

SUPPORTING MATHS IN THE EARLY YEARS





National Day Nurseries Association

Aim of the session

PATTERN

Dr Sue Gifford – Developing mathematical pattern spotting

Paula Dunn – Maths Champions programme

Nicole Hunt – Maths Champions in practice



Birth to 5 Matters

Developing mathematical pattern spotting

Sue Gifford



Pattern spotting is a life skill



Pattern through the day:
transitions, snack, stories

Nursery children with social communication
disorder or autism

Mary Edgar, Eastwood base

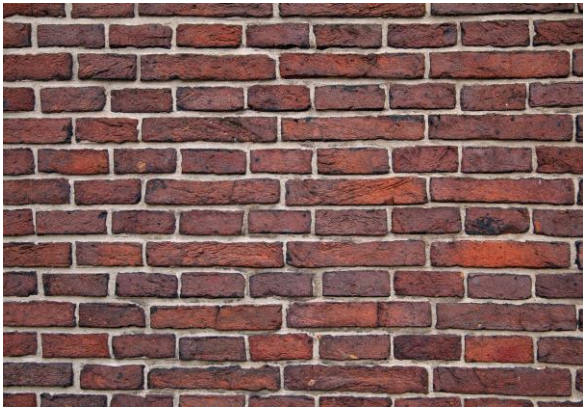


Early maths predictors

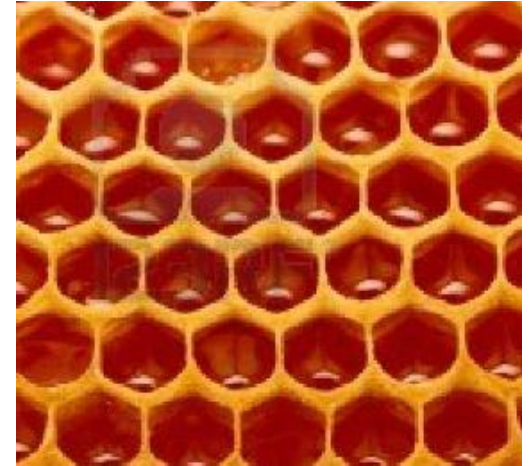
- number sense
- spatial reasoning
- pattern awareness



Patterns around us

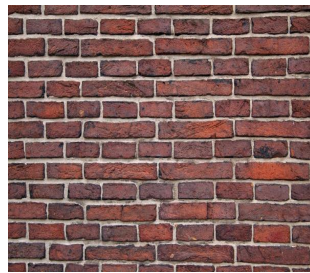


*How do you know
it is a pattern?*

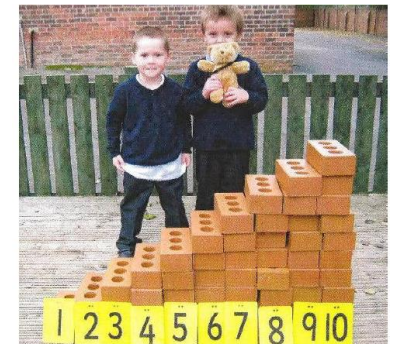


3 kinds of patterns

- spatial arrangements
- repeating patterns
- growing patterns



*What is the bit that is the same?
What is repeated over and over?
And how? e.g. getting bigger..*





Patterning

*..Preschool children's patterning ability – that is, **the ability to recognise predictable patterns in stimuli** – also supports numerical awareness.*

(EIF, 2018:140)



Mathematics Educational Programme



Houghton Nursery

It is important that children develop positive attitudes and interests in mathematics, look for patterns and relationships, spot connections, 'have a go', talk to adults and peers about what they notice and not be afraid to make mistakes.

