Redesigning Kitchener Park for Children Development

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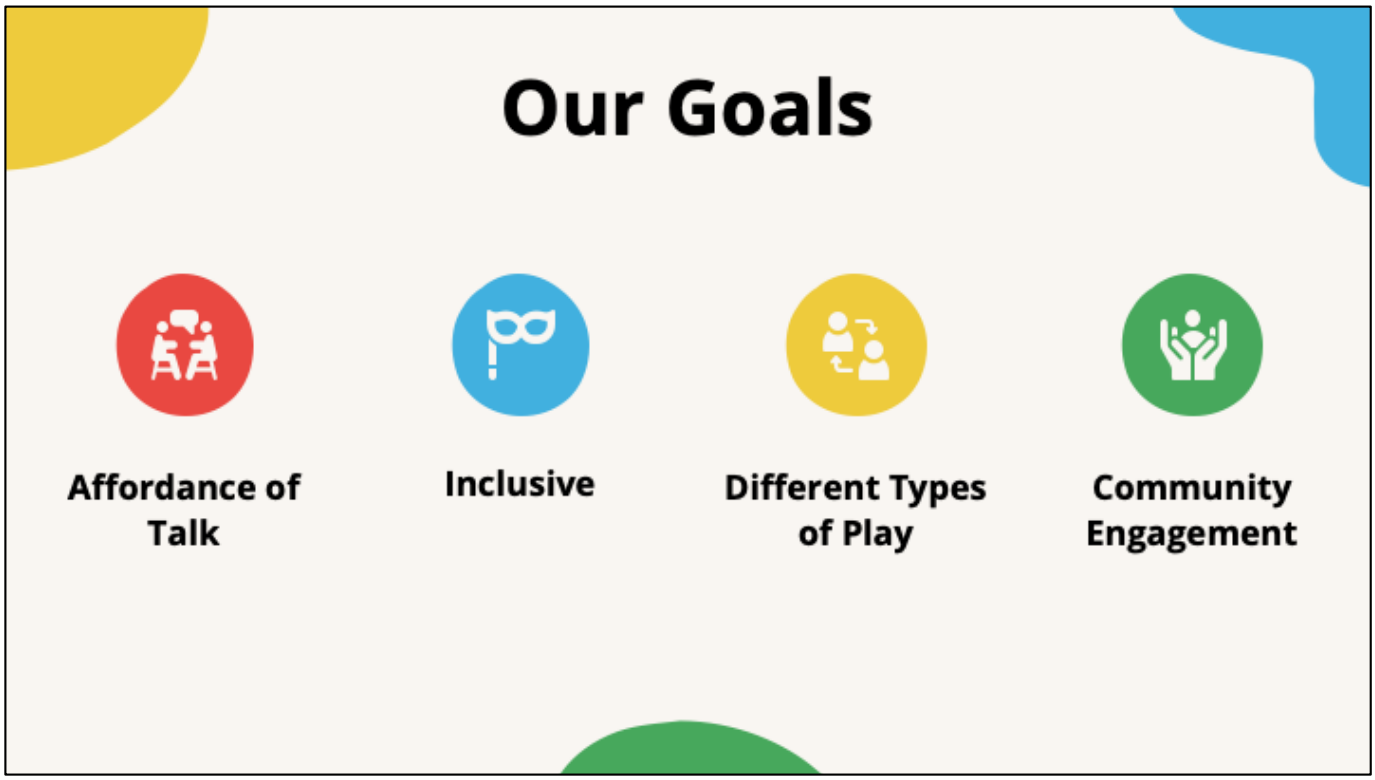
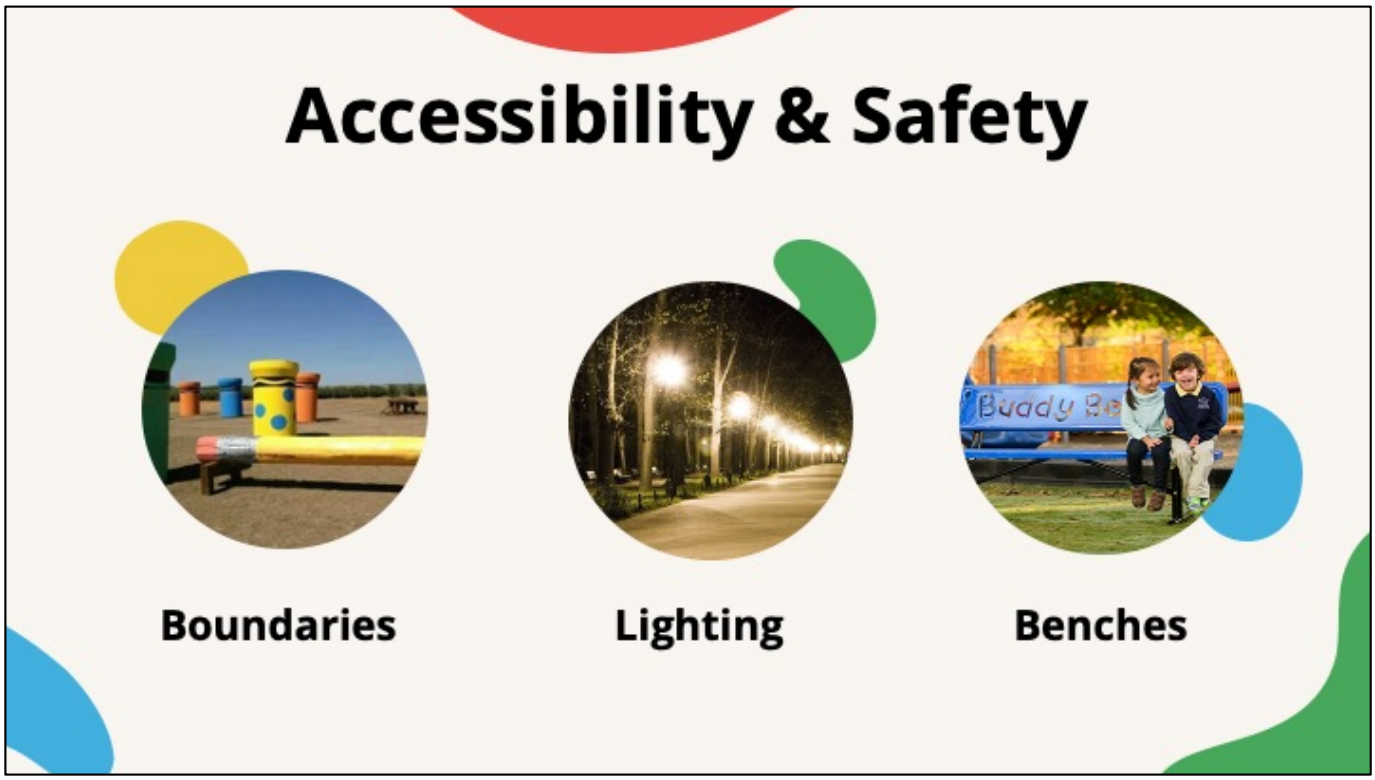
Hello everyone! Welcome to our presentation on park designs for Oaten, Kinzie, and Idlewood parks.

We wanted to begin with a quick overview of our presentation. We'll start by discussing the goals we had for our designs, then touch on accessibility and safety features we think are important for all the parks. Next, we will present the changes we propose for Oaten, Kinzie, and Idlewood.



When redesigning these parks, we did so with the goal of encouraging conversation and communication between children and their peers and caregivers. We also hoped to create play areas for children which were inclusive and considerate of various stages of development. We also wanted our designs to Another also wanted our designs to foster imagination and encourage children to play and talk together. And of course, we kept the community in mind and hoped to encourage engagement.

