



Get Ready - to isolate concepts

In this second audio, we explore how our children can become *ready* and eager for maths. And this can happen without pressure—simply catching the moments and finding connections in their daily experiences.

The early years journey (to numeracy and maths) can be meaningful and exciting. Yes, for our children, *AND* for ourselves.

We strongly advise that you read the Companion Notes alongside listening to each audio. Leaving some time before moving onto the next one gives us the opportunity to reflect, notice, and discover so much more about the young children in our care.

Getting honest!

Many of us have a poor relationship with maths. It is helpful to recall some of our memories to realise how these experiences have spoken into how we as adults perceive maths. Recognising and naming our feelings allow us to provide better experiences for our children.

Consider a little...

What is your memory of maths at school or kindergarten?

How has this informed how you feel about maths?

How do you feel about maths when your child brings their maths homework from school?

Think about how these feelings are affecting the environment you create for your child(ren).

We are not born arachnophobes, generally such fear (for spiders) is transferred.

If adults are insecure and have a fear of numeracy, maths or large numbers, we risk adversely influencing our children. It is therefore important to realise and deal with these feelings, so our insecurities are not passed on to the children in our care.



The Mathematical Mind

Maria Montessori coined the term 'Mathematical Mind' to describe something that is fundamental to the human psyche and is present from birth.

In infancy, the young child's need for order and routine is a window of opportunity which feeds into their developing Mathematical Mind (*Delving a Little Deeper Set 1; Audio 2*). We are born with the drive and human tendency for exactness, orientation, and precision.

As we mature, this mathematical mind evolves and develops into the capacity for logical and systemic thought.

As adults, we still have the potential to develop a mathematical mind... and we can do this alongside our young children.

By recognising (& dealing with) our feelings of avoidance and fear, we can gift both our children (and ourselves) with developing the mathematical mind playfully!

How can we keep our children excited and make those mathematical connections that are inherent in all of us?

Most important is learning to be confident that our attitude to maths can change!!

At kindergarten, I (Caroline) quickly learned what I was good at and what I was not!

I could sing in tune, and this was celebrated! But... whenever it came to number activities I floundered. Whenever I got a question wrong, Mrs. Benson (I still know her name!) made me stand on a chair at the back of the class with my hands on my head. I still remember the pain and the shame! I was under 5, but my fear of anything numerical lasted well into adulthood.

Gratefully, when I began Early Years training as a post-graduate in my thirties, I came across a new way of understanding numeracy. Whilst learning to teach, I became a learner again and I needed to revisit the old fears. Fractions began to make sense; my fear of large numbers dissolved as I saw them in the context of our decimal 1 to 10 system. Playing with small skittles and beads revealed the 'secret' that multiplication was simply an extension of addition...

By using real, tangible, 'play' materials, my perception of numeracy and maths was transformed!

The good news is that learning to see maths differently is a journey. We all start somewhere and everything we learn along the way **will** benefit the child(ren) in our care.



Firm foundations

The gift we can offer our children is to give them daily life experiences where they manipulate real objects, absorb the mathematical language at the very time when they are absorbing everything as young children.

In some childcare approaches, these 'building blocks' are given a separate curriculum 'title', such as the Sensorial Curriculum. Essentially, these experiences are invaluable to supporting the child's emergent Mathematical Mind.

Isolating concepts

A concept is simply a thought or idea. It describes the 'feature' of something. Young children need to make sense of their world and have been absorbing *everything* from birth. Their mathematical mind is a vital tool to help them sort the overwhelming plethora of information into compartments.

For example, **colour** is a concept. When a child understands colours as concepts 'red', 'green' or 'white', they can link it with new ideas and place it in new contexts. Naturally adults tend to muddle up concepts and ideas as we chat with children. For them, however, it is simply confusing to differentiate colour from different objects.

"Do you want to wear your blue coat, yellow wellies and red gloves?"

In this question, a child who is not confident with understanding different colours needs to disentangle the concept of red with other objects (coat, wellies, gloves).

Isolating the concept is a vital building block for children to categorise any feature. We can see how confusing it is for young children by listening to some common statements:

- Size - ***"Look! Matty's found a big dinosaur and a little cat."*** Size is muddled with different animals.
- Weight - (heavy/light) - ***"let's fill up the watering can – it's heavy!... thanks for watering the garden, it's much lighter now."***
- Velocity (fast/slow) – ***"that blue Alpha Romeo is going faster than the red MG"***

Listen out for other ways where confusing concepts are spoken with children...

Volume (full/empty)

Height (tall/short)

Distance (far/near)

Temperature (hot/cold)

Quantity (more/less)



Sarah suggests that we simply and intentionally decide to focus on one concept (such as colour) at the start of a shared experience. Simply chatting and noticing different *colours* of the lego bricks we're playing with or vehicles we walk past is an easy, natural way of isolating the concept of colour (and so supporting the mathematical mind).

Playing with a set of pebbles collected from the beach lends the focus to be on the concept of weight. The conversation spontaneously flowing from this shared experience will include a range vocabulary 'heavy, heavier, heaviest... light, lighter, lightest'. The concept is isolated whilst sharing the simple experience of playing with pebbles.

As children hear the language that is relevant to what they are doing, they spontaneously assimilate vocabulary, as they associate it with an object. Over time, they internalise named concepts and later mathematical learning will flow easily.

Isolating the concepts is foundational for maths and numeracy.

As children categorise features and concepts, their Mathematical Mind is engaged and there is an easy progression to understanding mathematical concepts. When introduced to more maths more formally, the mathematical language is familiar, not alien; concepts have a connection with something tangible and experienced.

10 years old, Mark was preparing for an exam with others in his class. One practice question was, "How many vertices has a square based pyramid?"

His friends had no idea. The teacher had to bring out the solid shapes again to teach them about faces, edges, and vertices.

But Mark had been to a nursery where he had enjoyed 'playing' with these solid shapes. He had heard and absorbed the language of prisms, pyramids and solid shapes whilst building structures. He was the only one in the class that didn't need this to have this learning taught. His confidence grew as he prepared for (and then passed!) his exam.

Before next time... Think of an everyday activity that would support a child to isolate the child's understanding of one (or more) of these concepts:

Weight - (heavy/light)

Height (tall/short)

Velocity (fast/slow)



SET 2 Delving *a little* Deeper
Get Ready, Set, GO for Maths!
Audio 2 – Get Ready to isolate concepts!

Companion Notes
Set 3; Audio 2
with Sarah Rowledge

Distance (far/near)

Temperature (hot/cold)

Further information, practical guidance and advice are available through

Turning Little Stones

Delving a little Deeper

www.turninglittlestones.co.uk

and Sarah Rowledge

(early years trainer & consultant, senior lecturer, nursery manager and owner)

www.sarahrowledge.com