, they'll be on their feet, the sage on the stage, inspiring and igniting. Union activism and militancy won't be found in these schools. Staff won't count the hours they put in because they'll love their job, be well looked after by leadership, feel valued as part of a team and recognise their contributions to the school's greater mission.

Children in schools where expectations are sky-high look pristine and immaculate. Clear, strict uniform rules are enforced at all times. Such schools will often garner media attention when enforcing said standards against the wishes of parents who don't like or see the point of them, but it must be a slow news week when *'School enforces its own rules'* generates headlines.

Most importantly, schools with sky-high expectations will expect their students to excel academically. They expect them to go on to the most prestigious universities and nurture scholastic excellence. The expectation will be for all students to be aiming for grades 8 and 9.

Lagging behind

The founding principle of comprehensive education is that all students should achieve their full potential. If that's to be possible, then we must have the highest expectations of what students can achieve. Great comprehensive schools imbue their most able students with the confidence and high ambition shared by students at the best public schools. Sadly, however, there are still not enough of them. There remain too

many students accustomed to performing at a lower level than they're capable of, and too many teachers willing to accept this. These students aren't doing the hard work needed to perform at a higher level, and more challenging tasks aren't being regularly demanded of them.

Look no further than the most able children in the non-selective schools attended by the great majority. A damning Ofsted report a few years ago found that poor and disadvantaged, yet bright and able children were lagging behind their better-off peers, but that's still the situation at too many schools in Britain today, where standards aren't sky-high, excuse cultures are tolerated and outcomes are far below what the children are capable of.

These children lagging behind their wealthier peers are no less clever, just less well-off. And yet the expectations staff have of them in too many schools are simply too low, with the result that these children live down to those expectations.

Conducting the orchestra

The biggest challenge of my role by far is finding teachers with sky-high expectations for children and an intolerance of mediocrity.

I see myself as the conductor of an orchestra. It's my job to attract great staff, develop them professionally and value them relentlessly, while also nourishing, nurturing and looking after them. It's true that I've had to move on many underperforming staff in my time, though I'll always take a struggling but on-message teacher over a competent but subversive teacher who doesn't buy into and believe in the values and vision of the head.

The latter are far more corrosive and toxic than teachers who might be experiencing difficulties but will ultimately care, want to improve and believe that all children can. One of my favourite staff stories involves a head of biology, who gripped my desk as I told him I was letting him go (many people have gripped my desk over the years) and then shouted that *'God would punish me.'* I told him calmly that I reckoned God was far angrier at him for leading a subject where only 11% of the children had gained exam success.

I frequently tell my staff that I don't want them to feel sorry for any children, because our sympathy will serve no purpose. And nor, of course, do I want any staff to try and be a friend to our disadvantaged pupils, because they certainly don't need that. Rather, I demand of staff that they do their best for these children – that is, teach them well, deliver great lessons, have higher than average expectations for them, chase them up for homework that hasn't been handed in and maintain regular contact with their homes, however hard that might be.

Many – though not all – of these disadvantaged children will come from homes where there's considerable poverty, hardship and domestic violence (though domestic violence is hardly unique to individuals from poorer backgrounds). A number of these students will certainly come from homes where there's chaotic parenting, a lack of stability, drug or alcohol problems, low aspirations and few, if any books, where reading isn't encouraged.

"There remain too many students accustomed to performing at a lower level than they're capable of"

Poverty of expectations

Most of our disadvantaged children will have never travelled, and thus benefited from what it can teach about different countries and cultures. Most will have never even had the privilege of an annual summer holiday. Many of them may have barely 'travelled' to our capital, instead spending whole summers kicking around their local area.

The great Sir Michael Wilshaw stated in Ofsted's *Unseen Children* report that, "Poverty of expectations bears harder on educational achievement than material poverty, hard though that can be." Consider those words, *poverty of expectations*. A school's expectations. *Our expectations*.

That's why we have such high expectations. We won't accept any excuses or limits. We don't believe that deprivation determines destiny, and we won't allow it to.

ABOUT THE AUTHOR

The author's anonymously-penned book, ***The Secret Head Teacher: Turning around one of Britain's toughest schools***, is due for publication in January (HQ, £8.99)

4 WAYS TO *improve your CPD*

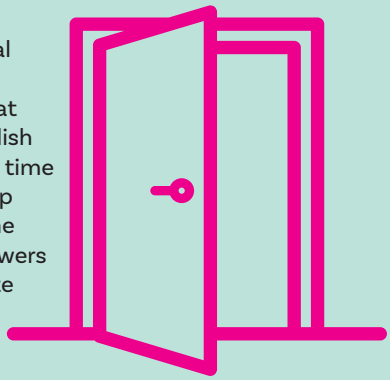
Julia Knight highlights several low-cost ways of developing your CPD provision that will have a measurable whole school impact

1 Whole School

Set up a teaching and learning committee that will steer your CPD provision and school resources. A cost-effective way of improving staff access to CPD is to create a CPD library with input from said committee and various colleagues; their suggestions will help you provide a broad range of material that staff can access at any time to support their own learning and development. Designate a space in your school library for use only by staff so that there's always a place where they can quietly sit and read. Encourage productive discourse by asking staff to volunteer to read a book and report back with their thoughts. Decide on a focus or topic for the term that will steer staff in a specific direction – for example, retrieval practice. Collate colleagues' input into a simple document, making copies easily available to all staff.

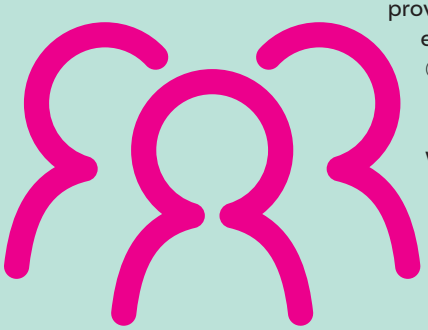
2 Department level

Use calendared department meetings to prioritise CPD once or twice per term. These could include subject-specific sessions that look at exam questions in certain papers and use examiners' reports to plan units of work around key skill areas identified as being weak. Alternatively, you could explore research-based pedagogy related to your whole school focus. Staying with above example, how can retrieval practice be embedded at department level and what might this look like in English or history? Using directed time for CPD helps schools map out their provision over the academic year and empowers middle leaders to facilitate and innovate within their departments.



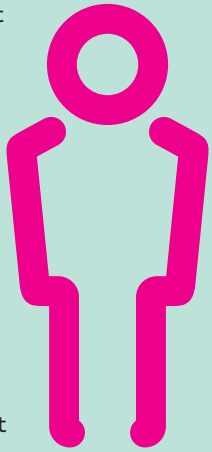
3 Group level

I've often heard the statement 'You don't know what you don't know' when it comes to CPD, but this perhaps underestimates teachers' own abilities as reflective practitioners. Grassroots CPD events have grown in size and reach right across the profession, giving teachers access to a much wider range of CPD than before. There are many great, cost-effective online CPD providers that you can explore – including @FunkyPedagogy, who champions English teaching with mini CPD events throughout the year that involve informal, insightful and fun teacher-led discussions.



4 Individual level

Encourage staff to open their own Twitter accounts if they don't already have one, and suggest that they follow those subjects and areas that interest them using various hastags. #SLTchat, #UKEdChat and #TeamEnglish are among those I've regularly followed myself, but there are many, many others out there that can provide teachers with plenty of helpful advice, guidance and conversation, whichever stage of their career they're at. For staff who might be reluctant to use social media, consider making available a bulletin board where all staff can post details of upcoming events. Your CPD doesn't have to be expensive, but it does have to be well-thought out and planned throughout the academic year.



ABOUT THE AUTHOR
Julia Knight has been an international teacher since 2012 and is currently vice principal at a school in Bahrain; follow her at @KnightWilliams

Off the Shelves

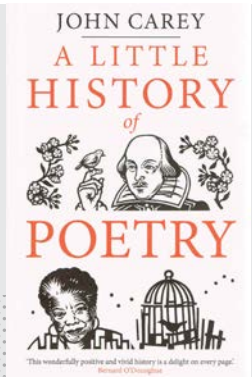
Brilliant titles for you and your students to explore

Scratch Programming

(Sean McManus, In Easy Steps, £10.99)

This is a well set-out guide, with clear print and plenty of illustrations. It starts with an introduction to the Scratch 3 environment, and immediately proceeds to show readers how to create a program. Granted, it's a pretty simple one – the equivalent of learning one or two open chords when taking up the guitar – but it provides a sense of achievement early on. More difficult concepts are gradually introduced through a series of projects, culminating in using Scratch programming with physical devices. A list of things to check if the reader's own programs don't work as expected completes the picture. The downside of all this hand-holding, however, is that until you almost reach the end of the book, it's all rather like painting with numbers (or typing out lines of BASIC from a script, for those old enough to remember). Nevertheless, it's a good introduction to both Scratch in particular, and programming in general.

Reviewed by Terry Freedman

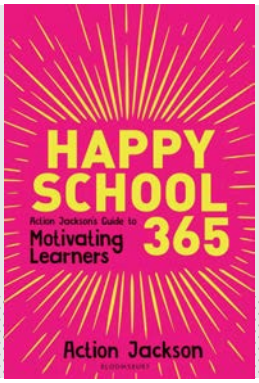


A Little History of Poetry

(John Carey, Yale University Press, £14.99)

This handsome book is a wonderful introduction to poetry from many different cultures across a range of eras. The sections are placed in chronological order, but rather than demarcating them according to dates as you'd expect, Carey gives them evocative titles, such 'Copernicus in Poetry', 'The Great Escapist', and 'Fatal Attractions'. The featured poets each receive a potted biography that places them and their work in the context of their time. The book largely compiles extracts rather than whole poems. On the one hand, this can whet the appetite and encourage readers to seek out those works that interest them, but on the other it's somewhat frustrating to have only samples. While the book is very comprehensive, there are inevitably some notable omissions – I find it disappointing that Lovelace and the Liverpool poets, such as McGough, aren't featured. Nevertheless, as an introduction to the different forms poetry can take, it can hardly be bettered.

Reviewed by Terry Freedman



Happy School 365

(Action Jackson, Bloomsbury, £14.99)

From the title on down, this book aimed at helping primary and secondary teachers 'create a learning environment where young people can be happy, healthy and motivated to reach their potential' radiates positivity. That's perhaps not surprising, given Jackson's background as a life coach and motivational speaker, but much of the advice contained within is grounded in first-hand observations and encounters with students and teachers. Jackson begins by carefully outlining the aims and purpose behind his approach in chapters titled 'The happy school manifesto' and 'The mission', before establishing a theoretical framework for the ideas that follow. The meat of the book is contained in chapter 4, 'The method' which consists of 21 practical tasks and activities for use in class, groups or one-to-one contexts. These address areas such letting go of negative thoughts, building resilience and imposter syndrome, and are bookended with helpful summaries and motivation tips.

THE WORD

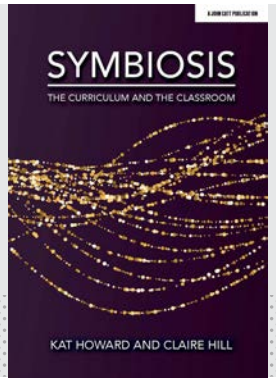
Find out what our regular student reviewer, Oliver Minter-King (Y13) has been reading this month...

Grief Angels
(David Owen, Atom, £7.99)

Celebrated YA author David Owen returns with a powerful story that explores and discusses the different forms of grief and grieving, and how they can change those affected by them.

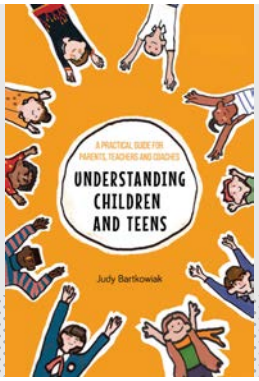
Owen utilises a dual narrative to great effect throughout the book to convey the journey of two main characters, Duncan and Owen, both of whom are dealing with separate forms of grief. The switching of perspectives highlights the differences in their personalities and troubles, with Duncan feeling increasingly alienated from his established group of friends as he grows older, whilst Owen is left reeling and confused after the loss of his father – especially when he envisions otherworldly spirits guiding him on a symbolic journey through a ghost-filled forest.

The contrast between Duncan's more grounded story and Owen's supernatural quest works surprisingly well, and doesn't seem out of place when the two ultimately end up becoming good friends. A well-crafted novel for fans of YA fiction.



Symbiosis: The Curriculum and the Classroom
(Kat Howard and Claire Hill, John Catt, £14)

In the wake of Ofsted's latest Education Inspection Framework, there's been a great deal of thought and discussion around school curriculums – what they're for, how they should be implemented – conducted with a certain degree of urgency. The pandemic-related events of 2020 notwithstanding, Howard and Hill's book has arrived with good timing, and contains lots for school leaders, subject leads and educators to chew on. They contend that curriculum design and delivery shouldn't be the rarefied preserve of school leadership, but rather involve the active input of everyone with a teaching role, and set out to document in detail what such a process would look like. Those expecting a series of generic, one-size-fits-all pointers will instead find a highly thoughtful consideration of what the mechanics of school curriculums really involve and how they can be improved, in a way that speaks to all subject leads and teachers – which is no mean feat...



