Mathematics in the Early Years

ONE HOUNSLOW

London Borough of Hounslow

Introduction

This document has been created to provide you with a range of ideas of different ways to incorporate maths in your indoor and outdoor environments.

- Maths in the outdoor environment
- Maths in the mud kitchen
- Maths in the environment
- Maths in the role play area- shops
- Maths in the home corner
- Ideas for learning about patterns
- Books to support Maths
- Maths vocabulary and Language
- Reviewing your Maths curriculum
- Useful links

"All children can be successful with mathematics, provided that they have opportunities to explore mathematical ideas in ways that make personal sense to them and opportunities to develop mathematical concepts and understanding."

DCSF publication Children Thinking Mathematically

Reflect on your environments at your setting.
Is there anything that you could do better to incorporate maths in your planned activities and everyday provision?

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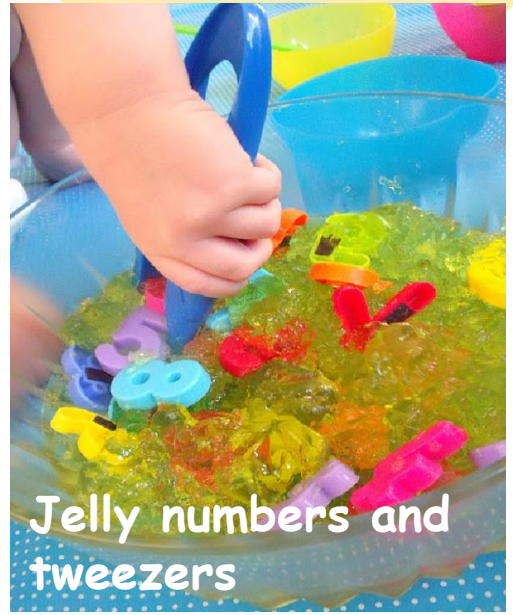
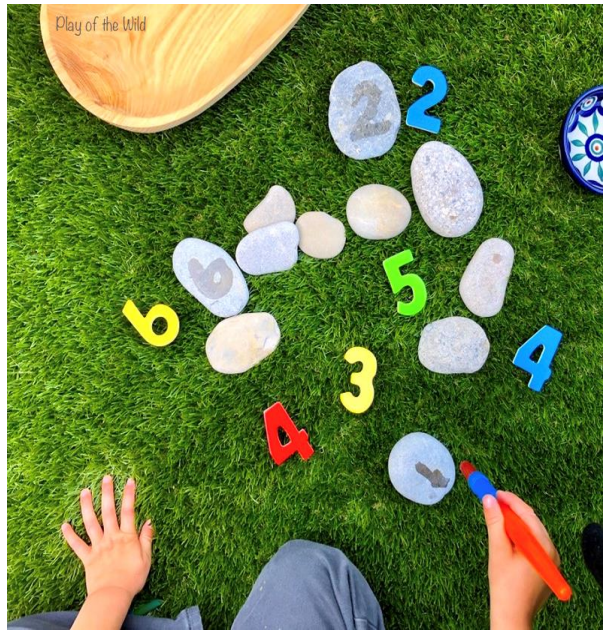


Maths ideas for your learning environments



Maths in the Mud Kitchen

Filling and emptying- be sure to provide lots of different sized containers and utensils.

- ✓ **To extend:** add some measuring jugs and measuring cups.

Scales: Create your own scales using a hanger and bowls, children can explore how to make their side heavier.

- ✓ **To extend:** an adult can support children to count how many pine cones weigh the same as a pebble or find out if bowls of sand weighs less than a bowl of sand.

Recipes- Provide simple recipes to learn about sequence.

- ✓ **To extend:** more detailed recipes that require counting and measuring.

Dice- Add a dice to decide how many leaves/twigs/ stones to put into the mud pie to develop quantity matching and counting skills.

Dotted dice and numbered dice depending on abilities.

Maths in the Environment

Shadow backing on shelving will ensure that learning related to the properties of shape can be embedded even as part of tidy up time.

