

# Mastery in Maths

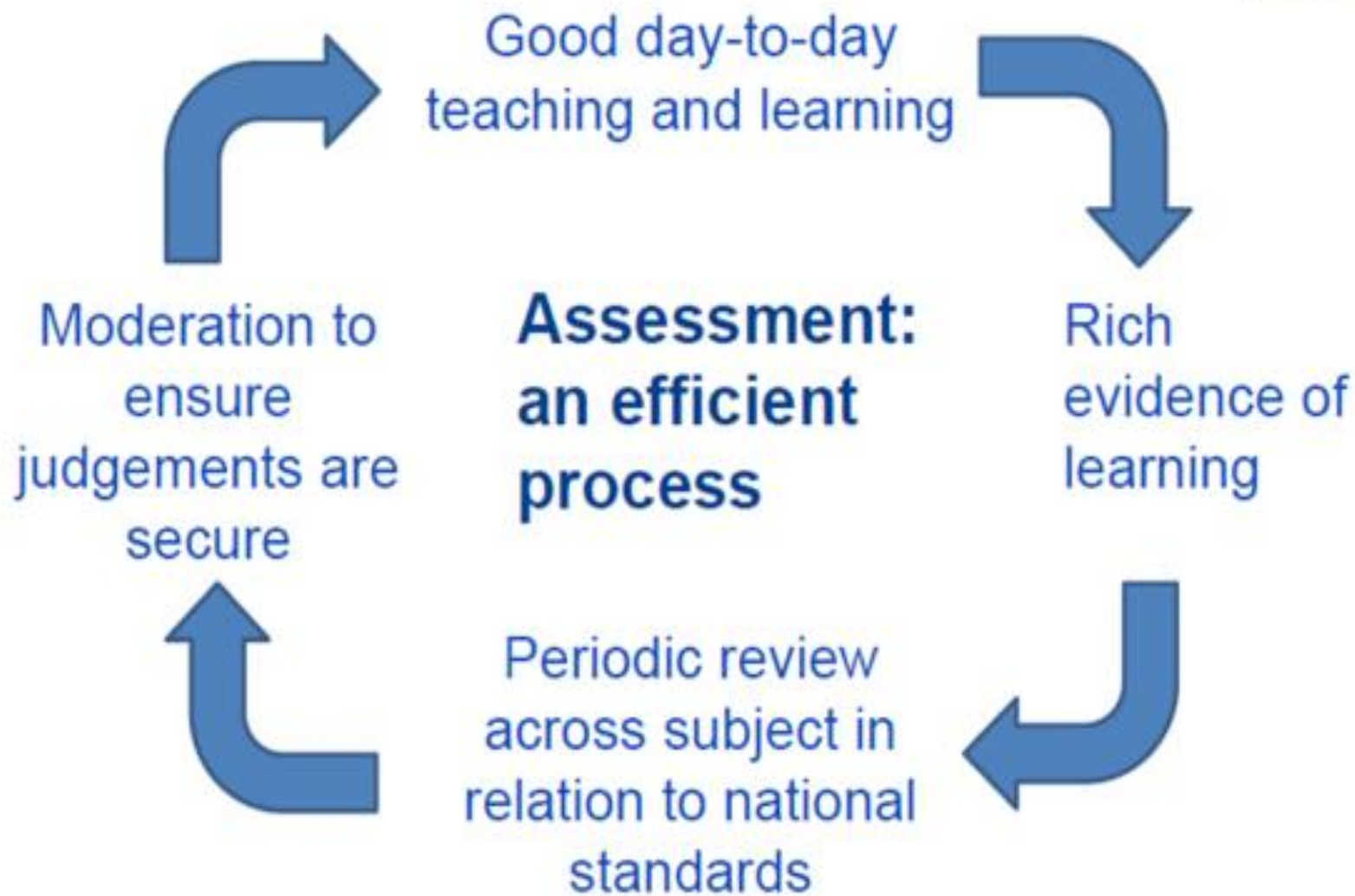
Curriculum Evening Presentation

# Warm up task

$$\frac{1}{2} \times \frac{1}{2} =$$

On your table, think of three contexts (one involving a set of objects, one involving length and one involving shape) to make sense of this calculation and draw something to show the solution in each context.

Make sure that everyone can explain the solution.



# What is Mastery?

Mastery denotes a focus on achieving a deeper understanding of fewer topics, through problem solving, questioning and encouraging deep thinking.

Mastery means working at age-related expectations and being able to show evidence of independent application in all contexts.

The student can demonstrate or explain the concept orally, concretely, visually and abstractly.

The student can apply the concept automatically, so that it is not dominating their working memory.

# What does it mean to really understand (master) in Maths?

I can ...

