



Schemas & Play - In More Detail

By Levi Grayshon

Babies and young children learn about the world through playful exploration, they watch, feel and move themselves and objects as they develop their understanding of the world around them. As your child experiments with different kinds of play, toys and environments, they will be developing skills in a variety of areas. At times it might seem that their play is not particularly focused on a goal, but as you watch them you might realise that they are exploring the same patterns in different ways. Thinking about schemas might help you to see patterns in their play and think about the types of objects or experiences that might support them to develop their ideas.



What Is Schema?

The word 'schema' is used to describe a psychological structure through which your child can think about and understand the world around them. They do this by categorising places, events, objects and living things through their experiences. For example, they will over time develop a bedroom schema. In this 'schema' they will identify that a bed belongs in the bedroom and they may think that a cupboard or toys belong in the bedroom if this is their experience. One of the ways that your child learns is by linking new information or experiences with previous experiences which then leads to a refinement of their knowledge. Schemas help them to organise this information within the structure of the brain in a manageable way. The convention is that the word schema is used to describe these structures until a child is around the age of six, then the word 'concept' is used, so schemas are the beginnings of the development of concepts. [1] Schemas have been defined by late early years researcher Chris Athey as 'Patterns of behaviour and thinking in children that exist underneath the surface feature of various contents, contexts and specific experiences'. [2] Cathy Nutbrown also described schemas as 'repeatable patterns of behaviour, speech, representation and thought'. [3]

When we talk about young children and schemas, we are often describing the behaviours that we see that show us what aspects of the world are fascinating a child at that moment. I always like to remember that the reason this is interesting is because of the connections that the child is making in their brain. Through moving themselves and objects and exploring patterns they are developing ways of thinking about and understanding the world - sometimes that helps when they want to knock down a tower for the millionth time!



Schemas And Play

When you are watching your child's play, thinking about the schemas that they are exploring can help to understand patterns of play that they repeat, or sometimes to notice a pattern when your child seems to be moving from one thing to another. Noticing the schemas that they are exploring can explain what they are doing and help you to think about other things that they might be interested in, that might expand their understanding.

When you watch your child play you might notice that they repeat patterns or actions. You may observe them filling up bags and carrying them around the house, hiding under the dining table, jumping or throwing objects repeatedly. These behaviours are all examples of your child exploring schemas and when you look at your child's play and think about schemas rather than merely the action, you can think about their learning in a different way. For example, you might notice that your child always wants to jump off the bottom step, that they are interested in throwing and rolling toys and that when they make marks, they always draw long vertical lines. At first these things might seem unrelated but perhaps your child is exploring a trajectory schema in different ways, and they are starting to understand how they, objects and lines can move from one point to another.

There are different schemas that your child may display during play. They might present themselves in a variety of ways, and sometimes your child might display a cluster of schemas that they are exploring at the same time. When you think about supporting your child's learning and their schemas your role is to provide the content for their exploration. For example, if you notice an interest in moving up and down you could think about different objects that might support that exploration and about language, stories and experiences (maybe you could find a glass lift!) that might enrich their exploration.



Noticing Schemas

You might notice your child displaying schemas in different ways, Chris Athey [2] outlined 4 ways in which schemas might be visible:

- Exploring patterns through actions, moving themselves or objects.
- Exploring through representation, so using one thing to be another, this could be through actions but also through mark-making or speech.
- Exploring relationships between actions and effects, Athey describes this as 'functional dependency relationships'.
- Exploring through ideas, so children will talk about events, people and objects and what they talk about will display their schematic interests.

The four ways could be seen as a journey towards knowing a particular concept, but like many things that we learn we don't move on and leave the other things behind. Your child might continue to explore through their actions alongside making marks or talking about their interests.

Types Of Schemas, Explained

Now that you have some background about schemas, you could watch your child and see if you notice them displaying schemas in their play. If you notice a schema then you could think about other ways in which they could explore this schema.





Trajectory Schema

The trajectory schema can be demonstrated as an interest in lines during play. Having an enjoyment of throwing, pushing, jumping and pushing are all indicators of a trajectory schema in action. You might notice your child drawing lines and dropping and throwing toys to follow their path of movement. Even as a baby, you may see your child kicking their legs and following adult movements, which are all examples of each trajectory schematic play.

