Citizen Maths:
Powerful Ideas in Action

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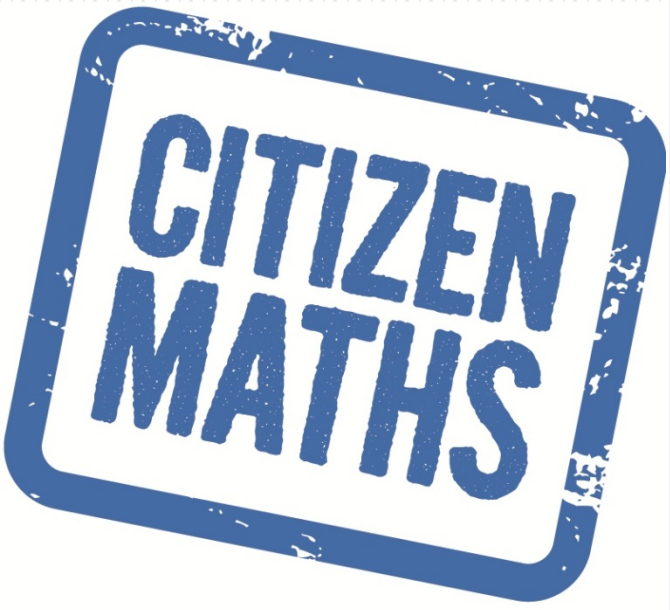

Outline

What is Citizen Maths?

Who is it for?

The curriculum and approach used

Powerful ideas in maths

Clips from videos

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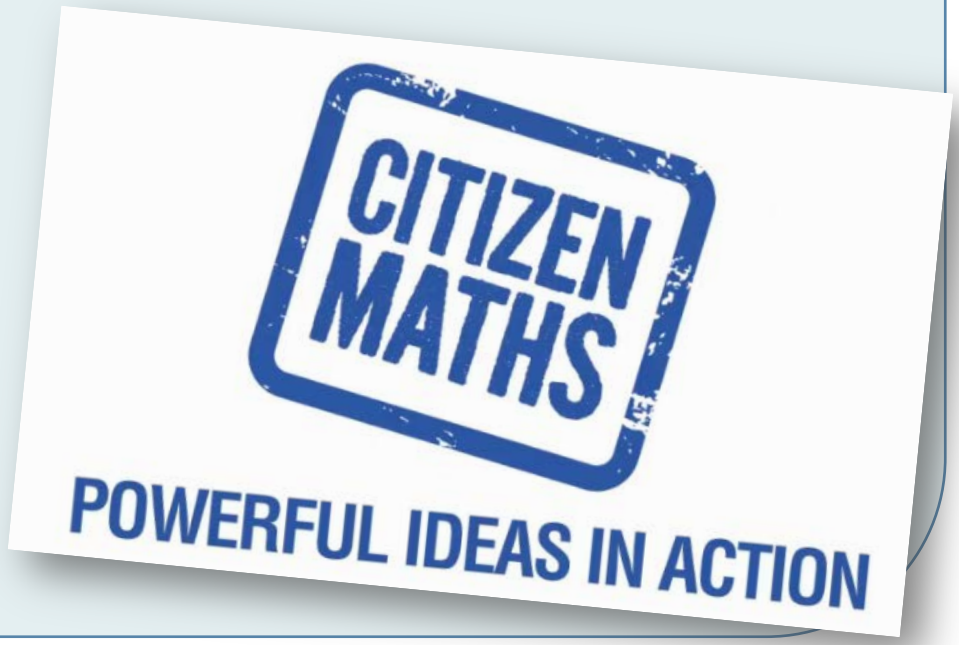
Conclusion

Question



What is Citizen Maths?

- MOOC starting in September 2014
- Collaborators:
  - Calderdale College
  - Institute of Education
  - OCR
  - CogBooks
- Funded by Ufi Charitable Trust

Who is it for?

- Self-motivated individuals who want to improve their mathematical capability;
- Employers who want to provide staff with a development opportunity in maths;
- Colleges and other learning providers who want to give enrolled learners an additional or alternative route to improving their maths.

