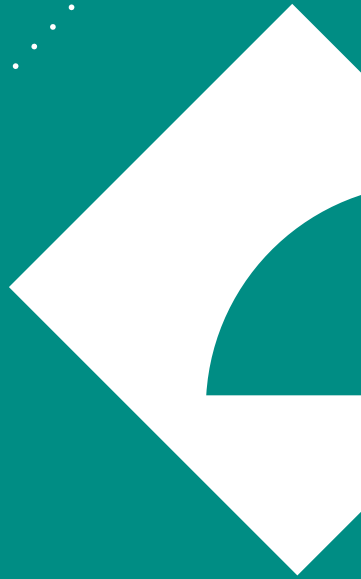
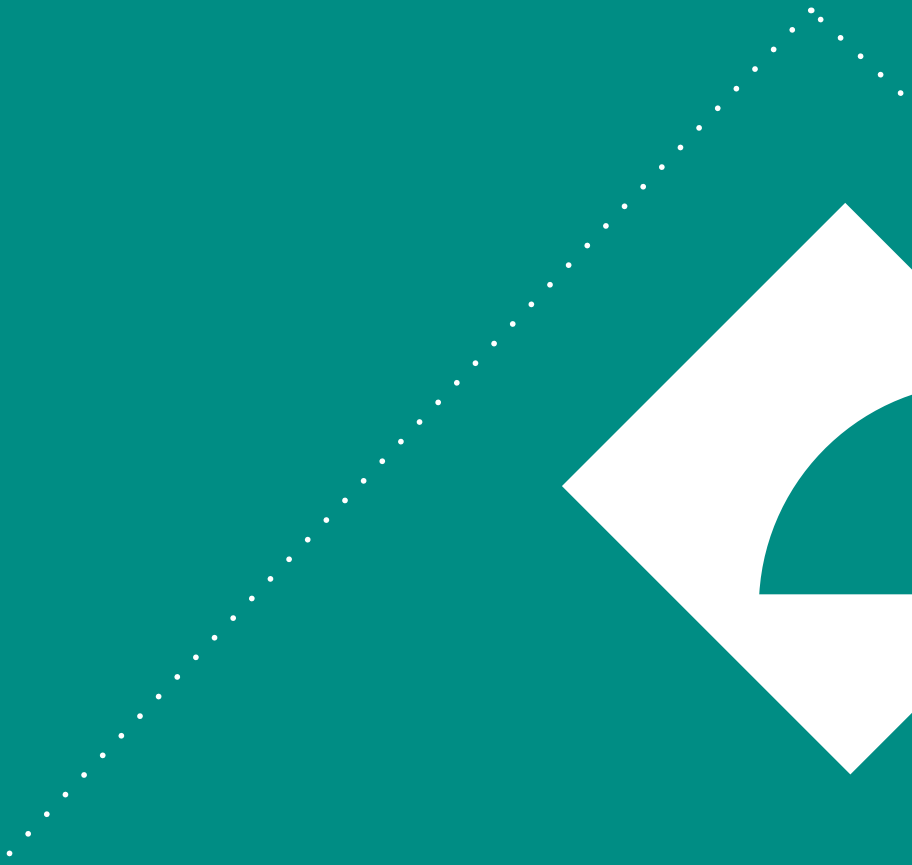




PLAYGROUND IDEAS FOR 0-3 YEARS



ISTANBUL95 STUDIES
**PLAYGROUND IDEAS
FOR 0-3 YEARS**



Playgrounds are urban outdoor spaces specifically designed for children, but even playgrounds are often designed without considering the youngest. The Istanbul95 project invites public administrators, policy makers, designers and citizens to look at the city from a height of 95 cm - from the eye-level of a 3-year-old child.

As a part of Istanbul95, this book focuses on playgrounds and asks questions in accordance with the needs of 0-3-year-olds and their caregivers. When searching for answers, instead of reaching definitive conclusions, it provides principles and suggestions that hope to inspire public administrators, policy makers, designers and citizens to explore new and creative ideas.

CONTENT

PART 1

Why do we care about play?

PART 2

They grow so fast!

PART 3

Everything is a play!

PART 4

As important as play!

APPENDIX 1

Suggestions for dimensions

APPENDIX 2

Materials

APPENDIX 3

Definitions related to
safe playgrounds

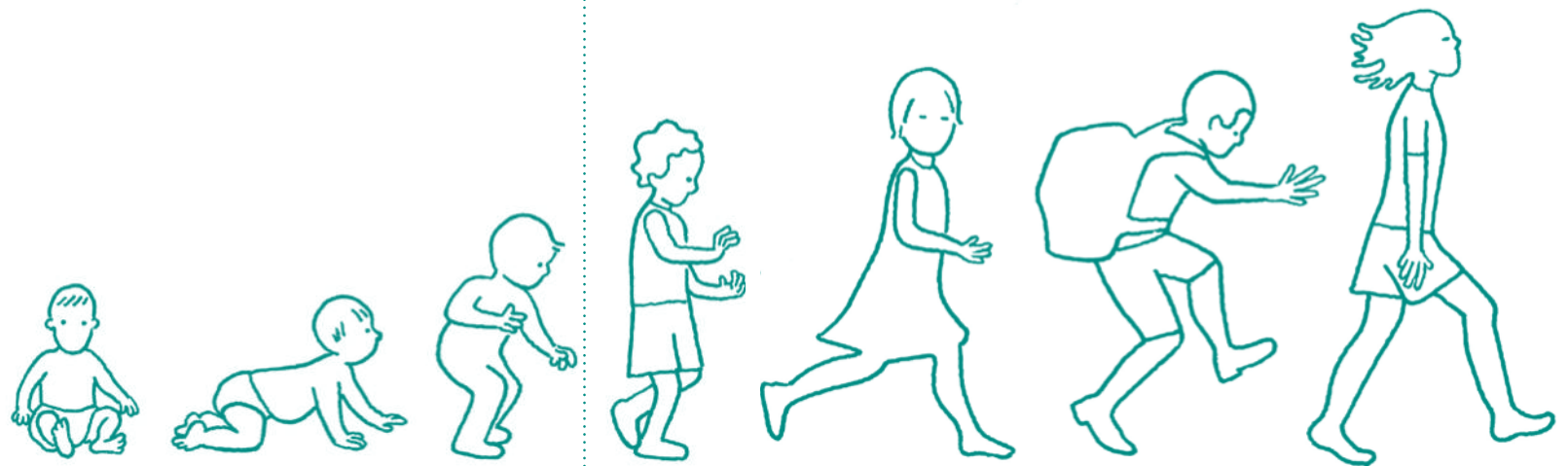
APPENDIX 4

Standards

REFERENCES

“If we create a playground well, we create a world in which people rediscover what is essential, in which the city rediscovers the child. We must not ask the child to discover the city, without at the same time wanting the city to rediscover the child.”

A L D O V A N E C Y K



WHY DO WE CARE ABOUT PLAY?

“Play is an activity connected with no material interest, and no profit can be gained by it. It proceeds within its own proper boundaries of time and space according to fixed rules and in an orderly manner. It promotes the formation of social groupings which tend to surround themselves with secrecy and to stress their difference from the common world by disguise or other means.”

H U I Z I N G R

WHAT IS PLAY?

Play is a voluntary action. It's not a duty. It's temporary. Play creates its own world but it is not detached from reality. It does not seek its own interests. Play does not have to be useful. It has rules and regulations. If rules are violated, play ends. In fact, because it has so many forms, it is a difficult word to define.

And play is the most serious undertaking of a child.

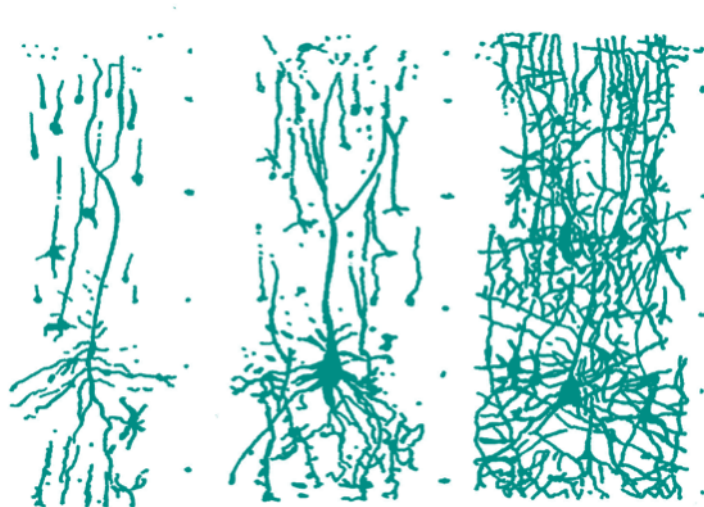
Play is defined as a basic need for children of all ages, and is protected under Article 31 of the United Nations Convention on the Rights of the Child. This article aims to guarantee opportunities for children to express their creativity, improve their imagination, to gain self-confidence and self-sufficiency; and develop physically, socially, mentally and emotionally. The article emphasizes the essential nature of the right to play in order to ensure all subsequent rights of a person.

WHY IS PLAY IMPORTANT IN EARLY CHILDHOOD?

Early childhood is the period when humans grow up and learn the fastest. Current research shows that 85% of our brain develops within our first 1000 days. In fact, it has been observed that the brains of babies who have been neglected, who have not had sufficient communication, or haven't been played with during this critical period, do not grow.

Babies are born ready to learn. 20 minutes after birth, a baby begins to imitate the mimics of its caregivers. During the first 2-3 years the formation of synapses between the neurons in the brain is very rapid and dense. More synapses form as the baby interacts with her environment. Well-used synapses become stronger while unused synapses are pruned over time.

Joyful interaction with babies is important for their brain development. Sensitive and caring conversations, play and environments that encourage play are important. Synapses - connections between neurons in the brain responsible for different skills - are stronger in the brain of a child that grows up in an environment rich with stimulation. These connections provide the foundation for a child's cognitive skills such as learning, attention and memory.

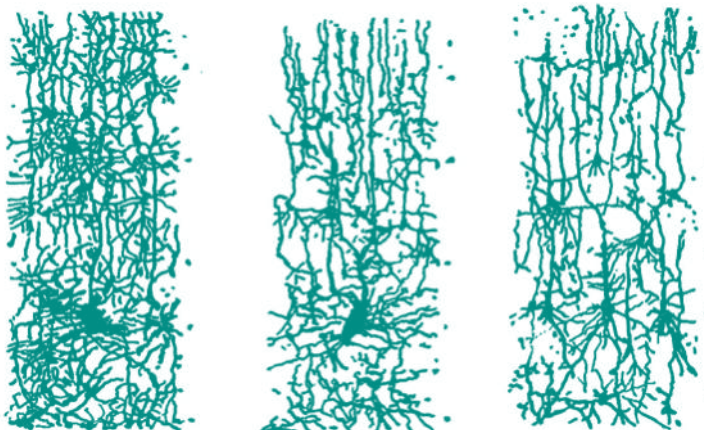


newborn

3 months

6 months

Synapse formation between neurons in the brain



2 years

4 years

6 years

Pruning of unused synapses

WHY IS PLAY IMPORTANT IN CITIES?

Worldwide urbanization has turned cities into places where millions are born, grow up and live, pointing to a need to expand the definition of the city beyond its economic benefits. However, even 'livability' indexes put forward in the 1980s are essentially used merely as indicators of economic success.

New definitions of 'livability' emphasize an evaluation of cities through the eyes of young and old residents who make up on average 40%-50% of urban populations.

In a medium-sized metropolis like Istanbul with 15 million residents, the population of children is close to 4 million and more than one million of that figure are children between the ages of 0-4.

In brief, cities have become the habitat of the human species and of children, and for this reason cities have to respond to the need for play.



CAN WE ALL PLAY IN PLAYGROUNDS?

For a child, being outdoors is an important way to get to know the world and to improve her skills. Neighborhoods that allow children to explore, encounter new things and play, help them to learn by observation and socialization.

As a first step, let's take a look at playgrounds, the primary public spaces designed for children and ask: do playgrounds trigger the imagination of children, encourage their caregivers for playful interaction? Are they designed with the youngest children and their caregivers in mind? How can playgrounds support child development at its fastest early stages?

THEY GROW SO FAST!

In human life, the first 3 years are full of changes. Motor skills develop rapidly within months. When designing playgrounds for young children, it is important to pay attention to the changing bodies and skills of babies.