Describe it in my own words

Represent it in a variety of ways (concrete materials, pictures, language, context and symbols)

Explain why the maths works (proof)

Explain it to someone else (so that they can explain it)

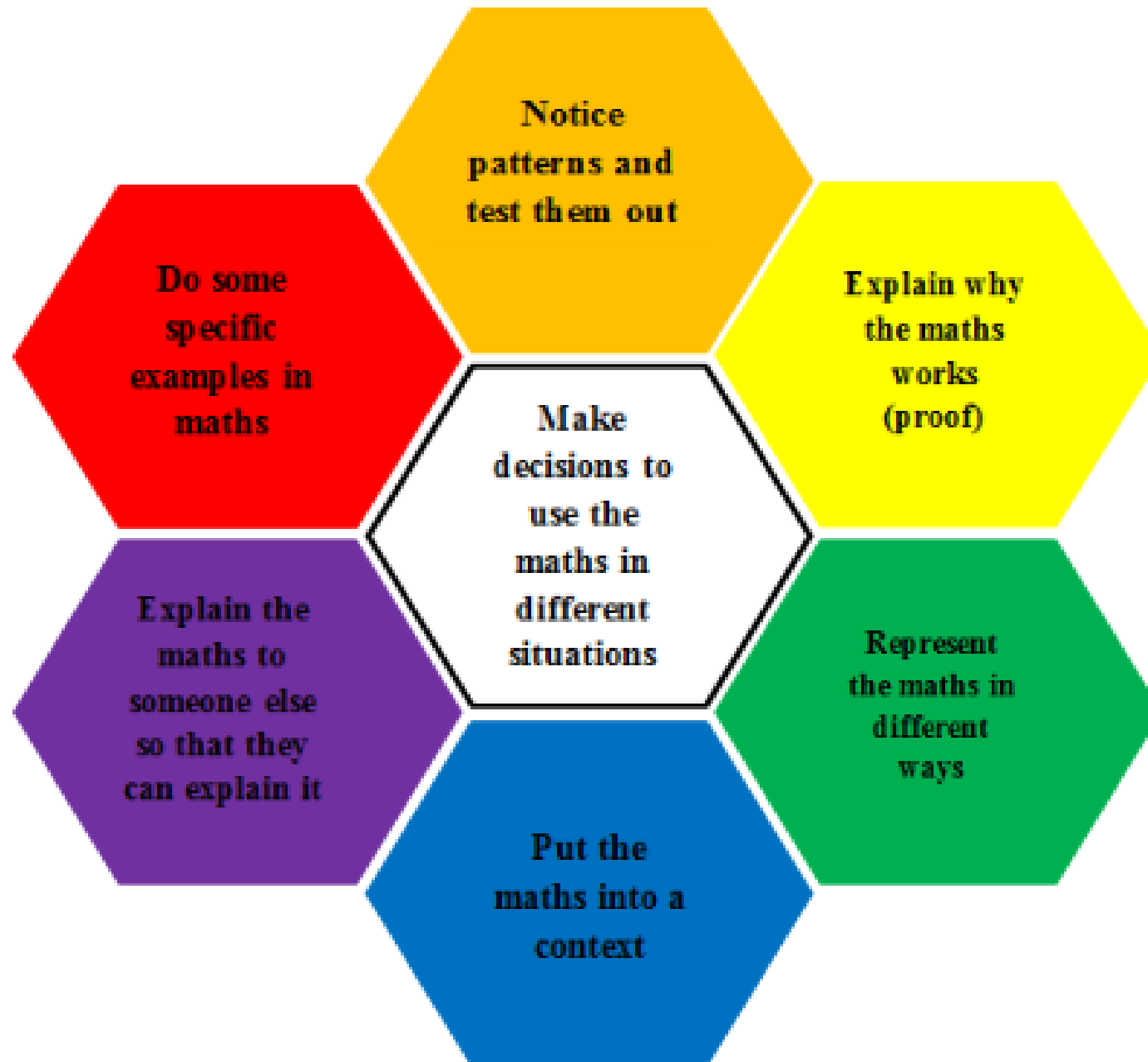
Notice patterns and test them out; make up my own examples (and non-examples of it)

See connections between it and other facts and ideas

Identify when the understanding has been used correctly and when there are problems in someone else's work

Recognise it in new situations and contexts

Make use of it in various ways, including in new and unfamiliar situations



# Behaviour for Learning (not just for maths!)

The learning challenge

The learning pit – James Nottingham

Problem solving

Digging deeper

Real life contexts

First hand experiences

Resilience

# The Learning Pit-James Nottingham



There is no real learning without a certain amount of struggle!

Learning is not a solitary process!



Examples of tasks that deepen understanding.

# Rich tasks that enable children to deepen understanding – making connections

Putting a context to fractions

Let's look at  $\frac{1}{2}$  .

What is half of:

A length of ribbon

A piece of paper

A lump of plasticine

A cup of water

A pile of counters

A bag of raisins

# Egyptian Farmer Problem

- An Egyptian farmer had some land.
- He kept half for himself and shared the remaining land with his 2 children.  
How much did they get between them?  
How much did they get of the whole farm?
- Look at the relationship between what they got from the whole of the land and what they got from their half.
- Use the cards to show the different ways that the land could be shared, what fraction this is of the whole land and what fraction it is of the half of it.

Any questions?