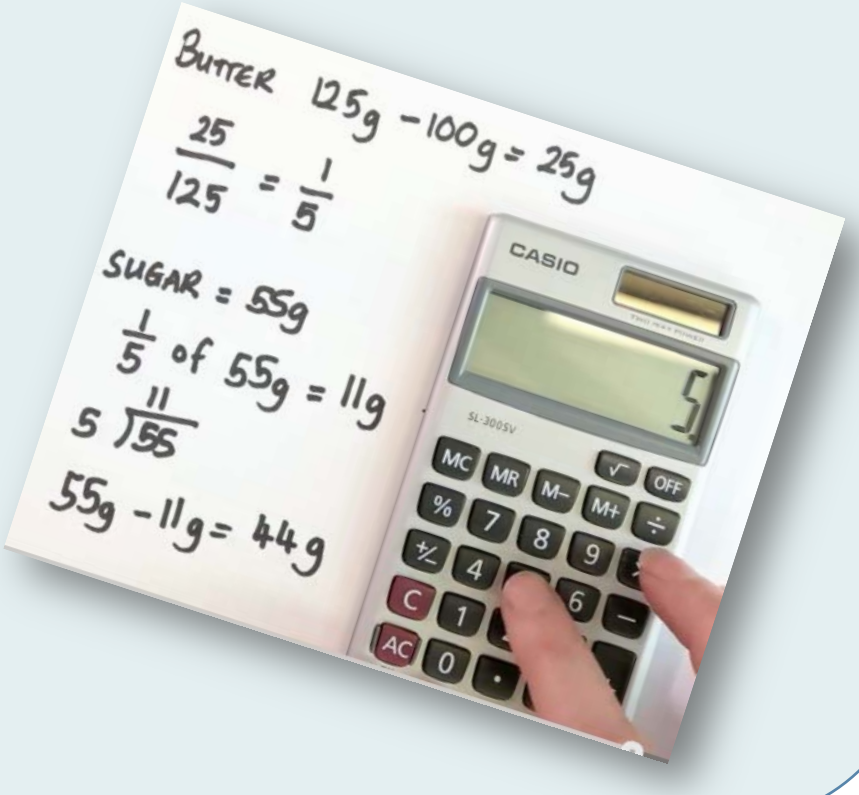
- There may be sections that are useful for those working in maths support in HE.

Proportion – power of maths

- Phase 1: Proportion
- The concept of proportion underlies fraction, percentage, decimals, ratio, and probability, to name but a few maths ideas.
- More about focusing on the conceptual underpinning of the powerful ideas than on the details of calculation

Course content

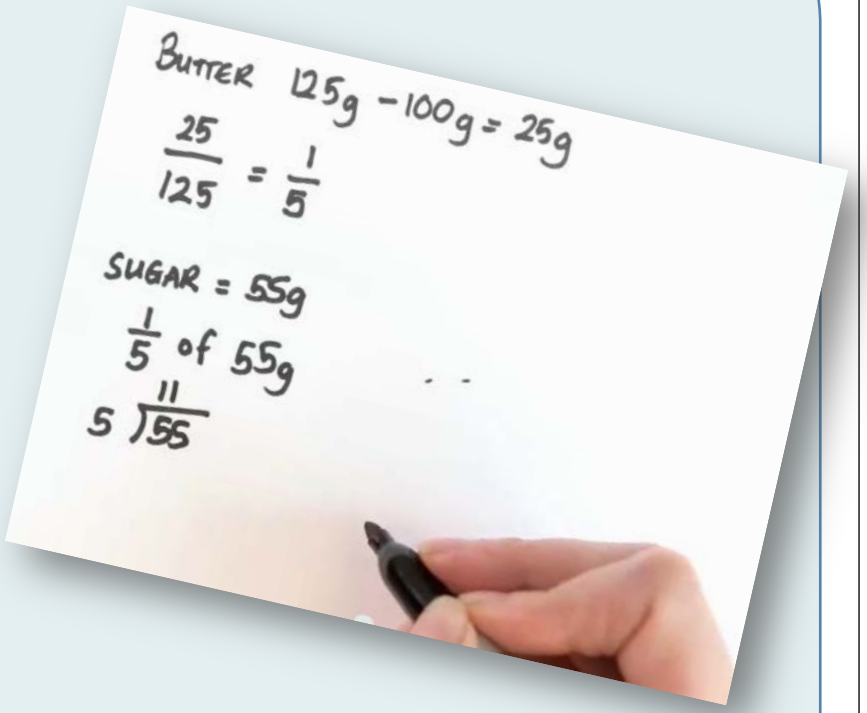
- Mixing – Paula
- Scaling – Noel-Ann
- Sharing – Noel-Ann
- Comparing – Noel-Ann
- Trading-off – Paula