Understanding Children and Teens: A Practical Guide for Parents, Teachers and Coaches
(Judy Bartkowiak, Free Association Book, £11.99)

Bartkowiak is an NLP trainer, coach and practitioner who specialises in working with children. In *Understanding Children and Teens*, she sets herself the task of showing as clearly as possible how Neuro Linguistic Programming, Emotional Freedom Technique, mindfulness and art therapy can be used to assist children and teens via a series of introductory overviews, examples and practical exercises. Readers can find advice on a range of areas, from helping classes to focus, to assisting students with managing distress and anger. The techniques and methods it outlines may be quite different to the traditional approaches to behaviour teachers will be more familiar with, but those with an interest in the area and an open mind may well find it to be a highly approachable and informative introduction to this relatively nascent field.

Meet the author

JUDY BARTKOWIAK

What did you set out to do with writing the book?

My aim was to present a full course on using NLP and EFT with children and teens in book form, and began working on it in January this year. From March onwards, however, I started hearing from many parents, asking what they should do about their kids who were 'going crazy' and it soon became clear that the book ought to be aimed at parents and teachers too.

How do the strategies you describe differ from traditional approaches to behaviour?

When confronted with difficult actions and behaviours from children and teenagers, the standard response from parents and teachers will be to ask 'Why did you do that?' But often those behaviours will emerge from the subconscious, in response to specific triggers – '*This person doesn't like me, I'm unlikeable.*' Nothing will really change until those core beliefs are located. NLP is all about identifying connections between how we think and how we feel, and how our deeply-rooted beliefs and experiences shape who we are.

How practical are these strategies in a school context?

One quick and effective strategy is Emotional Freedom Technique, also known as tapping. This involves tapping with our fingers on the acupressure points along the meridian lines that connect the organs in our body. When students arrive in the morning or return from break, getting them silent tapping can reduce their cortisol levels and increase their oxytocin and endorphins, calming them down and helping them tune in into their best learning state.

Teenagers are beginning to question what their studying is for, which you can understand considering how exams have been cancelled, companies are going bust and the jobs situation is so bleak – and yet it's also chance for us to rethink our environment, how we work, who we are and how we connect. Teachers currently have an opportunity to teach their students some valuable tools and techniques that can support them during this very difficult time.

Readers can download a PowerPoint presentation and view a video introduction to using EFT in schools at teachwire.net/eft

WINNING ISN'T EVERYTHING

Cath Bishop explains why seeing education through a prism of competition, complete with winners and losers, ultimately helps no one...

Only winning counts! Don't be a loser!

From classrooms to boardrooms, by way of sports pitches and ballot boxes, there seems to be a widely held belief that winning is a force for good to which we should all aspire, but I don't think this belief serves us well at all. If anything, it holds us back from exploring all the options available to us and reaching our full potential.

The sense of needing to win and beat those around us typically starts early, with parents, teachers and coaches all extolling the virtues of winning throughout childhood and adolescence. We're rewarded and praised when we do well in tests and exams. Those who come top of the class are given awards in assembly. Students compete with their peers as to who can get the best marks.

At best, health, happiness, kindness and collaboration are considered optional. At worst, we're encouraged to actively avoid them – after all, collaboration can be easily mistaken for cheating, and no one wants that...

Deep impact

Over time, our education system has evolved into a complex competitive game involving grades, house points, prizes and league tables. We need to understand the deep impact this can have on pupil and teacher performance, and recognise how a heavy price will often be paid when individuals are driven by such motivations.

Competition is seen as a useful motivating force, but it can often have the opposite effect. In focusing on external markers and extrinsic rewards (grades, marks and the like) schools risk overlooking some important intrinsic drivers, such as the joy of learning to think in different ways, children's instinctive love and embrace of certain disciplines over others, the satisfaction that comes from solving puzzles and the excitement of challenges that lack clear outcomes.

Exams and tests rarely acknowledge divergent thinking, let alone reward it. Instead, they demand a form of convergent thinking based around unambiguous answers and criteria that can be easily summarised on a marking sheet. During test preparations, students are discouraged from spending time on anything that won't be directly measured or contribute to rankings. At its most extreme, this mindset can dissuade pupils from taking subjects they may love, but not excel in. There's no reward from simply doing the work, applying newly acquired knowledge or learning how to think differently; all that's important is the mark they get at the end.

No neat answers

This impulse might be understandable if it helped students in later life, but it doesn't. Our adult lives don't operate according a neat right/wrong axis. There are few neat answers, but lots of uncertainty. Leaders will frequently be called upon to think creatively, innovate, juggle multiple priorities and make difficult decisions on the basis of incomplete information.

Yet in the world of competitive education, children will be labelled as 'academic' or not, 'bright' or not, despite developing at vastly differing rates – to say nothing of how a child's true potential might be realised in many different fields that lie beyond the subject categories of school. Such siloed thinking is poor preparation for the complex personal and professional issues students will encounter later in life.

"A system dominated by rankings and grades can't help but make 'failure' both highly visible and stigmatised"

These narrowly defined conceptions of talent also leave behind a vast and untapped pool of diverse thought and potential among students that could be of huge benefit to employers and wider society, if only it were properly acknowledged, supported and developed.

A great demotivator

Focusing on coming top, being the best and superior to those around you actually demotivates more than it motivates. While the winners are heralded, the message to everyone else is '*You are not good enough*. Too many pupils thus leave school nursing a deep-rooted sense of failure in relation to their studies, and sometimes even in relation to themselves as people. A system dominated by rankings and grades can't help but make 'failure' both highly visible and stigmatised. At the same time, however, all of us know how important failure is as part of any learning process, and how there's ultimately no way of avoiding it entirely in our daily lives.

Emphasising competition within education places huge pressures on pupils' self-esteem. The desire to be better than others is markedly different from the desire to do well. There's something inherently compensatory about the former – outdoing others in order to make up for some personal inadequacy, demonstrating strength or intellectual superiority over others in order to convince oneself that one is a good person. This isn't a healthy way of thinking, either at school or in later life.

Such thinking can cause huge challenges in elite sport. For Olympic athletes, the desire to win can often distract from the pursuit of sporting excellence, causing a fear of failure that

prompts them to excessively focus on their competitors, rather than on their own performance. Developments in sports psychology have shown that focusing on the desire to win actually reduces the chances of winning, while focusing on the performance process itself will maximise them.

The three Cs

Despite most work in organisations being undertaken in teams, the school experience mostly involves pupils working alone. Teamwork is essential in any organisation, yet many employees often have to adjust to working in teams, having had comparatively little experience of this throughout their formal education.

In the course of my leadership development work, I've seen business leaders crying out for employees who can think creatively and challenge the status quo – traits rarely nurtured in UK schools. One UK company I worked with had 'Challenging the status quo' as one of its corporate values, but couldn't understand why hardly anyone would do so. To its employees, this felt dangerous – something they'd been taught to avoid at all costs throughout their schooling and early work experiences.

In my book *The Long Win*, I propose recalibrating what success looks like, and redefining winning via the 'three Cs': 'Clarity', 'Constant learning' and 'Connection'. The allure of short-term results has to be set against the longer-term prize of a broad education that forms part of a lifelong learning process.

A 'Constant Learning' mindset sets students up for an ongoing process of personal growth, rather than one considered finished once exams are over. Constant Learning's emphasis on mastery over outcomes helps create resilience and hone students' abilities at adapting when things don't go to plan.

Prioritising human connections across the education system will help create citizens who are ready to contribute to society, build and join communities, and seek opportunities for cooperation and collaboration. The future challenges that younger generations will face aren't ones that can be 'won'. From climate change to global inequality, from international security to global health, these are all areas that will require collective, long-term responses.

How we define success at school will shape students' mindsets and behaviours for the rest of their lives. Reevaluating what 'winning' means in schools isn't about limiting young people's ambitions; it's about creating an environment that broadens the possibilities for all children, through which we can develop a generation of more cognitively diverse students, and expand the scope of what they can potentially contribute to society as adults.

BETTER TOGETHER

There are significant mental health benefits to be had from working more collaboratively at school. Extensive research into this area by the psychologist Terry Orlick (see zoneofexcellence.ca) concludes that 'Experiences in human cooperation are the most essential ingredient for the development of psychological health.'

Ranking students and pitting them against each other further works against the process of learning how to collaborate and cooperate with peers, right at the point when young people will be developing important social skills and awareness.

ABOUT THE AUTHOR

Cath Bishop is an Olympic medallist, international diplomat and Cambridge University Business Coach; her new book is *The Long Win: The search for a better way to succeed* (£12.99, Practical Inspiration Publishing); for more information, follow @thecathbishop

CLASSROOM VOICES

"What do we want our pupils to remember?"

The best way of tackling counterproductive attitudes to revision among students is to adopt a carefully structured, highly organised approach, says **Jennifer Wozniak-Rush**...

Whatever strategies we put in place, some pupils will always believe they don't need to revise regularly, or worse, convince themselves that cramming is the key to success. That's a mindset we must address whenever we see it, but doing so takes time. In my own experience, that means implementing strategies around revision behaviour much earlier on – ideally, from Y7.

Why? Because we want to ultimately help improve our pupils' long-term retention skills. And we do that by first asking ourselves several key questions. What do we want our pupils to remember, long after finishing this particular unit, module or key stage? What's the most important knowledge that needs to be stored in their long-term memory? How can our pupils know what they actually need to know, and how practised are they at being able to retrieve said information? The following approaches might help.

1. SPACED PRACTICE

After a new concept has been taught, return to that concept repeatedly in short study sessions spread out over time. You could, for example, leave a short delay between the initial teaching of a topic and subsequent homework or testing. You could also set retrieval practice quizzes using questions from different topics. Information presented over spaced intervals is learned and retained more easily.

The Ebbinghaus Forgetting Curve is relevant here – if we want our pupils to remember things, we need to keep returning to them and reviewing them. The big question, however, is how long should the spacing be? Reviewing ought to be relatively immediate; as the 'to-be-learned' information gains strength in memory, the intervals between quizzes can then be systematically increased.

2. INTERLEAVING

Rather that teach topic 1, followed by topics 2, 3 and so on, interleaving sees teachers mix elements from different topics together. Retrieving information from two or more topics at once is harder, but the effort required produces longer-lasting learning. (While spacing and interleaving are different interventions, the two are linked and often work well together.)

3. CUMULATIVE TESTING

The main focus with this should be to ensure that pupils have retained and understood the information they've learned from their topics and modules. Learning is deeper and more durable when it's effortful.

4. RETRIEVAL PRACTICE

This should always be carried out without access to notes or past work, so that teachers and pupils are able to see what can be retrieved from long term memory. Teachers can use a range of retrieval strategies, such as retrieval grids that draw together questions from different topics. This could involve displaying three questions on the board – one from last lesson, another from last month and a third from last term.

Other activities might include using flashcards to self-test; 'free recall', where pupils write down everything they can remember about a topic, completing a concept map and more besides. What should be consistent, however, is that all these quizzes and tests are low stakes. The purpose isn't formative assessment, but to show pupils what they don't know and to inform us, as their teachers, what we need to revisit and whether there are any misconceptions.

In my school, our KS3 cohort take part in a series of 'learn to learn' days throughout the year, where they learn how the brain works and the difference between working and long-term memory. We'll also go through a range of revision techniques and undertake practice using materials provided by their teachers.

Our KS4 cohort spend half a day off timetable, during which they'll go through six strategies for effective learning from the Learning Scientists (learningscientists.org) and be reminded of efficient revision techniques. These strategies will also be shared with the students' parents at a dedicated open evening.

Our pupils must be able to produce something tangible over the course of their revision, whether it be completed revision cards, mind-maps or revision clocks. At the same time, though, the production of revision materials doesn't necessarily equate to retained knowledge. Back in class, teachers should therefore check what pupils know using low-stakes testing.

ABOUT THE AUTHOR
Jennifer Wozniak-Rush is an assistant headteacher for teaching and learning, and an SLE in MFL

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What's New?

Our pick of the latest solutions and innovations for secondary education

Knowledge gains

Tassomai, the award-winning online learning program known for its science content, has added two new KS4 subjects to its schools package. The program now also includes GCSE maths and English literature, added at no additional cost to schools.

Tassomai engages students through frequent quizzing or 'low-stakes testing' and provides instant feedback – proven to be among the most effective ways of embedding knowledge. Drawing on learning research, the program is designed to stimulate metacognition and incorporates proven techniques such as interleaving and spacing. Schools using Tassomai have reported significant improvements in their GCSE grades, gender attainment gaps and Progress 8 scores. It's also helped school leaders deal with the challenges of COVID-19 and blended learning. Learn more about Tassomai's packages for schools and free 5-week trial at **tassomai.com/schools**

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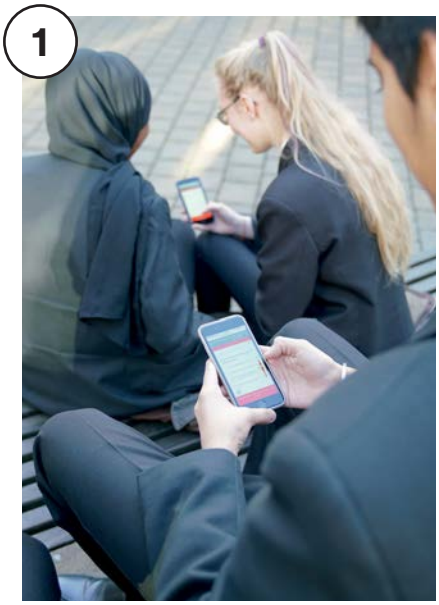

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Behaviour rethought

A School Without Sanctions offers an innovative approach to behaviour management in schools, prioritising compassion and behaviour modification over punishment. Drawing on their award-winning methods, Steven Baker and Mick Simpson explain why challenging behaviour occurs and provide a toolbox of non-confrontational approaches that will benefit the whole school community. Rooted in neuroscience and evolutionary psychology, this book will revolutionise the way you think about behaviour management, help boost student mental health and academic achievement, and protect teacher wellbeing. Visit **bloomsbury.com/uk/education** to find out more.