0-2 MONTHS:

Within the first month, babies start lifting their chins while lying down on their bellies. During the second month they learn to lift their upper bodies while in the same position. Babies begin to communicate with their caregivers with sounds, movements and facial expressions starting from these first months and during their second month, they start to smile.

3-4 MONTHS:

By this time, babies learn to hold objects. While lying down on their belly, they lift their heads and upper bodies with the help of their arms. These tiny push-up movements are very important for upper body development.

5 MONTHS:

Babies start rolling over around their fifth month. They can bounce if they are held in a standing position. This movement helps to strengthen their legs.

6-9 MONTHS:

Babies learn to sit without support during these months. To sit, their necks need to be strong, and they need to be able to control their heads, and have balance and coordination. Most babies start to crawl during this period, but some skip crawling before they learn to walk.

9-12 MONTHS:

Starting with the ninth month, babies develop the skill of standing with support. Some can even stand for a few seconds without any support, or take their first steps holding onto their caregivers' hands. In the meantime, they discover how to bend their knees, and even sit after standing. At this stage, babies like continuous repetition through which they learn cause-and-effect relations. They start using their index fingers for communication and are entertained by sounds. They try to reach objects. They enjoy trial-and-error games such as shape sorting toys.

12-15 MONTHS:

Babies begin to walk although unsteady and with open arms to maintain balance. They learn to squat and stoop. They are usually interested in toys that they can push around.

16-18 MONTHS:

Babies start walking and climbing stairs with support.

They also dance to music.

19-24 MONTHS:

Walking speeds up. They learn to kick to play ball, stand on their tiptoes, carry something while walking and they learn to jump. During their second year babies start to communicate. They cannot play games with rules yet, but they have an urge for discovery and achievement.

3 YEARS:

At 3-years-of-age the human body is at the peak of its physical activity. Children are quite adventurous and courageous at this age. They can run forward and backward, to the right and left, on a line, and they can jump forward half a meter. They can throw a ball two meters forward and play catch. They can start climbing. Stairs are no longer a problem. Moreover, they can pedal a 6-to-7-meter distance on a tricycle.

Between the ages of two and three, children's journey to the world of imagination begins. They play symbolic games where they enact daily routines such as playing house.

4-5 YEARS:

Children have completed their physical development. They like to overcome challenges. They enjoy climbing very much; they constantly try to go higher, and overcome bigger challenges.

HEAD AND TRUNK CONTROL



Lifts head part way up



Holds up head and shoulders



Holds head up well when lifted



Holds head up briefly



Turns head and shifts weight



Move and holds head easily in all directions

ROLLING



Rolls back to belly



Rolls belly to back



Rolls over and over easily in play

SITTING



Sits only with full support



Sits with some support



Sits with hand support



Begins to sit without support



Sits well without support



Twists and moves easily while sitting

CRAWLING AND WALKING



Begins to creep



Scoots or crawls



Pulls to standing



Takes steps



Walks



Runs



Can walk on tiptoes and on heels



Easily walks backwards



Hops on one foot

3 MONTHS

6 MONTHS

9 MONTHS

1 YEAR

2 YEARS

3 YEARS

5 YEARS

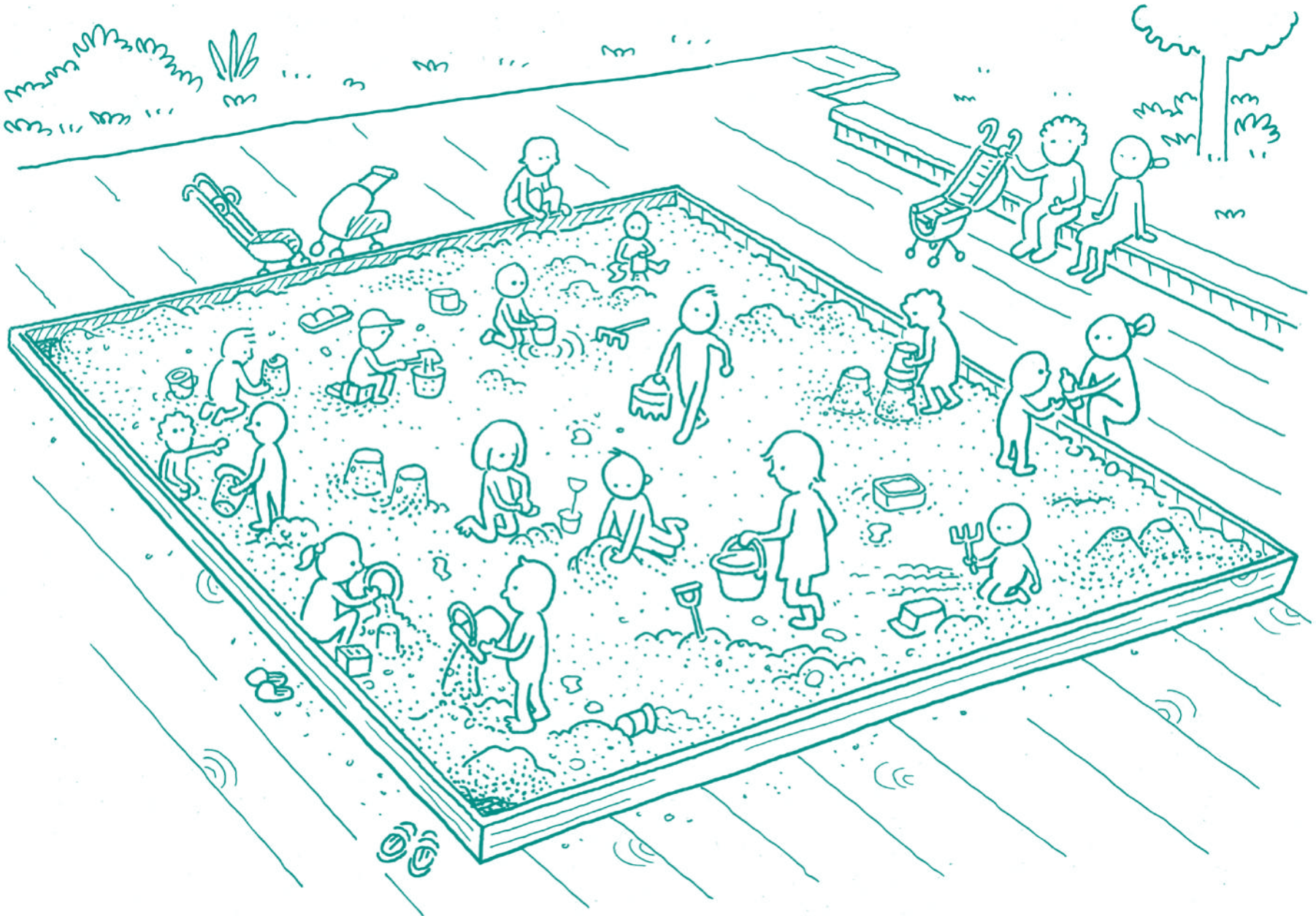
HOW DO CHILDREN'S GAMES CHANGE AS THEY GROW?

In the first months of life, babies learn by reaching out to touch things, grabbing them and putting them in their mouths. Discovering how things taste and feel, discovering sounds, shapes, colors are the first forms of play for a young baby. In the first year, babies' caregivers are their primary playmates. Interaction with caregivers provides babies with the foundations for future peer relationships.

At the end of their first year, babies start to observe other children and play next to them without engaging with them directly. This type of play is called parallel play; babies play side by side and sometimes even play with the same toys but operate

independently. By months 15 to 18, children start communicating with each other during parallel play and even start giving each other toys. Starting with month 18, children start socializing, they can now take turns in playing together following simple rules.

At age 2-3, children start to use their imagination and enjoy pretend play. For example, a box can be the ship for a child pretending to be a captain. Over time, they move to games with more complex rules based on competition or co-operation with peers.



EVERYTHING IS PLAY!

Every skill that a child is learning can create play opportunities. Skills such as crawling, standing, and walking learned in the first three years can inspire designs for playgrounds for young children.



Standing up -
Being able to Stand



Crawling



Walking



Climbing



Jumping



Balance



Sand



Water



Sound



Loose parts



Small Spaces

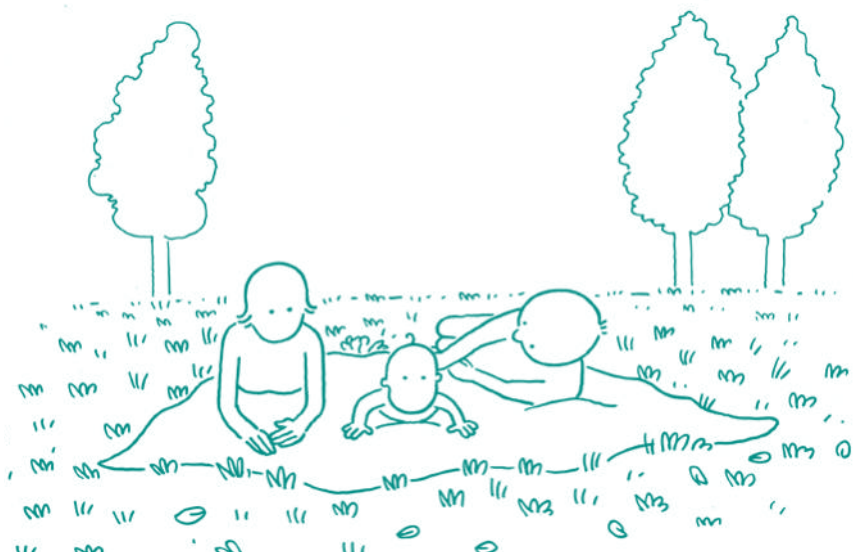


Plants

How exciting it must be for a young child to play with the simplest things like water, sand, and sound! What is needed to experience cause-effect relationships, learn by observation, and to start first friendships?

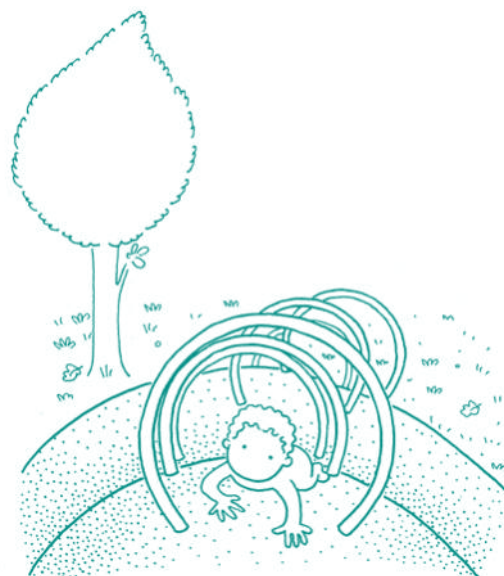
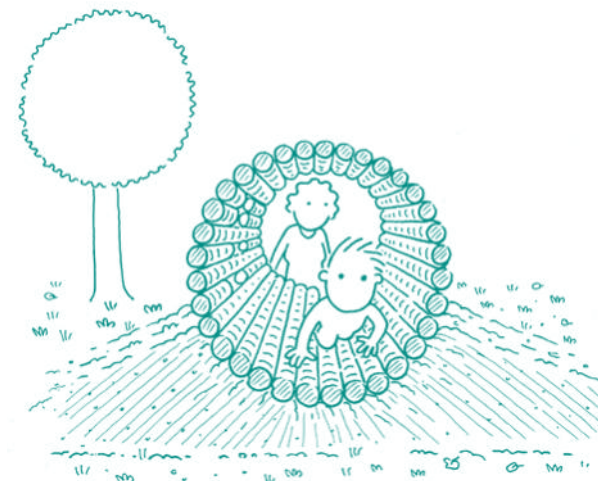
CRAWLING

Crawling is the first method for a baby to expand her freedom to move on her own. Crawling can take many forms; crawling on hands and knees, bottom shuffle, rolling, or crawling on the belly. What is important is not the style but the success in movement.



Before starting to crawl, babies need tummy time and encouragement to push themselves towards objects they would like to reach. Playing for a few minutes in that position helps muscles develop and increases self-confidence in babies.