Course content

The Approach

- PISA
- AI MOOC at Stanford
- Purpose-made app-based activities to help learners build up their mathematical understanding, including a small amount of programming, using Scratch.

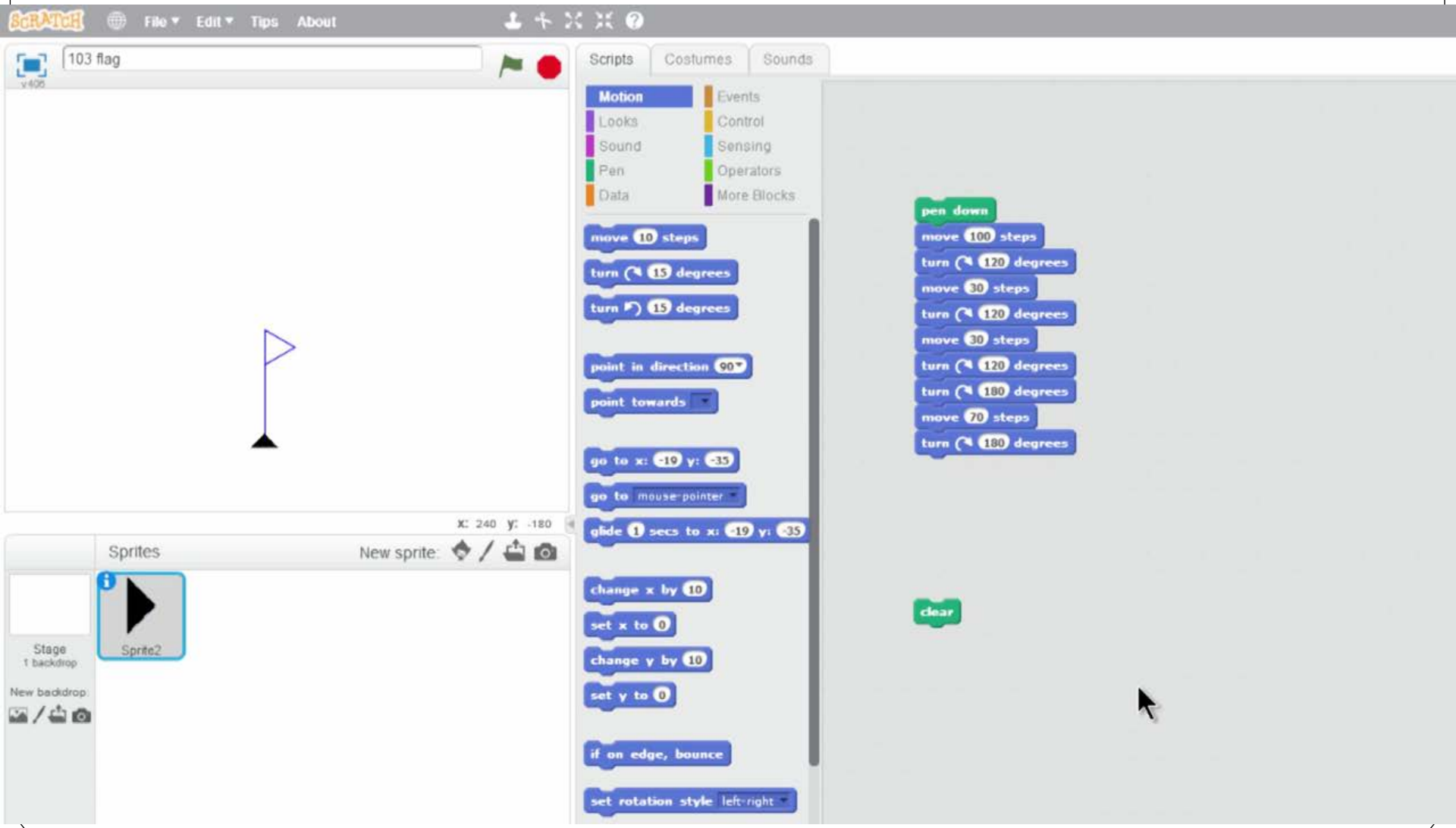


The Approach

Powerful Ideas in Action

- *"Learning results from what the student does and thinks and only from what the student does and thinks. The teacher can advance learning only by influencing what the student does to learn."*
- Learners engage in contextualised problems so that the power of mathematics is revealed.
- Scratch is used to enable the learner to 'teach' the computer to do maths!