Trajectory Schema Play Ideas

A key component of enabling play that children who are engaged in the trajectory schema will enjoy is ensuring that they have plenty of space to explore. There are also multiple activities that you can engage your child in.

Treasure Basket Exploration

Fill baskets with different objects from around the home that your child can experiment with. You could put in objects that roll, such as cars and toilet roll tubes, items that can be dropped from heights such as feathers and leaves or pieces of fabrics that can be pulled and moved in a variety of ways like scarves, wool, blankets and string.

Sensory Play

Sensory play is important for small children and babies as they grow and develop. Blowing bubbles for your baby for them to track with their gaze is a great activity to engage them, and as they become more mobile, they can use their arms to grab the bubbles, and even chase and catch them when they are at a stage where they are able to do so.

As well as this, you could take your child outside on a windy day with a scarf or piece of fabric, and together observe how it moves. You could also run together with the fabric to see if you can use your own bodies to change how it moves.

Creative Play

With your child, you could use big chunky chinks to create marks on a wall and on the ground. You could even roll the chinks along the ground to see what lines they can make themselves.

You could also introduce paint rollers. As well as painting with them on big sheets or rolls of paper, you could use the rollers with a bucket of water to pretend to paint outdoor walls, fences or even play equipment at home.

Transporting Schema

Children who are showing an interest in the transporting schema will enjoy moving objects and themselves. You will probably observe them filling up bags, baskets and containers in order to transport objects wherever they can.



Transporting Schema Play ideas

Ensuring that your child has access to toys and objects that support their transport based play is important. Make sure that your child is able to use things such as old bags and backpacks, prams, trolleys and even wheelbarrows in their environment.

Sensory/Messy Play

Children engaging in transporting based play may enjoy using containers such as bowls and jugs in messy play. They could use these when playing with sand, water or soapy water to transfer them between receptacles.

Role Play

Role play activities provide many opportunities for children to transport items. Baskets, old handbags and shopping bags could be used to play shops with your child, or prams and toy baby carriers could be used to transport baby dolls. Following interests is important in order to get your child to engage in role play activities, so think about what they like and base role play games on that, such as playing vets if they like animals and using a container as a pet carrier.

Making Marks

With your child, make maps on the ground outside using chunky chalks. Create routes for them to transport items around an area, and even dot out 'drop-off' points for certain items that they have collected in a basket, bag, or wheelbarrow.





Rotational Schema

The rotational schema is when children show interest in the movement of both objects, and themselves. They will experiment with spinning, rolling, and circular motions in play with their bodies and objects.

Rotational Schema Play Ideas

For children engaging in rotational play, it is important to provide an environment where they have the space to roll and rotate both themselves and objects that they chose to play with. Equipment that is useful for this type of play can be objects of a variety of sizes, starting with kitchen roll tubes, small toy cars, balls and bowls, and larger objects such as tyres, hula hoops and tunnels.

Rolling Experiments

With your child, grab a selection of objects from around the house. As you collect the items, discuss what you think will or will not roll and why. See which items roll by pushing them down a ramp – this could easily be made at home by balancing a plank or another flat surface against a wall or fence at home.

Painting With Different Tools

Children who are displaying the rotational schema may already be using ordinary painting and drawing tools to make circular shapes on paper. However, to add a new element to this, rotational items could be used. You could tape crayons or felt pens to toy cars, or even dip the wheels in paint to see what shapes could be made on paper.

You could also introduce paint rollers, and use these both on paper, or even dipped in water to ‘paint’ larger outdoor items such as sheds, walls, or fences.

Sensory Play

A variety of sensory mediums could be used with your child to explore making circles. This could be anything that you find in the kitchen or bathroom cupboard poured into a flat tray, or a washing up bowl, such as bubbly water, or shaving foam.

You could even encourage your child to ‘magic potions’, using a bowl and a big spoon to stir different things together.



Enveloping Schema

Children who are engaged in the enveloping schema will be often found in the dressing up box, trying on new outfits and ideas. They will like hiding and covering themselves, as well as wrapping up items that they may find during play.