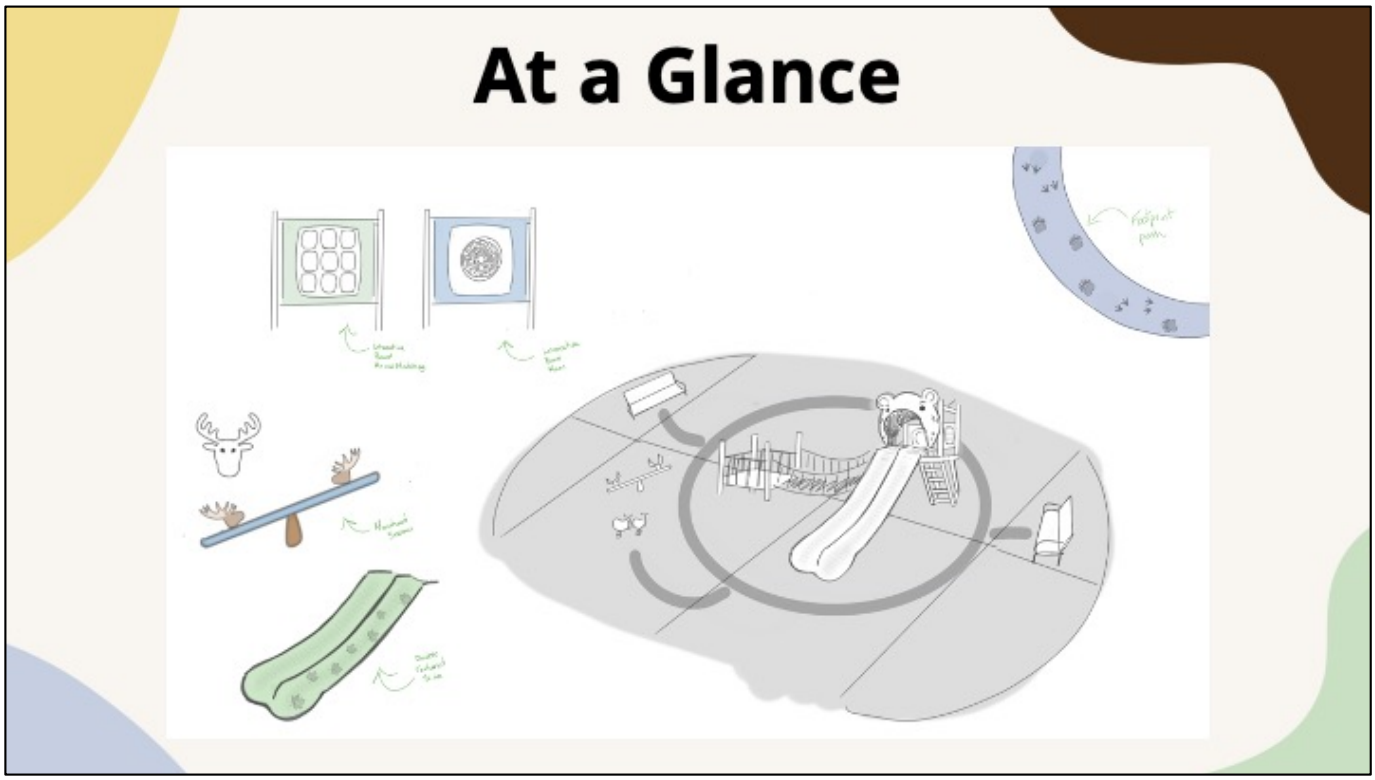


In line with our community engagement goal, for all parks, we thought it would be important to consider lighting, boundaries such as fences, trees, or shrubs, and of course seating. These are all critical elements of safety and accessibility.

Image source:
https://www.terraboundsolutions.com/product/buddy-bench/
https://tangentmaterials.com/tips-for-designing-playground-fencing/
https://thumbs.dreamstime.com/b/walk-park-night-3441894.jpg

First up, we will be discussing our designs for Oaten Park.

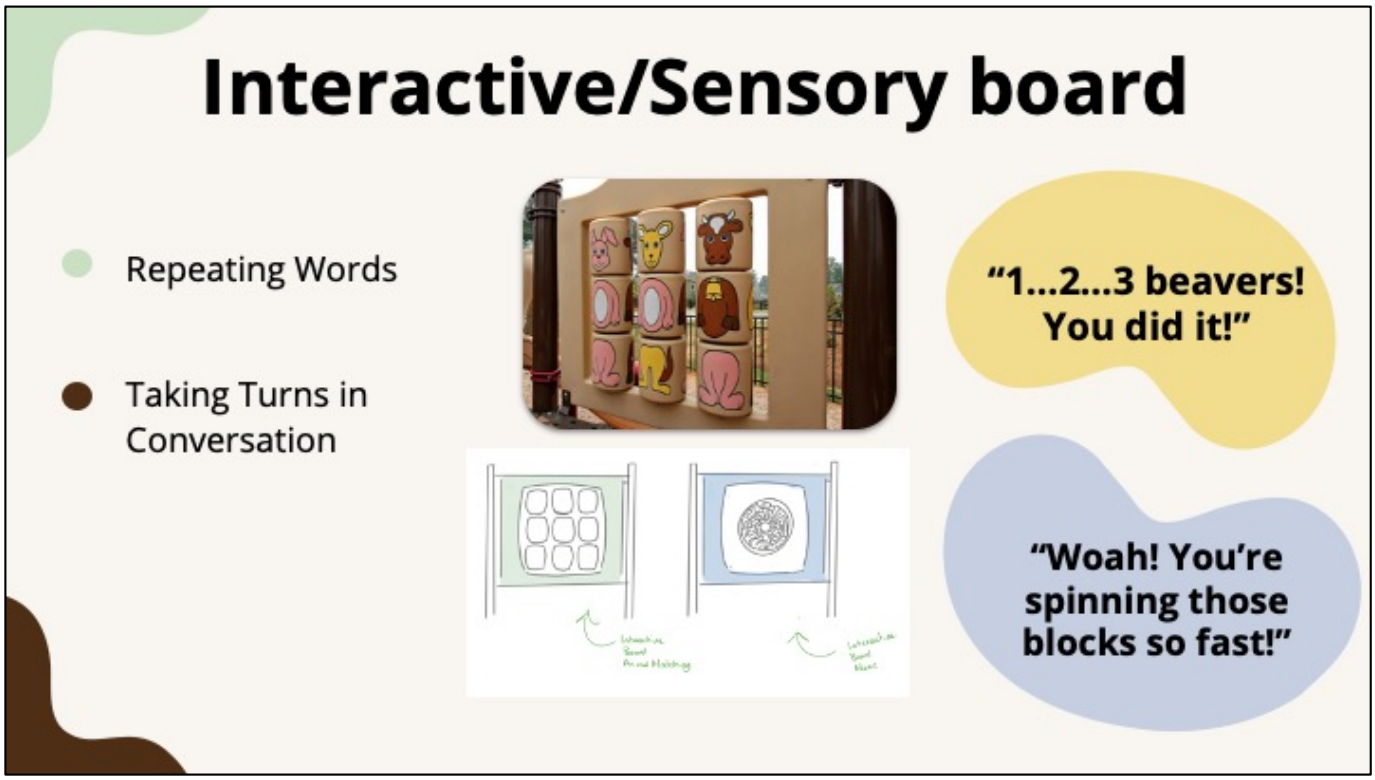
We constructed this park with toddler age children in mind. To this end we concentrated on encouraging turn taking in conversations, and included uncommon animals to provide opportunities for conversations.