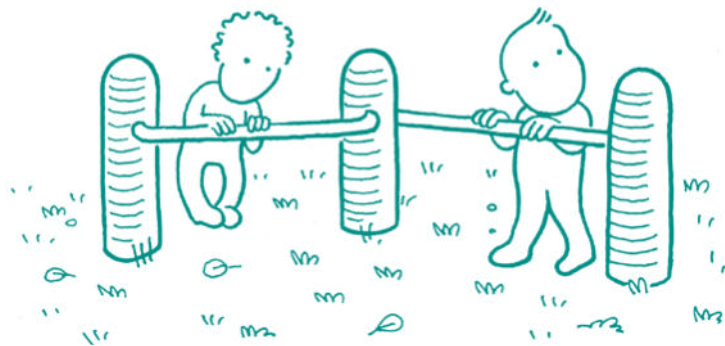
It may be sufficient to have areas in parks to throw a blanket to help babies develop their crawling skills. Creating short tunnels, small hills could encourage babies interested in bigger adventures.



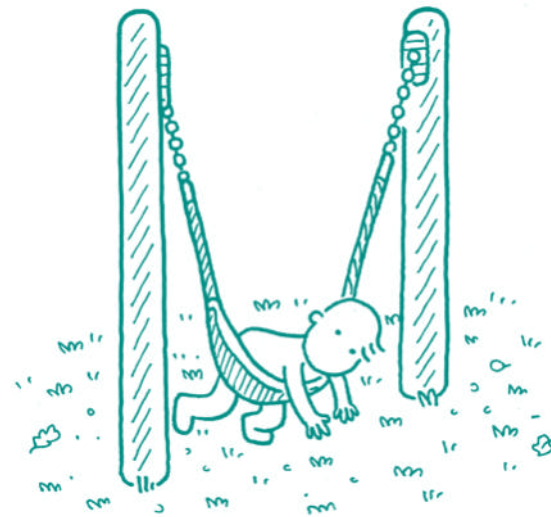
STANDING UP

REMAINING STANDING

As babies approach their first birthday, they start reaching higher to hold onto things to pull themselves and stand up. For a baby it is new and fun to watch things from a standing position. Over time their legs get stronger in carrying their body. They start to cruise; moving around upright while holding on to things to keep balance. Once more confident in standing they explore taking side steps, while still unbalanced these are the first steps taken to walk independently.



Many designs can be imagined in playgrounds that will allow children to practice standing. A support at about 40 cm height can help children pull to stand. It is important to remember that babies will sit down when tired. Curved surfaces like cylinders or low swings can help babies test different ways of weight distribution and support. Nearby seating options for caregivers will ensure a good time for all.

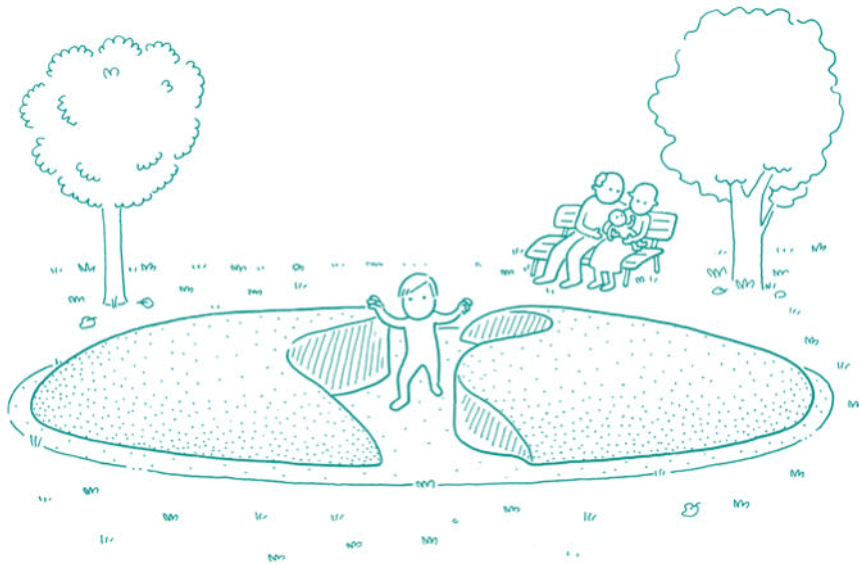


Low swings that are tied to the ground can help babies practice standing and gentle swinging. Tires fixed to the ground can provide the support they need to stand.

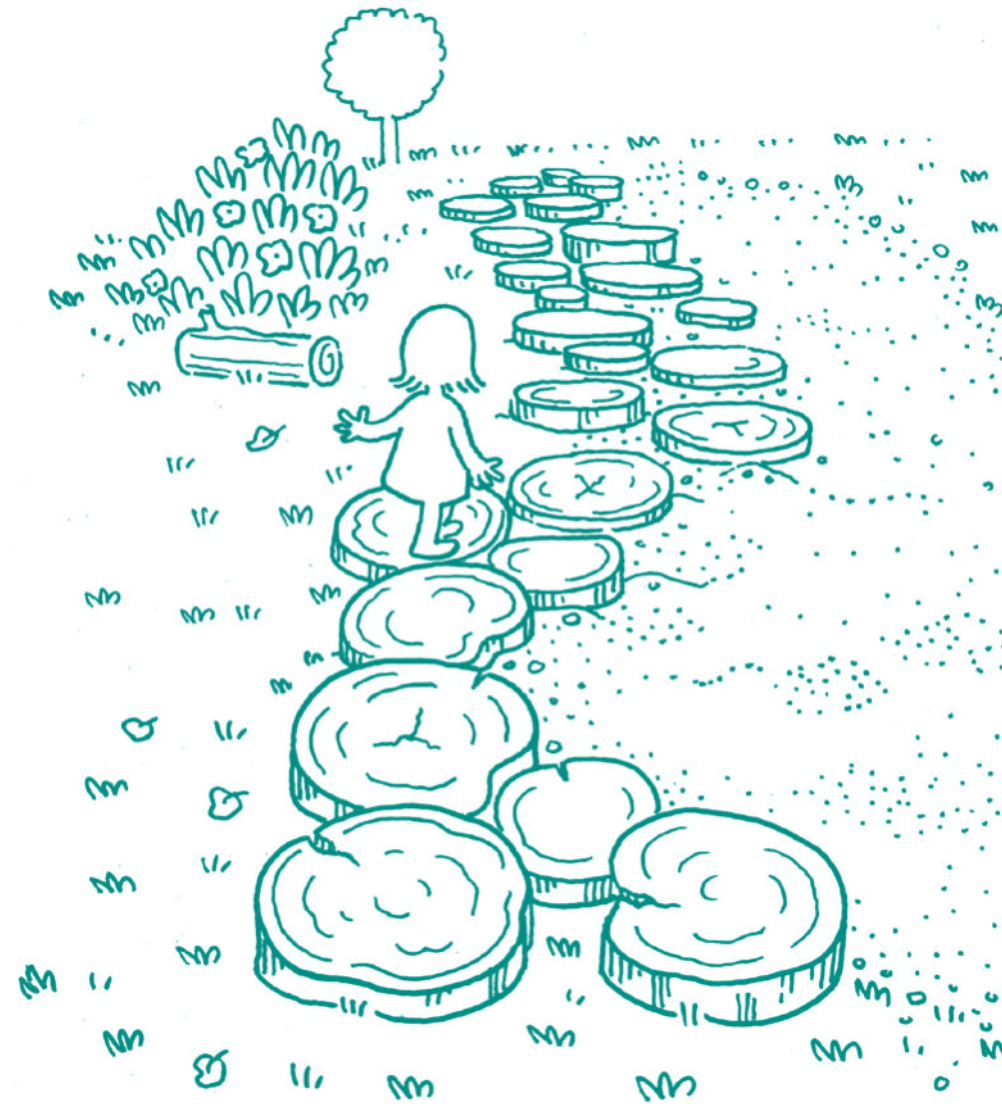


WALKING

Once babies are able to stand without support, they are keen to explore taking steps. At first their walk is unstable with legs and arms wide open to find balance. Walking is all about confidence and until they gain confidence in their walking skills, babies will alternate between walking and crawling to reach their destinations. This learning process is very important and fun for babies and playful encouragement is needed while they learn to find their balance and increase their speed.



Paths and meandering trails encourage young children to walk. Support at around 40 cm gives the opportunity for cruising and resting when necessary. Textures and trails created with paint, stone or wood elements will intrigue children and inspire them to invent their own games.



Where will this track lead us?

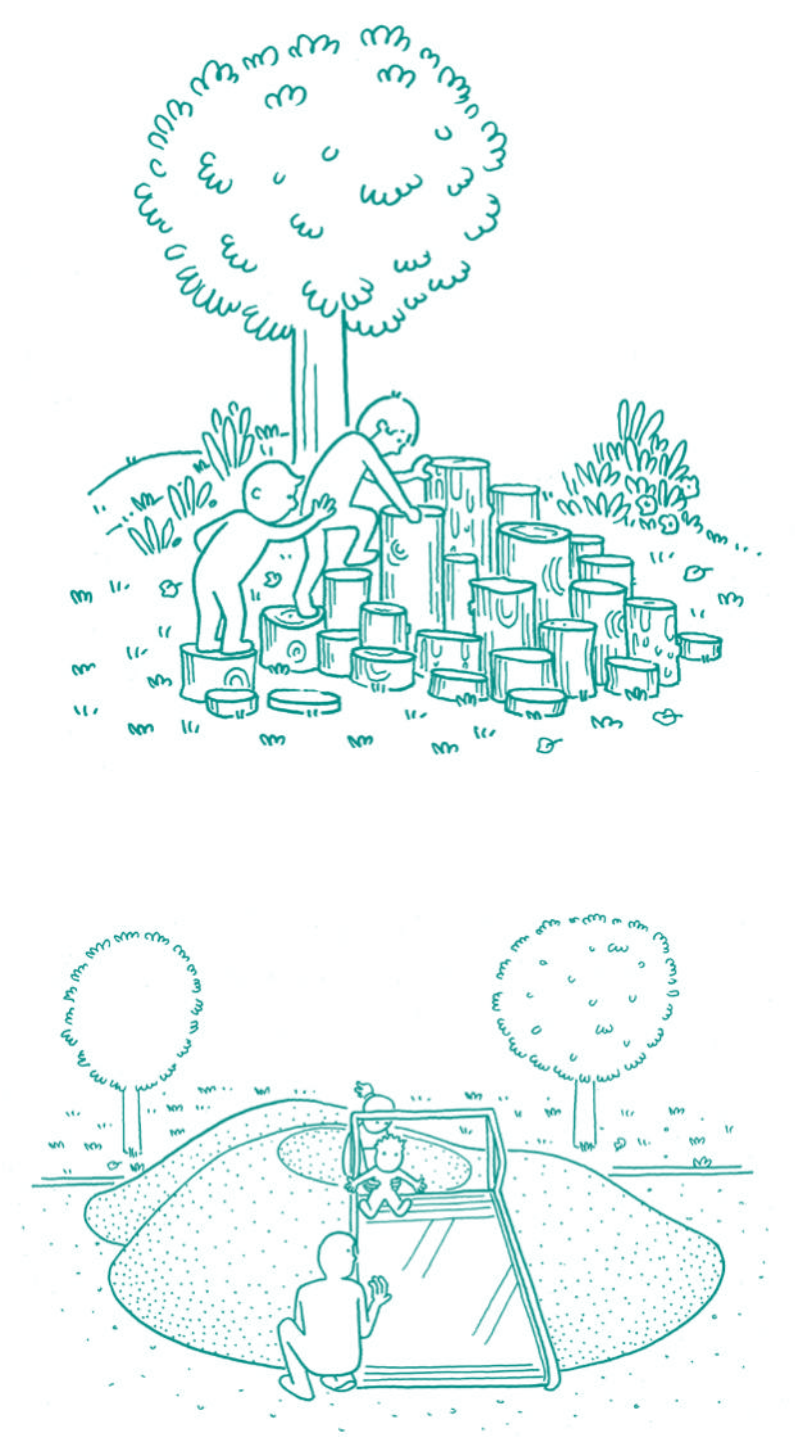
CLIMBING

Babies start to climb even before they learn to walk and climbing remains an exciting adventure for many years. While climbing, a child learns to control and coordinate her body and keep balance. Climbing is important for babies to develop skills but it is equally important in developing their courage and confidence. Looking back down after a climb is a satisfying experience to people of all ages as well as young children and it reinforces their sense of success.

Simple sloping surfaces or small hills can be designed for young children to climb. Surfaces might have indentations or bulges to provide grips for hands and feet. A sand hill, a large rock or tree logs are also attractive climbing challenges.



A small hill of 60-80 cm can be recommended for beginners. Surfaces for sliding down can make the climb even more fun.