Skills for life

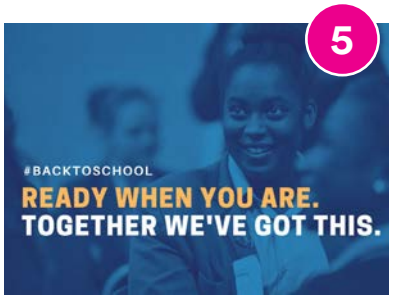
Skills Builder Partnership brings together more than 500 schools and colleges, plus over 200 organisations and employers, around a common approach to teaching eight essential skills. These are the skills essential for both the classroom and the world of work, including teamwork, problem solving and listening. Skills Builder's approach is underpinned by a rigorous progression framework, which breaks those eight essential skills down into 16 teachable steps. This Universal Framework and its associated teaching resources have been used by tens of thousands of teachers over the last decade. The Framework is backed by Essential Skills Taskforce, whose members include The Careers and Enterprise Company, BITC, CBI, CIPD, EY foundation and Gatsby Foundation. Educators can join in three ways – as individuals, using the free resources on the Skills Builder Hub; as a school via a Digital membership; or as a school or college on the Accelerator. For more details, visit **skillsbuilder.org/educators**

4

2

Diabetes know-how

The InDependent Diabetes Trust (IDDT) offers support and information to people with diabetes, their families and health professionals on issues that are important to them. Our helpline offers a friendly, understanding ear when the going gets tough. IDDT also supplies information packs to parents and teachers, so that they can understand the needs of children with diabetes in school, and provides much-needed aid to children with diabetes in developing countries. Diabetes can cause serious long-term complications, and with a cure remaining elusive, it's left to organisations like IDDT to help fund essential research. As a registered charity, IDDT relies entirely on voluntary donations. For further information or to join IDDT, contact **01604 622 837** or visit **iddt.org**



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Enriched learning

Young Enterprise works in partnership with schools to enhance and enrich their curriculum learning with the vital skills young people need to earn and look after their money. We have developed a blended learning approach across our programmes and services, ensuring we can continue to work flexibly with you to enrich the enterprise and financial education of the young people you work with. Find out more about how our programmes and services can support you by visiting **young-enterprise.org.uk/schools-back-were-here-for-you** or email **info@y-e.org.uk**

What type of teacher are you?

What does your approach in the classroom say about the type of teacher you are? If you could complete this survey, our expert **Hannah Day** will be with you shortly...

1 You're setting up your classroom – which resources do you get out?

A Resources? What resources? My knowledge is the only resource my students need...

B A series of small tables, each with a unique item. Students can choose which ones they interact with and what those interactions should involve.

C A series of small tables, each with a different task related to the topic and a clear outcome; the students get to decide the order in which to tackle them.

D Just one or two items – my students will all bring in some resources of their own, since we're learning together, after all...

2 In your classroom who's in charge?

A Me, of course. Who else would be?

B No one's 'in charge' – I'm more of a facilitator.

C I'd prefer to ask *'Who's responsible?'* Partly the students, though yes, as their teacher I must organise and ultimately deliver suitable lessons.

D We're all responsible for ourselves on our learning journey.

3 How do you set up your classroom? Do you have a seating plan?

A I've not taught in a classroom for years – I prefer a lecture hall.

B Where possible, I try to be outside. In the woods, a meadow, by the sea – it's where learning is most potent.

C I like 'U' table layouts; we can have class discussions, but I'm still able to deliver from the front when needed.

D Firstly, I'll set up a table of food. If we're hungry we can't learn; once everyone's fed, I find the class naturally orders itself.

4 What does your year plan look like?

A Every four weeks a new discrete topic is started, with no link to the topic preceding it or coming afterwards.

B There are basic topics sketched out, but the plan will be left behind at various points throughout the year as new topics and focuses emerge from the work we've completed.

C It combines tutor- and student-set targets, with each topic flowing from one to the next. New projects will often refer back to old ones, or open up new ideas that we'll look at in more depth later on in the year. It's all about coherence and connectedness.

D As student voice is central to how I practice, the year plan isn't set in any specific way, but rather evolves as the lessons and learning do. I've not actually prepared a year plan since completing my PGCE...

5 A student brings in an object they want to share with the group. What do you do?

A Tell them that there'll be a rest break midway through the session, at which point – if they must – they can show whatever it is to their friends then.

B We'll focus on the object and consider what we can learn form it. These unexpected additions to our time together enrich the learning experience, and tell students that their interests are just that – interesting, valid and worth sharing. What a powerful lesson...

C Giving students opportunities to share what they're interested in is so important – that's why I set aside some 'show and tell' time at the end of each day.

D My students do this daily – allowing them to do so is core to my whole educational approach.

6 How would you want students to engage in your lessons?

A Sit still, listen, take notes, ask questions at the end.

B To just have a go, and see where their own investigations take them.

C I'd like them to engage with the tasks set, while taking on board teacher feedback and working well with others.

D I'd want them to consider what might benefit their own learning and that of the school community, while self-directing and self-reflecting.

7 What is assessment for?

A To tell students if they've passed or not, and to what level.

B We use many assessment approaches, but refer to the process as 'reflective learning' – our students are part of the assessment process, and are therefore encouraged to consider their own progress and where this reflection will take them next

C To help me gauge whether students are making progress and provide clear and relevant feedback, while also highlighting which areas we need to focus on in order to secure good subject passes.

D Grades get in the way of real reflection and development. It's for my students to assess how they're progressing, and to choose which further investigations they wish to pursue as a result.

8 What terms would sum up your approach?

A Lectures and demonstrations, modelling, rote-learning.

B Hidden outcomes, swift pace, differentiation.

C Projects, group and paired working, scaffolded working.

D Equality, open mindedness, free will.

ABOUT THE AUTHOR
Hannah Day is head of visual arts, media and film at Ludlow College

THE RESULTS

Mostly A's – The behaviourist

Do you turn up to work in your robes and mortarboard? Yours is a traditional style that places you, the tutor, at the centre of the learning. Your knowledge is to be shared with the students, whose job is to listen. It's a long-established style that's coming back into wider use, thanks to online seminars and time-pushed tutors having to pack their content in. There's some evidence that learning by rote has a calming effect on those living with the effects of trauma, but an excess of this style risks causing many young people to disengage...

Mostly B's – The constructivist

You've adopted an approach to teaching that allows your students to learn through their experiences. Your learners are at the centre of every lesson, and given ample opportunities to reflect on their progress. Projects and learning through enquiry are key pillars in your pedagogy, and you embrace using nature and being outdoors. Hidden outcomes, a slower pace and more in-depth consideration are also important to you.

Mostly C – The social constructivist

You want to let your students be at the centre of their learning, but you also recognise that your role is important. You carefully plan and consider your lessons, ensuring that objectives are clear. You firmly believe that learning must happen in a collaborative and contextually understood way, and that students and teachers therefore have equal importance. You'll often change up this approach to keep the learning engaging, but your students don't realise how much planning is happening – to them, it all feels natural.

Mostly D – The liberationist

You understand that students come to school with many other things on their mind, so you cater for the person first. You feed them, make them feel welcome and try to develop a good understanding of their home and social life. You believe that schools principally work to a system that ignores each student's individual nature and instead treats them as a singular mass that ought to progress together along the same topics at the same time. You see this as a fundamental problem within our existing education system. In your classroom, the student is at the centre of your pedagogy; a democratic approach that recasts the tutor as a fellow learner within a class that always works together.

A bit of everything...?

Congratulations – you're probably a highly skilled teacher, able to selected the right pedagogical approach as and when it's needed. After all, no one theory or style of practice will be the best approach for all occasions. Being able to change this depending on the topic, the students or even the time of day will go a long way towards helping you get the best out of those in your care.

"You're not there to impose your values"

Thalia Wallis and **Pete Wallis** outline the approach schools should take when broaching the topics of relationships and consent with their students

Every school or other youth setting will have a different arrangement for delivering workshops on consent. It is important when designing a programme that staff involved are adequately prepared and willing, rather than simply being given the materials and directed to get on with it.

If resources allow, workshops on consent are ideally co-facilitated by a male worker and a female worker. They can be a challenging and potentially exhausting programme to manage. The group may become excitable, or a conversation might trigger a reaction which leads to someone becoming distressed. Two adults will allow one to follow a child out of the room if they need time out or to manage a disclosure. Having another adult in the room, even if they aren't involved in delivery, feels supportive and allows for reflection at the end of the session.

Be prepared

Launching into a workshop with a group of young people on sexuality, rape culture or pornography can feel daunting. Conversations about consent raise delicate issues that can be challenging for us adults as well as for young people, and it is important to consider your knowledge and skills, resilience, resources and support. Ask yourself – am I prepared for this?

Before starting a topic, take time to understand the issues, your professional duties and the resources available. Have a copy of the legal definition of consent available and take time to explore what is known in this area, including in popular culture. You need to feel comfortable and confident talking about sex and consent, consent and the law, same-sex relationships, healthy and unhealthy relationships, equality, positive sexuality, porn, abuse, sexting, gender identity, etc.

Involve colleagues in your planning and build in sufficient time for preparation, practice and reflection, drawing on them for support. This is not easy stuff to teach, and the material or reactions of the young people may trigger something in you. Check to see what training is available – for example, through the PSHE Association (in one survey, 80% of parents thought that teachers should receive training in teaching RSE).

Right and wrong

Take account of your own wellbeing, ensuring that you have sufficient personal resources, support and supervision. In the context of your wider team, consider individual and collective responsibilities – who needs to be involved in doing what? If you are a visitor, liaise in advance with staff who can tell you who are the more confident, louder children and which pupils are quieter and more passive. Aim high. An assembly, lesson or workshop that is relevant, active, creative, inspiring and engages everyone's interest will be more enjoyable to teach and have a greater impact.

It is important to know, own and take into account your own core beliefs, opinions and values. Where do they come from? You may hold strong views about a particular topic – for example, pornography or gender double standards – and you are in a powerful position as the adult in the room. However, you're not there to impose your values on others, and should be cautious about expressing your own views. Your role is to facilitate conversations about consent, helping young people to develop their knowledge, understanding, skills and moral compass.

RSE is all about giving young people a voice, providing factual information and an understanding of consent, and giving them a sense of agency in their lives. If a safe environment is created and you have a good grasp of the material, you won't have to make pronouncements about what is right or wrong, or even challenge misconceptions, because the young people will be enabled and empowered to do this for each other. Many schools and other youth settings are adopting restorative practice, which is an excellent and empowering approach for managing conversations and developing healthy relationships.

ABOUT THE AUTHOR
Thalia Wallis is a relational psychotherapist and Pete Wallis is a senior practitioner working in youth justice; this article is based on an edited extract of their book, *Talking Consent: 16 Workshops on Relationship and Sex Education for Schools and Other Youth Settings* (Jessica Kingsley Publishers, £26.99)

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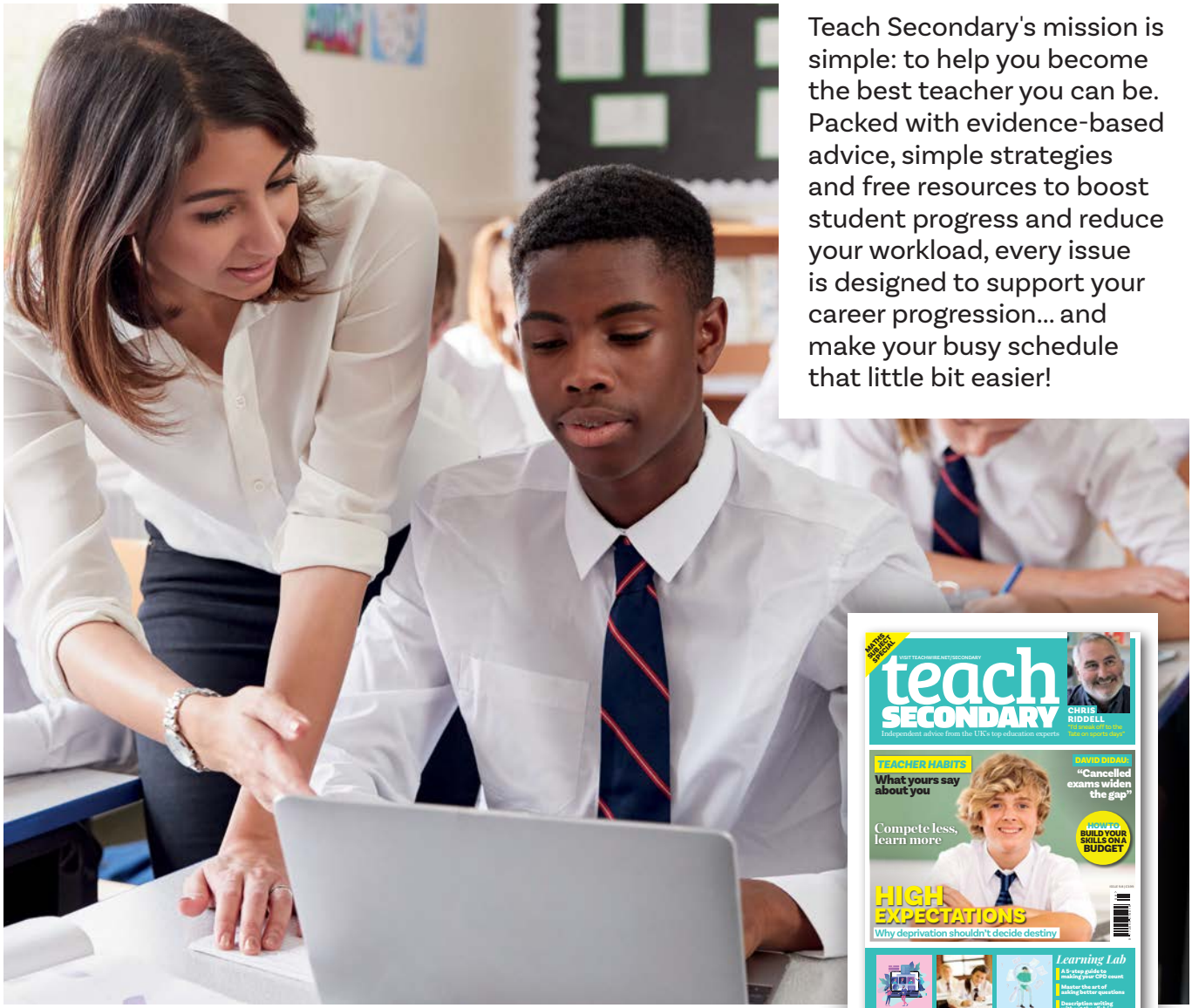