This is a sketch we drew up just to give an idea of what the park might look like with each of our features drawn into the main park and highlighted on the sides as well. You will be seeing these overview sketches for Kinzie and Idlewood park later in the presentation.

Unlike the other two parks that do not have themes, for Oaten park we decided to center our redesign around Canadian animals. We chose Canadian animals as the focus because exposing toddlers to these less common animals such as moose, beavers, and polar bears enriches their vocabulary and exposure to a diverse vocabulary is important for language development, especially for toddlers aged 2 to 3. (Rowe, 2012). We also chose to include more common animals like geese because seeing geese footprints in the park may also strike up conversation about them seeing geese in their day-to-day lives.

Image source:
https://www.britannica.com/animal/Canada-goose
https://www.theguardian.com/environment/2017/aug/08/dam-it-how-beavers-save-britain-from-flooding
https://www.enr.gov.nt.ca/en/services/moose

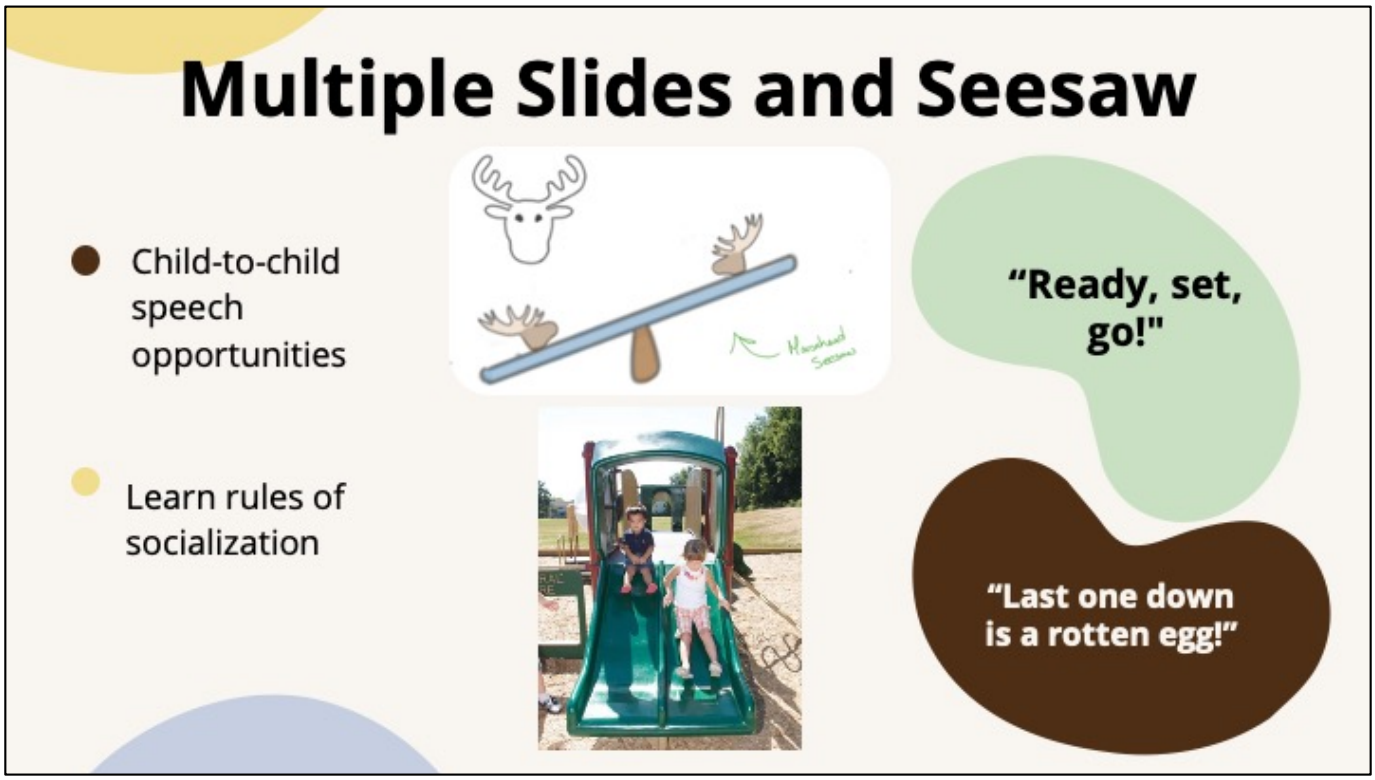


The first feature that we are proposing in this park is interactive/sensory boards. These boards will provide an opportunity for topic repetition between the caregiver and the child as they talk about the animals that appear on the board. Caregivers can also ask children what animals they are seeing on the board which encourages turn taking in conversation and knowing how to take turns is essential is day-to-day conversations (Wing et al., 2007). When using this board, parents may say things like "look at this animal with brown fur, do you know its name?" or "oh look! 1..2..3 beavers!" or even "woah! You're spinning those blocks so fast!".

Image source:
https://littletikescommercial.com/product/animal-panel/?lang=can

Our next recommendation for the park is to use a poured rubber surface for the main area of the play structure. We then propose adding footprints that track throughout the playground into this rubber. The location of the footprints has been indicated in the diagram by the dark gray circle and corresponding branching pathways. Caregivers may ask the child questions about what animals could have left these tracks. These footprints can be used as starting points to have narrative or storytelling conversations with children. Finally, by including multiple different footprints along the same path, children are gently encouraged to share the same space as their peers as a way to promote conversations.

Image source:
https://i.pinimg.com/736x/be/56/db/be56db47d9ad96e55d21b3e1985470d1.jpg



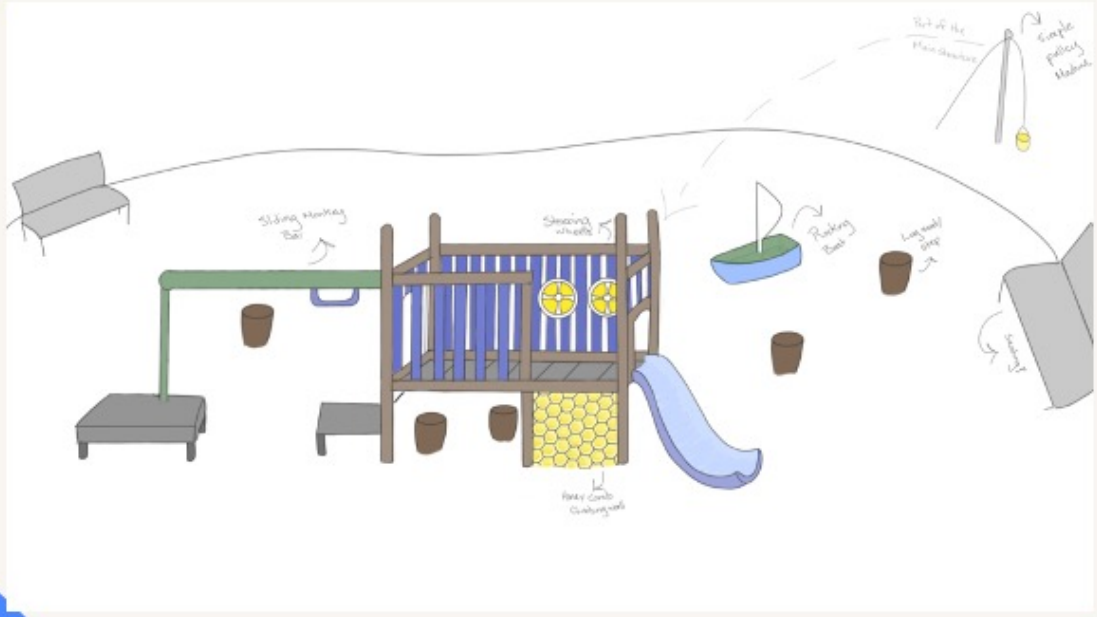
While parents are often present at the park, sometimes they need a break and a simple way to provide a break to parents is to allow children to play with each other. By adding multiple slides or seesaws next to each other we have created opportunities for children to play-pretend together and invent stories (Wang, 2021) while also learning how to interact with same-age peers (Gomez, 2021). For example, with two slides side-by-side, children can pretend to be racing to put out a fire or they can simply compete to see who can slide down the fastest. On the bottom of the slide, we have also included a raised pattern of a maple leaf. This not only provides a novel aspect to the slide but it also allows for children to talk about the leaves they have seen before and use different verb tenses when comparing the leaf texture on the slide to leaves they may have seen that day at school (Rowe, 2012).