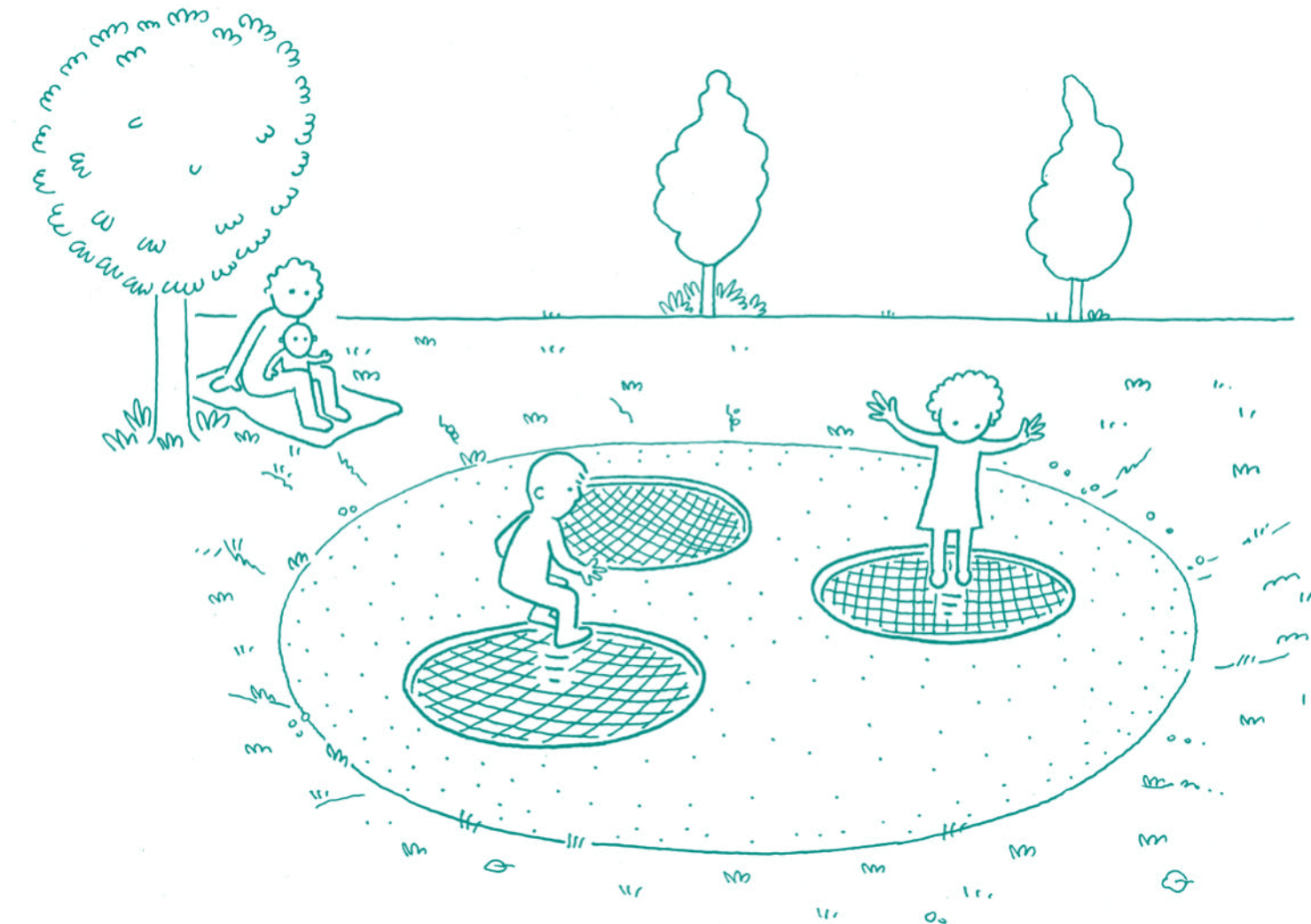
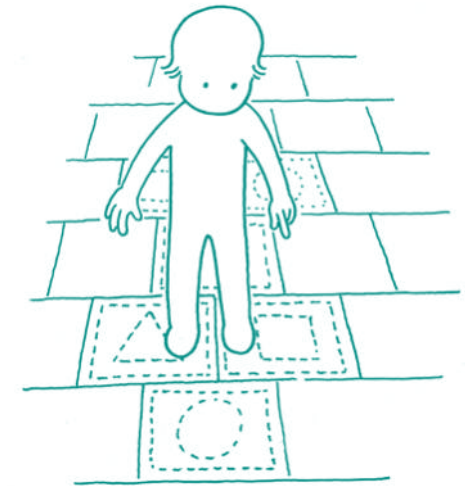
JUMPING

Jumping is one of the most fun ways of exercising for children and grown-ups. In the gross motor development of young children, learning to jump is an important benchmark.

For some children, it is easier to learn to run than to jump. Having both feet up in the air requires more coordination and courage than it looks. Rhythmic jumping helps exercise large muscle groups and strengthens the muscles around joints.

Jumping can be encouraged with many marks on the play surfaces - like simple instructions to jump like different animals or with markings for games like hopscotch. Even sidewalks and pedestrian walkways leading to the playgrounds could be turned into play surfaces which encourage hopping, skipping and jumping.

Trampolines are surfaces that enhance jumping with the use of springs. Outdoor trampolines are fun both for children and their caregivers.



BALANCE

Balancing is the skill necessary to maintain a controlled body position during different activities. A good balance is necessary for still positions as well as movement.

The skill of balancing starts to develop as babies learn to sit and stand. Having good balance is important in developing all other skills such as walking, running and jumping. As children learn to balance, they learn to use their limbs effectively in relation to their body's center of gravity. All future skills they might need, such as riding a bike, swimming or playing ball games require good balance and coordination.

Many activities can be suggested to improve balance: walking on a straight line, standing on one foot, jumping or walking over irregular stones.



EXPLORE WITH...

SAND

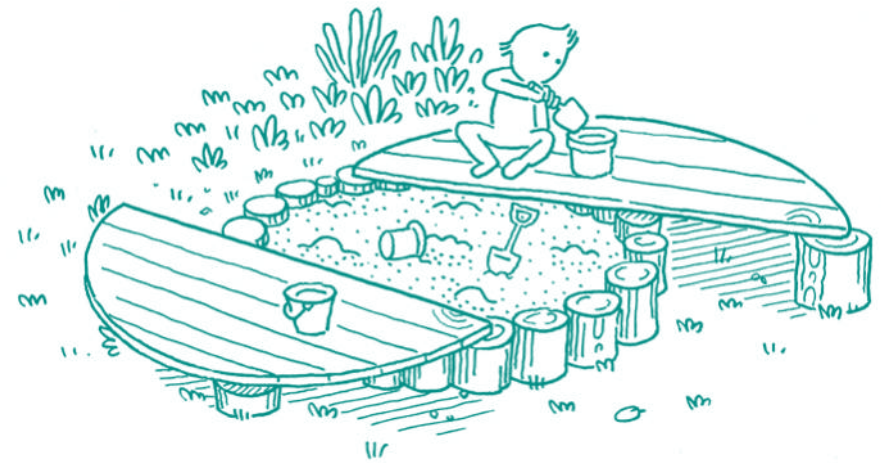
Sand is such a wonderful thing! Sand play attracts almost everyone of every age group.

Sand is a very good tool for young children to develop fine motor skills and hand-eye coordination. Sand is also one of the ideal environments for parallel play where babies learn from watching each other. Filling up and emptying buckets, digging tunnels, and building sand castles are some of the favorite activities for children of all ages. Children create and tell stories as they mold sand into different shapes.

Sandboxes should be placed in a calm corner protected from the wind and have sun in the winter and shade in the summer. They can be separated from the more active play spaces with low walls or shrubs. Around the sandboxes, it is important to design seating for caregivers. In larger play areas with sand, designers should be aware of the need to create suitable surfaces for wheelchair and stroller access.

Designing for water play near sandboxes can also be very rewarding. In such cases, water and drainage systems should be integrated into the planning of the play area.

Different types of sand with varying grain sizes can be used in sand boxes to provide different stimuli for touching. Sand in sandboxes should be cleaned periodically and renewed occasionally to prevent hardening.



OBSERVATIONAL LEARNING THEORY

Observational learning plays an important role in the development of fine and gross motor skills in pre-school children. According to this theory, when the child is ready to learn she follows these steps.

1. Observe the behavior of others.
2. Form a mental image of the behavior.
3. Imitate the behavior.
4. Practice the behavior.
5. Be motivated to repeat the behavior.



WATER

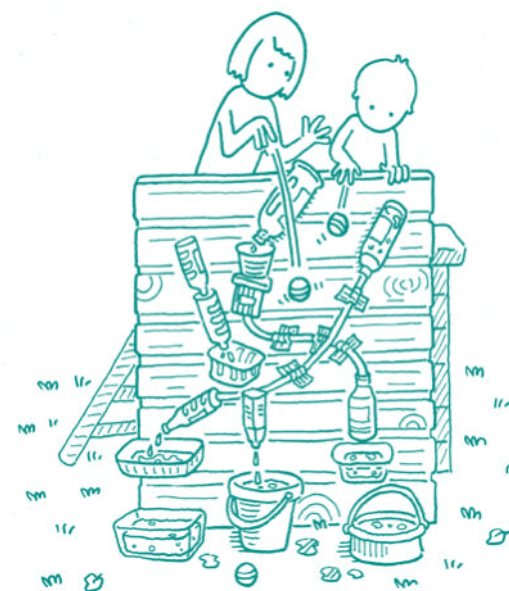
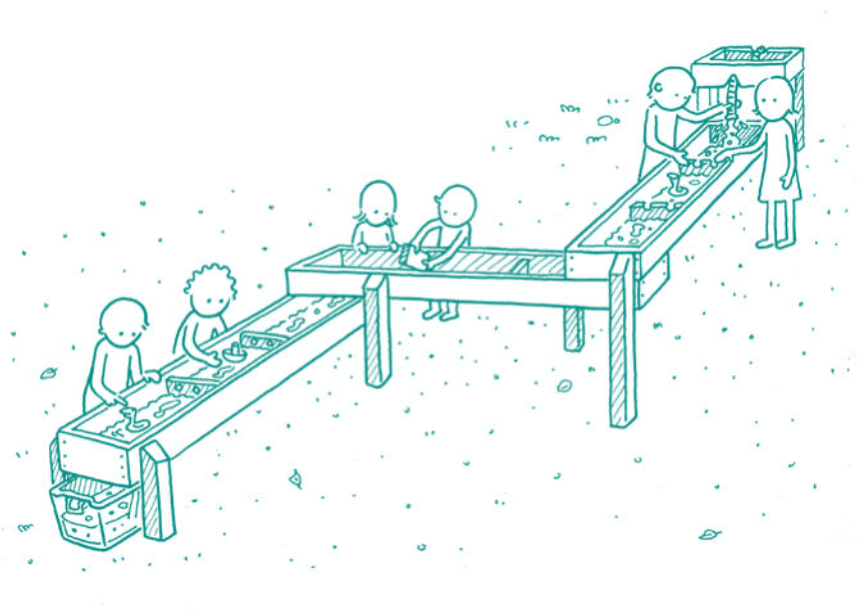
Water, like sand, is one of the simplest and most attractive means of play. A puddle of water after rain can instantly become an enjoyable play space. Water allows many opportunities for experiments and a wide range of fun experiences.

It may not always be possible to have natural water resources on a site planned for a playground. Still, many different design ideas can be developed for water play. For safety reasons, the water used should be safe to drink. For play areas for younger children water should not be deeper than 35-40 cm.

To prevent slips and falls, boundaries of wet surfaces should be clearly marked. Seating spaces close by for caregivers will be well appreciated.



If the water is circulated it is important to plan for water storage and filtering and pump systems. As suggested below, sometimes very little infrastructure is needed to encourage children to play with water.