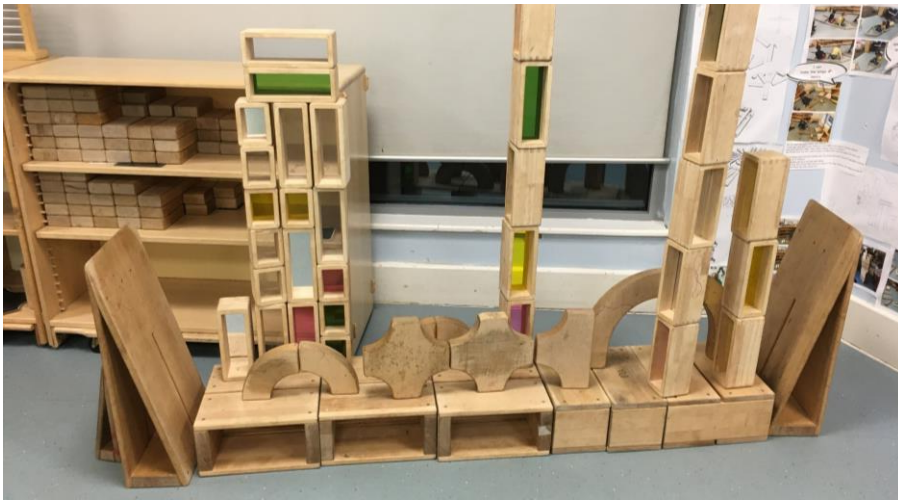
EYFS Statutory Framework 2021



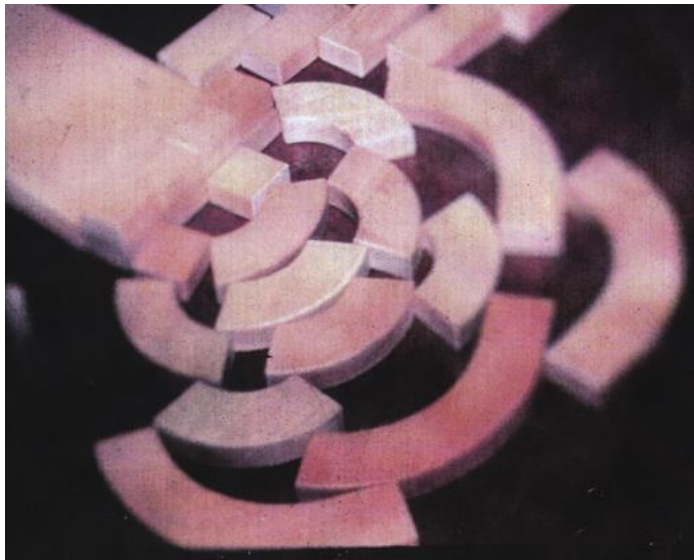
**What
patterns have
these
children
noticed?**



