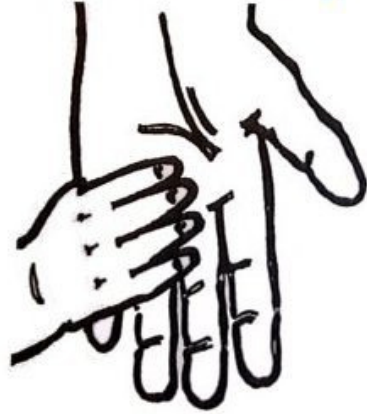


Harvey
Road
Day
Nursery



A Schema Booklet for Parents and Carers

Is your child frequently emptying the cupboards? Constantly moving your things from place to place, climbing in and out of boxes?

Ever heard about 'Schemas' ?

A schema is simply when your child has a pattern of repeated behaviour or play which he or she uses to explore their ideas and thoughts. This repeated action of doing things over and over again may seem strange or even frustrating at times to an adult but through doing this your child is actually building up the connections in the brain. There are many different types of schemas. Some of the most common are transporting, enveloping and containing, trajectory, connecting and rotation

Schemas - exploring your child's play patterns

"A schema seems to be a pattern of behaviour that children do over and over again, often in slightly different ways to help them really understand a concept... For example when a child will drop something out of their high chair and somebody will pick it up - they may repeat this over and over and over because they are beginning to establish that the thing they dropped and the thing that comes back is actually the same thing.."

Maria Robinson, Siren Films Limited 2009

Read on to find out why your child might be doing these things along with ideas of how you can have more fun with your child.

Trajectory schema - “Moving in or representing straight lines, arcs or curves” (Arnold, 1999)

This could be diagonal, vertical or horizontal. Repeated behaviours include dropping items or food from cots, highchairs etc. Playing with running water from the tap, building and knocking down towers, climbing and jumping off furniture, throwing, bouncing or kicking balls

Provide access to climbing resources at different heights with capes and material to jump with so they can learn about height, distance and develop gross motor skills, while having opportunities to role play. Enable your child to explore movement by allowing space for play inside and time outdoors.

Begin to use language such as 'under', 'over' and provide a wide range of different materials that can be lined up or thrown, which support the concepts of space, distance and speed. Remember to support this during meal times and try to provide something such as a toy so they can continue their pattern of behaviour and develop their understanding of height with this rather than by throwing food on the floor.

Examples: Joseph (10 months) and Glenn (36 months) are both interested in trajectory. Joseph is very active; he spends most of his time bouncing and throwing things, or knocking over structures built by other children. The movement of objects through the air fascinates him.

Glenn, who is also very energetic, thoroughly enjoys going up and down the climbing frame. He will sometimes wear a cape and leap off the top, pretending to be a superhero. His ability to move and the speed at which he does so are of enormous interest to him.

Learning: Although both boys are building on their understanding of height and speed, the actual ideas that interest them are different. Whereas Joseph is developing an understanding of up and down, on and off, and opposites, Glenn is learning more about distance, speed and height.

Rotation schema - “Turning, twisting or rolling oneself or objects in the environment around” (Arnold, 1999)

Anything that spins or rolls, your child may enjoy watching the washing machine or rolling down the hill. Some children may spin around, ride on roundabouts or prefer round objects. He or she can also move around the home turning knobs on the cooker and microwave.

If your child displays this type of schema you can think about providing them with a range of round materials, including plastic bottles with lids, clocks, balls and wheeled toys

Extend your child's learning by talking to them about the different shapes in the environment, count them, talk about other shapes, encourage ball and spinning games indoors and outside. These activities will develop your child's understanding of shape and space and new words such as spin, bounce, roll

Examples: Kai and Thomas, aged 11 months and 40 months, respectively, are fascinated by things that rotate. Kai will repeatedly and deliberately reach for any round objects placed near him. He will feel, spin, bounce and turn things over. He also loves to throw and roll balls. Kai has even been observed throwing a balloon up in the air, then adding a spin to his throw to make the balloon land behind him!

Similarly, Thomas spends a lot of his time playing with wheeled toys. He enjoys playing with balls and spinning tops and he is often observed spinning himself around. Thomas also spends significant time outside with friends, playing games that involve spinning on their bikes, and constructing circular tracks, which they repeatedly ride around.

Learning: Kai's early experiences show how well he is beginning to understand rotation - an important concept that helps children to develop an understanding of movement, shape, space and spatial awareness.

Enclosing schema - “Enclosing oneself, an object or space” (Arnold, 1999)

Children usually display behaviours such as climbing into boxes, tunnels or pop-up houses (anything where they are covered). They may also draw borders around their pictures. Emptying and filling boxes can also come under this or constructing enclosures around themselves or their toy animals with bricks or other equipment. Children may like to build enclosures with Lego, or blocks and put objects inside the enclosure. Children may like to draw or paint shapes that have a beginning and an end point that meet, for example a circle.