Image source:
https://www.miracle-recreation.com/content/uploads/pim/714700/700.jpg.webp

Those were all of our suggestions for Oaten Park, the next park that we are going to go over is Kinzie park.

For Kinzie, we focused our designs around children aged 5-9. To this end, we focused on children building stories together and conversations around cause and effect.

At a Glance



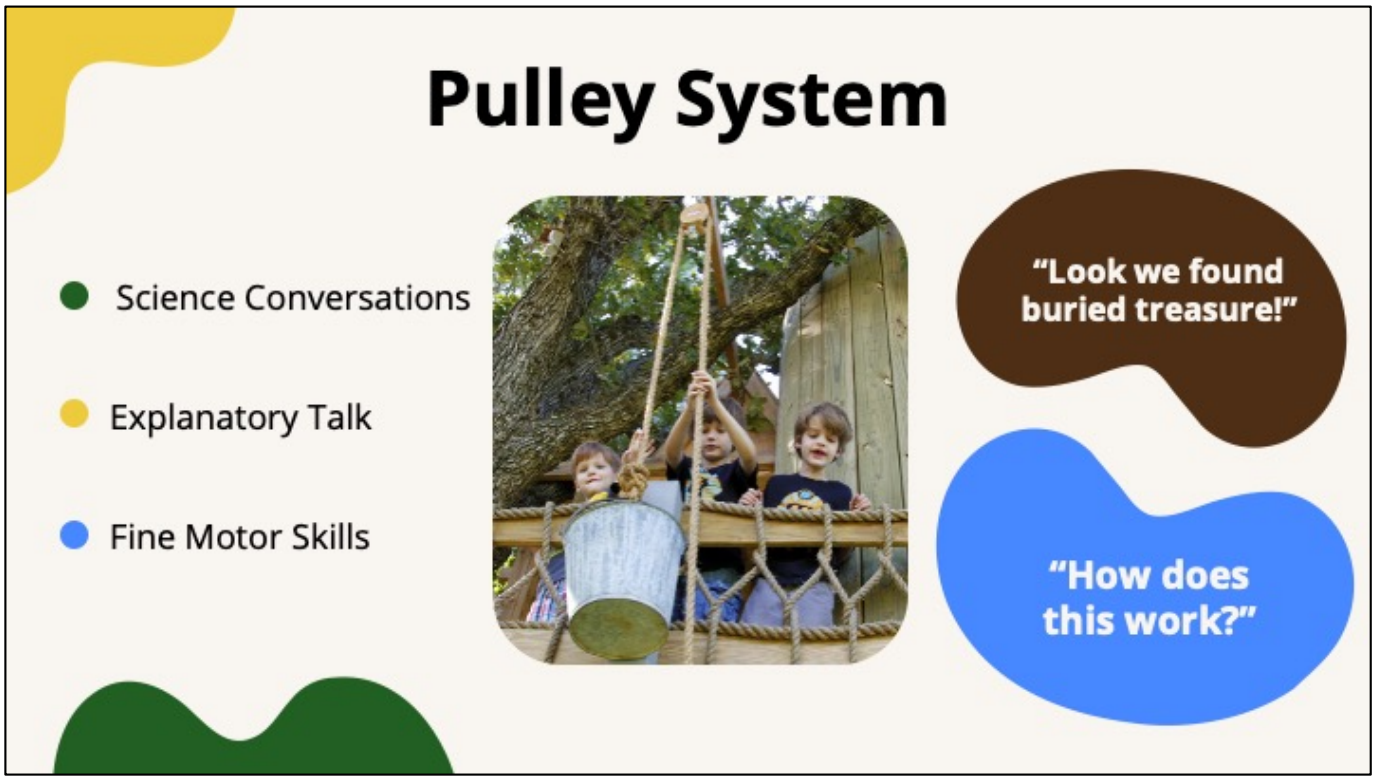
Here we attached a drawing we made up of the park. Instead of having a traditional theme like Oaten, we opted for a colour scheme to tie the park together. We chose the yellow, blue, green, and brown to draw intrigue to the park and increase community engagement.

The first feature that we are proposing for this park is a rocking boat that multiple children can play on and use to create stories together (Luo et al., 2014). Building stories collaboratively in this way has been found to help later storytelling and writing ability as children age (Luo et al., 2014). Facilitated by the boat, children can practice creating simple yet clear narratives with a beginning, middle, and end to foster story-building skills (Eastern Ontario Health Unit, 2017). When building these stories together, children might say things like "Arrr, get on my pirate ship and let's go find some treasure" to start the story and "look! There's the buried treasure! Let's go dig it up!" to end the story.

Image source:
https://www.indiamart.com/proddetail/rocking-boat-seesaw-4750187033.html
https://www.montrealfamilies.ca/wp-content/uploads/2021/07/Inclusive-Parks-1.jpg

We imagined a climbing wall as a feature that would offer opportunities for children to take the lead in interactions with their caregivers. Because of the wall's honeycomb design, kids would be able to put things in the crevices, and make believe they were shop windows, storage spaces etc. It would be a chance for kids to engage their imaginations, build stories, and practice taking turns and interacting with their peers.

Image source:
https://playgroundking.com/rock-wall-club.html



Although not traditionally found in a park, we suggest adding pulley system that would be located on the main structure of the playground that would be attached to an elevated platform and descend to reach the ground level.The pulley provides increased opportunities for collaboration which provides greater opportunities for conversations about how things work and why. Asking questions like "what's going on here?" increases the likelihood of conversations about friction, force, and mechanical movement which increases exposure to sophisticated words. This is important to children's success in the classroom after grade 3 (Snow & Beals, 2006). Playing with the pulley system also promotes the development of movements using the small muscles in the hand and wrist. Children can practice moving their hands and fingers precisely to pull the pulley system. Mastery of these small muscles, has been associated with greater reading skills (Macdonald et al., 2020).

Image source:
https://cdn.homedit.com/wp-content/uploads/2015/05/tree-house-pulley.jpg

For this final park we have decided to stretch our imaginations and take a more non traditional approach to the redesign by designing a novel feature from scratch. When designing the feature, we had children ages 9-12 in mind, and focused on encouraging making inferences when playing and exploring cause and effect.