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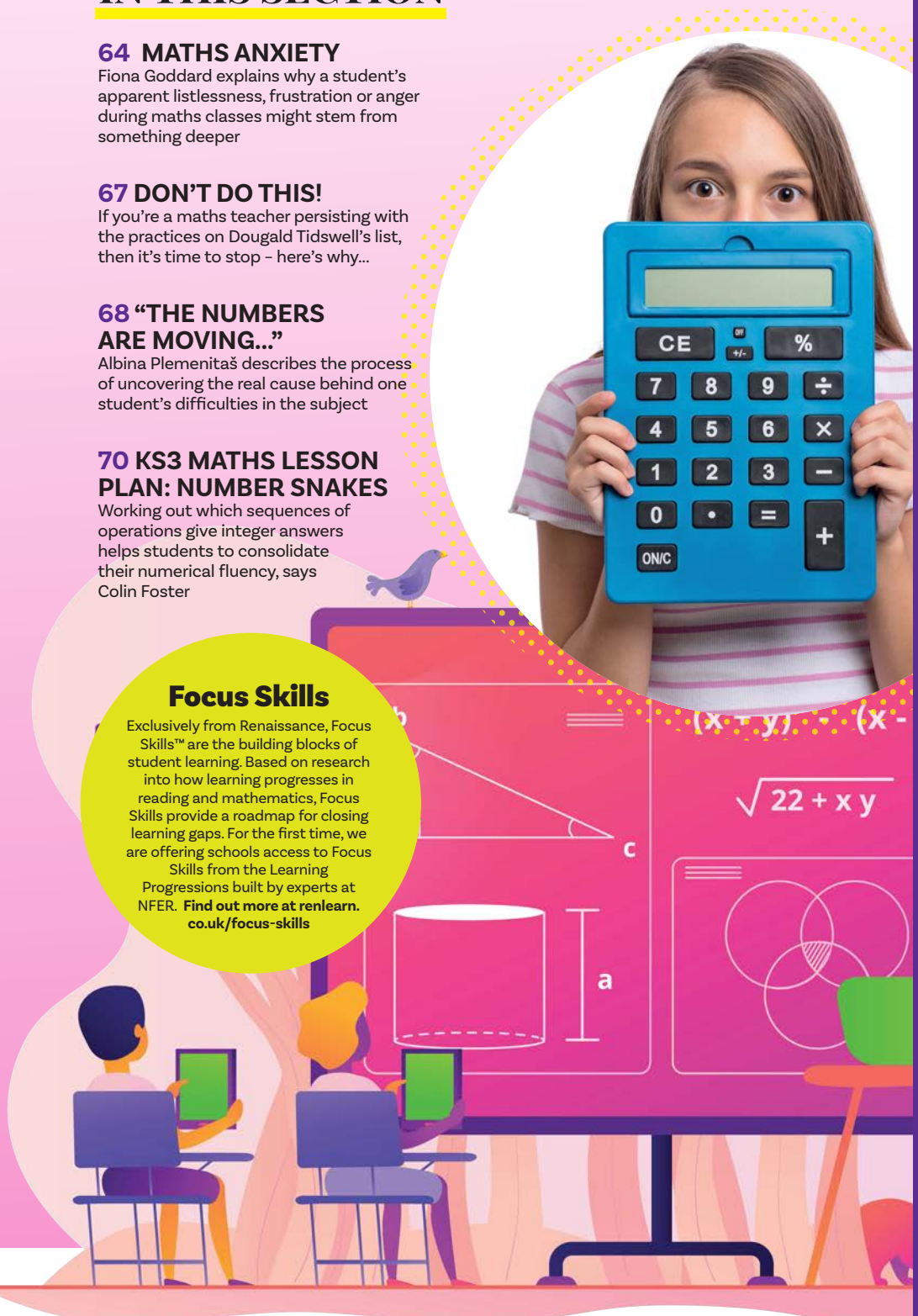
Our experts contemplate the different causes that can underpin some students' struggles with maths, and outline what *not* to do in response...

IN THIS SECTION



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IN FIGURES: IS THE UK A NUMERATE NATION?

56%
of the UK population scored less than 3 on a five-question maths test pitched at the level of a GCSE maths paper

31%
of the UK population describe themselves as 'not a numbers person'

47%
would be embarrassed to admit they're not good at maths and numbers, versus 58% willing to say the same about their reading and writing

Source: 2019 Survey of approximately 2,000 UK adults aged 16 to 75 carried out by Ipsos MORI, King's College London and National Numeracy

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This resource features a starter handout, a discussion of what sequences are, and builds to the term-to-term rule. Pupils are required to find the next two terms for sequences and add answers together to generate a three-digit code that opens a combination lock. Students then move on to a dominoes activity which develops understanding of the position-to-term rule, before concluding with a plenary comprising questions of varying difficulty.
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STANDARD FORM ACTIVITIES (KS3)
A resource aimed at helping students understand why putting numbers in standard form can be useful, particularly in science. Students are shown how to convert numbers to and from standard form, multiply and divide numbers in standard form – and what the the x10^ button on their calculator actually does...
DOWNLOAD AT: bit.ly/98special3

Maths anxiety

Fiona Goddard explains why the next time a student exhibits listlessness, frustration and/or anger in one of your maths class, it may be worth exploring whether their behaviour might stem from something deeper...

Maths anxiety is a negative, emotional reaction to mathematics. What distinguishes it from lack of engagement or boredom with maths is that the latter relate more to the workings of the brain. The effects of maths anxiety will depend on its severity, according to a spectrum.

All of us will have likely experienced at least some degree of maths anxiety at some point – any occasion when we've reacted to a maths task in a negative way, which causes an emotional, almost bodily response within us that prevents us from taking on board new information or processing the task at hand.

Comfort zone

The effects of maths anxiety can easily go unnoticed by teachers, while manifesting in many different ways. You might perceive a pupil in your class to be poorly behaved, or observe them becoming angry or bursting into tears. Conversely, they could just as easily become extremely quiet and withdrawn.

Given the degree to which its effects can vary, it can be hard to pinpoint what might constitute a case of maths anxiety and what doesn't. If there's any commonality to it, it's that maths anxiety is rooted in a distinct feeling – a horrible sensation of feeling completely out of your comfort zone. How you react to that feeling will very much depend on you as an individual.

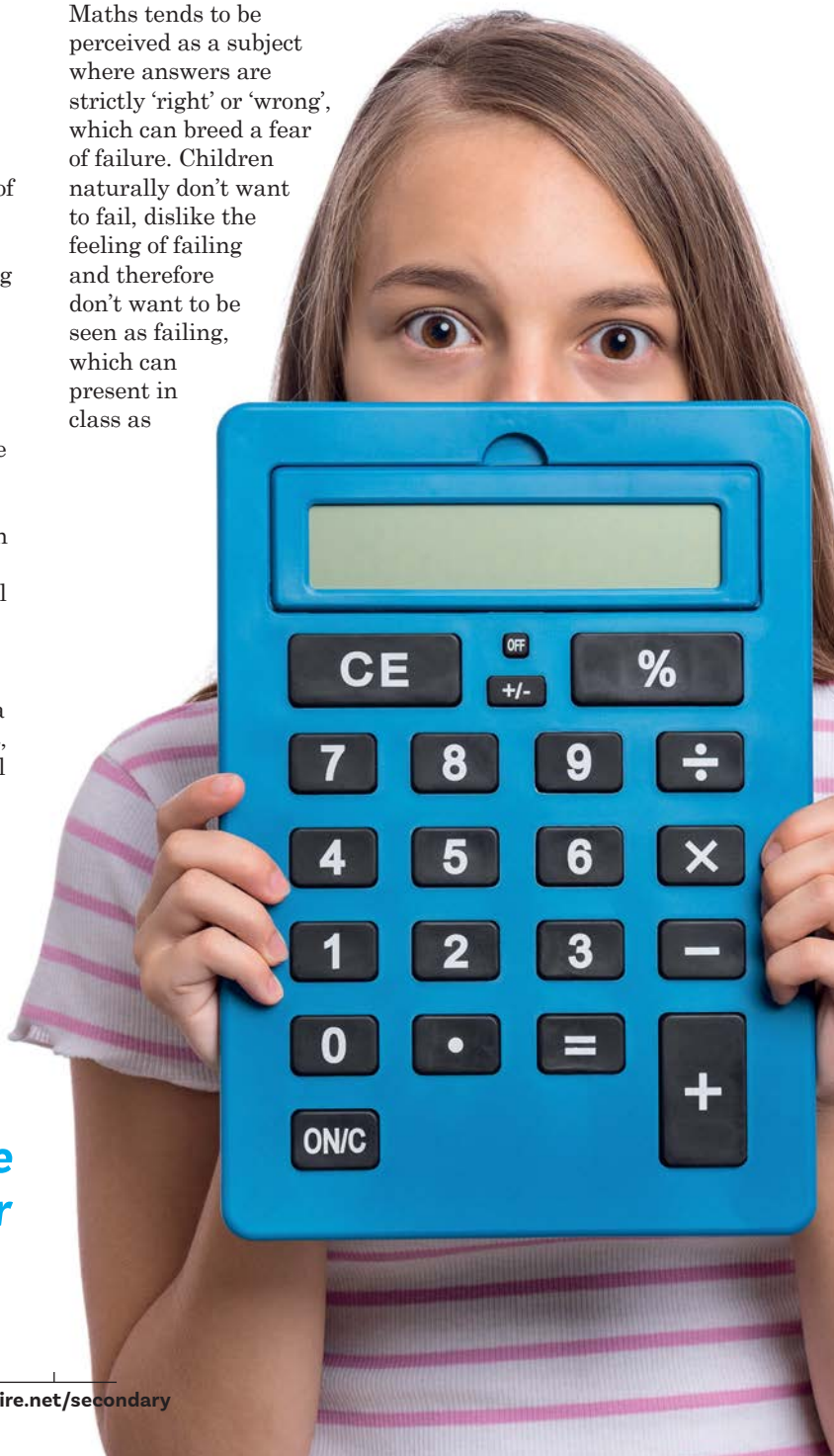
The underlying causes of maths anxiety can sometimes be rooted in early childhood, depending on how maths was first introduced to you. Maths is a progressive subject that's heavily dependent on learners being able to build on secure knowledge foundations. If, as can often happen, children develop significant gaps in their learning, some form of maths anxiety may well manifest at a later stage. Without the prior mathematical knowledge they need to understand a particular area or concept, they'll have nothing to fall back on when questioned in a way which assumes that understanding.

Maths anxiety can also emerge from lived experience – perhaps a specific occasion when you were asked a question in class and didn't know the answer, resulting in your peers laughing at you, teasing, or some other form of mild humiliation.

Fear of failure

Maths tends to be perceived as a subject where answers are strictly 'right' or 'wrong', which can breed a fear of failure. Children naturally don't want to fail, dislike the feeling of failing and therefore don't want to be seen as failing, which can present in class as reticence or withdrawal.

The most effective tool teachers have at their disposal for identifying and managing the effects of maths anxiety is the knowledge they possess of



"Maths tends to be perceived as a subject where answers are strictly 'right' or 'wrong', which can breed a fear of failure"

their students and familiarity with their behaviours. There can be many small indicators of maths anxiety – a reluctance to start work, spending too long on certain questions, homework that goes uncompleted – that could just as easily point to laziness on the part of students. Distinguishing one from the other can be difficult, but having a thorough knowledge of your students will always be a major help.

Developing a whole school awareness of, and approach to maths anxiety can go a long way towards tackling it, while also potentially addressing other issues. It could well be that a child's long-term behavioural issues might actually be related to maths anxiety.

Perpetuating the cycle

As teachers, how we convey our feelings towards maths and other subjects can profoundly influence how others see them. I once observed a teacher who admitted to their class, 'I'm not very good at fractions.' By saying that, they immediately gave tacit approval for some of those students to develop an aversion to that particular area of maths, or even maths in general.

How maths is perceived and discussed is an issue that extends far beyond schools and out into wider society. It's not entirely clear why, but many seem to have no compunction about saying 'I can't do maths,' whereas very few are prepared to admit they can't read or write. There's a broad social acceptance around rejecting or avoiding maths that can make efforts at tackling maths anxiety significantly harder.