Construction patterning



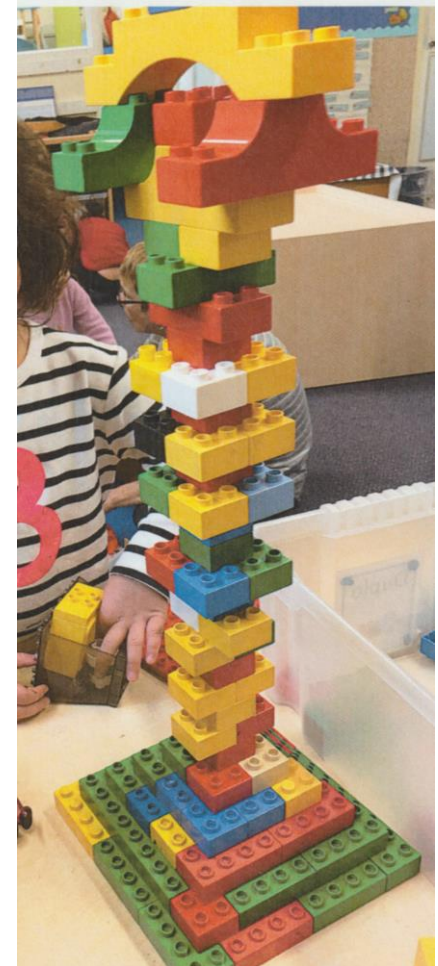
Same shapes and symmetry



Growing shapes and gaps



Alternating AB:
this way, that way



The beginnings of patterning

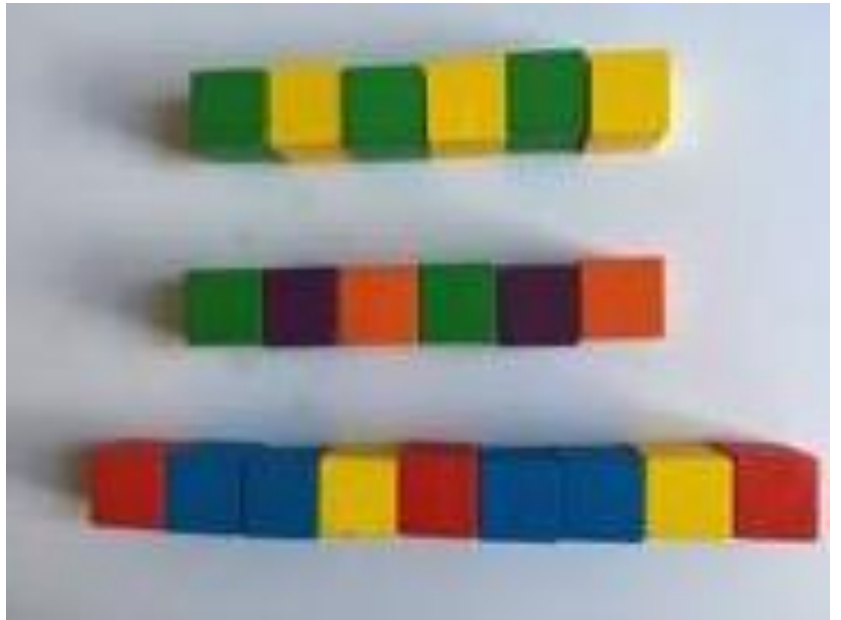
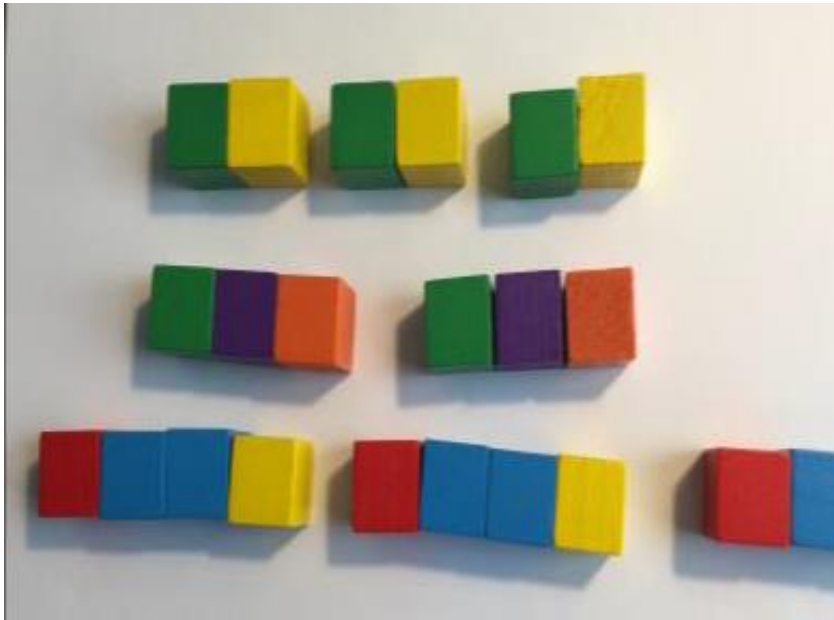


- same and different
- identical objects
- regular arrangements
- equal spacing
- facing same way

Identifying unit of repeat: beyond AB patterns



Teaching patterning



*Can you make lots of units like this one?
Then join them up to make pattern.*

Assessing patterning

Can children:

- say what is the same?
- copy a pattern?
- predict?
- spot a mistake?
- identify the unit of repeat?



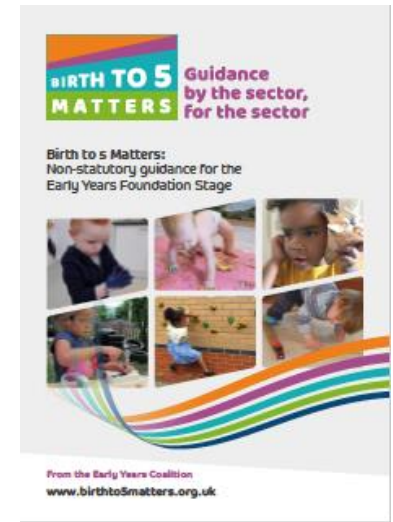
ECMG Chips assessment videos

<https://earlymaths.org/pattern-chips/>





Birth to 5 Matters



Noticing:

- patterned songs, action rhymes & games
- patterned objects and images
- predictable situations

Identifying the pattern rule:

- AB patterns and beyond

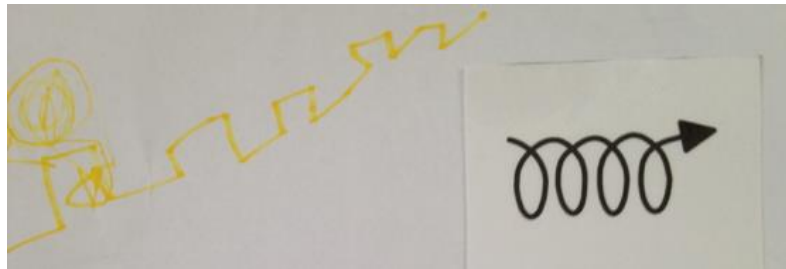
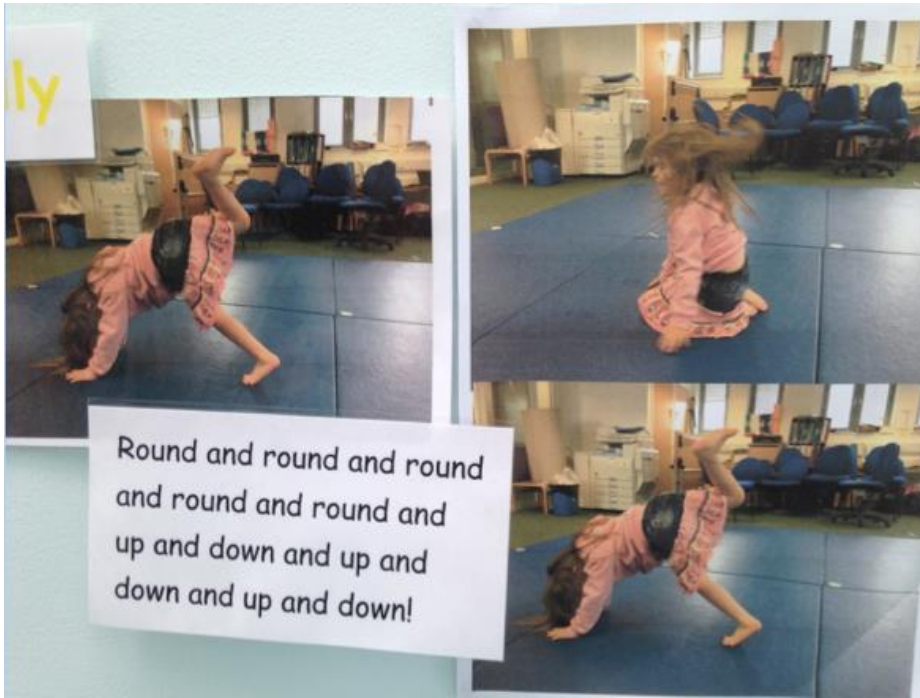