Enveloping Schema Play Ideas

For children who are interested in the enveloping schema, have objects available for them to be able to cover themselves. This can be larger things such as blankets and duvets, play tents and cardboard boxes. They may also want to play with rolls of wrapping paper, scarves and offcuts of fabrics.

Fabric Play

Fill a box or basket with a wide range of materials for your child to explore. Try to include different textures for them to have a rich sensory experience. This could be old clothes, blankets, scarves, table cloths or scraps.

Ice Rescue

Immerse some of your child's favourite plastic toys (such as toy farm animals) in ice – use a bowl or a tray to store it in the freezer overnight. The next day, provide tools that will help your child smash the ice and 'rescue' the toys, like small hammers.

Gift Wrapping

Choose items from the home that your child can have a go at wrapping using paper, scissors, and tape. When wrapping gifts for others, involve your child in the process, for instance by asking them to roll out the paper, and cover the present.

To link role play into this, you could create a gift shop, or a post office where they prepare the parcels for customers.





Enclosing Schema

Children who are engaged in the enclosing schema will make enclosures both around themselves and objects. You may observe them building, and enclosing toys inside these buildings. They may also enjoy climbing into small spaces, and under household furniture such as tables.

Enclosing Schema Play Ideas

For children who like enclosing, it is important to make sure that they can access a wide variety of construction objects and toys, that they can use for different purposes. Larger scale construction items are also handy to have at home for children who like this kind of play. This could be items such as crates, pegs, bigger blocks and fabrics.

Shoebox Habitats

Look for small animals or insects with your child. Use a shoebox to make a small habitat for the animal or insect together, go hunting for natural resources that could be put in the box. You could even research what would be best what creature you find, and what food you need for it.

Make A Zoo

Maps of zoos can be easily found online, or if you go on a day out to one, grab one while you are there. With your child, look at the zoo map. Discuss what you can see, and together, have a go at making your own zoo for any toy animals that you might have at home.