This often feeds into exchanges with parents concerning their children's progress in maths. I can recall conversations I've had with parents where I've carefully broached the issue of them describing their own weaknesses in maths to their children, and explained that all they're doing is essentially perpetuating the same cycle. The truth is, we can all succeed and do well at maths.

One way of remedying this can be to make elements of your maths provision readily available to parents so that they can review it themselves before trying to support their children at home. If those parents are themselves affected by deep-rooted maths anxiety, a useful form of support could be to set up parent/child after-school maths clubs (though the practicalities involved with this are naturally somewhat difficult at the present time).

Curriculum concerns

It could be argued that the increased difficulty of the maths curriculum in recent years has contributed to a rise in maths anxiety. Schools and parents have been told that maths expectations at every level have been raised compared to a decade ago, which will naturally feed into people's perceptions of maths as being something that's already hard, and only getting harder.

Maths anxiety is also more likely to develop, grow and cause problems when students are left to work through things on their own. The use of peer-based and collaborative activities can help build a sense of confidence and a culture of enquiry among students that keeps their anxieties at bay.

That said, there may come a point with some children where the nature and intensity of their maths anxiety calls for some form of intervention. If their maths anxiety is sufficiently severe, it will clearly show in their outcomes and rates of progress. In these instances, just the one-to-one itself – perhaps with a tutor or a support assistant – can result in a useful confidence boost.

To do the most good, however, any such interventions will need to take a twofold approach. The first order of business will be to work out precisely where their learning gaps are, and how they can be best supported with those in order to get their progress back on track. Secondly, they should be provided with strategies on how to reduce their stress levels when their anxiety makes itself known.

The process is almost akin to travelling in zones. Students are given a piece of work that feels familiar to them, as a result of which they'll feel comfortable and able to develop the confidence to work independently. The next step can be to introduce them to something new, but with support mechanisms in place – perhaps peer work. The way to confront maths anxiety is to help students recognise those different zones, and what it is that specifically triggers their anxiety. With those identified, the process becomes one of devising strategies they can use to reduce stress and move beyond the anxiety they feel.

TRY THIS

- Rather than focusing only on end results and final answers, try teaching lessons where the focus is instead on the workings, and the process of getting to those final answers.
- The levels of abstraction in maths can sometimes result in very 'procedural' lessons that are hard for students to engage with. By using manipulatives, diagrams and clear representations that put maths into a meaningful context, you can give the subject a greater sense of purpose that aids students' understanding.
- Sometimes we teachers just need to slow down. Think carefully about how your questions to the class are phrased, and allow students time to respond and reflect on the correct answers once they've been revealed.
- Posing 'low entry questions' can do much to improve the confidence of students with anxiety; if they're able to think, '*Oh, I can answer that*,' it can help build their resilience in class.

ABOUT THE AUTHOR

Fiona Goddard is a senior education consultant at Whizz Education, developer of the Maths-Whizz virtual maths tutor; for more information, visit whizzeducation.com and whizz.com, or follow @MathsWhizzTutor

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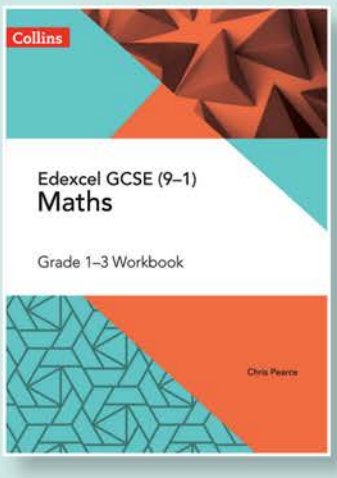
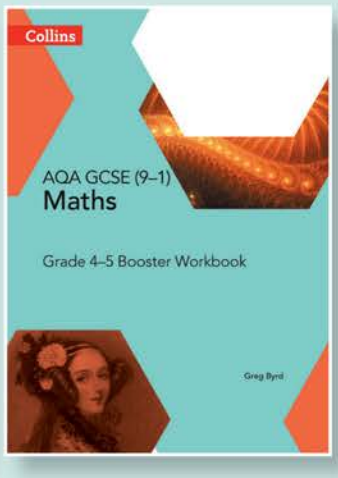


Grade 1–3



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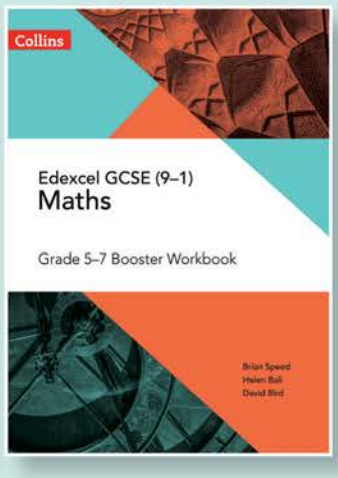

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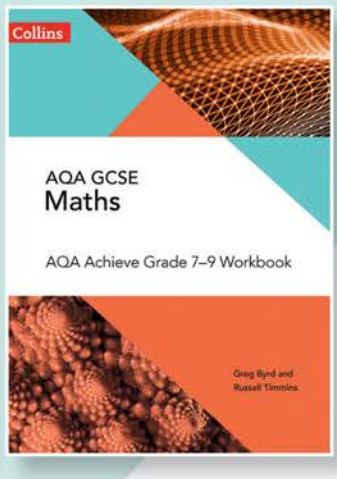

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Don't do this!

If you're a maths teacher persisting with the practices on **Dougald Tidswell's** list, then it's time to stop – and here's why...

You could see the panic setting in. I'd been promised a great way of teaching standard trigonometric values, and was looking forward to seeing it, but the table of numbers that was appearing wasn't working, and it wasn't clear how to fix it. Luckily, one of the students had previously seen it explained correctly, and was able to show the class – and a very humbled teacher – how to use this trick.

Leaving aside the obvious need to make sure you *fully understand your own content before teaching it*, I was left wondering whether this table approach actually had any merit, even if executed correctly. How many other approaches that might seem like good ideas on the surface are unintentionally holding our students back?

1. Mathematics is magical – not magic

Following on from the above example, using standard triangles to derive the values might involve a little more work, but would revisit similarity, Pythagoras and the definitions of the ratios themselves. Extrapolating to the 0° and 90° values allows us to look at graphs and talk about values as limits – surely a better use of students' time than learning a 'magic table' verbatim and applying it unthinkingly.

2. Cherry pie is delicious – apple pies are too

What a beautiful way of recalling $C = \pi d$ and $A = \pi r^2$ – unless you remember that apple pies are also delicious and end up with $A = \pi rd$. I've nothing against aide memoires *per se*, but they have to be robust enough to be recalled accurately. How likely are they to be derailed by a slight error in memory? What error-correcting mechanisms are built in?

3. Embrace embarrassment

Engaging students on multiple emotional levels will help secure long-term knowledge.

An especially strong emotion is embarrassment; see what happens when you overstress the '*MO!!*' of 'mode' and 'most', state that median is the one in the '*meeeedle*' and then insist that all students pronounce said words 'properly'. Sing the quadratic formula to the tune of Happy Birthday (it scans perfectly) and then conduct your new maths choir. When you see students rolling their eyes upon hearing the feed '*If it's tricky...*' before grudgingly responding with '*...draw a piccie*', then you know the advice is going in, albeit reluctantly...

4. Never dumb it down

We don't recognise diamonds, ovals or oblongs. Accepting such inaccuracies without correcting them and moving students to the correct terminology is to rob them of the precision that's foundational to our subject. All students need to be constantly exposed to correct, rigorous terminology, especially those who struggle to differentiate between the terms used. *Repetition, repetition, repetition...*

5. Don't settle for the book exercise

I know it's easy. None of us have the time to write custom question sets for each and every lesson, but where are your students in the learning process? Are they in the early stages of knowledge acquisition and in need of minimally different problems to hone their skills? Are they at the end, needing to practice a wide variety of different scenarios and applications? Or somewhere in between? Wherever possible, try to invest some time in producing or selecting questions that are appropriate to your students' current learning stage.

Shortcuts and workarounds may look tempting on the surface, but it's only through allowing our students to engage with appropriately challenging tasks that we'll move them closer to being the talented mathematicians we want them to become.

ABOUT THE AUTHOR
Dougald Tidswell is subject leader for mathematics at The Beaconsfield School

"The numbers ARE MOVING..."

Albina Plemenitaš describes the process of uncovering the real cause behind one student's difficulties in maths lessons...

"*Letters and numbers were running in front of my eyes. I had a hard time reading. Reading gave me headaches, and I would feel restless and tired. I wasn't successful in school, often having trouble with concentrating and transcribing material from the board into my notebooks and completing homework.*

"*My notes were incomplete, hard to read and only written in capital letters. I tried to memorise as much as I could at school, while listening to teachers' explanations. They encouraged me to try harder with my words and practice my reading more, as I was a very poor reader.*"

The problems Ana describes affected her around the age of nine, which is when she was first diagnosed with a mild form of dyslexia. Her primary school teachers endeavoured to adapt their methods and the work they set according to the recommendations of various institutions, so that Ana might be able to achieve her study goals. Despite this, however, she demonstrated little visible progress in her knowledge, and the outcomes of her assessments didn't reflect the efforts she was clearly putting in to try and improve. Not only did the problems she already had with reading and concentration persist, she was increasingly demonstrating learning difficulties in other subjects as well.

Dyslexia or something else?

Upon turning 12, Ana became one my maths students. I found her to be a kind, communicative and curious girl who, despite her best efforts and the support I gave her in class, wasn't able to demonstrate visible success. She continued to experience problems in all areas of mathematics, but especially in arithmetic and geometry.

She would mistype or inaccurately transcribe numbers, often transposing 6 and 9. She had poor orientation when using number lines and plotting coordinates. These problems seemed particularly acute when she was called upon to draw a geometric plane shapes. She would regularly fail tasks involving a text component, claiming that she didn't understand them. She would frequently ask me to repeat the instructions for various tasks, and had significant struggles when it came to interpreting tables and graphs.

And yet, despite us trying many exercises and numerous learning techniques, the grades she received in mathematics continued to be at odds with her efforts. For many teachers, there will come a point with some students when their failures start to feel like your failures – when the question of how to help them begins to dominate your thoughts. Ana's experiences compelled me to read a great deal of literature around dyslexia, but I soon came to see how many of the problems Ana was having didn't seem specific to the condition. However, during the course of my research, I eventually came across a description of 'scotopic syndrome'.

Following several interviews with Ana and her parents, I suggested that she be tested at a clinic in Ljubljana specialising in the diagnosis of scotopic syndrome – after which, Ana was duly diagnosed with a severe form of scotopic syndrome.

What is scotopic syndrome?

Scotopic syndrome is a brain disorder that affects individuals' perceptions of one or more colours in the colour spectrum. It's often accompanied by a hypersensitivity to light waves, and will cause affected individuals to perceive images and shapes as being distorted, thus causing reading difficulties. To outside observers it can sometimes appear as a form of impaired vision, but is actually rooted in how our brains perceive what we see.

People with scotopic syndrome will find the process of reading black text on a white background to be extremely very tiring. To them, the white of the paper or screen background overwhelms the black text, causing characters and numerals to variously move, shake, blur, disappear and flip, thus making it very difficult to read and interpret written characters. Because of these inefficiencies they will

"The grades she received in mathematics continued to be at odds with her efforts"

typically read very slowly, often skipping letters or entire words, and have trouble with reading for extended periods because their concentration is so poor.

The symptoms of scotopic syndrome can, however, be alleviated via the relatively simple solution of using coloured transparencies, or glasses with specially coloured lenses. Once these are implemented, the positive effects are often quick to emerge. Students are able to read faster and more fluently, and for longer durations. Their comprehension levels improve, along with their ability to concentrate, and they will find themselves less susceptible to feelings of fatigue. Now more able to focus their attention, they will consequently see greater success in their learning.

Discovering the world

Scotopic syndrome was originally discovered by the American psychologist and educator, Helen Irlen. There's still relatively little knowledge of the condition in Slovenia, but since 2015, the Irlen Syndrome Assessment Clinic (irlenslovenia.com/o-kliniki) has been operating in Slovenia under the leadership of Doctor Polona Kelava.

It's only in recent years that teachers and parents in Slovenia have become increasingly aware of the condition, and have set about alerting other institutions in the country to the related problems they've observed individual students having as a result of scotopic syndrome.