Growing and shrinking patterns



Action patterns, pictures and and symbols



Eastwood Nursery School

Sheena Preston

ECMG Chips assessment videos

<https://earlymaths.org/pattern-chips/>



Watch the videos



Watch the videos



Watch the videos



Watch the videos



Watch the videos

Repeating an action pattern from memory

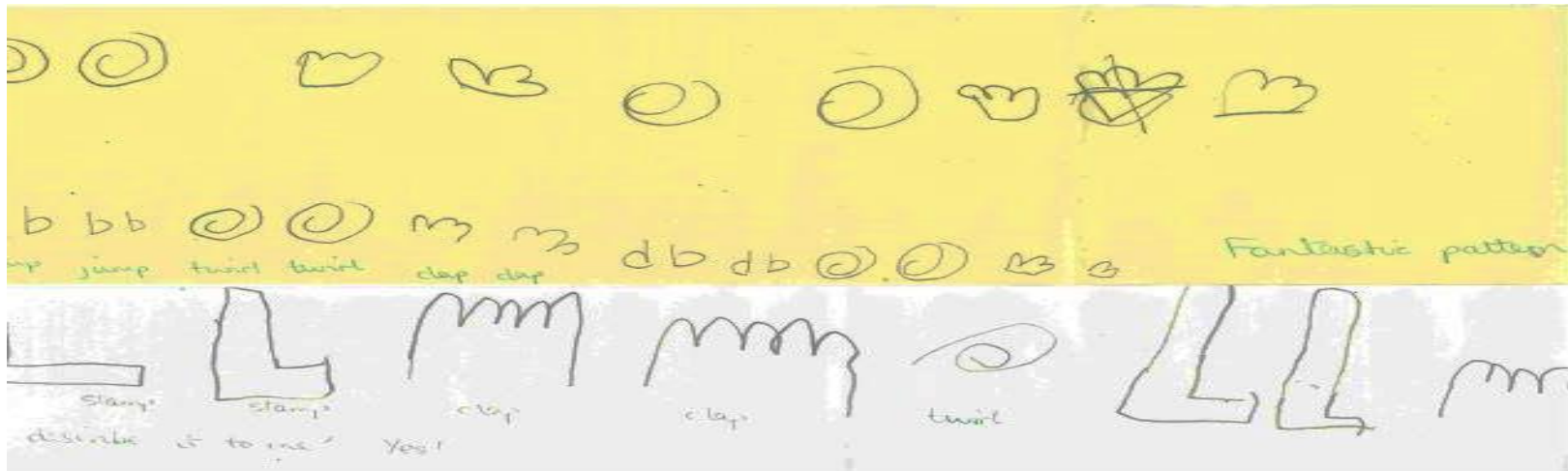


Banana, banana, meatball by Blazer Fresh
<https://youtu.be/BQ9q4U2P3ig>



[https://earlymaths.org/
action-words-and-picture-patterns/](https://earlymaths.org/action-words-and-picture-patterns/)

Reception children's own symbols for action patterns



Musical patterns: rhythm and sounds



Birth to 5 Matters



Birth to 5 Matters

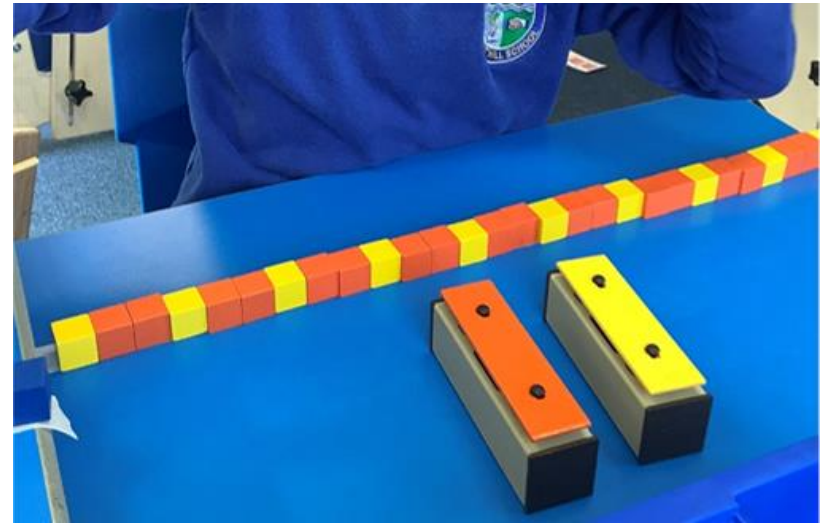


Tickell (2011)

