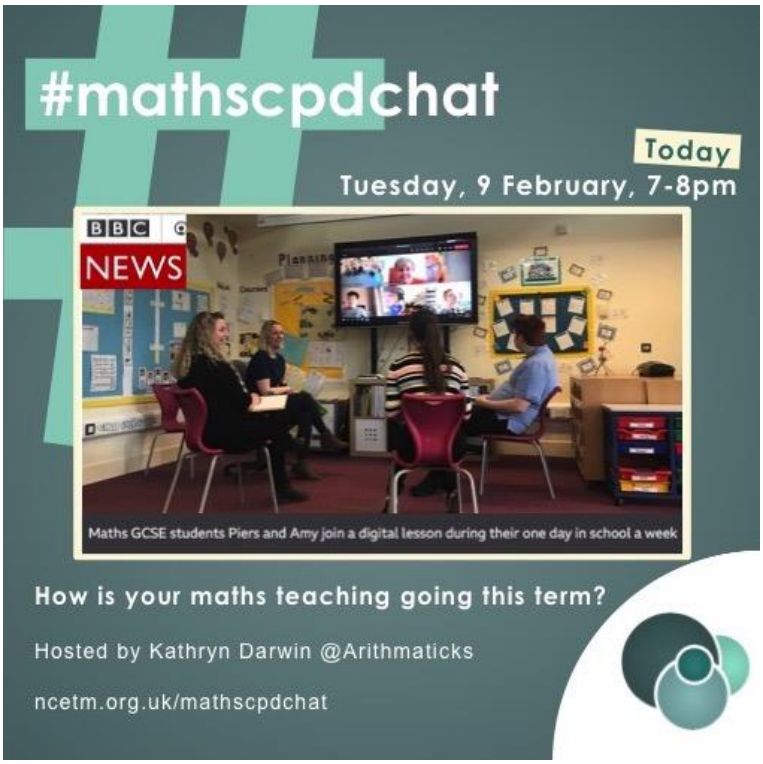
#mathscpdchat 9 February 2021

How is your maths teaching going this term?
Hosted by Kathryn Darwin

This is a brief summary of the discussion – to see all the tweets, follow the hashtag ***#mathscpdchat*** *in Twitter*



Among the links shared during the discussion were:

Whiteboard.fi which is a free whiteboard tool for teachers and students. Every student gets a digital whiteboard where they can draw, write text, make notations on images, write algebraic expressions, and so on. The teacher can see all the students' whiteboards in real time, while each student sees only their own whiteboard and the teacher's. It was shared by Odd Rob

Intro: Equations of Circles which is a Desmos resource by Lauren Olson (edited by Karen Hancock and two others), designed to help students practise writing equations of circles to fit various descriptions and constraints. It was shared by Karen Hancock

Mathematics Teaching (MT) Issue 243 which is the November 2014 issue of the Journal of the Association of Teachers of Mathematics (ATM). It is a special free-to-download-by-anyone edition exploring ways in which the recommendations of the Cockroft Report of 1982 had (or had not) by 2014 influenced positively the teaching of mathematics in England. That question might well be addressed again in 2021. It was shared by Mary Pardoe