Powerful Ideas in Action

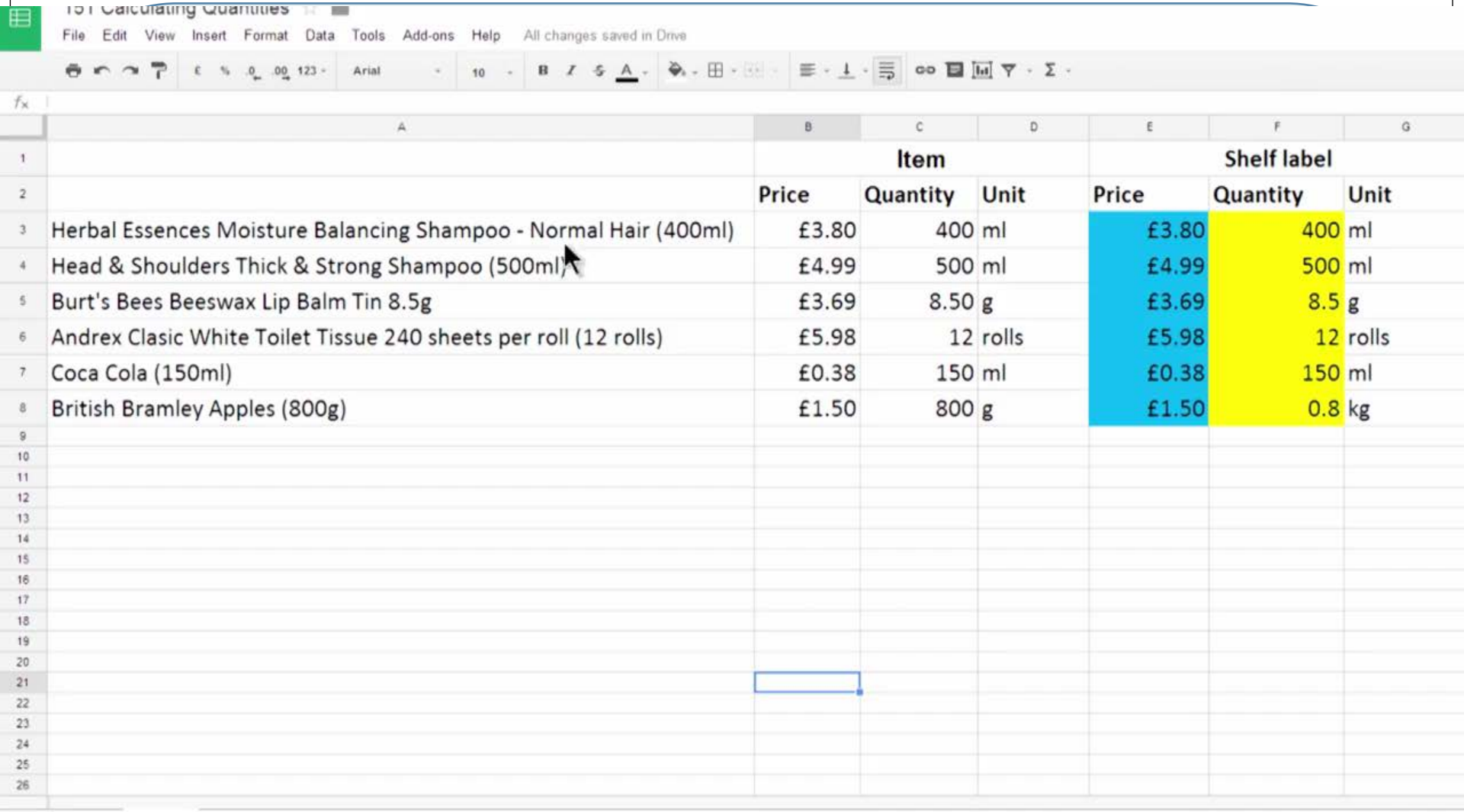


Spreadsheets

- Another way of enabling learners to visualise maths is through spreadsheets.

	Item			Shelf label		
	Price	Quantity	Unit	Price	Quantity	Unit
Herbal Essences Moisture Balancing Shampoo - Normal Hair (400ml)	£3.80	400	ml	£3.80	400	ml
Head & Shoulders Thick & Strong Shampoo (500ml)	£4.99	500	ml	£4.99	500	ml
Burt's Bees Beeswax Lip Balm Tin 8.5g	£3.69	8.50	g	£3.69	8.5	g