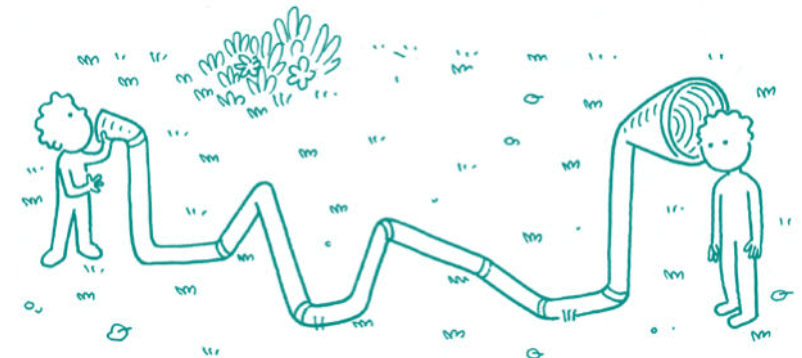
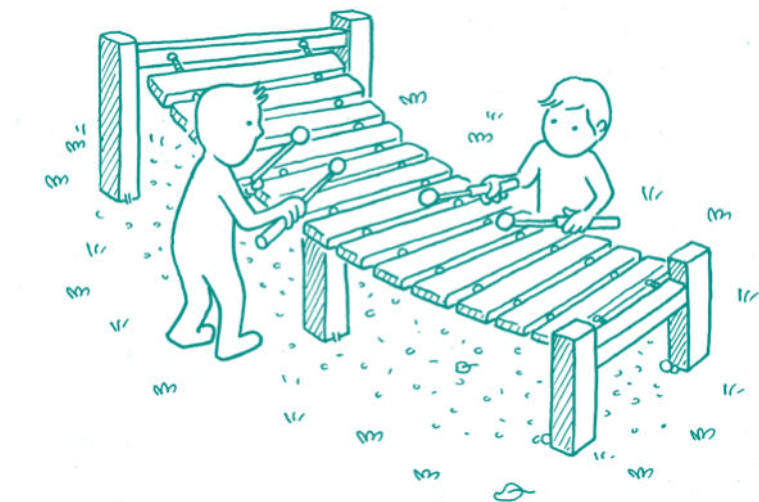
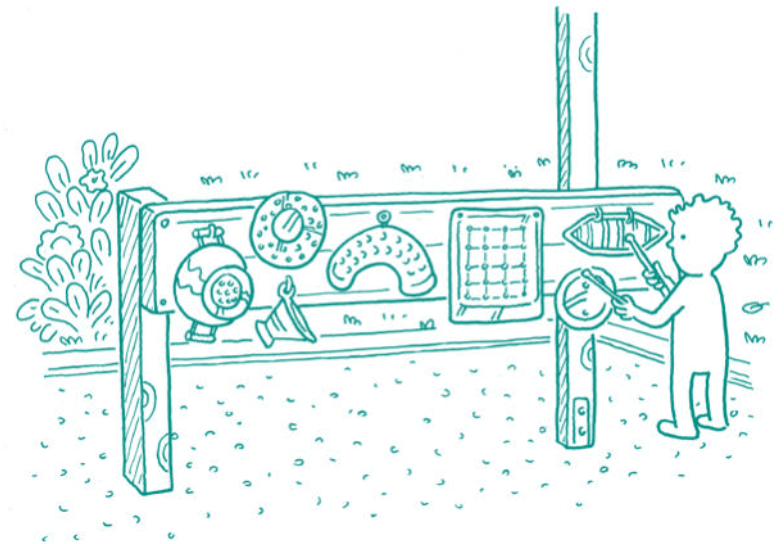


SOUND

At 2-to-3-months-of-age, babies play with the sounds they make. In the following months, as their skills develop, they start 'talking to themselves' in obvious enjoyment. Play by creating and controlling sound, or rhythm and harmony continue to be enjoyable if encouraged.

In play areas many designs can be imagined to support young children's sound and hearing skills. Designs can encourage children to talk and sing or can be musical instruments in their own right.

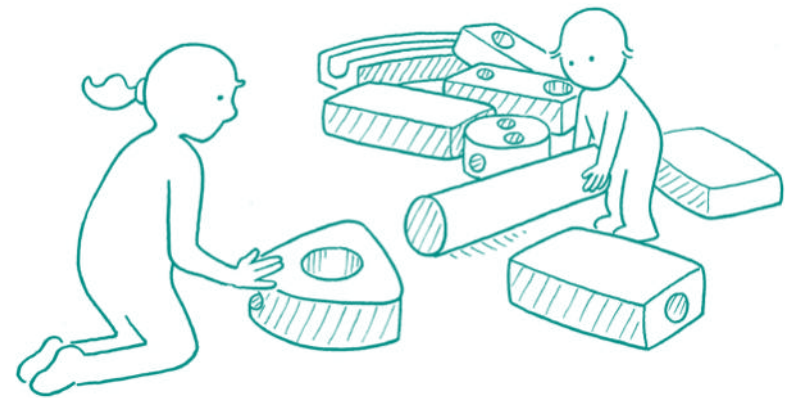
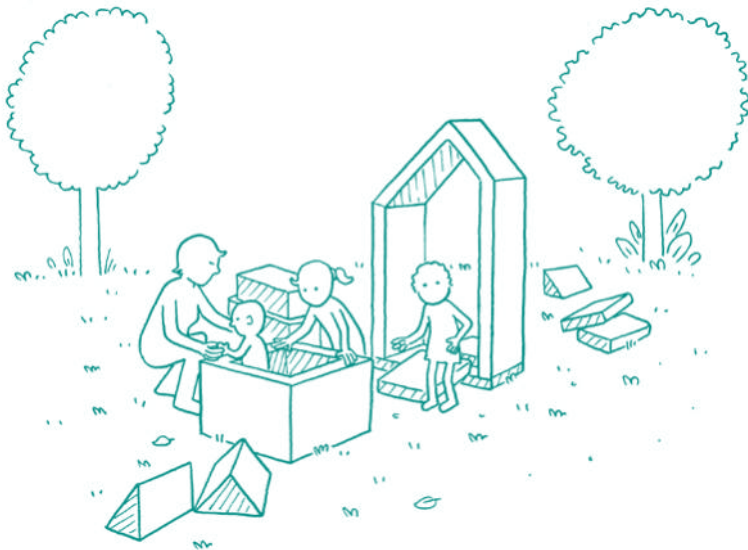
Collaborations with musicians or musical instrument producers should be considered if sound tuning is necessary.



LOOSE PARTS

Loose parts are creativity-encouraging light weight play elements that can be moved around, put together and pulled apart at will. Loose parts are important because they allow children the freedom to invent their own games. For young children, these games can be as simple as moving objects around or stacking them on top of each other - just to knock them down again!

Loose parts to pull, push, or move from one place to another allow children to personalize space and create their own stories. While playing, young children observe what other children do. When older and able to play in groups, loose parts help them design and solve problems together. Play using loose parts will constantly transform.



Loose parts can be sandbox play materials such as sand, pebbles, buckets, shovels, rakes or natural materials such as cones, seashells, stones and seeds or building blocks, hula hoops or balls. It is important to plan for a box or space for storage and to assign the responsibility to someone to eventually place things in storage as needed.

SMALL SPACES

Space itself can become an active means of play. Spaces that are different in elevation, in height, in the way they create relations between inside and outside can trigger curiosity and help children see their environment from different perspectives.

A lot of design ideas can be imagined to play with space. The topography of the site with its mounds and slopes, its boundaries, trees and plants can be incorporated into the design of the play area by enhancing their play values. Play spaces semi-hidden among tiny hills and trees can create more desire for play in comparison to large flat areas with equipment installations.

Children approach meandering paths with more curiosity than straight ones. The peculiarities of the existing topography of a site, changes in its elevation and texture can inspire different curvilinear forms. A changing topography with mounds, cavities and



caves helps expand children's spatial perception and stimulate their imagination.



PRETEND PLAY

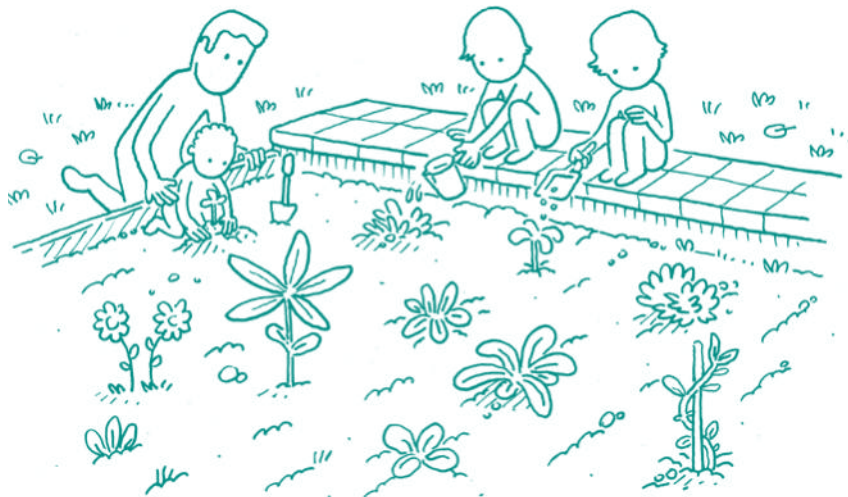
Children begin in engaging with pretend play - also called symbolic play - from the age of two or three. In pretend play, objects and behaviors are transformed into things other than themselves. For example, a piece of wood can easily transform into a horse or a cardboard box into a grocery store, a castle or a space rocket! While designing for young children, it is important to pay attention to the need for pretend play. To allow pretend play, designs should be 'transformable'; meaning, instead of representing a copy of reality, they should give opportunity for multiple play scenarios and changing identities, giving room to the imagination of children and adults to build more engaging games.

PLANTS

In dense urban areas, parks and playgrounds are sometimes the only outdoors facilities available for children to connect with nature. Dedicating spaces for children and their caregivers to grow plants in parks can be a way in helping forge this relationship. 'Planting gardens' can be as simple as a series of large pots filled with soil or a patch of land with a clearly marked perimeter.

Different plants have different needs for water and sun. While some plants require a lot of water, some need less; some need lots of sunshine while others grow better in the shade. Noticing these differences and learning about seasons while observing how different plants grow during different times of the year are all invaluable experiences. This experience would be even more valuable if someone from the nearby community around the park helps to keep an eye on the plants the children grow and assists with simple know-how.

In larger parks, fruit trees and berry shrubs can also be planted. Finding out the names, tastes, smells and colors of all the different plants and trees in a park can be a wonderful game.

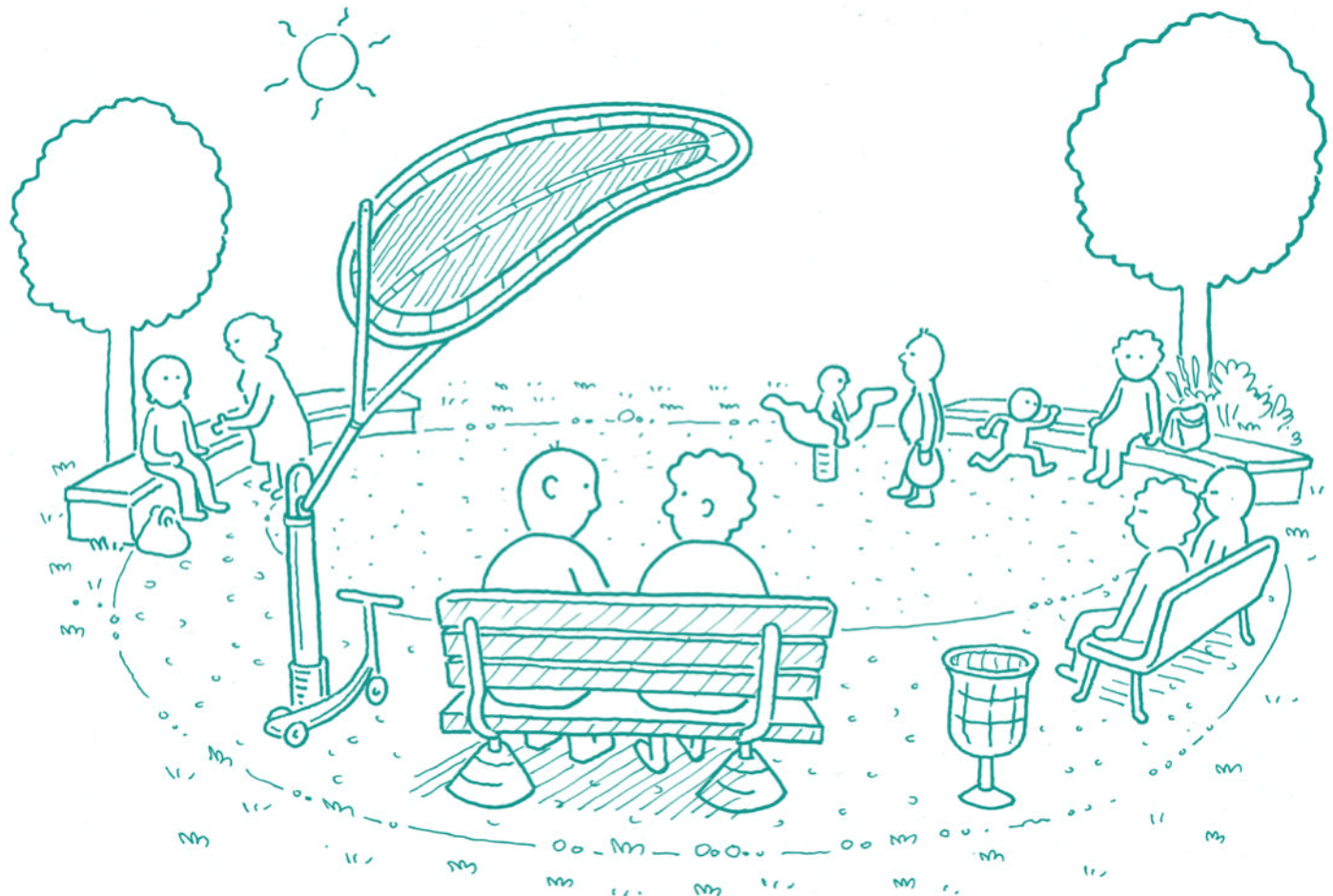


Can sunflowers, strawberries and peppers grow in parks?