To support your child's enclosing schema try providing materials such as different sized bricks, train tracks, cardboard boxes and/or pop-up tents so they can make enclosures around them. Providing small bricks and other similar resources with their toy animals and vehicles can enable children to have the opportunity to build fences/walls around these.

Hand-eye coordination, as they build balanced structures, is developed through this type of schema as well as learning about space, shape, size, measure and capacity and possibly imaginative play. Using drawing equipment with rulers will also enable your child to put borders around pictures if they wish and to develop their small muscles in their hands and fingers and their early writing skills. You may choose to add material to the boxes and introduce words linked to colour, shape, size, comparative and positional language; imaginative, story and descriptive language; names of vehicles, buildings and people; naming animals, habitats and natural materials. Look at questions such as 'How are you going to...?' 'What do you need?' 'What will you need next?'

Examples: Nicholas, aged 39 months, and Samuel, aged 55 months, both love to surround themselves. Nicholas is intrigued by constructing circular enclosures around himself. He enjoys playing with the trains and can often be observed on the inside of his train track, rotating his body as he moves his trains round the track. Recently, he has begun to put objects and figurines into the carriages of the trains.

Contrastingly, Samuel is often busy building square or rectangular enclosures with wooden blocks. His structures are always balanced and symmetrical, and he manipulates the blocks so that everything is fenced in, filling the space inside his enclosure with more blocks.

Learning: Nicholas is bringing together into his play, in a co-ordinated way, all his experiences and understanding about rotation, connection and enclosures, as well as his knowledge and understanding of transporting. Because Nicholas is at a functional dependency level - understanding cause and effect - it is these kinds of schema co-ordination that Athey (1990) refers to as being 'higher-level and more powerful schemas'.

Samuel deploys a cluster of schemas in a co-ordinated way. In his play, he applies his understanding about the trajectory, containing and enclosing schemas. All of the early experiences he has had with trajectory, for example, building towers, rows and bridges, have ultimately enabled him to build symmetrically and fill in his structures. This behaviour shows that Samuel is learning about concepts that relate to size, space, pattern, symmetry and calculation.

Enveloping schema - “Enveloping, covering or surrounding oneself, an object or space” (Arnold, 1999)

Children who develop this schema may like to hide or be covered up. They may dress up in layers of clothing including hats. Your child might enjoy wrapping up dolls and teddy bears in blankets and play 'peek a boo' or 'hide and seek' he/she may also paint a picture and then paint over completely „enveloping the paper and picture□. This may also include filling and emptying lots of containers and bags repeatedly including placing items in the bin.

Your child needs to have a range of materials and dressing up clothes to envelop things in. The larger the variety of different fabrics and materials, the better. They will learn which fabrics cover them up the best and different colours. Some fabrics will support imaginative play and others will lead to wrapping others including dolls and teddies. Playing a range of games like peek-a-boo, hide and seek, hide the object, burying or digging objects will all extend this play further. Providing lots of bags will enable your child to contain objects and learn about space and capacity. New words that could be introduced include 'hiding', 'disappeared', and you can use open-ended questioning, for example, 'What else might you need?' 'Where's it gone?' to extend your child's thinking and exploration further.

Examples: Oliver (nine months) is interested in searching for objects that have been hidden or covered up. He is often observed looking for things that are hidden exactly where he found them the last time. He likes wearing hats and loves games of 'peek-a-boo'. Engaged in the enveloping schema, he is completely fascinated by the concept of 'object permanence', where a child learns that just because they cannot see an object, it does not mean that it is no longer there.

Erica, 47 months, enjoys building dens, wrapping things up, dressing up in layers of clothing, filling up bags and containers, and digging for worms and treasure in the garden.

Learning: While both Oliver and Erica are pursuing ideas around hiding and concealing, their individual lines of inquiry are different. Oliver is developing his understanding of 'object permanence' - a significant milestone in child development because it is linked to children's developing cognitive structures. Oliver can remember objects even when they are out of sight and is able to demonstrate his thinking as he begins to make predictions about where things are hidden. Erica shows that she is developing a conceptual understanding about space and size. As she fills her bags and sees which bag has more objects and which bag has less, she is exploring ideas around calculating and developing her conceptual knowledge about volume and capacity.

Transporting schema - "Carrying objects or being carried from one place to another" (Arnold, 1999)

This is when children move objects from one area to another, sometimes with their hands, in bags or via dolls' prams or trolleys. They may like to push their friends around in pushchairs or transport sand/water from one area to another. Children may like to carry a bag from one place to another with objects inside the bag. You may see a child carrying volumes of water or sand from one place to another.

Provide a range of wheeled toys where possible to support this, e.g. pushchairs, trolleys and bags, baskets etc. so your child can move toys and play objects from one place to another freely.