Andrex Clasic White Toilet Tissue 240 sheets per roll (12 rolls)	£5.98	12	rolls	£5.98	12	rolls
Coca Cola (150ml)	£0.38	150	ml	£0.38	150	ml
British Bramley Apples (800g)	£1.50	800	g	£1.50	0.8	kg

Spreadsheets



151 Calculating Quantities

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Problems encountered

- Filming written maths – show clip
- Filming to-camera content – show clip
- Logistics
- Other issues

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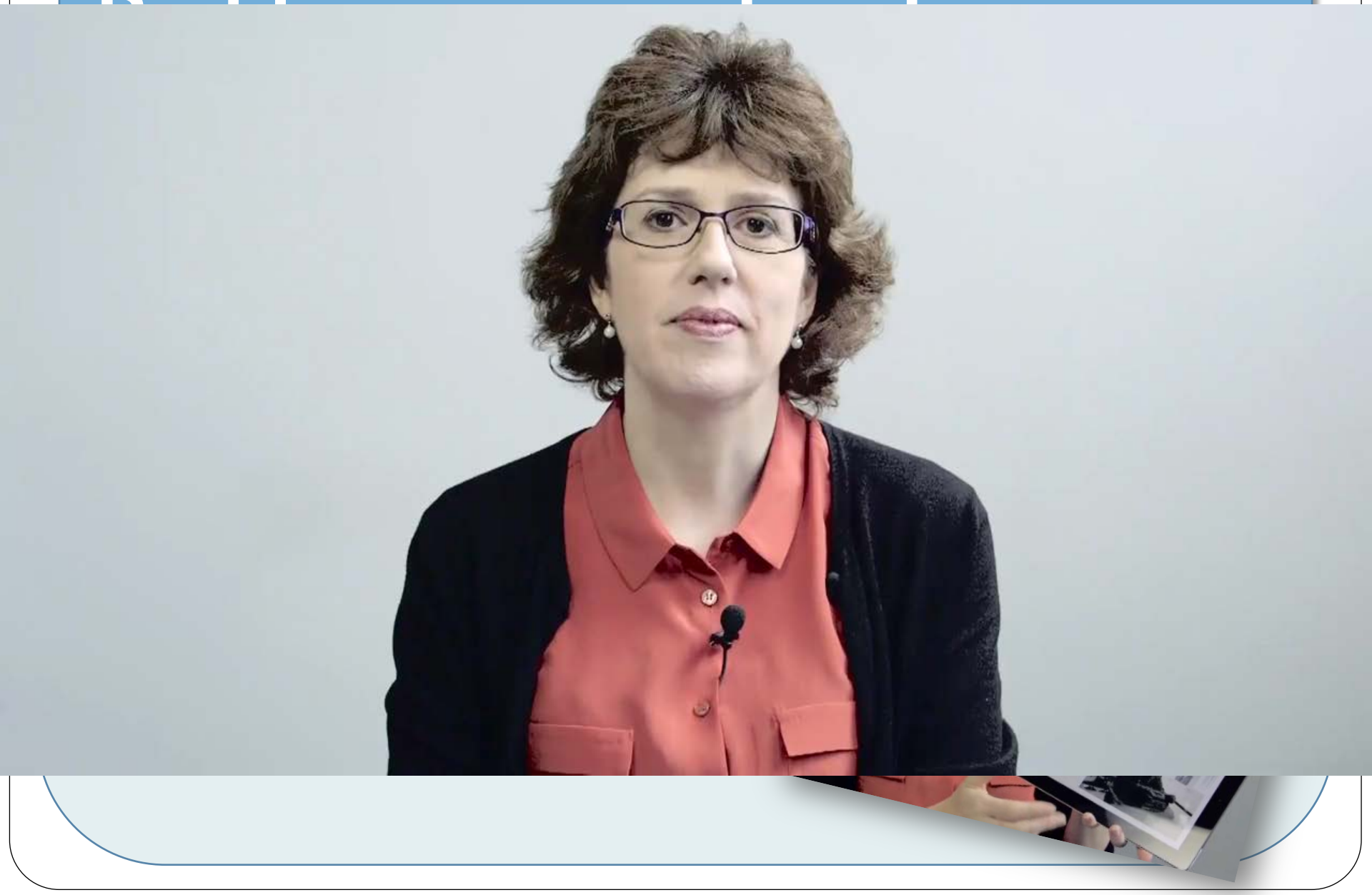