AS IMPORTANT AS PLAYING!

Parks and playgrounds are places that provide rich encounters both in the neighborhood and the city. In playgrounds children can interact with each other, set up games and play together. If designed well, playgrounds can also support the socialization needs of parents, grandparents and caregivers.

It is important to underline that for young children, the amount of time spent in playgrounds is determined by the preferences of caregivers. If caregivers think that the playground is too far, the access to it too cumbersome or that the park too boring or uncomfortable for themselves, they may choose not to go and thereby not take the children. Spending more time in playgrounds is possible if there is easy access to the parks, basic needs are met, and if adults can enjoy spending time here as well as the children.



SHADE AND SEATING

Seating should be provided for caregivers close to the play areas and special care must be given to providing shade in the summers and allowing sunshine in the winter. Benches or other fixed seating should be close to where children play, allowing eye contact with the children. Seating can also be designed as an integrated and complementing part of the play area.

How will caregivers enjoy the time they spend in the playgrounds, meet with friends and neighbors? If an answer can be sought in consultation with local communities, it can help ensure that playgrounds will be loved and used by all ages.

TOILETS AND FOUNTAIN

For facilitating longer stays in the playgrounds, the basic needs of adults as much as children should be considered. Toilets, water fountains, trash cans, and infant care rooms that can be accessed easily with strollers and are accessible to both women and men, are perhaps the most important elements of a playground.

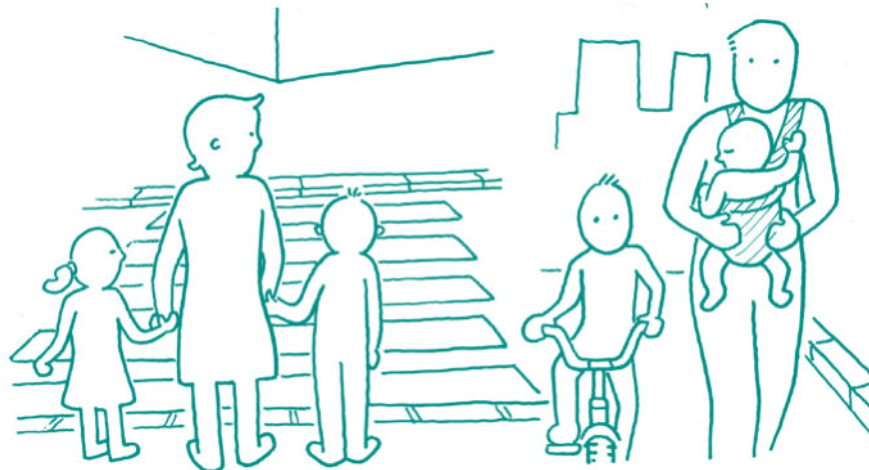
ACCESSIBILITY

If parks or playgrounds are not easily accessible, caregivers might be reluctant to take children out to play. However, it is recommended that children should be active outside at least for one hour a day during all seasons. To ensure this, easy accessibility to parks to where children live is a highly important matter.

In residential neighborhoods, the best practice would be to have playgrounds within walking distance without having to cross main roads. As illustrated in the next page, children and their caregivers move around the city in different compositions and can have varying needs. Slowing down vehicular traffic, creating wider sidewalks or pedestrian and bicycle paths to parks, playspaces and schools are simple adjustments towards child-aware neighborhood design.

The temporary 'opening' of streets to pedestrian use only and the redirection of vehicular traffic during weekends can also help promote the importance of safe access to parks while at the same time opening up new opportunities for play in the streets.

To access parks and playspaces outside of residential neighborhoods, it might be necessary to cross heavy traffic. In these cases, it is important that pedestrian crossings are clearly marked and are enforced with traffic lights. It is important to remember that underpasses do not necessarily provide easy access. If they have to be used, elevators should be available for strollers and wheelchairs.



PLAY ALONG THE WAY

Routes to playspaces can be marked with graphic signs on sidewalks and pavements, turning the journey itself into play. These signs also help children learn to navigate their neighborhoods. Creating 'pocket playspaces' along the way will expand the reach of the playspace, increase the number of playspaces in the neighborhood and increase child-awareness and safety along the routes.

PERMEABLE BOUNDARIES

While designing playspaces for young children, it is advisable to create a clear boundary around the playspace. Particularly in sites surrounded by vehicular traffic, it is important to create boundaries deterring children from running unaware into the street and to reduce the anxiety of caregivers for children's safety. It is also important that the boundaries are inviting and accessible, if possible complementing the playspace. Plants and bushes can be used to create boundaries.

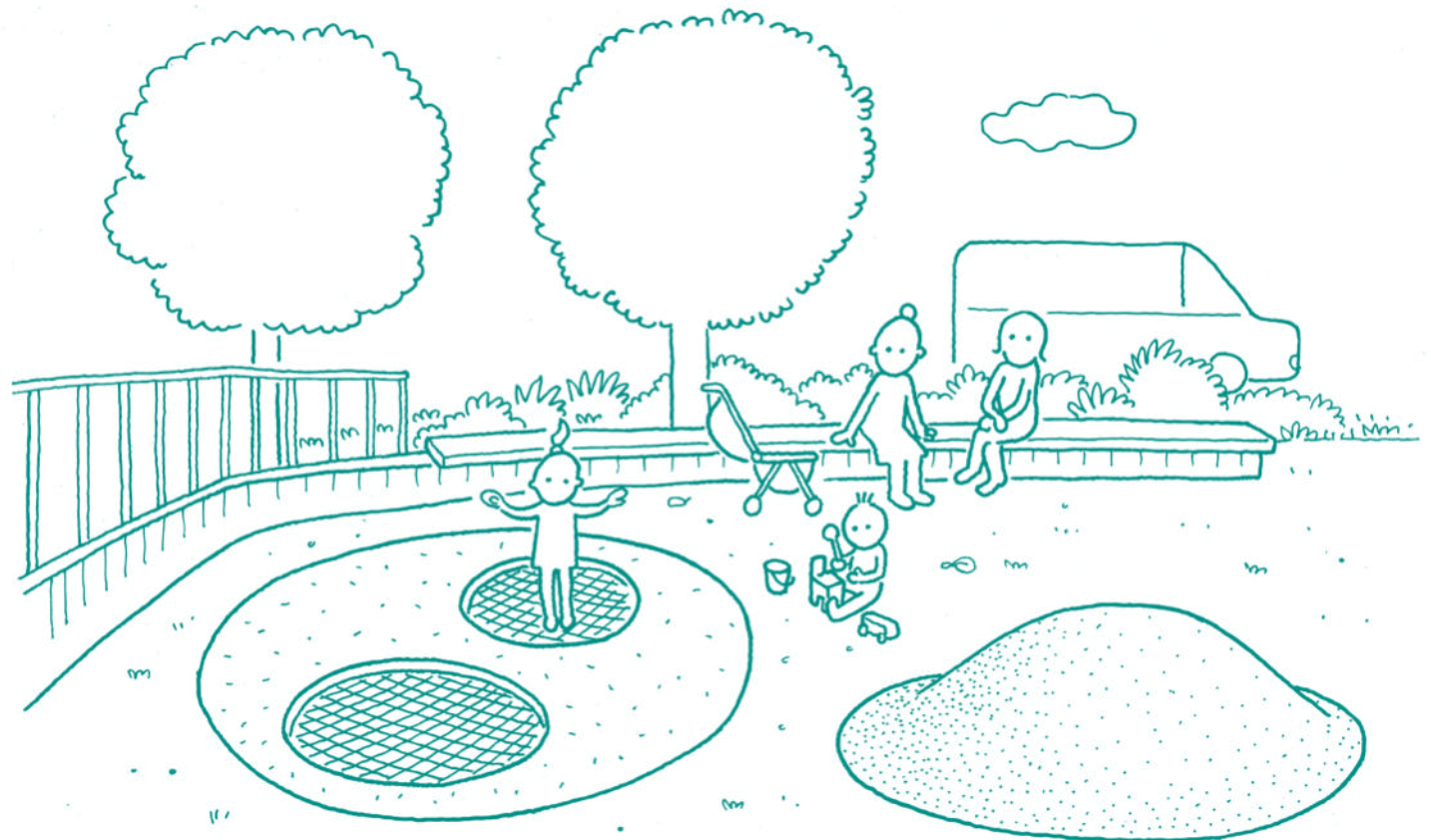
TREES

Trees are wonderful but they grow slowly. Therefore, the existing trees and flora of a site are very valuable for a park. Trees provide shade, while tree canopies can act like filters absorbing dust and air pollution. Trees also help reduce the speed of the wind and absorb noise. Leaves reflect the sunlight and heat up, allowing lower temperatures in urban areas up to 7° C.

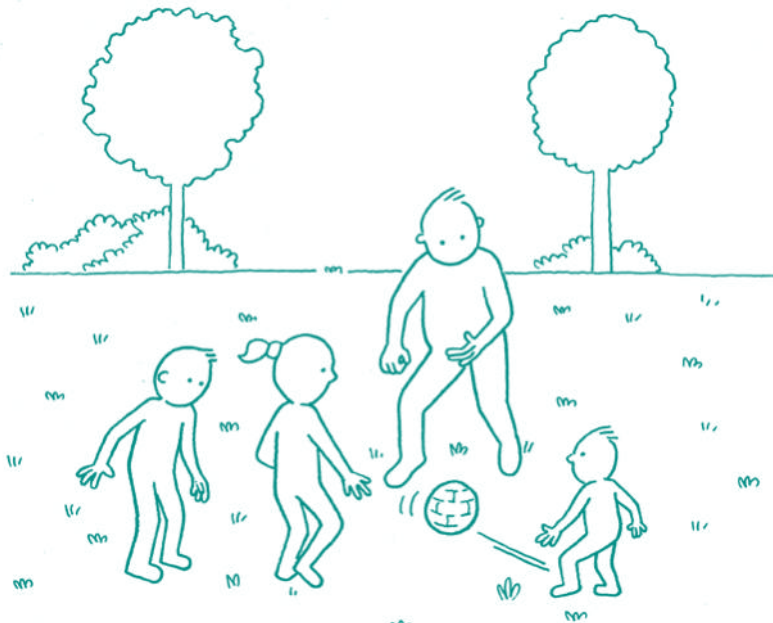
Through observing trees, children learn about seasons and life cycles. Trees contain

complex microhabitats. For example, a mature oak can host hundreds of different species.

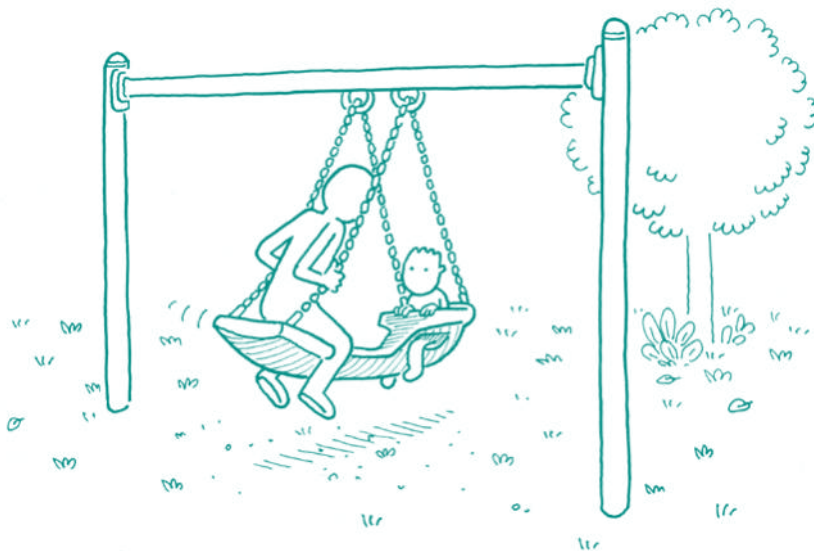
Research shows that amidst trees enjoying nature, blood pressure can normalize within minutes, heart rates slow down and stress levels decrease.