Music and maths patterns



Paige Tynegate



Can you play your pattern?



Websites for pattern

Birth to 5 Matters

<https://www.birthto5matters.org.uk/>

DREME

<https://prek-math-te.stanford.edu › patterns-algebra>

Erikson <https://earlymath.erikson.edu/foundational-concepts/pattern/>

NCETM <https://www.ncetm.org.uk/classroom-resources/ey-pattern/>

NRICH

- article by SG <https://nrich.maths.org/13362>
- activity <https://nrich.maths.org/13250>

LUMEN Presentation on pattern (SG)

<https://www.lboro.ac.uk/services/lumen/professional-development/pattern-awareness-in-early-years/>

Maths Champions Programme



Championing maths
in early years

NDNA Programme

The aim of the programme is to improve practice in supporting mathematics by providing access to a range of on-line training and resources which can be used to develop the knowledge, skills and confidence of practitioners working with young children.

Research Findings



AFFORDABILITY

Maths Champions Programme Research



COST



IMPACT

Maths Champions is low cost but high confidence for impact and value for children.

ndna.org.uk/maths Source: Education Endowment Foundation (EEF)




STAFF ABILITY

Maths Champions Programme Research



Improved staff confidence when supporting children with maths skills

ndna.org.uk/maths Source: Education Endowment Foundation (EEF)




DEVELOPMENTAL IMPACT

Maths Champions Programme Research



3 months

Average additional progress in both maths and language development compared to a similar group of children who didn't take part in the programme.

Source: Education Endowment Foundation (EEF)

ndna.org.uk/maths Source: Education Endowment Foundation (EEF)




DEVELOPMENTAL IMPACT

Maths Champions Programme Research



6 months

Evidence suggests EYPP children on Maths Champions programme could make up to 6 months additional progress in maths.

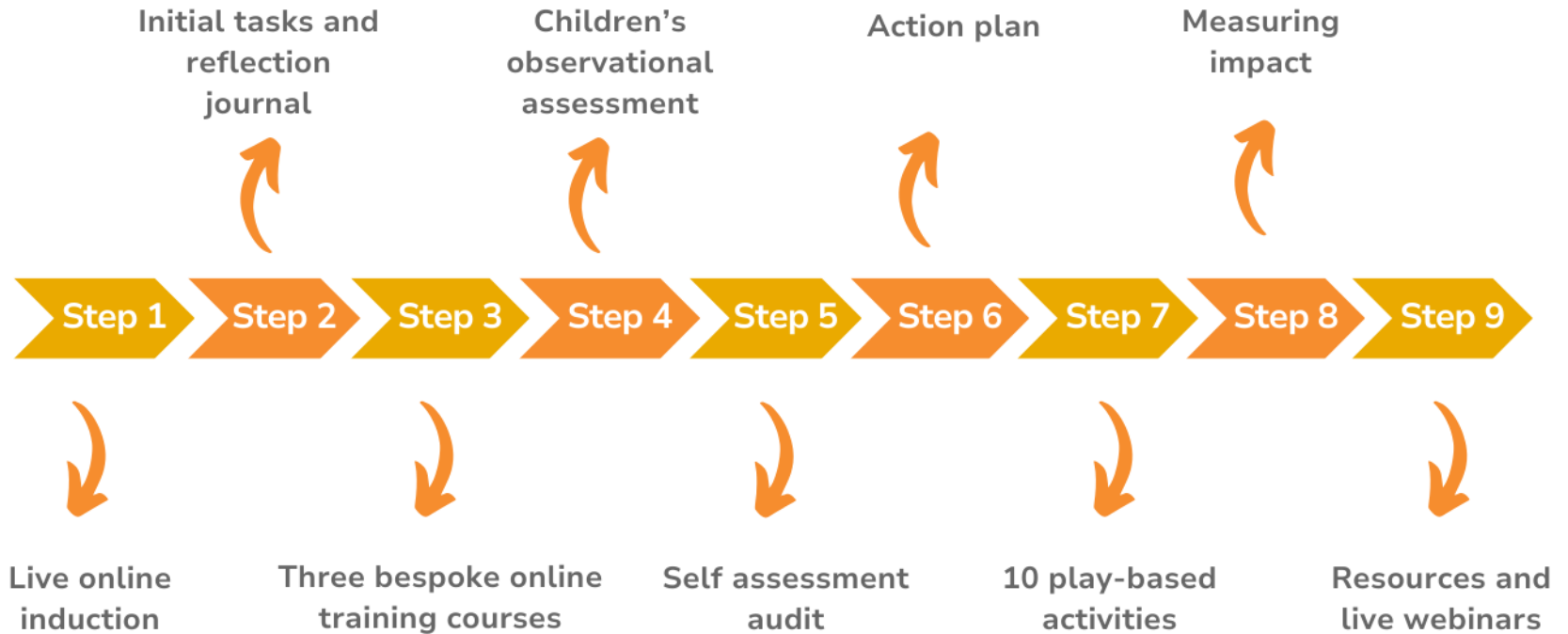
Source: Education Endowment Foundation (EEF)