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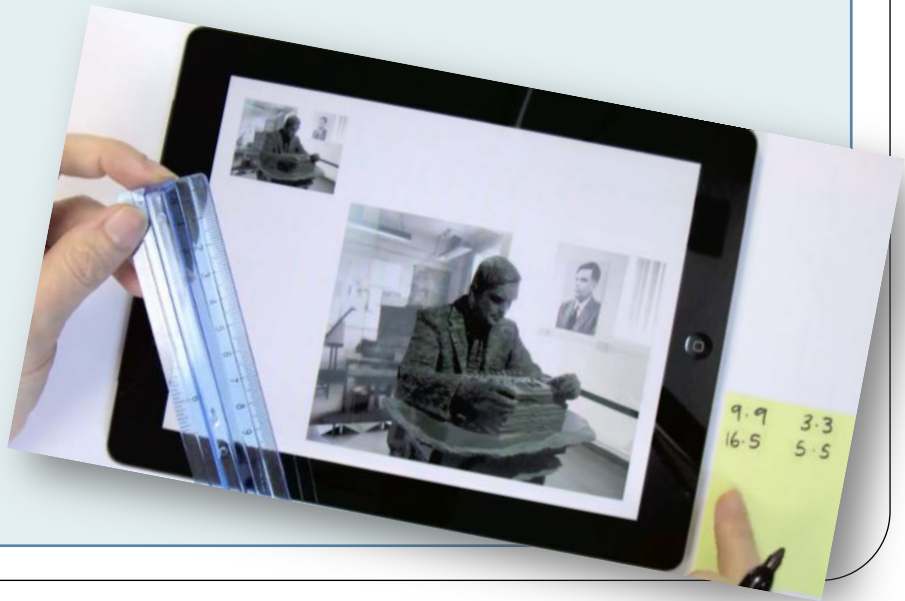
Plan for the future – adaptive learning

- We intend that from 2015 it will make use of adaptive learning.
- Learners will be able to take different paths through the course depending on progress.
- It will engage learners in familiar activity to reveal the ‘maths inside’ and give access to powerful maths ideas in action.

Conclusion

- The course starts on 12th September
- Please let people know this is happening and encourage those teaching maths at this level to take a look at it.
- Feedback is welcome!



References

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- Simon, H. (1998). *Teaching: Need it be a solo sport?* Last Lecture Series [Video]. Carnegie Mellon University, Pittsburgh, PA.

Question Time

Thank you for Listening