

Developing practice

To develop our understanding of how to teach pattern in a more effective way, we:

- Looked at why patterning is **important** and the **impact** that it has on children's future learning. In order to do this we used the following key texts and discussed the value of patterning for children's arithmetic structures, counting skills and algebraic understanding.
 - 'Promoting repeating patterns with young children – More than just alternating colours' by Marina Papic
 - 'How early is too early for thinking Algebraically?' by John Mason
- Unpicked what **patterning is** and **what makes a pattern** as a team and had lots of fun creating and looking at patterns together. We were most surprised to discover how even the least creative member of our team (the leader) could make some lovely creative patterns by simply 'playing' with resources. The following text was the most simple of all our reading but provided us with the most clarity for changing our view that pattern is "a sequence governed by a rule" as opposed to what it is not ("2 colours, 2 shapes, 3 colours, 3 shapes, etc").
 - 'Big ideas of pattern' reprinted from 'Big ideas of early mathematics' by the Erikson Institute
<https://earlymath.erikson.edu/why-early-math-everyday-math/big-ideas-learning-early-mathematics/>

Big Ideas of Pattern		
Topic	Big Ideas	Examples
Pattern and Regularity 	- Patterns are sequences (repeating or growing) governed by a rule; they exist both in the world and in mathematics. - Identifying the rule of a pattern brings predictability and allows us to make generalizations. - The same pattern can be found in many different forms.	- Dots on a ladybug; posts of a fence; adding 1 to any number gives you the next number. - After lunch comes recess; if we keep counting people's feet, it will always be 2 more. - Big block, little block; big block little block; big block, little block . . . OR snap, clap, snap, clap, snap, clap . . .

Erikson Institute's Early Math Collaborative. Reprinted from *Big Ideas of Early Mathematics* (2014), Pearson Education

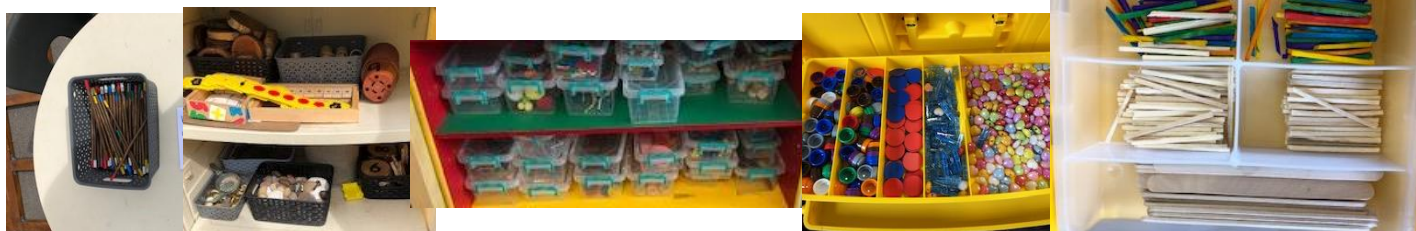
- Reviewed the **EYFS Profile** and **Development Matters** documents to look at what pattern skills the children need to learn and then discovered that we needed more information in order to understand the progression of skills that we needed to support our children to develop to enable them to become confident patterners. We found the **NCETM Pattern Progression** to be pivotal in enabling us to have a clear picture of what we needed to know with a detailed, step-by-step overview of pattern progression. We wanted to ensure our children are confident with patterns, have a good understanding of how to make a pattern and know what constitutes a pattern.
 - 'Early years typical progression chart with additional guidance for practitioners: Pattern' by NCETM

<https://www.ncetm.org.uk/files/98799649/Typical+Progression+-+Pattern.pdf>

However, due to being an EY unit with F1 and F2 children (some working at the earliest developmental stages), we also needed to see how to begin our children's patterning journey at a much earlier developmental stage and for this we found the Learning Trajectories incredibly useful. We used:

- 'Developmental levels for patterning and early algebra' – Learning Trajectories
<https://www.learningtrajectories.org/>

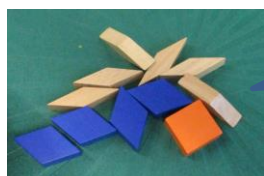
Excited and keen to get started we created a pattern rich environment that would excite and engage our children with a budget of £0 but plenty of enthusiasm. We hunted, collected, recycled and scoured the internet to find pictures and resources that would interest and motivate our children to begin patterning. A pattern area was created using a range of resources.



Our Children's learning

We started by providing children with patterning resources and sitting alongside the children to see what they would do with them.

The children made collections of objects and made comments, examples below, but all of the children were unsure of why they had made a pattern and none of the children talked about repeating parts or rules.



I made a pattern – orange, wood and blue. Child A

Look it goes up, lots of them. Child B



We realised quite early on that our children needed greater awareness of what patterns are and some specific teaching around 'AB patterns' and adult modelling of how to create patterns with repeating units. We did lots of adult-led sessions focusing on looking at patterns in nature, introducing AB patterns with objects and encouraging children to say what they could see leading to developing skills in identifying the 'unit of repeat'. Following this we found that our children could talk much more confidently about patterns and could easily recognise AB patterns such as below.