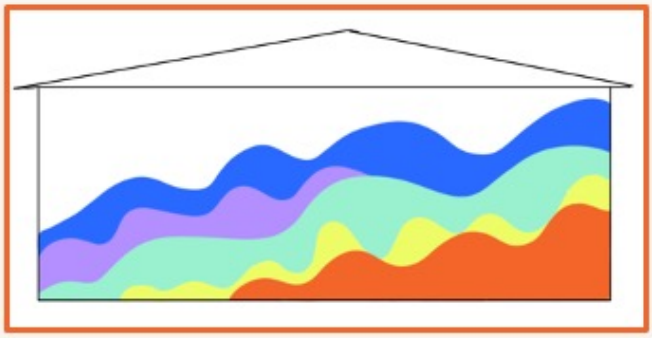
Inspiration

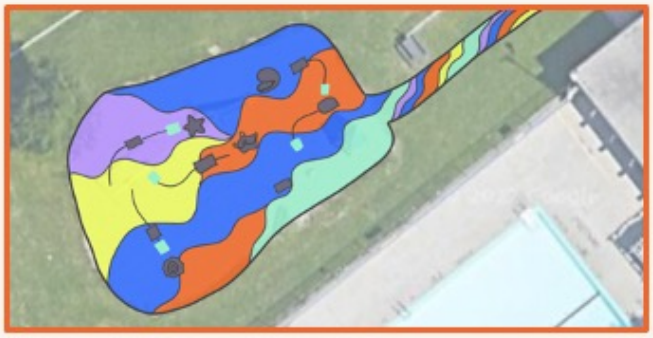
We drew on inspiration from the urban thinkscape to create an intentional informal learning opportunity that specifically targets types of talk that support language development. Urban thinkscape is an organization that designs interactive installations in various settings that encourage playful learning within the community

Image source:
https://kaboom.org/wp-content/uploads/2020/07/urban-thinkscape-at-temple-university.jpg
https://playfullearninglandscapes.com/wp-content/uploads/sites/7/2019/09/W2A6610.jpg

Link to Urban Thinkscape website:
https://playfullearninglandscapes.com/project/urban-thinkscape/

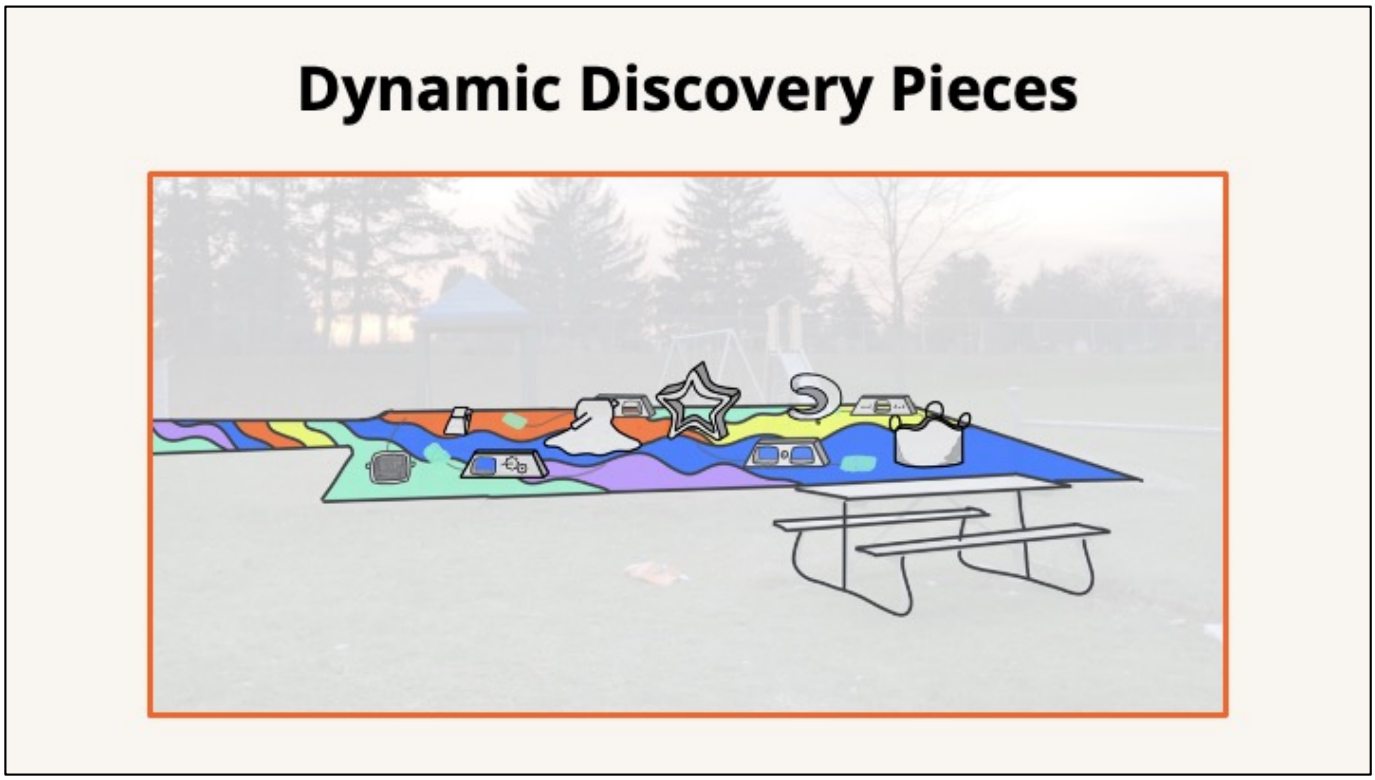
Building & Poured Rubber





Similar to to Kinzie, this park does not have a traditional theme, instead we have focused solely on designing a novel feature that can be seen from a birds eye view in the right picture and we will talk more about this feature in the next slide. Before we get to that, we wanted to suggest that the building be painted with abstract shapes and various colours because having some complexity in the shapes and some more saturated colours have been associated with greater learning outcomes (Barret et al., 2016).

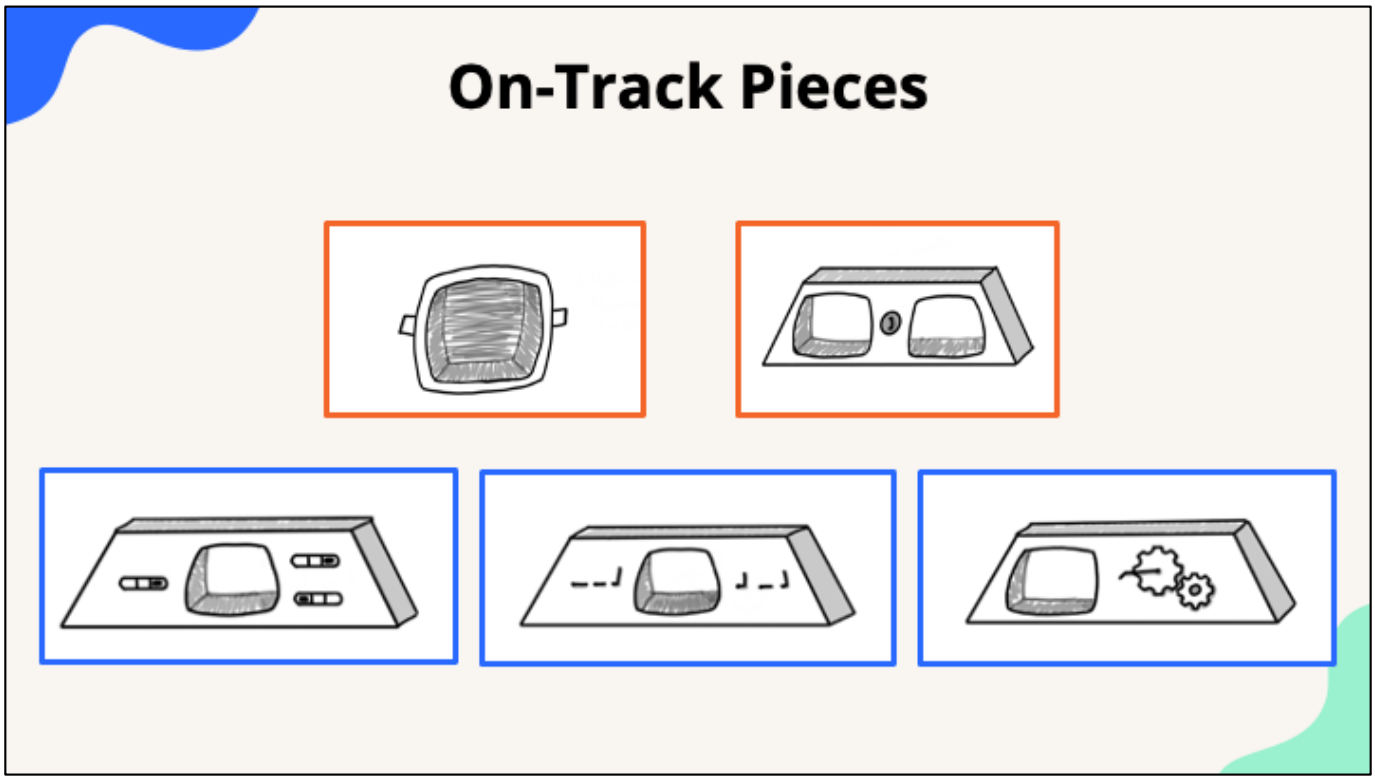
The second change that we want to make is to implement poured rubber around the park. It creates a lively path that brightens up the space and guides visitors to the park and the playground. It also promotes children's imaginative play because they can decide how they want to interact with the path and choose to only step on a certain colour through the park.