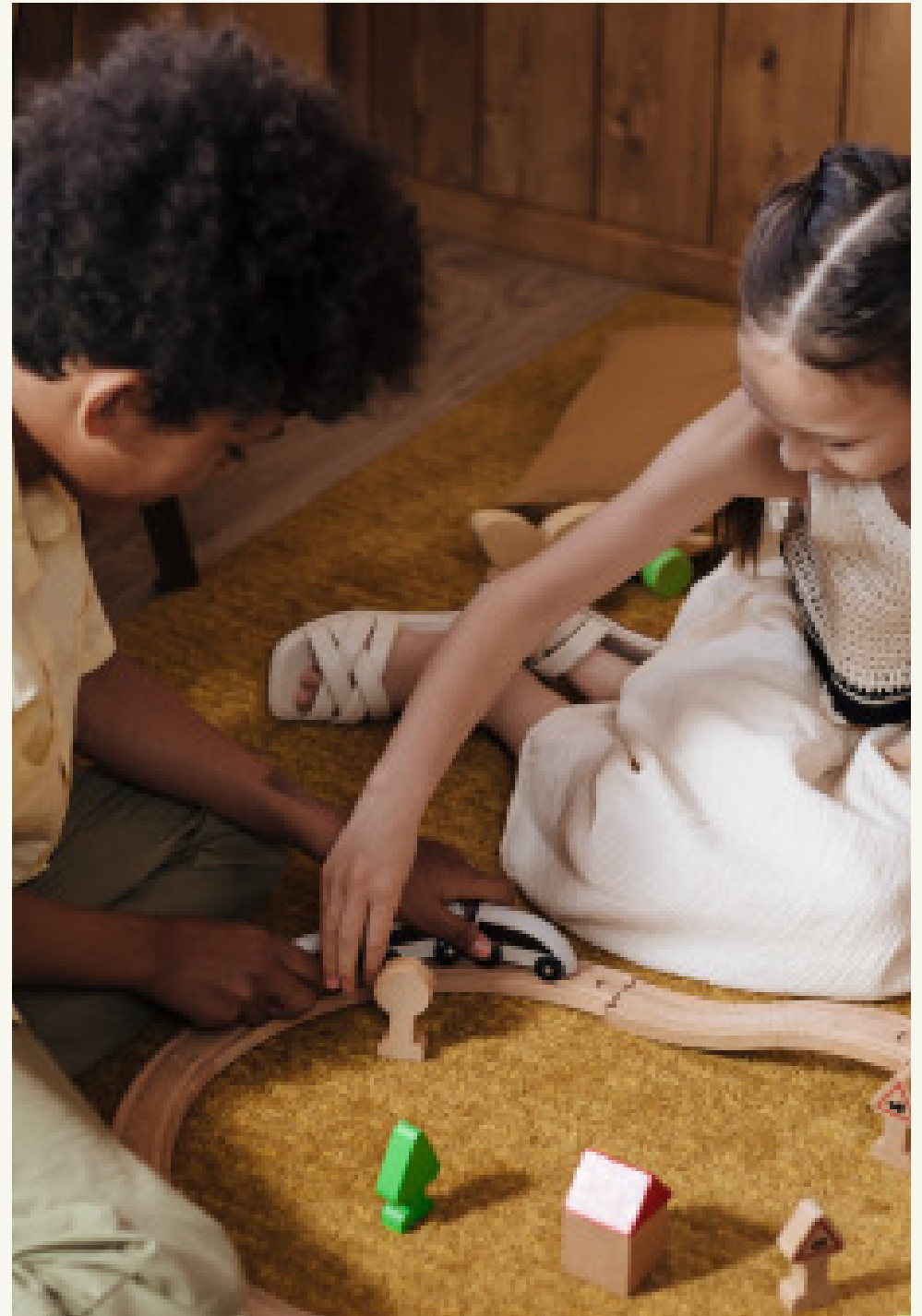
Den Building

Den building is often the go-to activity for children who love enclosing play. Dens can be built both inside and outside, and the possibilities with them are endless! Materials for den building can be sourced easily from around the house – some children may even be happy with draping a blanket across sides of the dining table to feel cosy and hidden away. You could even decide together what could go in the den - your child could choose a favourite toy or teddy to take inside with them.



Connecting Schema

Children who are displaying the connecting schema in their play may be seen using construction toys, as well as connecting toys like Megablocks or Lego. They will also enjoy playing with train tracks, and creating their own routes for trains to follow. This can be followed by them exploring for things disconnect – taking apart their structures and untying shoelaces or buttons.



Connecting Schema Play Ideas

There is a wide range of resources that can support children who are exploring the connecting schema. Many household objects can support your child's interest in connecting and disconnecting, such as Velcro strips, sticky notes, tape, washing pegs, and magnets.

Exploration Basket

Use a box or basket to fill with different items of interest for your child. This could be a basket full of different magnetic items for your child to explore connecting, or fastenings such as zips, Velcro, laces and buttons.

Junk Modelling

Junk modelling is a great activity because no special resources are needed – just any bits of boxes, cartons or tubes, something to connect them such as glue or tape, and some imagination! Try to provide a wide range of materials, and give your child plenty of time and space to explore them.

Water Play

To add more depth to your child's water play, try adding items that connect. These can be pipes, funnels, and tubes. Your child can use these to make their own water ways and make their own systems of moving water between containers.





Positioning Schema

Children who are playing with the positioning schema enjoy lining up objects and making arrangements with them. They might put objects in places that seem unusual at times and might at times be rigid when it comes to routines or the order that they like to do things.

Positioning Schema Play Ideas

To support children in the positioning schema, provide opportunities to sort and arrange different resources by a range of properties, such as colour, shape, or size. They may enjoy playing with pebbles, pom-poms, stones or shells.

Transient Art

Transient art is a great, opened ended way to encourage play within the positioning schema. With your child, you could collect items in the environment, or on a walk to find things that could be used to make artwork. This is also an opportunity to observe environmental changes between seasons with your child. Once you have collected items, find a base to use for the artwork, such as a piece of cardboard, or a place mat. Observe your child as they make arrangements with the objects on the base provided.