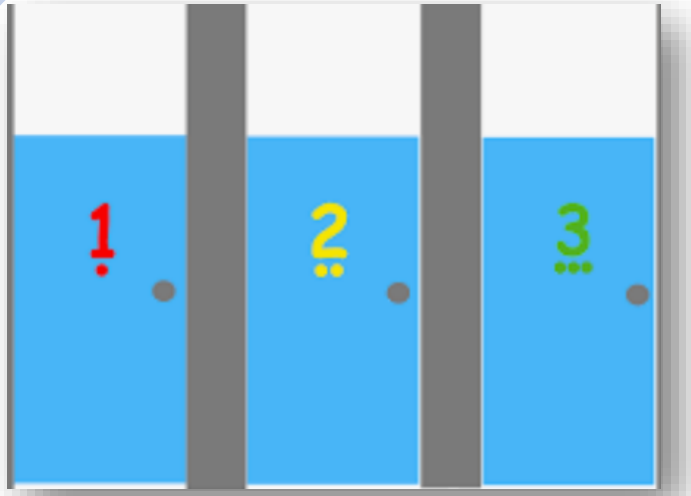
Interactive table/shelf– Could be based on your theme/focus, think about how you can incorporate number into this.

Colour and number posting- Use an old shoe box, cut out some slots and use some coloured/numbered counters.

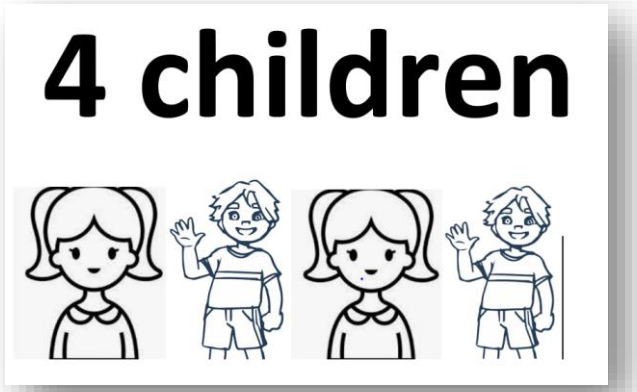
Create an interactive shelf for a familiar nursery rhyme. For example, 5 little speckled frogs. Resources: Number cards, 5 frogs, handmade book all about the number 5.

Maths in the Environment

How can you include maths into the routines the children take part in each day?



Toilet door numbers: When children are waiting to use the toilet, an adult can say " Can you wait at door number 2?"



Signs: here is an example of how you can show the children how many friends are allowed in each area/activity. It is a good idea to use real photos of the children who attend your setting.

Place numbers on your steps for children to interact with when climbing the stairs.

Maths in the Environment

Are you able to implement any of these ideas into your setting?

Snack and meal times:

- Counting plates, pieces of fruit.
- Sharing
- Cutting and slicing fruit at snack time.
- Drinking from a cup and using cutlery.

Purposeful numbers displayed at child's level for example, a height chart. You can create one of these on a long roll of paper and stick to the wall, marking children's height periodically. This way children can measure over time and have conversations about growth and height.

Role-play area: Shop

When introducing a roleplay activity like this you could:

- Encourage the children to help you arrange the shelves/containers of food and talk about where the items should go
- Talk about the roles and responsibilities in the shop
- Set up an area where children can weigh items and another area to pay for the items.

- Adults support play by modelling role-play and using rich mathematical vocabulary.

Things you will need:

- Toy/home made/real till
- Money and old credit cards for the children to pay with.
- Calculator
- Weighing scales
- Labels for children to use and write on price tags
- Empty cardboard food boxes and containers, tinned food, fruit and vegetables
- Paper and pencils for children to write shopping lists, words and numbers
- Shopping bags, trolley, baskets
- Shopping bags

Maths in the home corner

- A real telephone/mobile phone
- Telephone book- to encourage children to dial numbers
- Scales for comparing weight
- Recipe cards to encourage children to count spoonfuls when following the recipe
- Calendar
- Clock
- Egg/ sand timer to use when cooking
- Size graded equipment to encourage comparison of size e.g. different sized bowls, spoons, utensils etc.