This is our novel feature as seen from the side. We designed several pieces as play structures, some of which are on tracks and mobile, some that have anchored movements, and others that are stationary. This novel feature allows children to make inferences during their play and predict what will happen next. Making inferences in conversation is important as it has positive impacts on children's future story comprehension, vocabulary, and intelligence (Tompkins et al., 2013). When playing with this structure, adults may encourage children to make predictions by saying "I'm going to push this block, what do you think will happen?".

A key aspect of our design is that half of the pieces are on tracks so they can be moved to different locations. The blocks would be attached to a track that would have a similar mechanism to that of a sliding monkey bar. The children would be able to push and pull the different pieces along the track. The ability to reconfigure the park elements provides the children with a sense of agency over the space and active manipulation of the learning environment can help to expand understanding and interest and promote more rich conversations (Allee-Herndon, 2022).

Image source:
https://www.google.com/imgres?imgurl=https%3A%2F%2Flive.staticflickr.com%2F3115%2F2837407804_1d46b31e65_b.jpg&imgrefurl=https%3A%2F%2Fwww.flickr.com%2Fphotos%2Feasyrew%2F2837407804&tbnid=Q0YRU0OH1Q3FnM&vet=12ahUKEwiuxaS9jfL2AhUoEVkFHSwNBSsQMygPegUIARDrAQ..i&docid=tTW6S1y4DM1eCM&w=1024&h=768&q=sliding%20monkey%20bars&ved=2ahUKEwiuxaS9jfL2AhUoEVkFHSwNBSsQMygPegUIARDrAQ



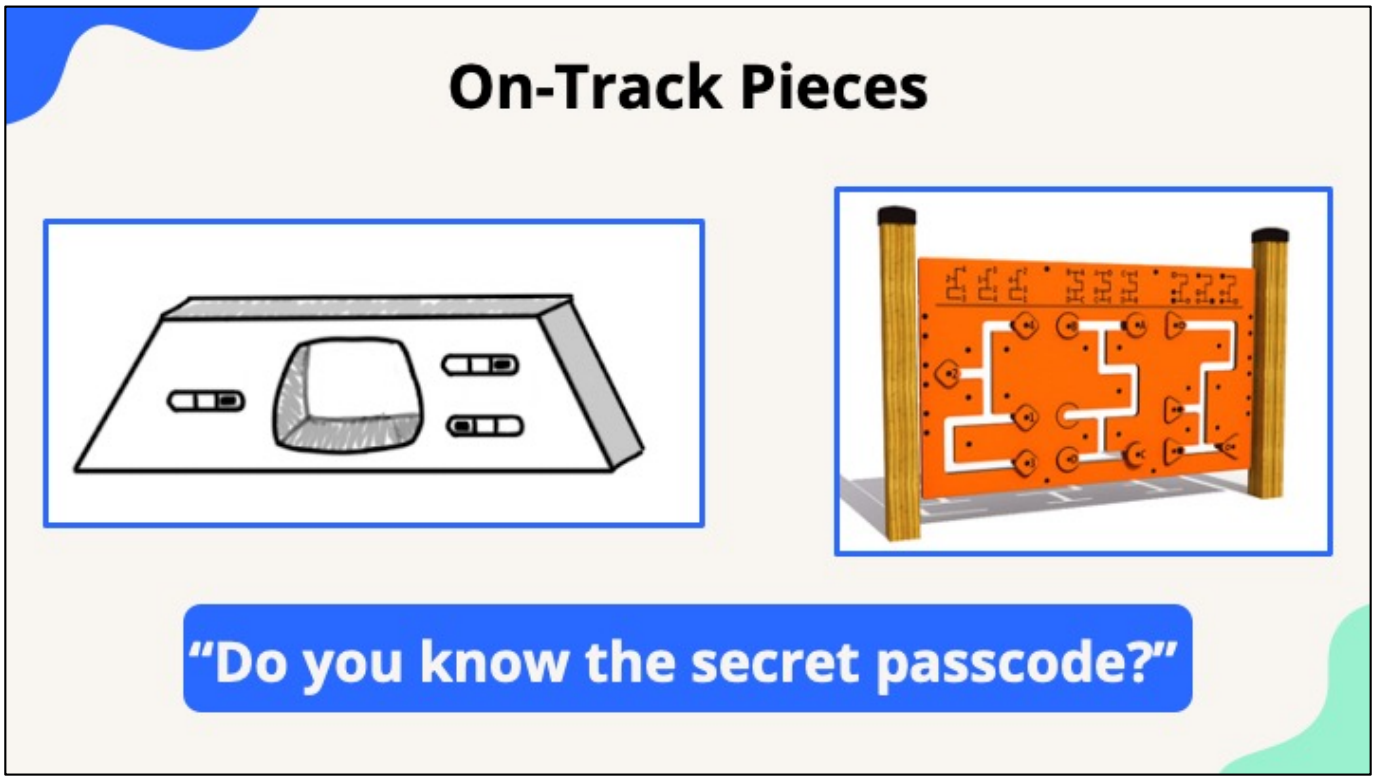
5 of the 10 pieces that we are proposing will be on the track, you can see them on this slide. There are a few key design elements that I want to draw your attention to. First, most of these pieces have the same base structure of the trapezoid, with the exception of one being a cube. The intention behind this choice was to provide the children with a pattern that they could start with, in this case being the shape, but throw in a twist to confuse them and peak their curiosity. Next, the bottom three pieces have a braking system where the children would have to solve simple puzzles before the piece can be unlocked then moved. With the braking system we are trying to elicit some discovery learning through unclear mechanisms of how to get the pieces to move and encourage cause and effect conversations. So now I'm going to move on and briefly touch on each of these pieces.