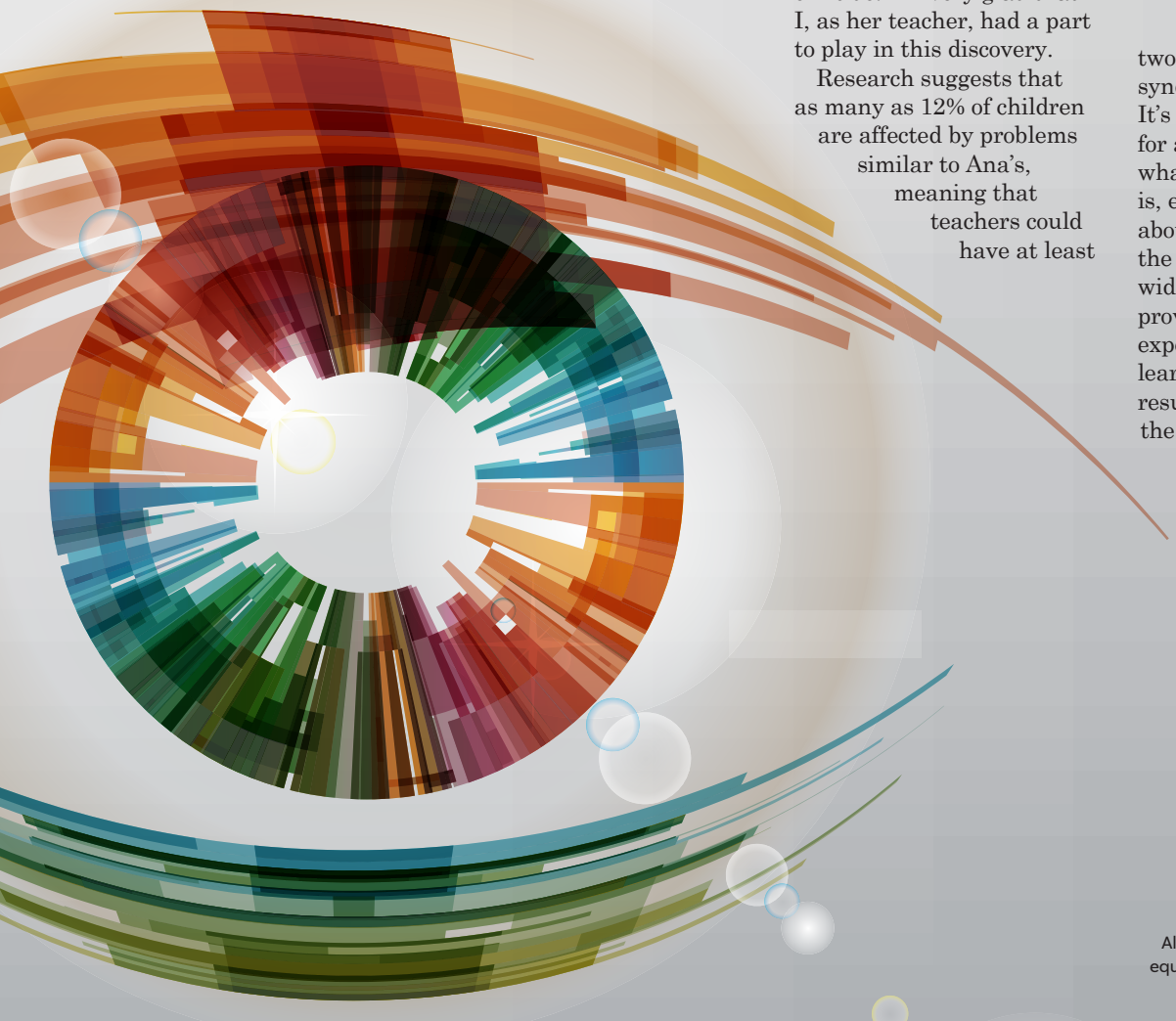
Ana today is a successful student. After regularly using blue transparencies at school and at home for the past three years, she has shown visible improvement in all areas of her studies. During her mathematics lessons, I still continue to adapt my methods and didactic approaches. She uses transparencies when reading from textbooks and worksheets, and I'll reproduce her teaching material on blue paper in larger text. I also often record subject explanations for her, and will carry out verbal reviews of her acquired knowledge.

Ana tells me that she has now 'discovered the world', and finally sees it as the rest of us do. I'm very glad that I, as her teacher, had a part to play in this discovery.

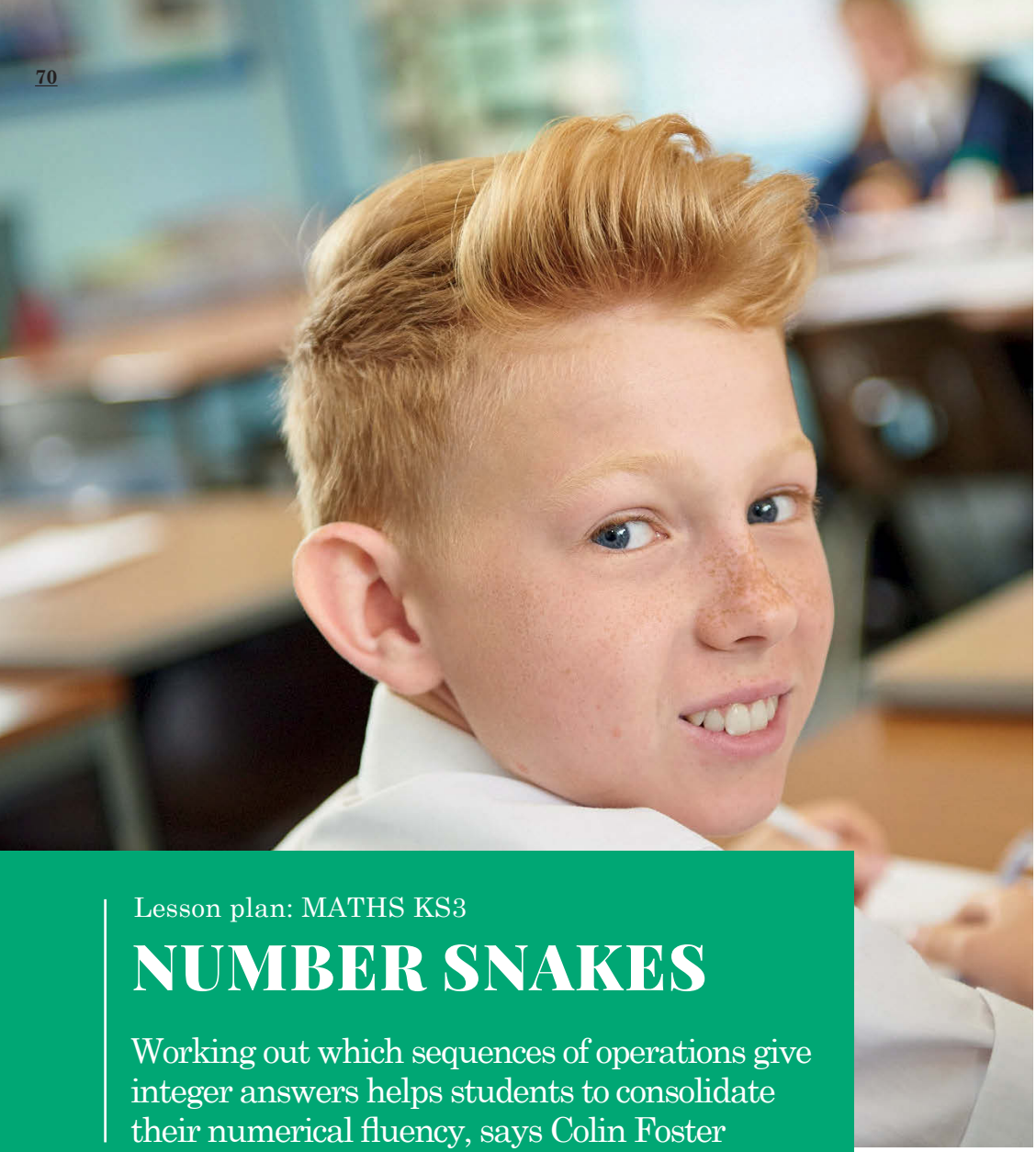
Research suggests that as many as 12% of children are affected by problems similar to Ana's, meaning that teachers could have at least two students with scotopic syndrome in their class. It's therefore important for all teachers to know what scotopic syndrome is, educate themselves about the condition, help the condition become more widely recognised and provide those students experiencing apparent learning difficulties as a result of the condition with the support they need.

DID YOU KNOW?

- Helen Irlen, who initially discovered scotopic syndrome, advises that children who experience difficulties with reading and character recognition shouldn't be asked *if* they can see, but rather *what* they can see.
- The discovery that coloured films and transparencies could help children with reading difficulties originally came about by accident. In the early 1980s, books with coloured plastic covers came onto the market, whereupon it emerged that a proportion of children could easily read the title of the book immediately behind the cover, but not the contents inside – typically printed as black letters on white paper...



ABOUT THE AUTHOR
Albina Plemenitaš is a secondary-equivalent maths teacher based at a school in Slovenia



Lesson plan: MATHS KS3

NUMBER SNAKES

Working out which sequences of operations give integer answers helps students to consolidate their numerical fluency, says Colin Foster

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a FREE lesson plan that will help your students develop an understanding of prime numbers and what makes them special

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WHY TEACH THIS?

This lesson helps students develop their number sense by inventing sequences of operations that lead to integer answers at the end.

KEY CURRICULUM LINKS

- Make connections between number relationships
- Make and test conjectures about patterns and relationships

KEY QUESTION

What happens when we put different numbers into different 'number snakes'?

In this lesson students explore 'number snakes', which are sequences of operations performed successively, beginning with a specific starting number. First, students explore a given number snake to find out which starting numbers lead to integer answers. They then create and vary their own number snakes, and try to control when the final answer will be an integer and when it won't. Playing around with numbers and operations like this is a great way to develop students' numerical fluency.

STARTER ACTIVITY

26
-1
$\sqrt{\ }$
×2
+8
÷3

Q *Look at this number snake. The number 26 goes in at the top. What number comes out at the bottom? (Note that some pupils might be very afraid of snakes, in which case you may wish to change the language.)*

These snakes can be challenging, because it will take just one error to mess up everything that follows. Some students may realise that they are going wrong, because the answers along the way become too awkward (non-integer) to do without a calculator.

The final answer should be 6.

MAIN ACTIVITY

Q *What other numbers could you put in at the top, instead of 26, that would give you an **integer** answer at the bottom?*

Students may realise that the critical steps where things could go non-integer are the square-rooting step and the dividing-by-3 step. This may lead them to choose starting numbers which, like 26, are 1 bigger than a square number.

However, on average only one in three of these will work. In general, starting numbers like 5, 65 and 122, which are of the form $(3n - 1)^2 + 1$, will work, but other numbers won't.

Q *Make up your own number snake with 5 steps like this example; decide which numbers will give integer answers and which won't, and work out why.*

Additional challenges you could set here might include:

- Include a 'cube root' at one of the steps
- Include two 'divides'
- Include '15% of' as one of the steps
- Make one which gives an integer answer at the end, but **not** after all of the intermediate steps
- make one which gives a number **over 100** after one of the steps
- make one which is guaranteed to go into **negative numbers** somewhere
- make one which gives an integer answer only for **one unique starting number**
- make one which always gives the **same** answer (e.g. *π*), regardless of the starting number
- make one which always gives a final answer which is the **same as the starting number**
- make one which always gives a final answer which is **twice** the starting number

There is lots for students to explore, and ample opportunity for them to get really creative with their ideas. It may be preferable to not allow calculators, if you want the students to be developing their mental number work.

Alternatively, the use of calculators might allow the focus to be placed on the process, rather than the calculations. Pupils who know about them might find ways of using functions such as sin, cos and tan.

DISCUSSION

Q *Let's have a look at your snakes!*

What does your snake do with different starting numbers?

Which numbers did you try?

*Can you reason about what **must** happen for other numbers?*

For some snakes, it may be possible to express what is going on with algebra, using *n* for the starting number. In other cases, this may not help so much, depending on whether the steps involve things that are easy to express algebraically. This is a useful lesson for helping students appreciate when algebra is the ideal tool for the job – as well as those occasions when it may not be.

GET INFORMED

The Association of Teachers of Mathematics has announced that its upcoming 2021 conference will take place online. Running from 6th – 8th April, the event will be made available via a managed event app and include a series of plenary speakers, ATM workshop sessions, a quiz and the organisation's AGM. All items will be recorded, and there will be access to an exhibitor room, networking rooms and a lunchtime chat room throughout. For more details, visit atm.org.uk/2021-conference

ADDITIONAL RESOURCE

A selection of similar activities can be downloaded via bit.ly/ts98-nsnakes

GOING DEEPER

Confident students could explore number snakes with more than 5 steps. They could also include more complex functions, such as powers and roots, and perhaps rounding to specified numbers of significant figures.

ABOUT OUR EXPERT

Colin Foster is a Reader in Mathematics Education at the Mathematics Education Centre at Loughborough University. He has written many books and articles for mathematics teachers.

His website is foster77.co.uk, and on Twitter he is @colinfoster77

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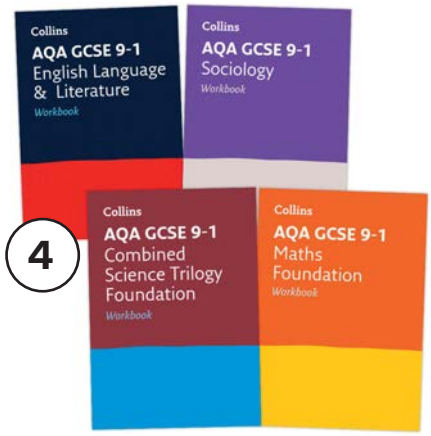
Boost your students' mathematical confidence, accelerate learning and consolidate knowledge with Pearson Edexcel GCSE (9–1) Mathematics Second Edition. This brand new GCSE Maths series seamlessly combines print and digital resources to support teachers and students every step of the way with GCSE Maths. It builds on the best of Pearson's well-loved first edition, acting on feedback from thousands of teachers and students, plus an independent research study carried out by UCL's Institute of Education. The series also includes a range of intervention and revision resources, including Pearson's new free revision app. For more information and to access your free online Evaluation Pack, visit **pearsonschools.co.uk/GCSE2**

MathsFocus.co.uk

Newly launched this month, MathFocus.co.uk offers a range of affordable secondary maths tutoring options based on the National Curriculum. Via an innovative video learning system, KS3 and KS4 students get to learn at their own pace through videos aimed at their learning level, which are then followed by question and answer sessions.