Categorising Objects

Seek out opportunities for your child to sort different objects into categories. This doesn't need to be a set up activity – you could ask your child for help around the house as you sort things yourself.

They could sort the fruit in the fruit bowl by colour or type, or together you could sort chocolates from a box into different bowls before you enjoy them!

Set The Table

Children engaging in the positioning schema may enjoy helping in the household at mealtimes. Ask your child to help to set the table – they may need some support the first few times that they do this. Your child might need you to place the items on the table first for them to arrange, or you might need to model it to start them off with this task.



Orientation Schema

Children who are engaged in play based on the orientation schema like to explore the world from different viewpoints. You might see them turning their toys to various angles, tilting their heads whilst looking at different objects, or even bending forwards and observing their environment upside down!



Orientation Schema Play Ideas

Children who like orientation based play often like playing with mirrors. As well as enabling them to access mirrors around the home, small, hand held mirrors, and mirrored toys are great to explore. They may also like using tunnels to play in, and ramps, swings and climbing equipment outside, where they can observe their environment from different perspectives.

Mark Making

Children who are exploring an orientation schema may not want to sit at a table to draw or write. Provide opportunities for them to mark make in a variety of positions, for example, stick pieces of paper to the underneath of a table where they can lie on their back and draw with paper above them, lay a large roll of paper on the floor so that they can create drawings lay on their stomach, or even tape large pieces of paper to the wall.

Obstacle Course

It is natural that children exploring orientation based play might want to have a go at what can be seen as more risky play. Making an obstacle course with your child is a great way of enabling them to explore different heights and angles in play, and they can adjust this to their own interests.

Mini Beast Hunt

Grab a set of binoculars, or make a pair yourself using toilet or kitchen roll tubes. Go on a walk with your child, using the binoculars to observe mini beasts in the environment. You could also encourage your child to look through their binoculars from different heights and angles.



Transforming Schema

Children who are demonstrating the transforming schema enjoy changing things in their environment. You may spot them mixing together their food at dinnertimes, and even pouring their juice into their mashed potato and giving it a stir!

Transforming Schema Play Ideas

It is important for children engaging in the transforming schema to have plenty opportunities to experiment with a range of materials. This could be natural and found objects such as sand, water and soil, or household objects such as shower gels or bubble bath, oil, shaving foam and glitter.

Sensory Tray

Sensory play is something that a lot of children engaged in the transforming schema would enjoy. Use a flat tray, such as a baking tray, or something bigger if you have access to it, and put in different combinations of mediums that can be mixed in order for your child to explore the effects. For example, you could put sand on one side, and water in the other, sand and mud, or bubbly water and shaving cream. If your container is big enough (or your child is small enough), they could even climb inside.

Cooking Or Baking

Children interested in transforming may enjoy helping cook or bake using some simple recipes.

Discuss with your child what they would like to make, or what they enjoy eating. Together, pick the ingredients that you will need to make the recipe together. Try to involve them in making the food that they have chosen as much as possible, especially when it comes to mixing and stirring.

Mud Kitchen

Some may hear the phrase ‘mud kitchen’ and think that it needs to be something elaborate – but it doesn’t! Give your child some old pots, pans, cutlery and some soil and water outside to explore. As the seasons change, they might add different things that they find in the garden, for example, crunchy leaves as the topping for a ‘cake’ in the autumn, or dandelions as ‘spaghetti’.





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References

[1] Maris, K & Arnold, C (2013) Young children learning through schemas: Deepening the dialogue about learning in the home and in the nursery. Abingdon: Routledge.

[2] Athey, C (2007), Extending Thought in Young Children (2nd edition)

[3] Nutbrown, C (2011), Threads of Thinking: Schemas and Young Children Learning (4th edition)

[4] Education Scotland. (2021). Schemas: Learning through play. Available: <https://education.gov.scot/parentzone/Documents/nih058-Parentzone-Booklet.pdf>.

[5] England, L (2018), Schemas: A Practical Handbook

Further Reading

Schemas: A Practical Handbook by Laura England

Schemas: Learning through play For Scotland's children, with Scotland's parents by Education Scotland <https://education.gov.scot/parentzone/Documents/nih058-Parentzone-Booklet.pdf>