Home-made recipe cards based on ability of the children

Porridge Oats

2 spoons of oats

1 cup of milk

Home-made phone book with children's favourite characters

Peppa Pig

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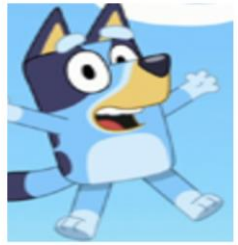

Bluey

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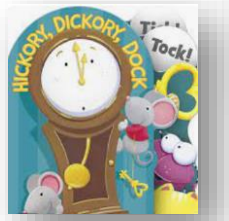
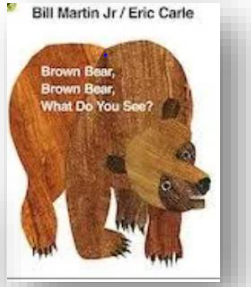
Weighing scales

Pattern

Create your own actions and movement patterns for example:

- Clap, clap, stomp, stomp
- Tap, tap, jump, jump
- Encourage children to create their own rhythms.





Singing and stories:

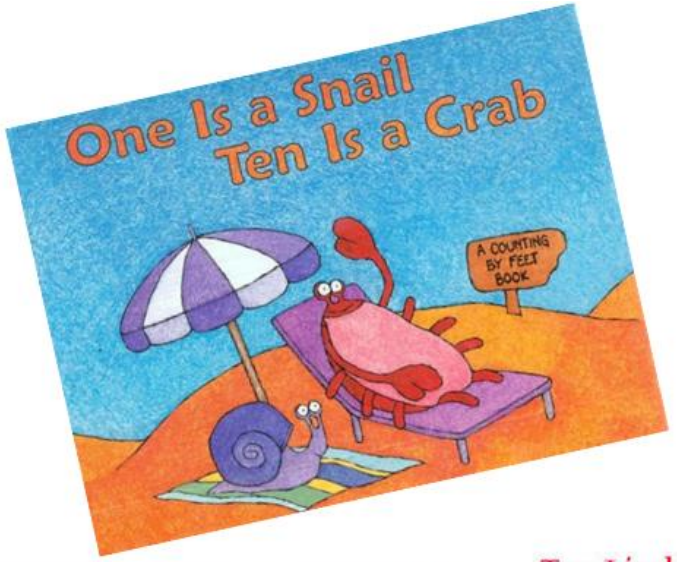
- Children learn about patterns in speech and language through repeated refrains in stories and practising recall during song and rhyme time.

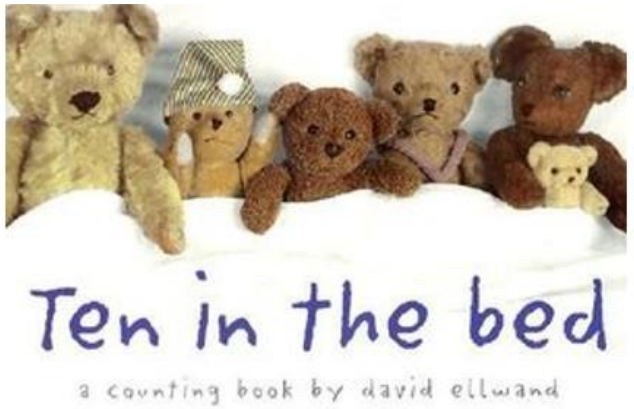
Visual patterns- using old cuts of fabric will encourage children to become aware of different patterns e.g. stripes, polka dots,.

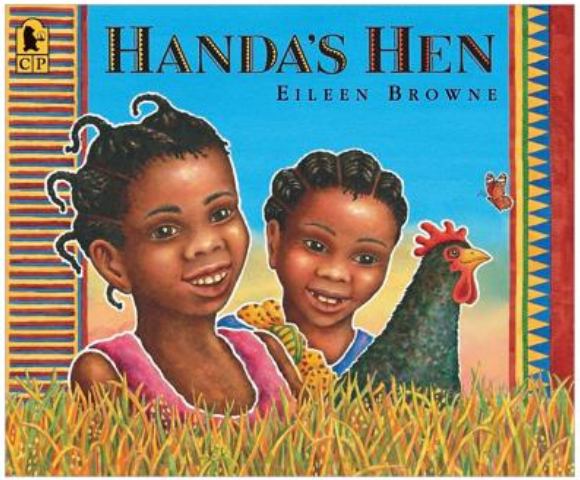
- Talk about the patterns in the environment around them.
- Provide this patterned fabric in your environment, children may begin to identify the visual patterns independently.
- Pattern hunt