It's also the first service of its kind to offer a monthly report for parents and teachers detailing children's progress, in areas including test scores, time spent learning and areas for development. MathFocus further provides a white labelling service directly to schools and academies that grants direct access to MathFocus' interactive learning platform. For more information, email **onkar@mathfocus.co.uk** or visit **mathfocus.co.uk**



Collins

Perfect for knowledge review and catch-up, Collins GCSE 9-1 Workbooks have lots of write-in practice for every curriculum topic. As well as covering a wide range of different question types, they also include a full, exam-style practice paper to really put your students' skills to the test.

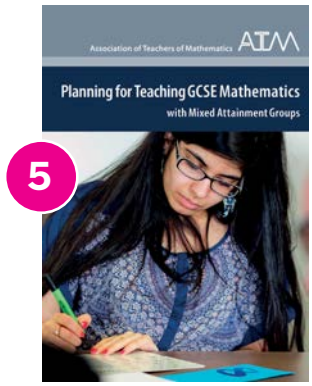
All answers are included at the back, making them great for independent study and learning at home.

The workbooks are priced from just £2.50 for schools. You can find the full range of subjects and order online at **collins.co.uk/revision**, or contact your local Collins representative via **collins.co.uk/findarep**

Renaissance Star Maths

Supported by research conducted by the National Foundation for Educational Research (NFER) and trusted by over 6,000 schools in the UK & Ireland, Renaissance Star Maths provides the perfect computer-adaptive online assessment tool.

Using sophisticated item calibration and psychometrics that adjust dynamically to each child's unique responses, Star Maths tests can be taken at any time throughout the year, as often as results are required. Screen a class in just 20 minutes to reveal which students need help to reach benchmarks and group children by proficiency levels. To find out more, email **ukanswer@renlearn.co.uk** or visit **renlearn.co.uk/maths-gaps**



ATM

Planning for Teaching GCSE Mathematics with Mixed Attainment Groups, by Mike Ollerton and Sam Hoggard, is a fantastic book published by the Association of Teachers of Mathematics that's suitable for use in a variety of GCSE classroom settings. The book adopts a distinctive approach, compiling tasks designed to support learning and planning for teaching GCSE mathematics in a way that can be applied to all attainment groups. The book comes with an accompanying set of PDF slides for use in the classroom.

ATM member price £12; non-members £16; see **bit.ly/31stMll** for more details

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LEARNING LAB

IN THIS ISSUE

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Five Ideas for...

SETTING HOMEWORK

Teaching students about their own energy levels and habits saves them time. Students must be taught the importance of recognising their best working hours and when they're at their least productive. It's our responsibility to ensure that students know their wellbeing can be affected by poor learning habits. The following ideas are just some of the ways in which this topic can be broached:

1 Set a time

Ask students to identify when they're most productive with school work outside of normal school hours. They may find this difficult, so ask them to trial both morning and evening sessions. Whatever time they identify should be the time they build into their week for completing homework or revision.

2 Eat the frog

Share tips with students about how to stay on top of their homework or revision. Jill Berry, a former headteacher and school advisor, often mentions the phrase, 'eating the frog' – what she means by this is to undertake difficult tasks first; anything after those will then seem easy. Advise students to manage their time effectively in the same way.

3 Pace yourself

Share practical tips on how to stay focused and not overload yourself. Many of the students I teach try to go at revision or learning all guns blazing, and before they know it, they're exhausted and stressed. They must be taught how to balance their time. Revision timetables that build incrementally are perfect for this.

4 Find a space

Advise students to create an effective learning space for themselves. This could be a place at home, but it doesn't have to be. When available, libraries are a wonderful learning space, being quiet, calm, spacious and filled with knowledge.

5 Make it social

Advise students to learn or revise together. Often, topics can be broken down if more than one person is reviewing them. This has the added benefit of developing working groups and friendships.

If students know their most productive time and can develop effective habits, they'll be happier when learning and make excellent progress.

TIPS TAKEN FROM *LIVE WELL, LEARN WELL: A PRACTICAL APPROACH TO SUPPORTING STUDENT WELLBEING* BY ABIGAIL MANN (BLOOMSBURY EDUCATION, £16.99)

WHAT WE DO

We produce a CPD programme every half term, as we want our in-house CPD to be linked specifically to the needs of the school and our foci for the year. At the end of each half term we'll evaluate and plan our upcoming CPD sessions for the next, according to where we're up to and the areas needing further development.

Our approach echoes Tom Sherrington's recommendation in one of his blogsposts to, "Treat CPD time with the reverence it deserves, and use every minute of it to develop ideas, refine teachers' understanding and practice in teaching, curriculum thinking and assessment, using a 'deliberate practice' approach – focused, sustained, sharing feedback, planning next steps [and] focused on specific students and their learning."

One important thing we do is ensure that all CPD sessions on any aspect of teaching and learning are followed the week after by time in department, so that teachers can discuss within their teams how to put the new ideas into practice. This also gives them the chance to plan lessons that incorporate strategies discussed the week before.

Starting this year, we have also added further follow-up sessions four to five weeks after the initial CPD, so that teams can share what they've done to implement the new practice, evaluate its impact and establish their next steps. We should never undervalue the importance of time. If our staff are to implement new strategies successfully, we must give them the time to do so, with appropriate levels of review and consolidation.

We further recognise that subject-specific pedagogical learning is an essential element of CPD. To that end, each year will see a number of our staff attend relevant external training and courses. Our heads of departments will in turn deliver teaching and learning CPD sessions to their teams planned around their collective development needs.

Being a teacher means we never stop learning. We all have a duty to keep up to date with current research and educational initiatives and refine our practice.

JENNIFER WOZNIAK-RUSH IS AN ASSISTANT HEADTEACHER FOR TEACHING AND LEARNING, AND AN SLE IN MFL

5 ways to ...

MAKE YOUR CPD COUNT

Joanne Tiplady, curriculum and research lead for TEAL Trust, presents some tips for ensuring your CPD works

LINK IT TO LEARNERS

Any training request or personal development plan should create a direct impact for learners.

GET LEADERSHIP BUY-IN

The headteacher is responsible for a school's quality of education. They should have a clear strategic vision for the development of teachers that's directly linked to the development plan and continuously evaluated.

RECOGNISE GOOD CPD

Good CPD is frequent, developmental and requires a long-term perspective. It's focused around a clear priority, with teachers clear as to how their CPD connects to the school improvement plan. It's based on proof and collaborative – teachers will be trusted to know where improvement is needed.

MIND THE BARRIERS

Sometimes there's little appetite for change. Discussing with colleagues how CPD can directly support school improvement will help address outdated views of CPD as involving traditional courses or expensive consultants.

USE WHAT'S OUT THERE

Useful CPD resources include the EEF's Implementation Planning Guidance Report (bit.ly/ts98-ll-eef) and the Teacher Development Trust's Developing Great Teaching resources (bit.ly/ts98-ll-tdt)

22%

of secondary teachers are unhappy – a figure comparable to demographically similar individuals in other professional roles

Source: Research report from the UCL Institute of Education (bit.ly/ts98-ll-unhappy)

The National Literacy Trust has recently published research that sheds light on how children and young people have made use of podcasts during lockdown. The organisation found that children and young people turned to podcasts and audio materials in growing numbers throughout the year, citing the extra time they now had available to them, the role podcasts could play in helping them relax and the personal appeal of podcast creators who were role models to them.

Based on survey findings from 58,346 respondents aged 9 to 18 at the start of 2020, and a further 4,141 pupils aged 8 to 18 during the UK's first national lockdown, 19.6% said they listened to podcasts at the beginning of the year, while 23.7% said that their consumption of audiobooks and podcasts had increased during lockdown.

The activity seems to become more appealing with age – just 9.1% of those aged 9 to 11 said that they listened to podcasts, compared with 38.7% of those aged 16 to 18.

The National Literacy Trust is now seeking to conduct a more detailed survey into secondary students' attitudes to podcasts and is inviting schools to participate before December 1st; further details can be found at bit.ly/ts98-ll-podcasts. The charity has also produced two guides for teachers and parents on using podcasts to support students learning, available from literacytrust.org.uk/podcasts

YOUR GUIDE TO ...

QUESTIONING

With the opportunities for us to check for understanding significantly reduced due to COVID restrictions, we must rely on effective questioning to gauge what has and hasn't been learnt. The basis for effective questioning is twofold. First, you need a solid basis of subject knowledge. Second, know how, when and what to question. Here are some approaches that might help...

Cold call

Cold call questioning can significantly increase your lesson's participation and think ratios. When coupled with wait time, this approach becomes even more effective. Cold call questioning also allows you to better target the class, ensuring your distribution is even, differentiated and well spread. Don't cold call students you know aren't engaged, however – it's not a re-engagement tool.

Hinge questions

Deciding whether something has been learnt to the required level can be done through some effectively placed hinge questions. This diagnostic approach lets you decide the direction of the learning – focus your hinge question(s) around key concepts, ideas or skills to check if the class is ready to move on, or if you'll need to recover parts of the learning.

Expectations

Good questioning often comes down to students' ability to engage with the questions posed. If a student struggles to answer, break down the question or provide some scaffolding – don't just move on to someone else. Build a culture of questioning in your class by ensuring that there's no opting out of questions. You can take your questioning to the next level by employing Socratic-style questioning, or stretch your learners further by interspersing lessons with more complex questioning patterns.

ADAM RICHES IS A SENIOR LEADER FOR TEACHING AND LEARNING; FOLLOW HIM AT @TEACHMRRICHES

67.2 Mbit/s

Average broadband speed in the UK, contributing to it placing 16th in a table of countries with the best conditions for e-learning
Source: Preply – see bit.ly/ts98-ll-preply for more details

Need to know

This month sees the launch of the National Tutoring Programme – a support service for schools that aims to help close attainment gaps and address other educational issues among 5- to 16-year-olds caused by the coronavirus pandemic. The DfE has partnered with five organisations – the EEF, Sutton Trust, Impetus, Nesta and Teach First – to develop the NTP, which consists of two core components.

The first, 'NTP Tuition Partners' seeks to give schools access to subsidised high-quality tuition from a range of approved providers. The EEF will lead its delivery and allocate £76 million in funding over the coming academic year. The list of approved Tuition Partners so far includes The Brilliant Club, Schools Partnership Tutors, Targeted Provision, The Tutor Trust and White Rose Maths. The second, NTP Academic Mentors, will recruit graduates and qualified teachers to work full-time in schools located in disadvantaged areas. The recruitment, training and placement of Academic Mentors will be led by Teach First, which has been provided with £6.4 million in funding. Academic Mentors placed under the scheme will earn salaries of £19k paid for by the Government.

Find out more at nationaltutoring.org.uk

ONE FOR ENGLISH TEACHERS
DESCRIPTION WRITING

1. Metaphors beat similes!
Ask students to complete a series of similes in under a minute ('As white as..?', 'As sly as a ..?') – this makes a firm point about clichés. Give them time to come up with improved versions and turn these into metaphors. 'His body was as heavy as a sack of coal' becomes 'his coal-sack body.'

2. Verbs beat adjectives and adverbs
For many, 'being more descriptive' means piling adjectives in front of every noun. Good writing, though, often rests in judicious choices of verbs. A man walking slowly can amble, saunter or dawdle.

3. Curate colour-compound words
Us displays and scrapbooks to curate new and exciting compound words. Use a thesaurus or paint charts to discover colour variations, then encourage students to match with familiar objects – 'traffic-light red lipstick', 'pavement-grey cardigan', 'puddle-brown trousers'.

4. Alliteration fixation
Encourage pupils to get a feel for the effect of repeating consonant sounds. Plosive alliteration using 'p', 'd' and 'b' sounds can be more hard-hitting; softer consonants such as 'w' and 'f' can create a gentler effect.

5. Simple is better!
Make students aware of the proportion of simple to complex sentences in their writing. Many overuse the latter. Read examples from writers like Hemingway, who use simple sentences to pack a punch.

6. Micro-paragraphs
Standalone paragraphs of simple sentences or single words can be very effective if used sparingly. Abstract nouns, such as 'silence' and 'nothing', can work well to hold suspense.

7. Paragraphing for effect
Teach students the use of paragraphs as structural devices. In descriptions, a flashback paragraph to an earlier time can be highly effective and demonstrates forward planning!

MR E LEADS A SECONDARY ENGLISH DEPARTMENT AND IS A PUBLISHED WRITER; DISCOVER MORE WRITING TIPS AT HIS 'MR E'S ENGLISH HACKS' YOUTUBE CHANNEL VIA SHORTURL.AT/IOAB2

A new approach to... *teaching commitment*

'Commitment: What does it mean?' is a new lesson resource produced by the Family Stability Network (fastn.org) that gets pupils thinking about commitment to oneself and others. Using the stimulus of a poem by spoken word artist Nick Brewer, pupils consider their own values and commitments, and how these might benefit their personal development.

The resource can help deliver the new statutory guidance for RSHE, specifically the requirements of the 'respectful relationships' strands. It can also be integrated into schools' existing provision for PSHE education, addressing opportunities in Core theme 2 (Relationships), and enables aspects of character development identified within the DfE's character education framework.

Pupils progress through a variety of activities, starting with a baseline to identify their own interpretations of 'commitment'. They use a continuum line to challenge and question different value statements alongside Nick Brewer's poem in order to consider other interpretations of commitment, and how these echo or differ from their own. They then evaluate five contrasting case studies, identifying different demonstrations of commitment, and how these might relate to their own experiences, future expectations and goals. They then finish by reflecting on the learning and adding to the original mind-map. This can help teachers to review, assess progress and plan next steps.