When moving wheeled toys around, your child is learning about direction and how to manoeuvre around furniture and equipment. When filling up bags and boxes they are learning about capacity, shape and size. You could extend this learning further by questioning your child about different types of transport, where they are going and again introduce new words such as 'forwards', 'backwards', 'under', 'near' and 'far'.

Examples: Eighteen-month-old Ella and 42-month-old Jade are both fascinated with moving objects - and themselves - from place to place. Ella enjoys carrying objects about in her hands or containers and pushing empty buggies around. As she fills and empties her containers, she is developing a conceptual understanding about quantity and number. She is also learning different things about places and locations.

Jade spends a lot of time moving all the kitchen utensils and furniture in the role-play area to the garden. As she learns better ways to move objects from one place to another, she becomes more developed in imaginative play and understands more about creating new spaces.

Learning: Despite the obvious similarities in the play of Ella and Jade, their individual interest in transporting differs. Ella is learning about direction, size, shape and space as she tries to push her buggy through narrow spaces. Jade, however, is developing a deeper conceptual understanding about space, place and quantity.

Connecting and disconnecting schema

Children will join or connect materials or objects together. This may include connecting a train track together, connecting trucks or using any type of tape, string or elastic bands to connect materials

Your child will often enjoy activities where they can join and connect materials. Activities that involve scissors, tape, glue, spreaders, masking tape, staplers, string and elastic bands could be enjoyed when closely supervised. You could also encourage them to explore this more widely e.g. providing tape when they are playing with their bricks so they can tape structures together etc. Why not extend this outdoors too if you have any old guttering, piping or planks and have access to water and/or sand to transport along the structures. Others toys and equipment including train track pieces will also encourage this schema.

All these activities encourage and develop your child's problem solving skills, design, cause and effect and how to use tools safely and effectively. New words such as 'cutting', 'sticking', 'joining', positional language, shape and names of tools and materials could be used. Key questions can be asked to extend learning such as 'I wonder what will happen if...?' 'Is there any part you would like to change and how can we do this?' 'Which bit do you like best?' 'How can you make it stronger, longer?' You can also support your child to recognise and solve problems through this play

Examples: Charlotte and Michael, aged 48 and 58 months respectively, are both fascinated by things that they can connect. Charlotte spends her free time making things to pull toys along with. She likes to use string, Sellotape, masking tape and the stapler to help her to connect different objects and materials.

Michael is outdoors regularly, seen transporting guttering, planks and tubes that he connects with string or elastic bands. He also often constructs elaborate pulley systems. Water is an important feature and he frequently positions his structures some distance from the tap and travels back and forth, fetching the water for experimentation and construction.

Learning: Charlotte and Michael are learning important problem-solving skills as they explore their interests in connection. Charlotte is consolidating her understanding in designing and making things, cause and effect, and how to manage tools effectively. This is important to the process of learning as it reveals that both children understand the consequences and the effect of attaching or connecting string or tape to their playthings.

Michael has a high level of understanding of how to link the tubes together, and his experimentations show the cluster of schemas evident in his play - trajectory, transporting and connection. They are both at the functional dependency level ie interested in cause and effect.

Positioning schema

Patterns of behaviour for this schema can include interests in where things are, positioning items in lines, rows or by size, different types of lines (vertical or horizontal), walking around things such as sand tray edges or on walls, preferring food to be beside each other and/or laying on floors or under tables.

Your child will need to be given time and space to position resources in rows or lines. Having items like buttons, lolly sticks, feathers and natural materials such as shells, pebbles, corks and leaves will provide them with the opportunities to sort different objects and develop their mathematical understanding about size, grouping, pattern, sequencing and counting. These activities may contain small pieces so it is important not to leave children unsupervised when using small pieces and equipment such as scissors.

You can support learning further by introducing new vocabulary, particularly positional language, and by encouraging your child to talk about their ideas.

Transforming schema

This schema is seen when children like to explore and see changes, e.g. adding colour to cornflour, mixing paints together, making or manipulating playdough, adding juice to food to see what happens, adding water to sand and/or making sand moulds.

Your child will need lots of opportunities to explore malleable materials, giving them time and resources to see changes and different tools. For example, letting your child make play dough from scratch and mix paints rather than having them ready made, and enabling them to add colour to cornflour or water to the sand. Letting your child explore by mixing paints together or painting their hands rather than asking them to paint a picture will support your child's interests.

Through this schema your child is learning how to use tools safely and effectively and understanding the process of these changes. Cooking and baking are other activities that you could do to extend this further at home.

Understanding children's schemas at nursery has helped us to start to understand why children are doing certain things and has helped us to plan activities to meet their needs and extend their learning. At nursery we have started to collect everyday objects such as cardboard boxes, plastic bottles with tops, strings... to be able to help children with their explorations.