ndna.org.uk/maths Source: Education Endowment Foundation (EEF)



<https://ndna.org.uk/early-years-maths-support-ndna-maths-champions-research-trial/>

Nine steps to **Maths Champions** success!





National Day Nurseries Association

“Being involved in the Maths Champions programme has been an amazing experience and one which will impact on the children and staff for years to come.”

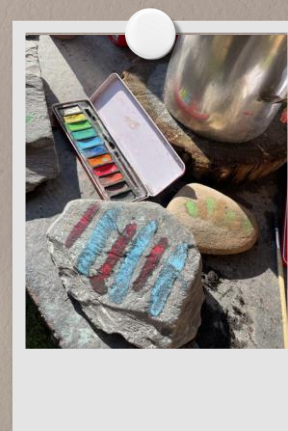
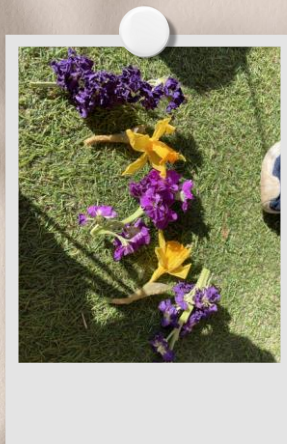
PVI pre-school



<https://ndna.org.uk/champions-programmes/maths-champions-early-years-maths-training/>



Maths Champions
FREE Early Years Maths Training



NICOLE HUNT

PENNYWELL EARLY YEARS CENTRE
SUNDERLAND

PATTERNS IN
OUR ROUTINES



Rhythms of the day

Group time

A time to develop relationships with my key person and my friends. A time to talk and listen. A time to learn new skills and develop knowledge.

Planning my learning

A time where we talk about what is happening in our environment. A time to think about where we would like to learn and what we might do today.

Play and learn

Time to explore, observe, touch, talk, listen, investigate, question, research, create and care.

Snack time

Snack is available all session. It's a time for us to develop independence, talk to friends, develop table manners, take turns and learn about hygiene and a healthy diet.

Tidy our classroom

A time for us to work together as a team. To have our own responsibilities and learn about respect and care for our things.

Group time

A time to share learning experiences and achievements. A time to develop skills and knowledge. A time to reflect and talk about what we can do to build upon our learning.

Interventions

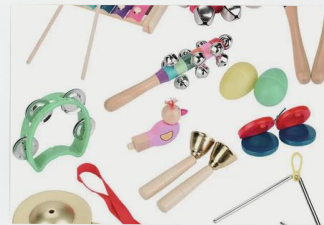
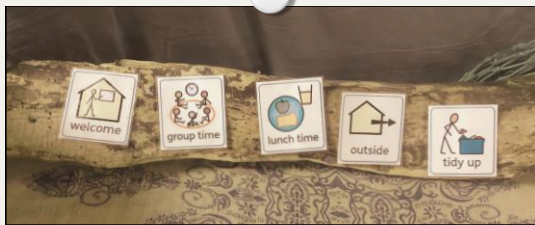
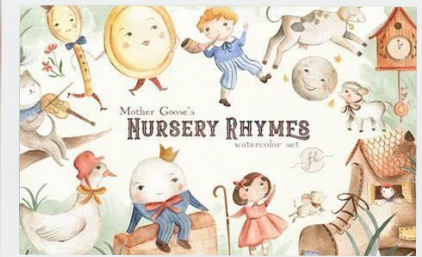
If children need extra help with things in nursery, we plan extra activities to support them.

Lunch time

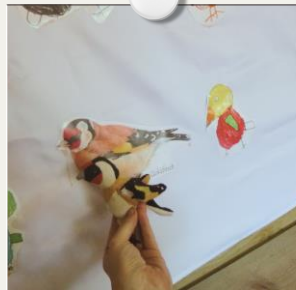
Children enjoy a story before they wash their hands ready for lunch.

Home time

Children go home so they get their things and get ready for a story.