First off we have this cube. This piece provides children with a private space to sit in and possibly take a break from other social interactions. They can also have a fun joy ride, if a peer were to help out

Image source:
https://www.parentmap.com/sites/default/files/images/Seaview%20Park%20Edmonds%20hiding%20spots%20credit%20JiaYing%20Grygiel.jpg

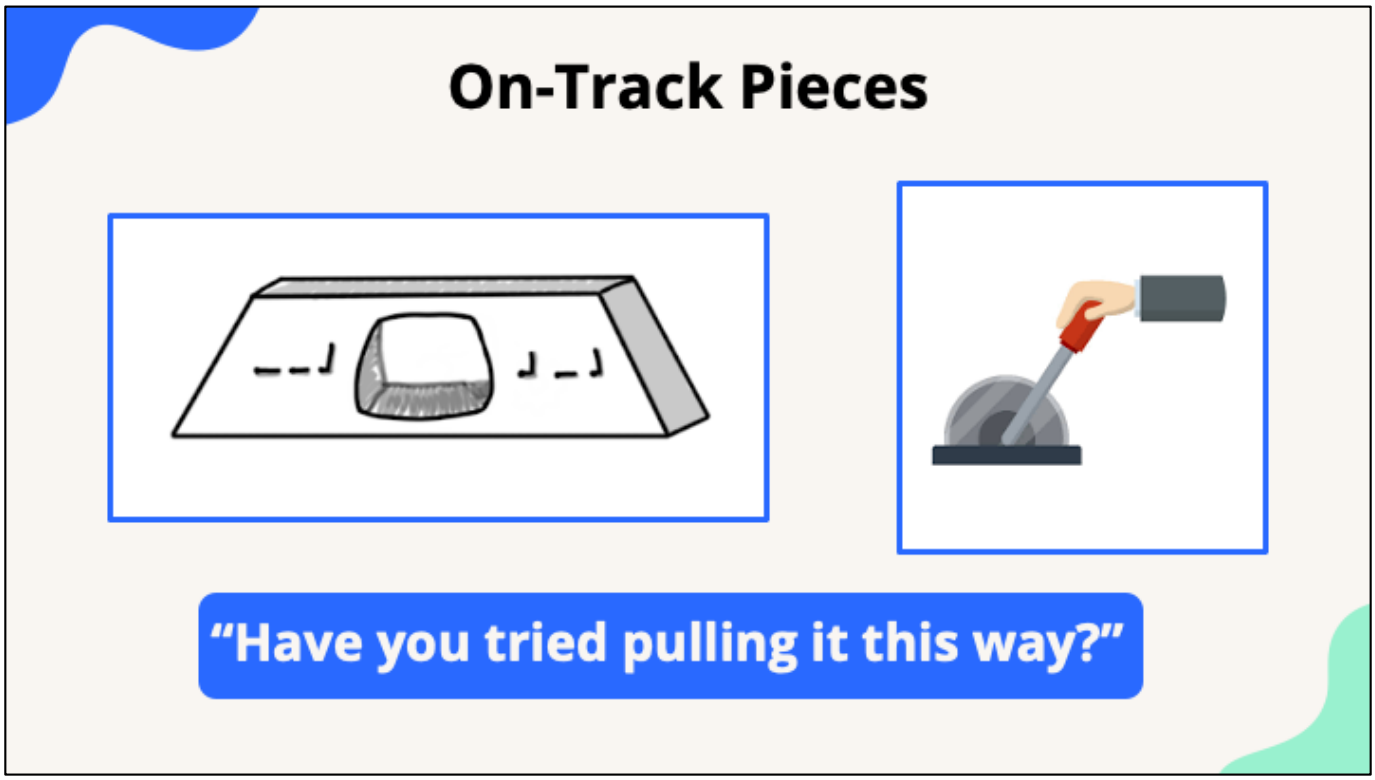
On this piece there are two tunnels that kids can climb through or sit in. There is a handle in the middle that can help with moving the piece or can be used as a support to climb on top of the piece.

Image source:
https://www.google.com/imgres?imgurl=https%3A%2F%2Fwww.playgroundcentre.com%2Fwp-content%2Fuploads%2F2017%2F03%2FSPRING-MOTION-Saturn-Whizzer-front-page.jpg&imgrefurl=https%3A%2F%2Fwww.playgroundcentre.com%2Fcategories%2Fspring-motion-rotating%2F&tbnid=paDHkYYTQ8Gm4M&vet=12ahUKEwiEs7iY_vL2AhVpqnIEHRcRCxAQMygBegQIARBQ..i&docid=TWDZnT1oWNnwTM&w=2000&h=1500&q=moving%20interactive%20board%20playground&ved=2ahUKEwiEs7iY_vL2AhVpqnIEHRcRCxAQMygBegQIARBQ



This piece also has a tunnel and some sliding elements on the side.The children must determine the correct combination of where to slide each one of the knobs in order to disengage the brakes to move the block and then re-engage the brakes to lock it in place.

Image source:
https://image.made-in-china.com/202f0j00uMDasThGHwiS/Puzzle-Game-Kids-Memory-Board-Outdoor-Playground-Equipment-for-Educational-Play-Area.jpg



Similarly, this piece has a few levers and the children must determine which lever is the correct one to disengage and which would re-engage the brake.