IT IS MORE ENJOYABLE AND MORE VALUABLE WHEN WE ARE TOGETHER!



Can playspaces be designed to encourage adults to participate in play? Even the most classic play elements can be modified to flip play roles and encourage caregivers' participation. As mentioned earlier, joyful interaction between babies and caregivers is very important and should be encouraged for healthy brain development.



WE PLAY IN THE PARK TO BE A GOOD MANAGER IN THE FUTURE!

Playing in the park is not only beneficial for physical skills, it also helps develop cognitive skills such as evaluation, abstraction, logic, reasoning and problem solving.

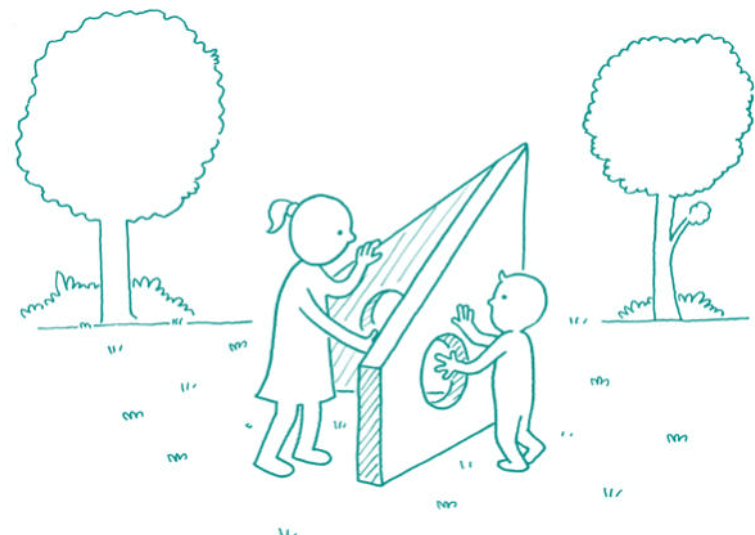
ATTENTION: A child arriving in a playspace pays attention to the play opportunities presented in her surroundings. Engaging with activities in a certain play area helps strengthen the brain connections for focused attention.

PLANNING: She thinks and plans what to play.

MEMORY: She remembers how and what she has played, for example, remembering the climbing experience from a previous time, she tries to better her skills and speed.

PROBLEM SOLVING: While finding new paths to climb a hill or locating the shovel buried inside the sandbox, she improves her problem-solving skills.

COGNITIVE FLEXIBILITY: She wants the swing but chooses to accompany a friend on the seesaw - such behavior improves her cognitive flexibility.



PLAY EVERYWHERE IN THE CITY!

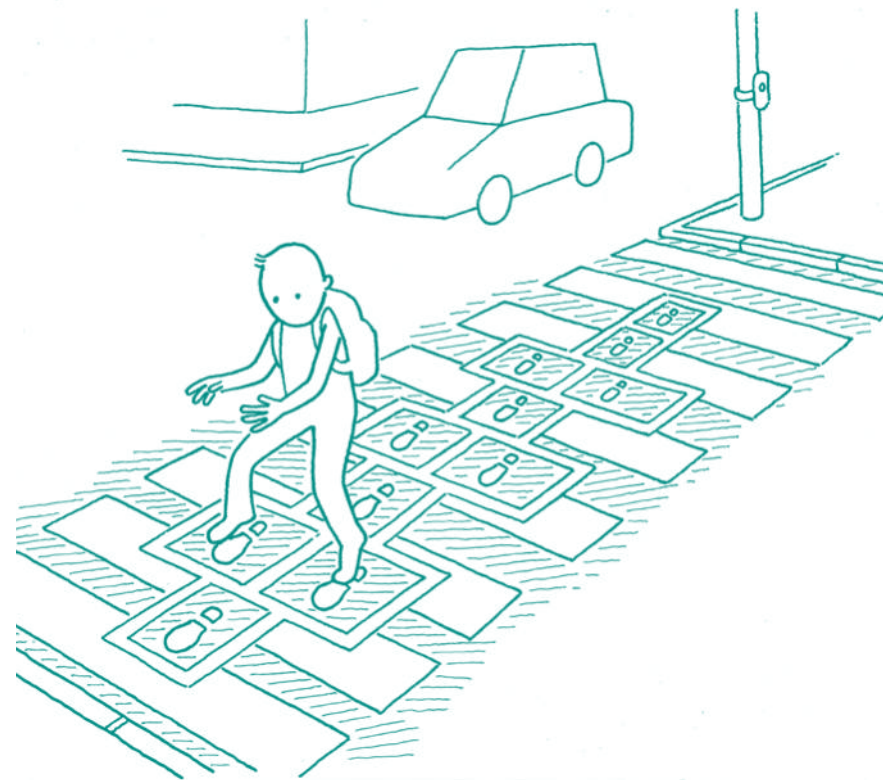
This book set out as its aim to look at playgrounds from 95 centimeters, from the eye-level of a 3-year-old child and to suggest design proposals for young children and their caregivers to improve their experience.

Although we have not discussed it at length in the context of this book, we imagine and work towards a city where play is not just for children but for people of all ages and play is not limited within the boundaries of playgrounds. Public space can accommodate play and joy for young and old! All the shopkeepers of Istanbul who play backgammon in front of their shops know this!

Still, the youngest among us are our priority! We hope that public administrators who read this book conclude that it is not at all difficult to accommodate young children and their caregivers in playgrounds, and designers are convinced that they can easily come up with much better designs.

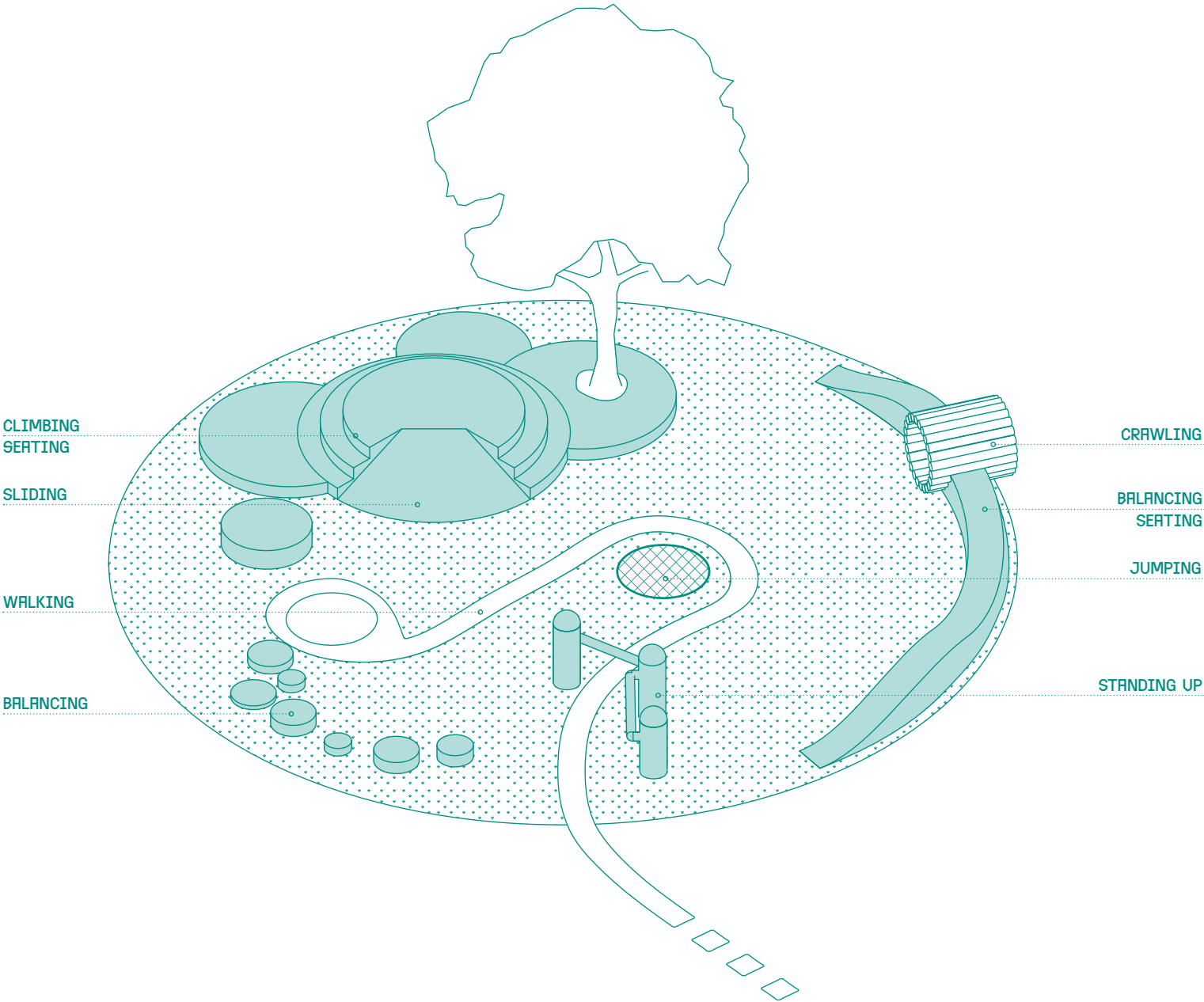
For cities that have tricycles on every street; to share your valuable work and to remind our shortcomings in this publication please write to us: istanbul95@superpool.org.

Let's play!