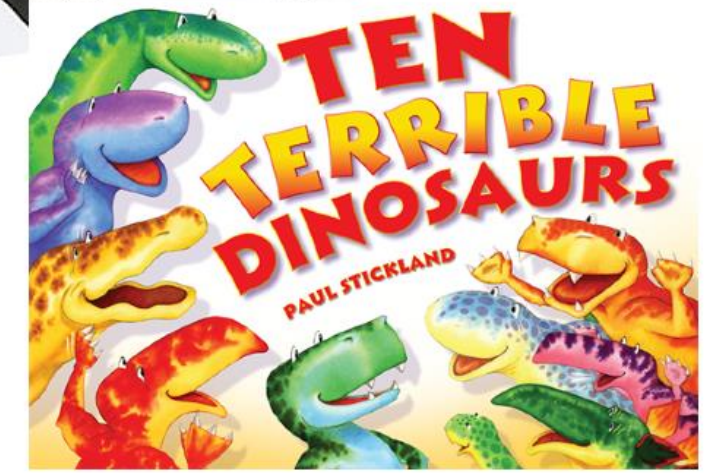
Model how to arrange small objects in patterns. When doing these activities use vocabulary consistently for example, 'the same', 'repeated'

Use your daily routine and visual timetable to show the children how patterns are repeated in time. Repeat vocabulary such as, morning, afternoon, evening.



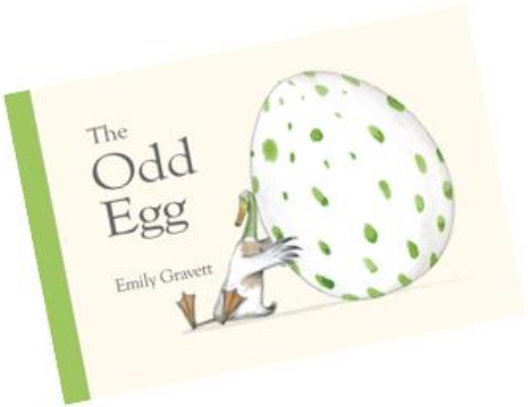


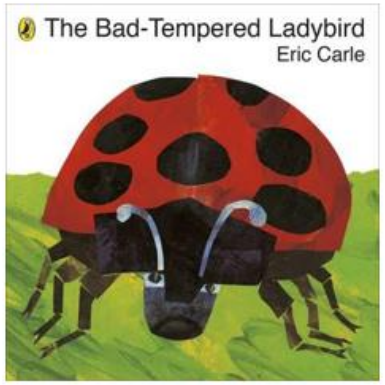


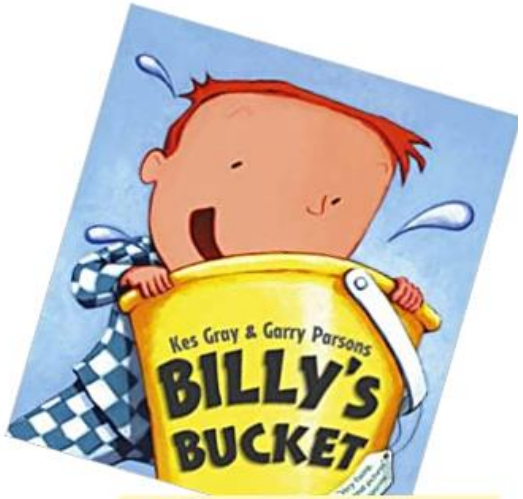


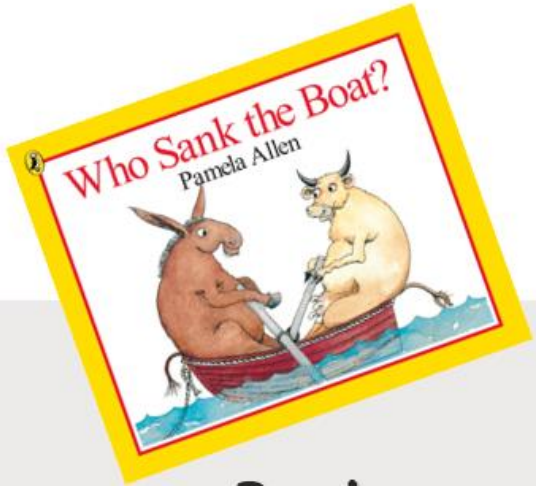
Books to support number and counting

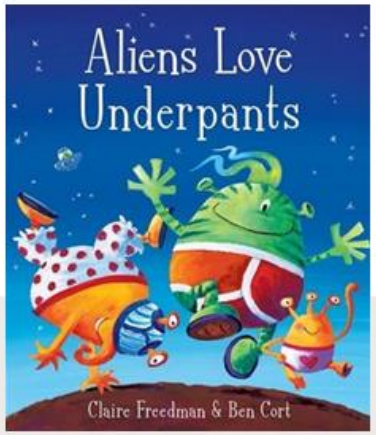
Books to support shape, space, measures and pattern

