Churchside Federation

What is Greater Depth?

Greater depth is a way of describing the degree of understanding pupils have of the entire content of the curriculum. It is a term used to assess pupils' understanding at the end of a year, unit or work or key stage rather than within it. Pupils with a greater depth of understanding will have the same knowledge and skills as pupils reaching the expected standard but they will show greater understanding through their inventive application of their knowledge and skills. It is important that greater depth is not seen as pupils making rapid progress through content or pupils having a greater quantity of knowledge than their peers.

For example, 'I can' statements are of little use in defining greater depth because they don't tell us to what degree a pupil understands an aspect of the curriculum.

E.g: The statement 'I can drive a car.' gives us no information about how well the car can be driven. Instead, it is better to ask: 'to which degree can you drive the car?'.

In the case of driving cars - the fundamental foundations are common to all stages of understanding and should therefore not be rushed. Without the fundamental foundations of driving it would be impossible to pass one's driving test or to progress to greater depth in driving – for example, managing to negotiate Paris!

- Basic Low level cognitive demand. Involves acquisition of fundamental foundations.
- Advancing Higher level cognitive demand beyond recall. Requires application involving some degree of decision making in how to apply fundamental foundations.
- Deep Cognitive demand involves non-standard, non-routine, inter-connected, multi-step thinking in problems with more than one possible solution. Requires reasoning and justification for the inventive application of fundamental foundations.

To secure greater depth, it is important that teachers change the nature of tasks and questions as pupils move through the three cognitive domains.

Cognitive Domain	Types of thinking	Nature of tasks and questions	Types of tasks and questions in Maths:
Basic	Low level cognitive demand. Involves following instructions.	Building knowledge of fundamental foundations	Name, describe, follow instructions or methods, complete tasks, recall information, ask basic questions, observe, use, match, report, measure, list, illustrate, label, recognise, tell, repeat, arrange, define, memorise, calculate, recite, draw, recall.
Advancing	Higher level cognitive demand beyond recall. Requires application involving some degree of decision making.	Applying fundamental foundations	Apply skills to solve problems, explain methods, classify, infer, categorise, identify patterns, organise, modify, predict, interpret, summarise, estimate, compare, experiment, demonstrate, practise, show, arrange, point out, graph, separate.
Deep	High level cognitive demand that involves non-standard, non-routine, inter-connected, multi-step thinking in problems with more than one possible solution. Requires reasoning and justification.	Inventively applying fundamental foundations	Solve non-routine problems, appraise, explain concepts, hypothesise, investigate, cite evidence, design, create, prove, judge, recommend, justify, generalise, propose, discover, arrange, rate, evaluate, revise, conclude, formulate, construct, develop, connect, prioritise

How does this apply to Mathematics?

We follow a Mastery approach for teaching Maths, meaning that exposure to deep thinking is not limited to greater depth pupils. Within lessons, all children are supported via discussion, scaffolding, representations and incremental small steps to move through basic, advancing and into deep understanding of each mathematical concept taught.

The aim is for **all pupils** to achieve mastery within Maths, showing they really understand a concept, idea or technique by:

- describing it in his or her own words
- representing it in a variety of ways (e.g. using concrete materials, pictures and symbols – the CPA approach)
- explaining it to someone else
- making up his or her own examples (and non-examples) of it
- seeing connections between it and other facts or ideas
- recognising it in new situations and contexts
- making use of it in various ways, including in new situations.

Characteristics of a GDS Mathematician at Churchside.

Greater Depth Mathematicians may grasp concepts more quickly or take their understanding to an even deeper level. Often this may not be seen in the lesson where the content is taught, but at a later opportunity where they will apply their understanding to new situations or in different ways. Within a lesson, greater depth pupils may integrate new content with their existing understanding and utilise this to solve more complex non-routine problems or investigate further.

Mastery with greater depth is characterised by:

- solving problems of greater complexity (i.e. where the approach is not immediately obvious), demonstrating creativity and imagination.
- independently exploring and investigating mathematical contexts and structures, communicating results clearly and systematically explaining and generalising the mathematics.