PATTERNS
AROUND US

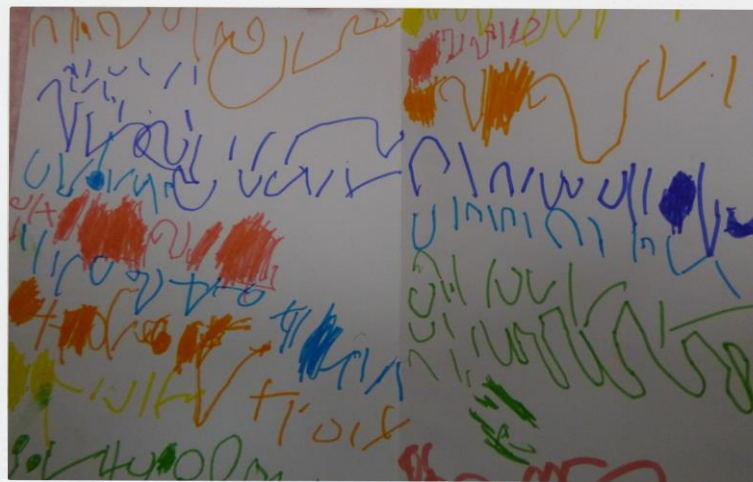


PATTERN SPOTTING

SIMILARITIES AND
DIFFERENCES

MATCHING

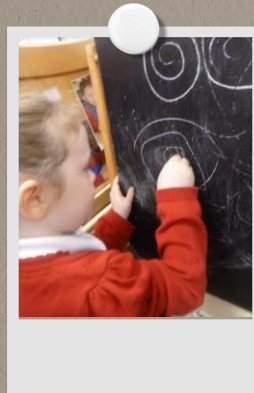
ATTENTION
TO DETAIL





PATTERN IN OUR LEARNING ENVIRONMENT

LOOKING CLOSELY

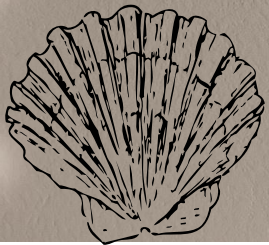
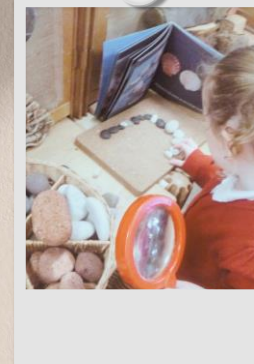


PAYING ATTENTION
TO DETAILS



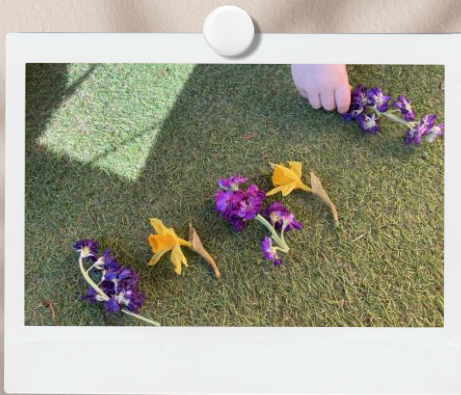
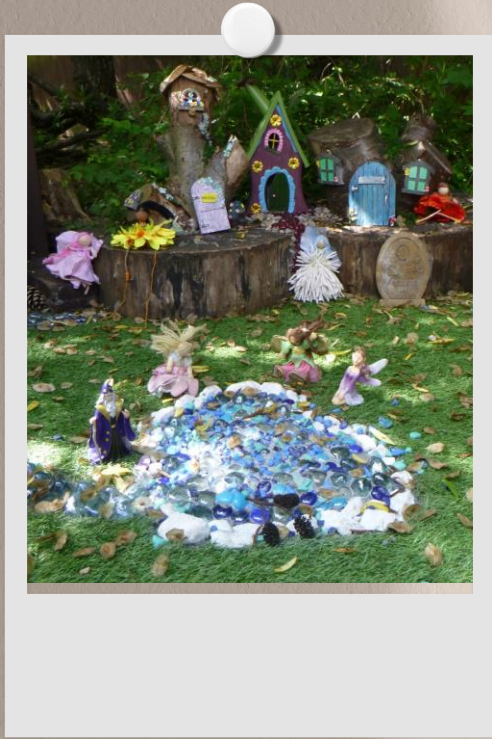
GROWING PATTERNS

NOTICING

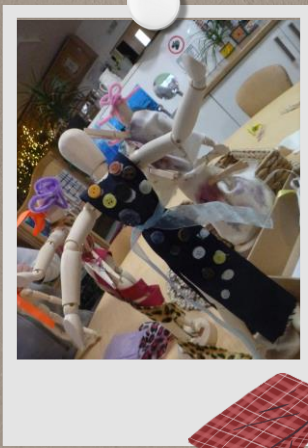
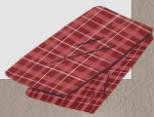