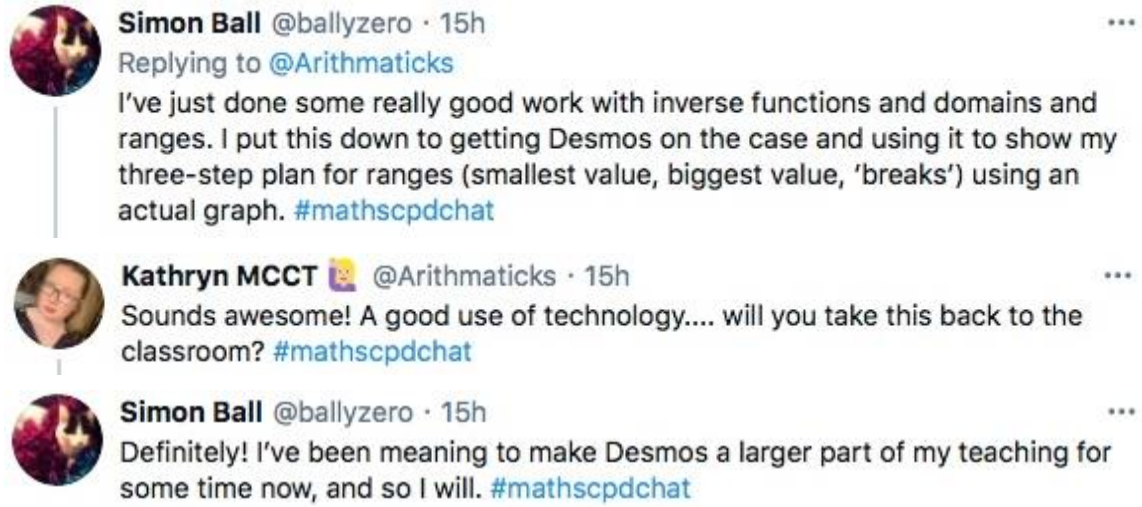
Guru which is a description in the Encyclopedia Britannica of a Guru (which means 'venerable' in Sanskrit). It explains the role of a Guru within Hinduism and describes the main characteristics of such a personal spiritual teacher or guide. It was shared by Atul Rana

Planning to teach Secondary Maths which are NCETM videos and resources for teaching Key Stage 3 maths. It was shared by HarDen1997(Miss D)

The screenshots below, of chains of tweets posted during the chat, show parts of several conversations about remote maths teaching that has gone well during the past half term. It includes a reminder that teachers are continuing to work together on their continuing professional development (CPD) during these challenging times! **Click on any of these screenshots of a tweet to go to that actual tweet on Twitter**.

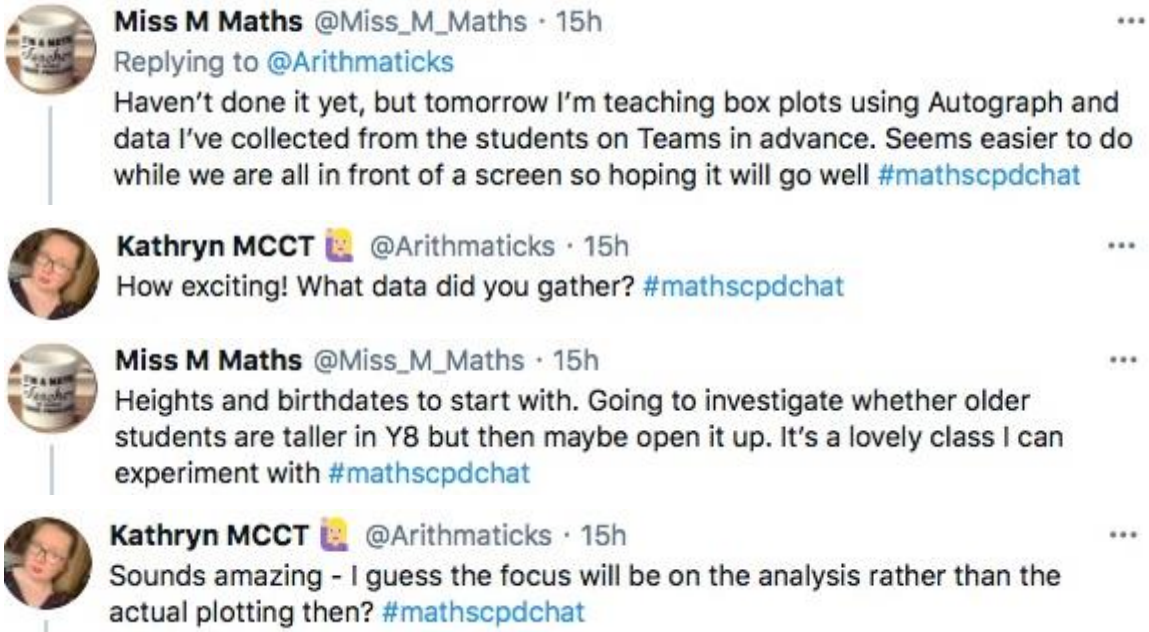
The conversation was generated by this tweet from Kathryn Darwin:

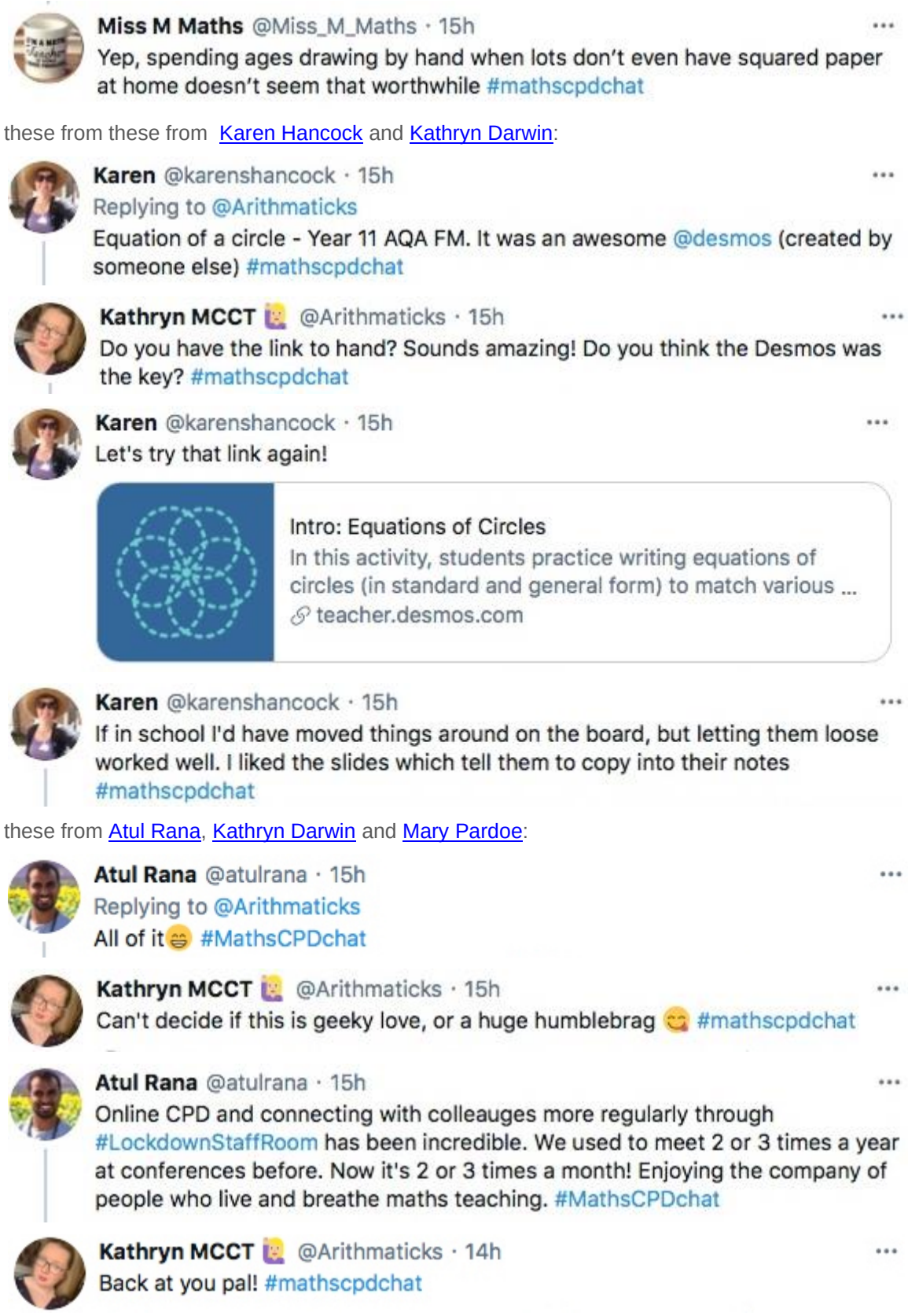
and included these from Simon Ball and Kathryn Darwin:

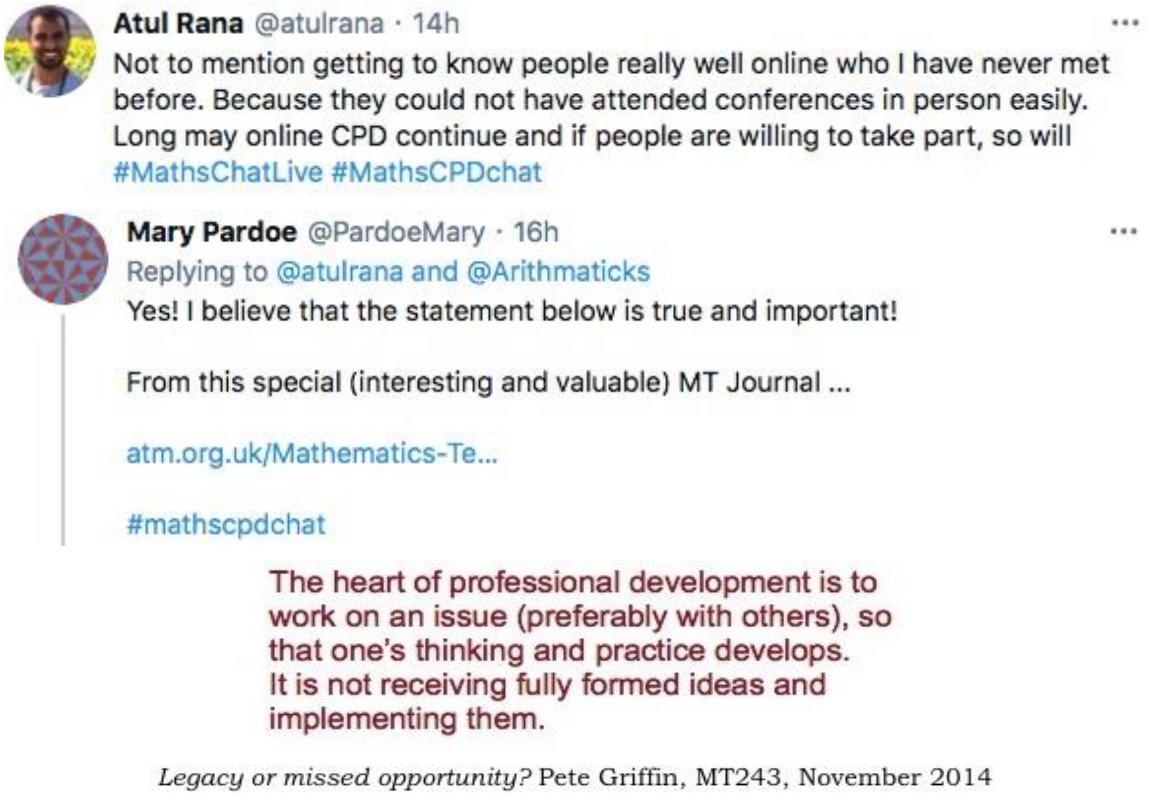


these from Odd Rob and Kathryn Darwin:

these from these from [Miss M Maths] and [Kathryn Darwin]:




Miss M Maths @Miss_M_Maths · 15h
Yep, spending ages drawing by hand when lots don't even have squared paper at home doesn't seem that worthwhile #mathscpdchat
these from these from Karen Hancock and Kathryn Darwin:
Karen @karenshancock · 15h
Replying to @Arithmaticks
Equation of a circle - Year 11 AQA FM. It was an awesome @desmos (created by someone else) #mathscpdchat
Kathryn MCCT @Arithmaticks · 15h
Do you have the link to hand? Sounds amazing! Do you think the Desmos was the key? #mathscpdchat
Karen @karenshancock · 15h
Let's try that link again!
Intro: Equations of Circles
In this activity, students practice writing equations of circles (in standard and general form) to match various ...
teacher.desmos.com
Karen @karenshancock · 15h
If in school I'd have moved things around on the board, but letting them loose worked well. I liked the slides which tell them to copy into their notes #mathscpdchat
these from Atul Rana, Kathryn Darwin and Mary Pardoe:
Atul Rana @atulrana · 15h
Replying to @Arithmaticks
All of it #MathsCPDchat
Kathryn MCCT @Arithmaticks · 15h
Can't decide if this is geeky love, or a huge humblebrag #mathscpdchat
Atul Rana @atulrana · 15h
Online CPD and connecting with colleauges more regularly through #LockdownStaffRoom has been incredible. We used to meet 2 or 3 times a year at conferences before. Now it's 2 or 3 times a month! Enjoying the company of people who live and breathe maths teaching. #MathsCPDchat
Kathryn MCCT @Arithmaticks · 14h
Back at you pal! #mathscpdchat



and this from Martyn Yeo:

(to read the discussion sequence generated by any tweet look at the 'replies' to that tweet)

The areas where discussion focussed were:

aspects of teachers' work during this half term of which they are most proud:

- many teachers are proud of **'getting through' the half term 'without any major disasters'** … 'adapting and changing teaching to a different way';
- teachers feel that **having 'mastered the tech side', they are enjoying teaching maths with little or no bad behaviour to manage** … someone pointed out that some bad behaviour is probably 'still there' but teachers are not having to manage it;

- being able to work closely with individual pupils … teachers are **proud of students who have continued to work hard in spite of 'all the obstacles**';
- many teachers are proud of having this term **improved their online lessons** … 'I have made some good lessons that I'm sure I will use again' … some have achieved this because they have been helped by contributions from colleagues who they have met online, often through Twitter;
- some teachers are finding that they are **'thinking much deeper about what I want students to learn and how to check understanding'** … they are proud of how this is developing their teaching;
- many teachers are proud of **learning how to make better use of resources such as *Desmos***;

remote maths teaching that has worked particularly well during this half term:

- several teachers and their students reported that they have **used *Desmos* very effectively** for the first time this term … I've been meaning to make *Desmos* a larger part of my teaching for some time now' … they will 'take it back to the classroom' when 'in person' teaching resumes;
- as examples of **the mathematical focus of remote teaching that has been particularly successful** teachers mentioned: functions, domains and ranges … binomial expansion using Pascal's triangle … direct and inverse proportion … box plots 'using *Autograph*' and data collected from students in *Teams* in advance' … equation of a circle using Desmos … tree diagrams for work with probabilities … indices and surds;
- that **using a visualiser to model alternative methods** has been particularly effective … having 'multiple preprepared whiteboards ready … to swap under the visualiser';
- some teachers believe that they are **presenting examples to pupils more clearly** than they did when they were using the classroom board, for example by writing/drawing on a graphics pad … some teachers are using OneNote to present examples 'neatly';
- some teachers commented that **frequent support from other teachers online** has contributed to the improvement in the quality of their remote teaching … 'getting to know people really well online who I have never met before';
- some teachers reported that their teaching has been more successful during this term because **students have been able to 'go back and review the steps easily from the recording'** … there was some discussion about the 'lack of equity' which is a consequence of 'the variety of devices being used by students' even though 'a lot of school laptops have gone out, and some students are in school';
- at least one teacher has adapted some lessons from the Standards Unit *Improving Learning in Mathematics* for use by their **students working together in breakout rooms**;

- a primary teacher reported that she has **‘fine-tuned the art of distilling content’** in order to create and record five-minute videos to support learning … ‘it seems to be working – the learning is happening’;

the host asked what the biggest changes are that teachers have made in their teaching this term:

- having to teach remotely has prompted some teachers to see more clearly ‘just how important two-way discussion is for learning’ and so to become more determined that ‘when we return I will be looking for ways to encourage this even more’ … that during remote learning **a challenge is to find ways of generating and facilitating pupil-pupil discussion**;
- some teachers have become aware of **allowing too little time for students to work on a task** … that it takes much longer for students to get fully engaged in a task when they have to get themselves ‘set up’ with devices, load files, and so on, than it does when they only need to pick up a pen in the classroom;
- teachers remarked that **during normal face-to-face classroom teaching ‘you can see better what students are doing and where they are getting stuck**’;
- many teachers agreed that in preparing lessons for, and then engaging in, remote teaching, they are **working (mostly on a computer) for a long time** each day … some teachers have decided to write ‘commands’ to themselves to try to stop working each day at a pre-set time;
- some teachers have started ‘to be **much more consistent with how each remote lesson looks**’ … they have started to use **‘visual action-prompts’**, such as an ear/eye image to indicate when they want students to listen/watch, and a ‘discussion’ icon to show where some flexible discussion time is expected to be taken;
- some teachers **have started to ask two or three ‘direct questions’ at the start of every lesson** … ‘to check prerequisite knowledge and address misconceptions’;

the host asked what ‘mistakes’ teachers have made during this half term:

- some teachers have **‘moved on too fast after doing worked examples’** … that it is harder in remote teaching to gauge when it is appropriate to move students on;
- at least one teacher **regrets not having set up Google Meets in lessons earlier in the term** … ‘as they are much more enjoyable and worthwhile than just writing instructions and putting videos on Google Classroom’;
- some teachers, having **experienced wifi problems at home**, have needed to go into their school to carry out remote teaching from there;
- some teachers have **sent out tasks to the wrong groups**, or ‘forgotten to attach a OneNote page to the lesson assignment’;

- at least one teacher has been **using up too much lesson time with students 'copying down worked examples etc'** … trying to rectify this by 'uploading worked examples onto Satchel after the lesson';
- some teachers reported that they have been **'trying to do too much in a lesson/series of lessons'** … others have **'tried to do too much marking, loads more than in the classroom'** … relying on pupils 'to self-mark more (as I would in school)' has helped to rectify this;
- some teachers have **provided the wrong set of 'answers'** for 'questions' in an exercise that they have set … before realising my mistake 'I spent time worrying that none of them could do it';
- one teacher '**got lost in modelling a mechanics question**. Sent full worked example out afterwards';

mathematics that has been hard to teach during this half term:

- more than one teacher has 'struggled to get some of the **A level Mechanics** across' … but one of those teachers appreciates 'the nice feeling of solving a mechanics problem';
- several teachers have 'skipped **constructions**' until back in school … because, for example, many pupils are unlikely to have a compass at home … a teacher pointed out that there is 'a great video on NCETM's 'Planning to teach secondary maths' on Constructions' (link provided above);
- that helping students **actually to plot and draw quadratic graphs** is difficult in remote teaching;
- some teachers are avoiding any teaching about **transformations** ... but others who have used *Desmos* for students to work on reflections reported that it 'went well';
- at least one teacher has found working with Y7 pupils on **bar charts** to be difficult … 'because I couldn't do my normal checking of what they are drawing as they go along';
- many teachers are avoiding '**anything that uses squared or graph paper** as I know a lot of pupils won't have these at home but won't say anything when I ask';

teachers' targets for the next half term:

- some teachers, being very grateful to other teachers who during the past half term have **shared resources that they created**, plan to **make some of their own resources** during the next half term and **share them in return**;
- some teachers are determined to **'pick a few things and do them really well'** with the aim of using them again in the future;
- many teachers **hope/intend to incorporate into future 'normal' teaching 'what they have learnt from online learning**' … for example that meetings with colleagues do not need always to be face-to-face.