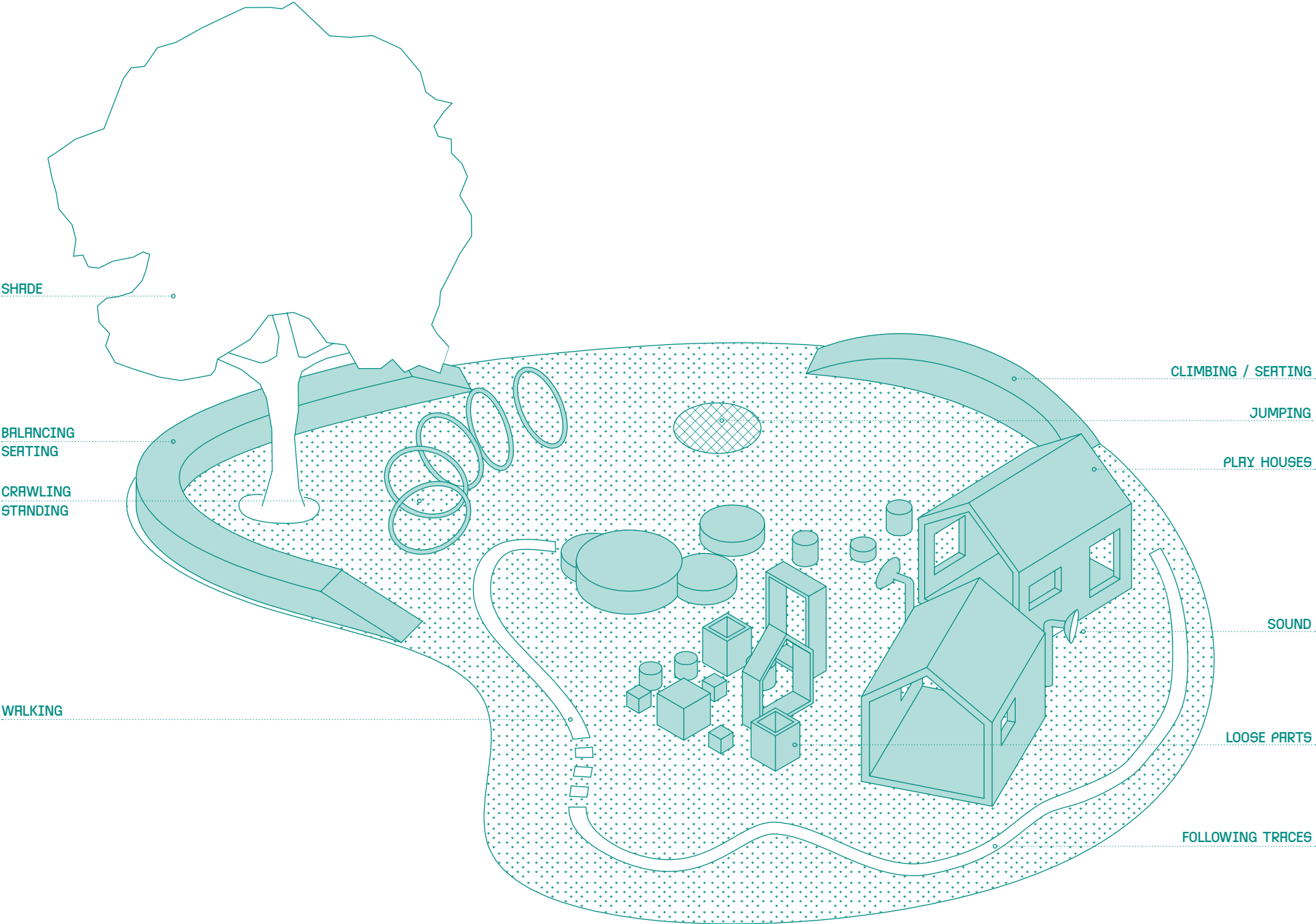


APPENDICES

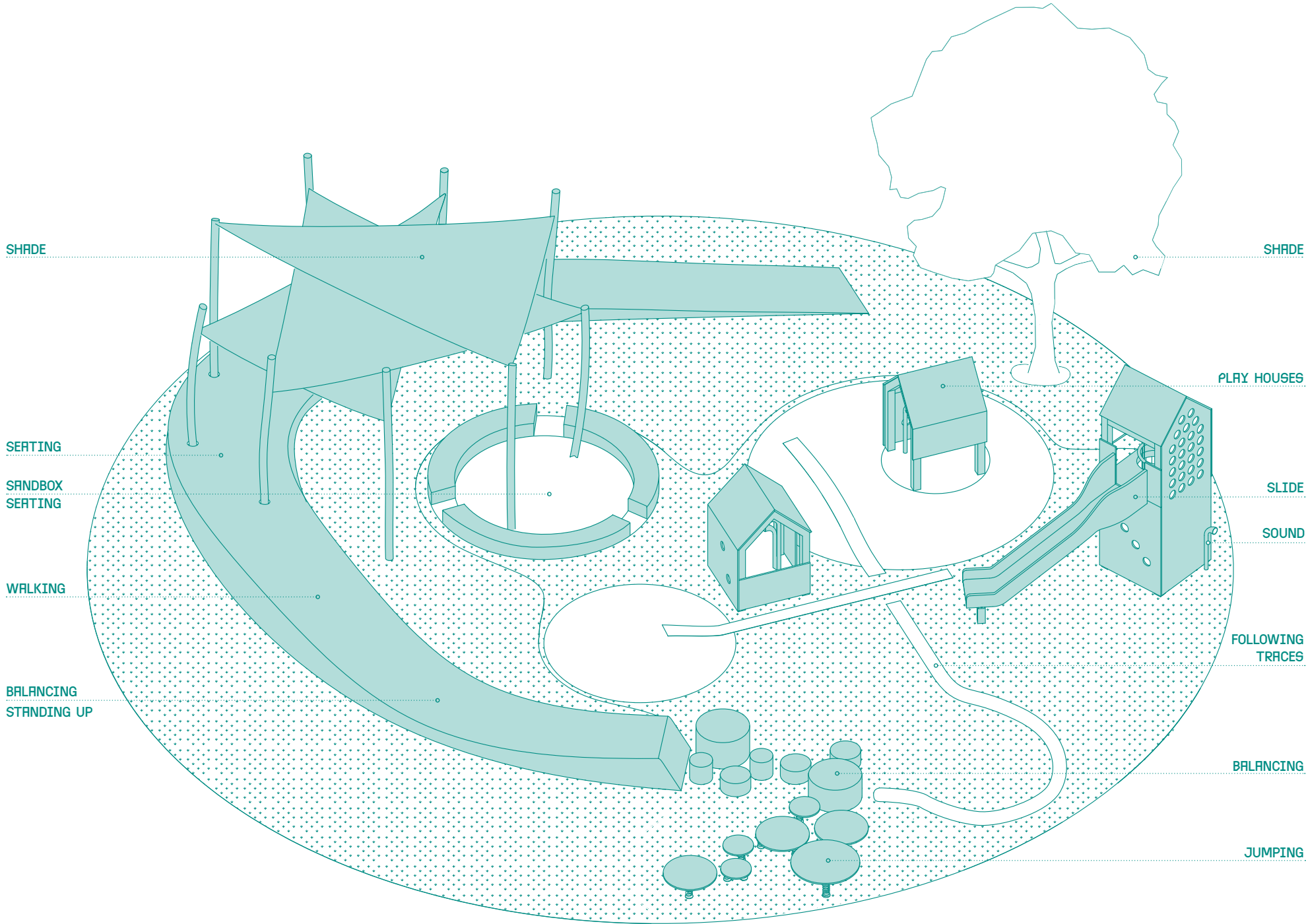
PLAYGROUND SIZE SUGGESTIONS
75 M²



PLAYGROUND SIZE SUGGESTIONS
100 M²



PLAYGROUND SIZE SUGGESTIONS
175 M²



SURFACING MATERIAL

MATERIAL	+	-
ORGANIC LOOSE FILL	Low cost Easy installation Good drainage	Will compress and need to be monitored for correct depth. Requires some type of barrier to contain the material. Likely to end up spread around the playground.
SAND	Low cost Easy installation	Attractive to bugs and animals. Hard to keep contained within fall zone/needs lots of sweeping and raking. Slippery on surfaces outside of fall zone
PEA STONE	Low cost Natural material Easy installation Good drainage	Often thrown by children/can be dangerous. Children may place small stones in ears,nose, etc. Requires ongoing maintenance.
SHREDDED RUBBER	Lower cost than other synthetic materials Easy installation	Will compress and need to be monitored for correct depth Reports of black rubbing off on children's clothes, hands, etc.
RUBBER TILES OR SURFACE	Provides permanent surfacing solution Very low maintenance High level of safety	High cost More complex installation
EPDM	Provides permanent surfacing solution Very low maintenance High level of safety	High cost More complex installation

MATERIALS FOR PLAY EQUIPMENT

MATERIAL	+	-
WOOD	Low cost Natural material Very low maintenance	Doesn't last as long as metal Can splinter and split Must be properly treated to resist insects and rot Requires ongoing maintenance
METAL	Very durable Vandal resistant Weather resistant High level of structural integrity	Expensive If surface is untreated the metal can get very hot when exposed to high temperatures and sun
COMPOSITE MATERIALS	Lower cost compared to wood or metal counterparts Resistant to fragmentation Does not host insects and pests	Lower quality options Wood / metal counterparts may not have the structural integrity
PLASTIC	Very low cost Does not host insects and pests	Low maintenance, but low quality options may not have structural integrity It can cause low static electric shocks

DEFINITIONS RELATED TO SAFE PLAYGROUNDS

RISK:

We can talk about ‘good’ and ‘bad’ risks for playgrounds. ‘Good risks’ are important for the development of a child. Facing and overcoming fears is very important in developing self-confidence. Playgrounds can help children learn how to assess and cope with risks. Challenges attract children, support their learning and development.

The success of playgrounds is closely related to the variety of ‘good risks’ they provide. For example, it is a significant success for a 5-year-old to jump over a small water channel - getting wet is a risk, but in terms of the child's general development, getting wet is not that important. Similarly, falling and getting back up is the most natural form of learning how to walk.

For this reason, ‘good risks’ are accepted and encouraged in the design of playgrounds. Most

caregivers can assess ‘good risks’ partly with reference to their own childhood experiences and partly through observation of other children's success or failures with the challenges provided in the playground.

‘Bad risks’ on the other hand are those risks that are difficult or impossible for children to assess for themselves. For example, while a child can assess her ability to climb a ladder, she cannot assess that her clothing might get caught during a fall and cause strangulation.

Safety standards are developed to differentiate between ‘good and bad’ risks and provide guidance to prevent accidents with disabling or fatal consequences. Assessment of ‘bad risks’ requires expertise. Complying with safety standards, periodical inspections and maintenance are important to reduce ‘bad risks’ in playgrounds.

PROTECTION AGAINST FALLING:

Slipping is the most common cause of falls in playgrounds. The most common accidents occur due to foot slippage on accumulated sand or gravel on smooth and hard surfaces. Accumulated water due to bad drainage can also cause slips.

In addition, surfacing that reduces the impact from falls, impact attenuating surfaces, may need to be used around play equipment. Detailed definitions are provided in the standards to determine the performance requirements of each play equipment and surface type.

FALLING SPACE AND IMPACT AREA:

Each play equipment has a ‘falling space’ and an ‘impact area’ around the space it occupies. For example, the impact area - area that can be hit by a user after falling through the falling space - needed around a swing is far greater than the area occupied by the swing itself. It is important that there are no obstacles in the falling space of play equipment. Falling spaces of two different play equipment may or may not overlap based on the movements they generate during play. There are different definitions and corresponding calculations for each equipment type for determining the size of the falling space and impact area.

FREE HEIGHT OF FALL:

The free height of fall is determined for possible falls during play and is calculated as the greatest vertical distance from the clearly intended body support to the impact area below. The free height of fall also determines the quality of the impact attenuating surfacing needed in the impact area of the equipment.

PROTECTION AGAINST ENTRAPMENT:

Measures should be taken against entrapment of body parts, hair or clothing that can cause serious injury during play. Detailed guidance is available on types and locations of openings, holes or cracks that can create hazards.

EUROPEAN STANDARD EN 1176 PLAYGROUND EQUIPMENT AND SURFACING

European Committee for Standardization (CEN) issues safety requirements to minimize accidents on playgrounds under the title EN 1176. The EN 1176 standards are continuously updated, most recently, in 2017. EN 1176 consists of 9 sections, offering general playgrounds safety recommendations as well as guidance for specific equipment types such as slides and swings.

EN 1176-1: Playground equipment and surfacing - **Part 1:** General safety requirements and test methods.

EN 1176-2: Playground equipment and surfacing - **Part 2:** Additional specific safety requirements and test methods for swings.

EN 1176-3: Playground equipment and surfacing - **Part 3:** Additional specific safety requirements and test methods for slides.

EN 1176-4: Playground equipment and surfacing - **Part 4:** Additional specific safety requirements and test methods for cableways.

EN 1176-5: Playground equipment and surfacing - **Part 5:** Additional specific safety requirements and test methods for carousels.

1176-6: Playground equipment and surfacing - **Part 6:** Additional specific safety requirements and test methods for rocking equipment

EN 1176-7: Playground equipment and surfacing - **Part 7:** Guidance on installation, inspection, maintenance and operation.

EN 1176-10: Playground equipment and surfacing - **Part 10:** Additional specific safety requirements and test methods for fully enclosed play equipment.

EN 1176-11: Playground equipment and surfacing - **Part 11:** Additional specific safety requirements and test methods for spatial network.

ASTM INTERNATIONAL, ASTM F1487-17 STANDARD CONSUMER SAFETY PERFORMANCE SPECIFICATION FOR PLAYGROUND EQUIPMENT FOR PUBLIC USE

ASTM International, founded as the American Society for Testing and Materials issues standard consumer safety performance specifications that address safety and performance standards for various types of public playground equipment under the title ASTM F1487-17. The standard was last revised in 2017.

1.1 This consumer safety performance specification provides safety and performance standards for various types of public playground equipment. Its purpose is to reduce life-threatening and debilitating injuries.

1.2 The range of users encompassed by this consumer safety performance specification is the 5th percentile 2-year-old through the 95th percentile 12-year-old.

1.3 Home playground equipment, toys, amusement rides, sports equipment, fitness equipment intended for users over the age of 12, public use play equipment for children 6 to 24 months, and soft contained play equipment are not included in this specification.

1.4 Products or materials (site furnishings) that are installed outside the equipment use zone, such as benches, tables, independent shade structures, and borders used to contain protective surfacing, are not considered playground equipment and are not included in this specification.

1.5 This specification does not address accessibility, except as it pertains to safety issues not covered in the DOJ 2010 Standard for Accessible Design.

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