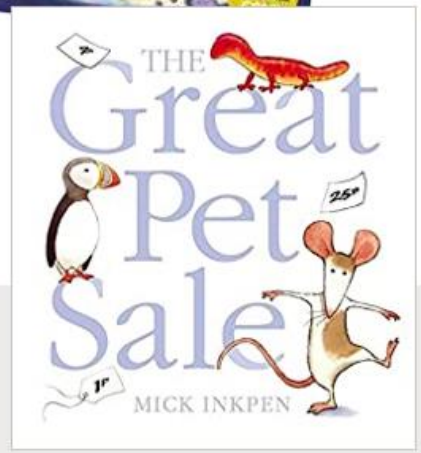


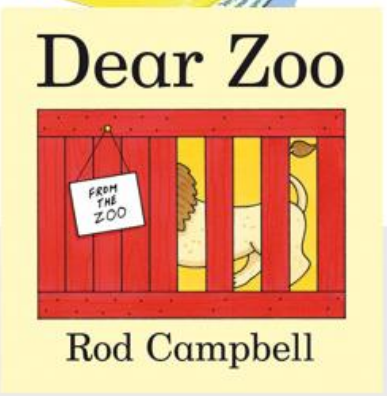












Key maths vocabulary and Language

Amounts and number

Lots, more, not many, not enough, less
1,2,3….. in rhymes and in talk e.g 'one', 'two' socks or gloves 'three' aprons – 'one for …..' 'one for …..' or 1,2,3 go..
less, few, one fewer, one more, double, half, less, more, total, altogether, take away, add, reduce, increase

Shape, Space and Measures

Measures: More, big, heavy, light, small, all gone, big, huge, enormous, long, tall, heavy, short, small, tiny, full, empty, holds more, half empty, half full.

Space and movement: 'inside', 'squeezing through', 'under', 'over' and 'between' 'on top of' 'inside' 'outside' up, down, forwards, backwards, 'round one', 'square one' 'pointy one', 'star', 'triangle', 'circle', square, in out, up down, through.

Routines: next, after, morning, afternoon, evening, night-time, nap time, snack time, dinner time. first, next, then, before, later, soon, last.

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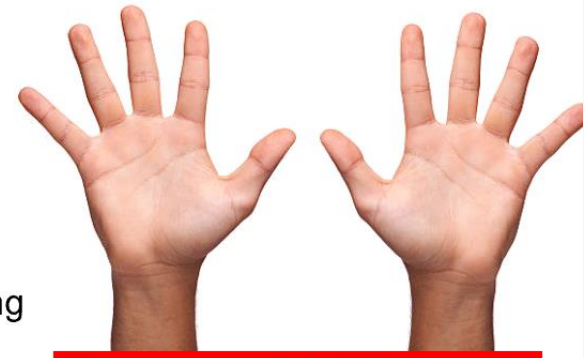
Take 10 Activity
Reviewing your mathematics curriculum in 10 questions

1. Does your setting develop a positive attitude to maths across the setting, staff and children?
2. Are there sensory opportunities for younger children to explore Maths?
3. Is maths weaved in the day t day activities not an add on?
4. Do all practitioners understand the progression of skills, knowledge and concepts of Mathematical development?
5. Do adults focus on listening to children and use the information to extend their learning in the moment?
6. Do adults understand and model Maths language?
7. Are there maths resources around the room for children to access independently when they want?
8. Are there opportunities for maths to focus on real life experiences?
9. Is there purposeful numbers and words displayed around the environment?
10. Do practitioners focus on talking to children to help solve problems?



You may want to talk through these questions with your team to build an action plan based on your answers

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Useful Links

- https://help-for-early-years-providers.education.gov.uk/mathematics
- Development Matters - non-statutory curriculum guidance for EYFS (publishing.service.gov.uk)
- Early Years Resources | White Rose Maths
- NRich EYFS Home Page (maths.org)
- Birth To 5 Matters- Non-statutory guidance