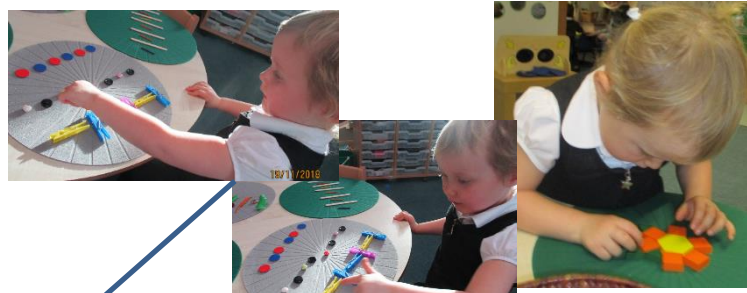
'It goes big, little, big, little, big, little – big & little over and over.' Mya aged 3

'The pattern goes red and green around in a circle. The red and green repeats over and over.' Madeline aged 3



'It goes red, blue, red, blue. It is a pattern.' Charlie aged 3

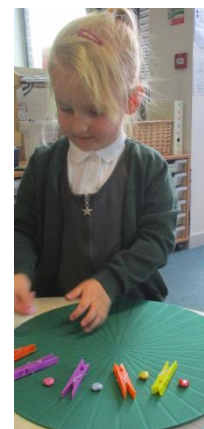
Following adult modelling in specific pattern sessions, during which we showed the children how patterns were created using an AB structure that repeated over, we ensured that lots of resources were available within our provision and encouraged the children to begin to use their patterning skills to make AB patterns of their own. The children understood the concept of patterning and could re-create AB patterns using lots of different media.



Mya Aged 3



Madeline Aged 3



Impact

The impact on the children has been significant. At the end of this school year, the children are moving to the next year group as confident and able patterners. This cohort of children recognise patterns in a range of context and formats, they understand what makes a pattern and can continue a pattern with understanding of why a pattern continues or increases in a particular way rather than simply “knowing what comes next”.

Across the setting, practitioners are more inclined to teach patterning and have a much better understanding of how and why children learn to create and explore patterns. Patterning is taught more explicitly but also takes place more frequently across our setting in sp.

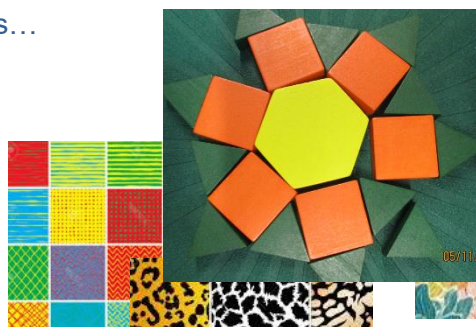
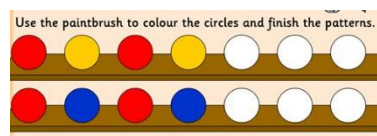
Key messages

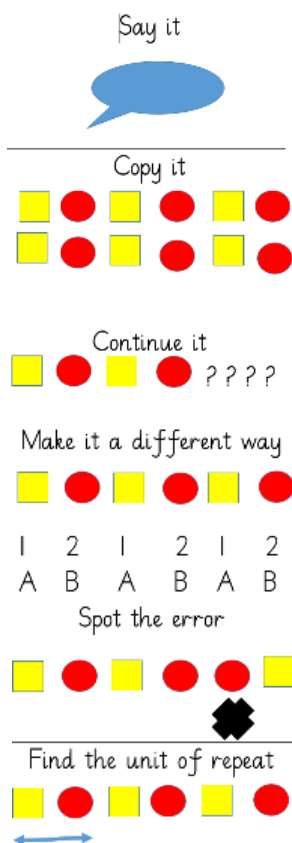
The most important things we learned about pattern were...

- **Pattern is way more complex and yet so much more fun and easy** to teach than we had ever considered. As a staff we moved from considering patterns as a boring 2 colour linear pattern that you can see on the left below to a range different forms and structures of patterns as shown on the right. This was a revelation for our teaching and has meant that our children are no longer “capped” in their learning of patterns and as they are now encouraged to explore patterns, see a range of patterns (like those below) and to consider what makes something a pattern or similarly what makes something a “broken” pattern.

From this...

To this...





- The role of the adult is crucial and in our setting adults were key to developing children's patterning knowledge, skills and understanding and we knew that to support less confident staff members we needed a simple structure that enabled us to scaffold learning through play. We also needed some specific pattern sessions through which children were taught the key skills of patterning as modelled by an adult. We created these simple cards and sayings that we used with our children and staff when doing pattern groups or patterns in play and it encouraged us to be consistent and to stop us from reverting back to basic colour patterns.

- In order to ensure that children's learning is consolidated at home, it is vital to ensure that parents have a good understanding of pattern. The parents at our school enjoy learning most readily through sessions alongside their children. By inviting our parents into school to learn about patterning and to create, spot and explore patterns alongside their children we have been able to encourage and promote patterning outside of our school gates. If we are to create children with embedded patterning knowledge it is important that this partnership and sharing of ideas/resources with parents is continued.