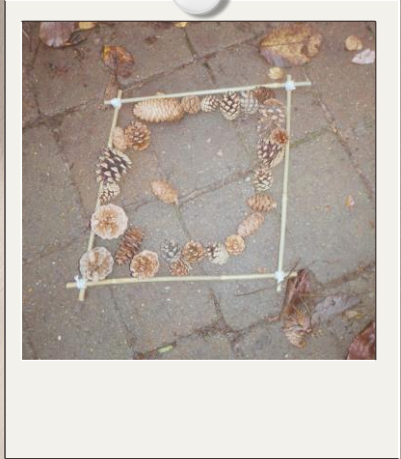
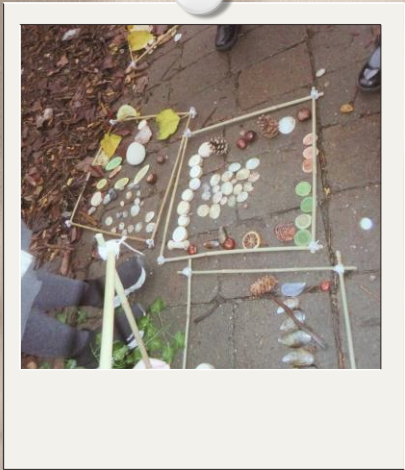
SPATIAL
ARRANGEMENTS



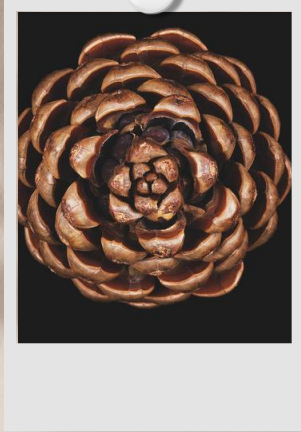


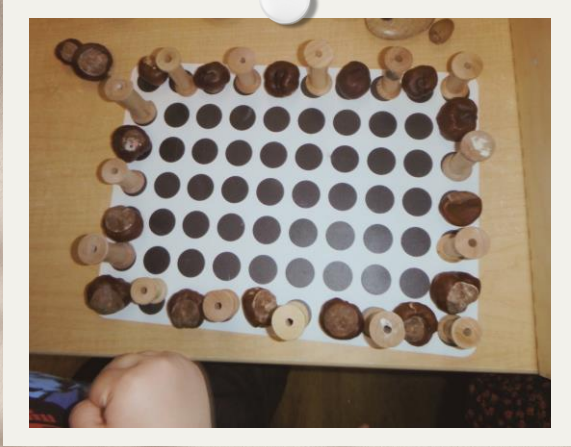
PAPER
PROVOCATIONS



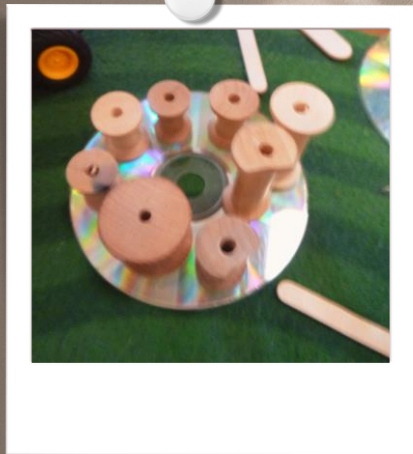
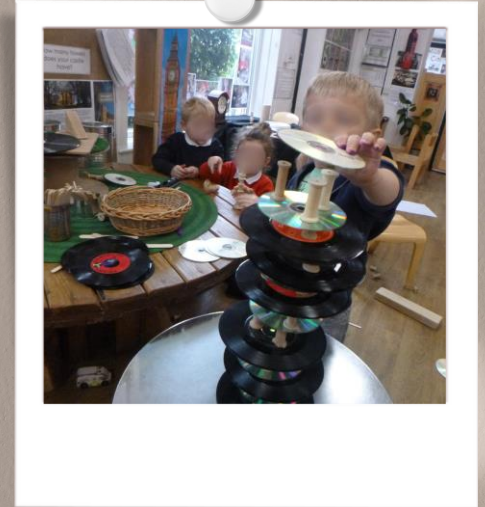
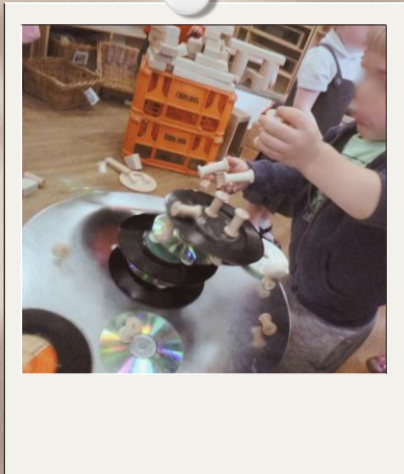


PATTERNS THROUGH NATURE





REPEATING
AB PATTERNS





National Day Nurseries Association

Thank you for listening.

maths.champions@ndna.org.uk