LUCY MARCOVITCH IS AN EDUCATION WRITER AND CONSULTANT; THE 'COMMITMENT: WHAT DOES IT MEAN?' RESOURCE CAN BE DOWNLOADED VIA BIT.LY/TS98-COMMITMENT

TRENDING

Our pick of recent posts and launches that teachers might find useful...

GET SOAKED
A new professional learning platform for teachers has been launched. Called The Soak, visitors will find an array of concise video explainers, lectures and assorted CPD content for TAs, teachers, school leaders and governors.
thesoak.education

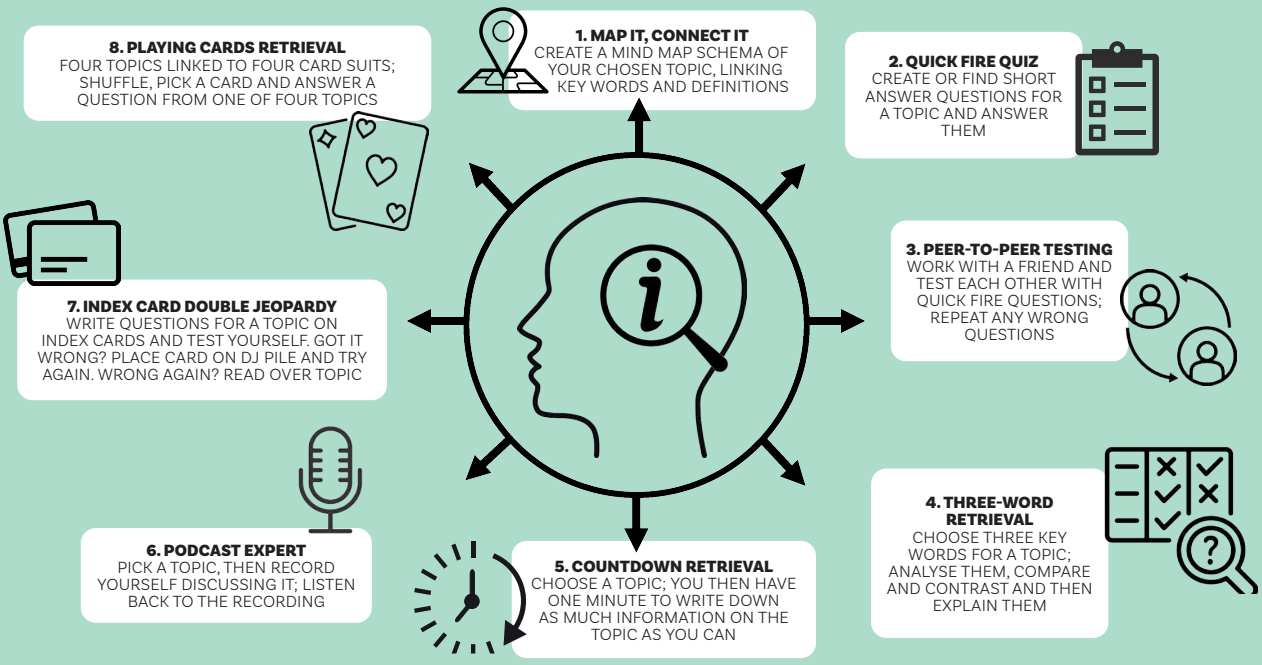
POWER UP
National Grid has partnered with recruitment specialist MyKindaFuture to launch a new STEM outreach programme in South London
mykindafuture.com

THE ART OF LEADERSHIP
A working paper from the University of Cambridge has highlighted the important role the arts can play in developing leadership skills
bit.ly/ts98-ll-arts

STUDENT WALKTHROUGH

RETRIEVAL WHEEL

HELP YOUR STUDENTS BECOME BETTER LEARNERS WITH ZEPH BENNETT'S VISUAL EXPLAINERS...



ZEPH BENNETT IS A PE TEACHER AND SCHOOL ACHIEVEMENT LEADER WITH 25 YEARS' TEACHING EXPERIENCE; YOU CAN FIND MORE OF HIS EDUCATIONAL ILLUSTRATIONS BY FOLLOWING @PEGEEKSCORNER

Got a great learning idea? Email editor@teachsecondary.com or tweet us at @teachsecondary

MATHS

Pearson Edexcel GCSE (9–1) Mathematics Second Edition

With the run-up to GCSEs presently harder than it's ever been before, Adam Riches examines a user-friendly maths resource that can help your students get suitably prepared

AT A GLANCE

- **Encompasses two tiers ('Foundation' and 'Higher'), each with two Student Books and one Purposeful Practice Book**
- **Backed by a range of digital resources, including display materials, online homework assignments and teaching videos**
- **Clear teaching journeys depicted through words, diagrams and infographics**
- **Relevant, approachable content equally suited to supplementary class use or independent study**

REVIEW BY ADAM RICHES

Well designed, usable resources that are easy to implement are much in demand, given the current climate. Pearson has duly answered the call, and produced a clear and comprehensive maths resource that will help students learn more effectively and efficiently.

Pearson Edexcel GCSE (9–1) Mathematics Second Edition includes a number of subtle updates. The course structure and features have been updated to keep the content of the resources current. The sequencing of the content and summary units help to facilitate effective exam preparation, making that final run-up to the exam an easier one for students to navigate.

What really sets the resource apart is its accessible design. Resources like these can often appear busy and difficult to follow, but that's certainly not the case here. The content is clearly thought through and more user friendly in comparison with the earlier edition; SEND students in particular will benefit from the second edition's layout and design changes.

Another area in which Pearson's maths resources stand out for me is in their digital component. The print materials contain links to prior knowledge checks presented via QR codes, and there's a host of online material, including homework activities, videos and other resources, available for teachers and students subscribed to Pearson's ActiveLearn online service.

The resources that make up the Pearson Edexcel GCSE (9–1) Mathematics Second Edition series are expressly designed to consolidate knowledge and boost confidence, making them ideal for supporting students in the wake of the recent learning disruptions they've experienced. They've also been designed with the needs of teachers in mind, so that they can be incorporated within existing teaching and learning and used in a way that suits your needs – another huge plus.

The accompanying Purposeful Practice Books each contain over 4,500 concise and varied questions that build knowledge and understanding in small steps, allowing students to consolidate knowledge and rapidly build their confidence. Students are further encouraged throughout to deepen their understanding by connecting concepts to real situations through solving relevant maths problems. The Purposeful Practice Books are tools that can supplement class learning, be assigned as homework or used for independent study.

The resource really comes into its own with the Purposeful Practice Books' modified questions sourced from real GCSE papers and grade indicators.

This versatility makes the resource suitable for individuals, whole classes or year groups, whether in school or self-isolating, and is available in both print and digital form.

teach SECONDARY

VERDICT

- ✓ **Sensitive to the needs of end users**
- ✓ **Exceptional breadth of resources**
- ✓ **Clearly laid out and logically sequenced**
- ✓ **Can be used as a series of linked resources or for standalone tasks**
- ✓ **Rich online element, including online homework materials and teaching videos**

UPGRADE IF...

You're looking for supplementary resources to help reduce teacher workload and build students' understanding of exam-specific problems. It's appropriate for use by individuals, whole classes or whole year groups, whether in school or self-isolating, and is available in both print and digital form.

Student books £13 each; digital subscriptions £900, depending on school size. For more details, visit pearsonschools.co.uk/discoverGCSE2

ABOUT THE AUTHOR
John Lawson is a former secondary teacher now serving as a foundation governor and running a tutoring service; for more information, visit prep4successnow.wordpress.com

THE LAST WORD

Save our superlatives

John Lawson issues a heartfelt plea for high profile media figures, politicians and students to cool it with the repetitive intensifiers...

With so many people desperately looking to fill hours of self-isolation, I propose that in between reading lots and lots of books and binge-watching very many box sets, we try to inoculate ourselves from a serious malady that's currently afflicting our nation (no, not that one).

Exhibit A – Andrew Marr. He always, always starts the week on Radio 4, and can barely last a minute without saying 'very, very' or 'really, really'. While I don't doubt Marr's talent as broadcaster, I no longer have it in me to hear him on those Monday mornings describe how 'So many, many millions and millions of people are suffering from this pandemic.'

I did briefly switch to Radio 2, only to chance upon Jeremy Vine interviewing a guest author who was brought up in a 'Flat, flat landscape'. Do the BBC's quality control people no longer take pride in ensuring articulacy and exterminating eradicable tics? I pine for the days when the issues of the day were succinctly described as 'extremely complicated' rather than 'very, very, very complex'.

Mark Twain once lambasted the use of 'very' in written discourse thus: "Every time one is tempted to use 'very', replace it with 'damn'; your editor will cross it out and your writing will be as it should be." [*You're wrong, Twain – Ed*]

Very bad, bigly

One can only imagine the shuddering of Twain's grave were he to ever encounter the speeches and tweets of Donald Trump these past few years, for whom everything is either, 'very, very bad' or 'very very good'. Sports commentators are at it, too. Not only are we told that,'The boy's done very, very good there,' we're also informed that, 'Man United's got a massive, massive game coming next week, so they'll need to be highly, highly focused'.

Even after that particular episode of *Match of the Day*, there it was again – at the close of a political discussion programme, when a politician was urged to sum up his views 'Very, very briefly'. What's wrong with 'Briefly, please'?

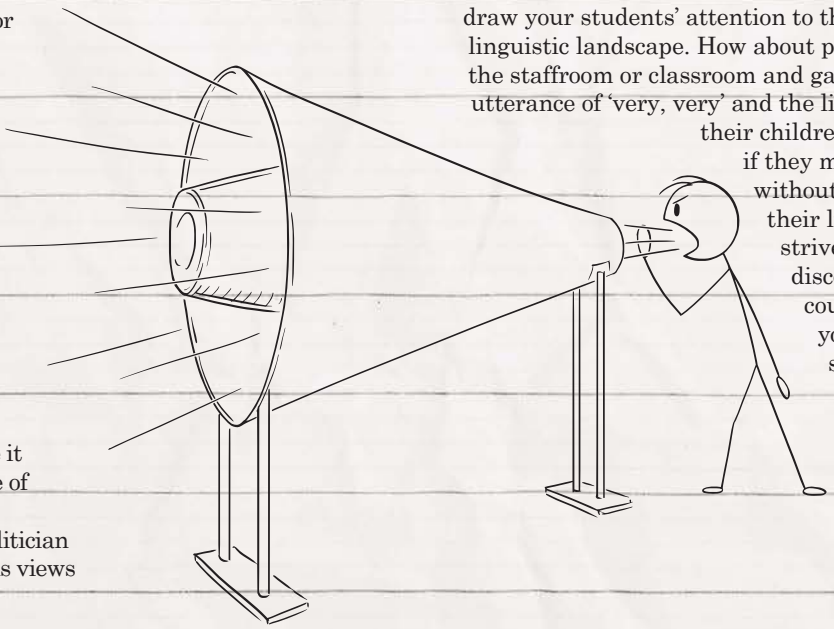
I wonder how aware English teachers are that most of their adverbs and adjectives lists are in danger of becoming obsolete, as their students habitually describe everything as 'Very, very cool.' When we come down to it, even a sole 'very', 'really' or 'actually' is hardly ever necessary in everyday speech. Can anybody explain the difference between 'very dangerous' and 'very, very dangerous'?

Basically awesome

I can only hope that teachers in the UK will ultimately rise up and fight back against this tide of superfluousness, in an echo of their US counterparts' struggles against 'like' and 'kindalike'. When I taught in Florida, I did my best to push back against the overuse of 'awesome' to describe everything from a doughnut to the Sistine Chapel. Any students able to refrain from using the words 'basically' and 'awesome' were rewarded with extra credit points at the end of the semester – an incentive that seemed to work wonders. I might not have been 100% successful, but my success rate – at least when the students were in my vicinity – came in at around the 80% mark. I still consider it a worthwhile attempt at making my students come across as more articulate than before, and I make no apologies.

Put simply, drastic action is required. If we continue to ignore this really, really irritating trend, we risk losing many superior substitutes for 'very, very good', such as terrific, marvellous, wonderful, superb and brilliant.

To all those teachers out there, I implore you to at least draw your students' attention to this blight upon our linguistic landscape. How about putting a charity jar in the staffroom or classroom and gathering 5p fines for every utterance of 'very, very' and the like? Parents could treat their children to something nice if they manage to go a week without a 'really, really' passing their lips. Together, we can strive for a cleaner and crisper discourse – because your country really, really needs you to help tackle this scourge that's making many, many Brits and Americans sound positively imbecilic. Who's with me...?



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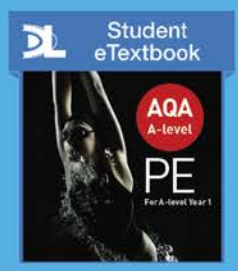

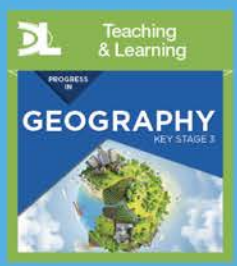

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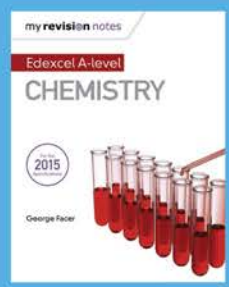

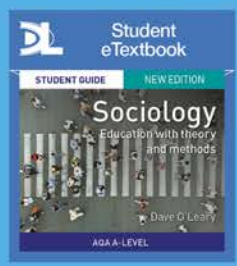

Progress Anywhere

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