Image source:
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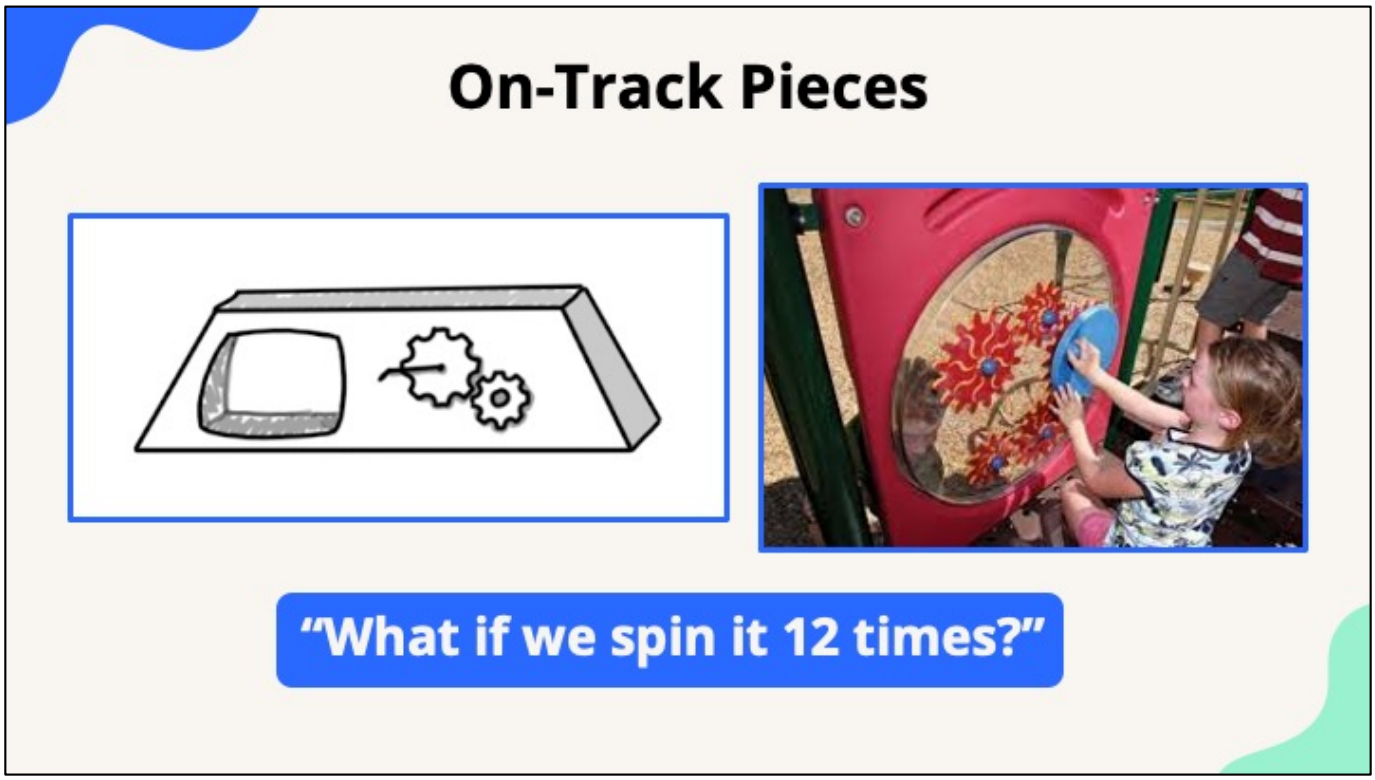
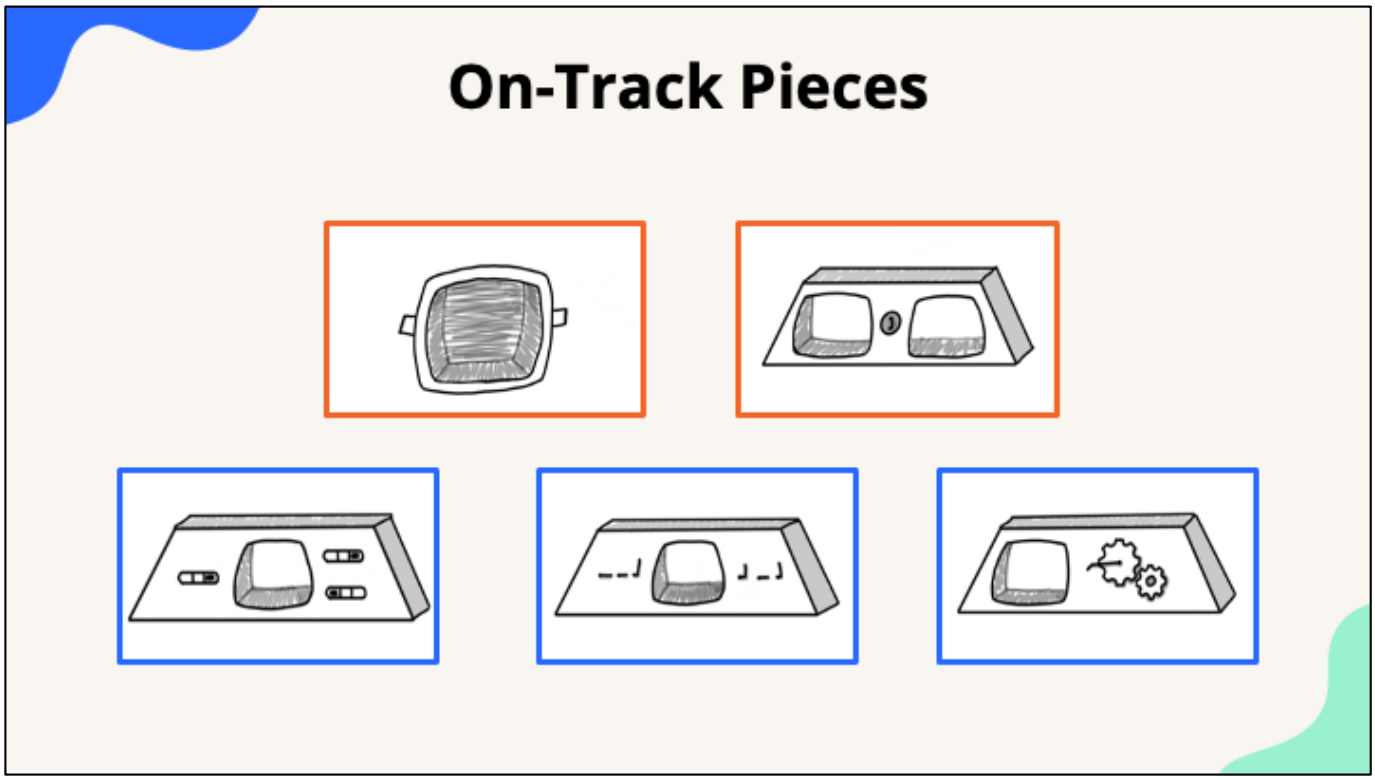
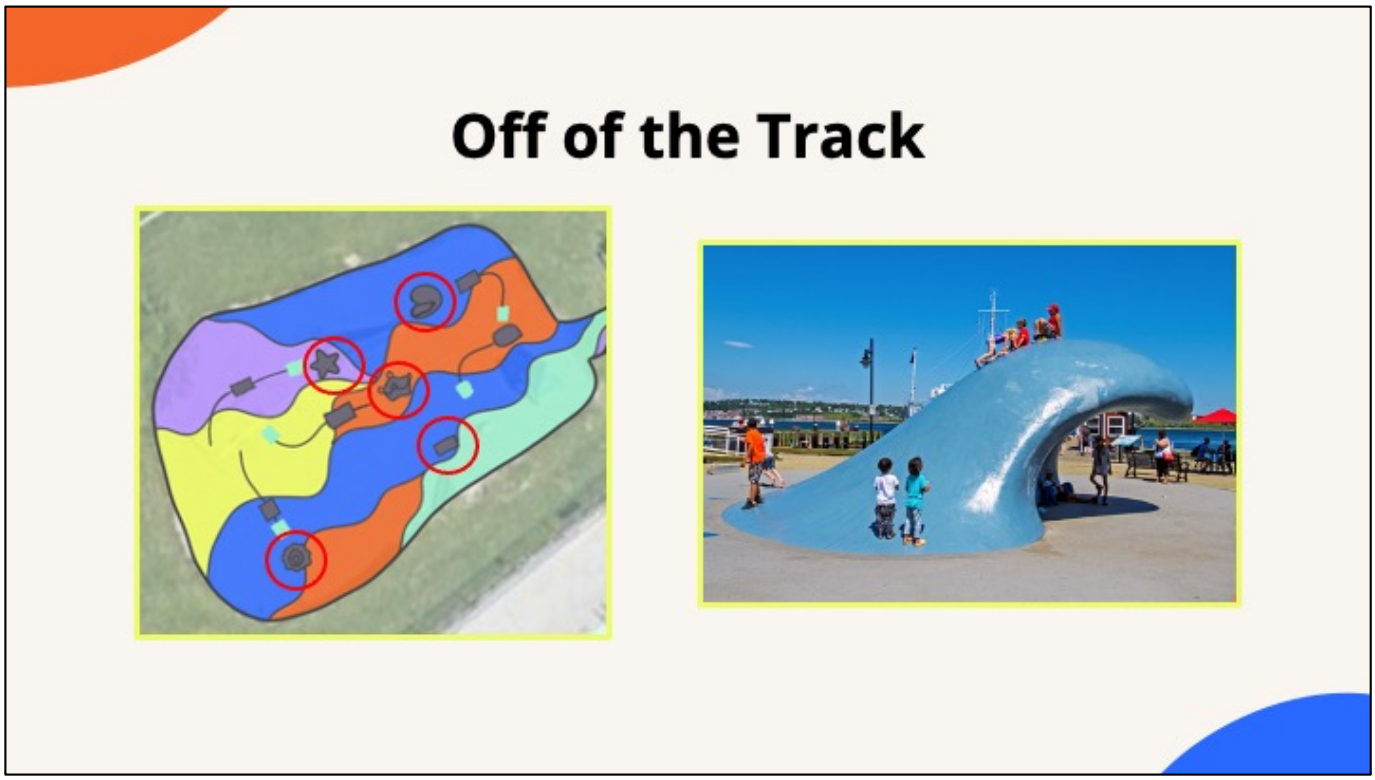


Finally we have the gear piece. Here the children would have to determine which point in the rotation would allow for the brakes to be released.

Image source:
https://encrypted-tbn0.gstatic.com/images?q=tbn:ANd9GcSJ-nlpdd5RFHNpgJ_k96KOEsuy5cLi_fhuUQ&usqp=CAU

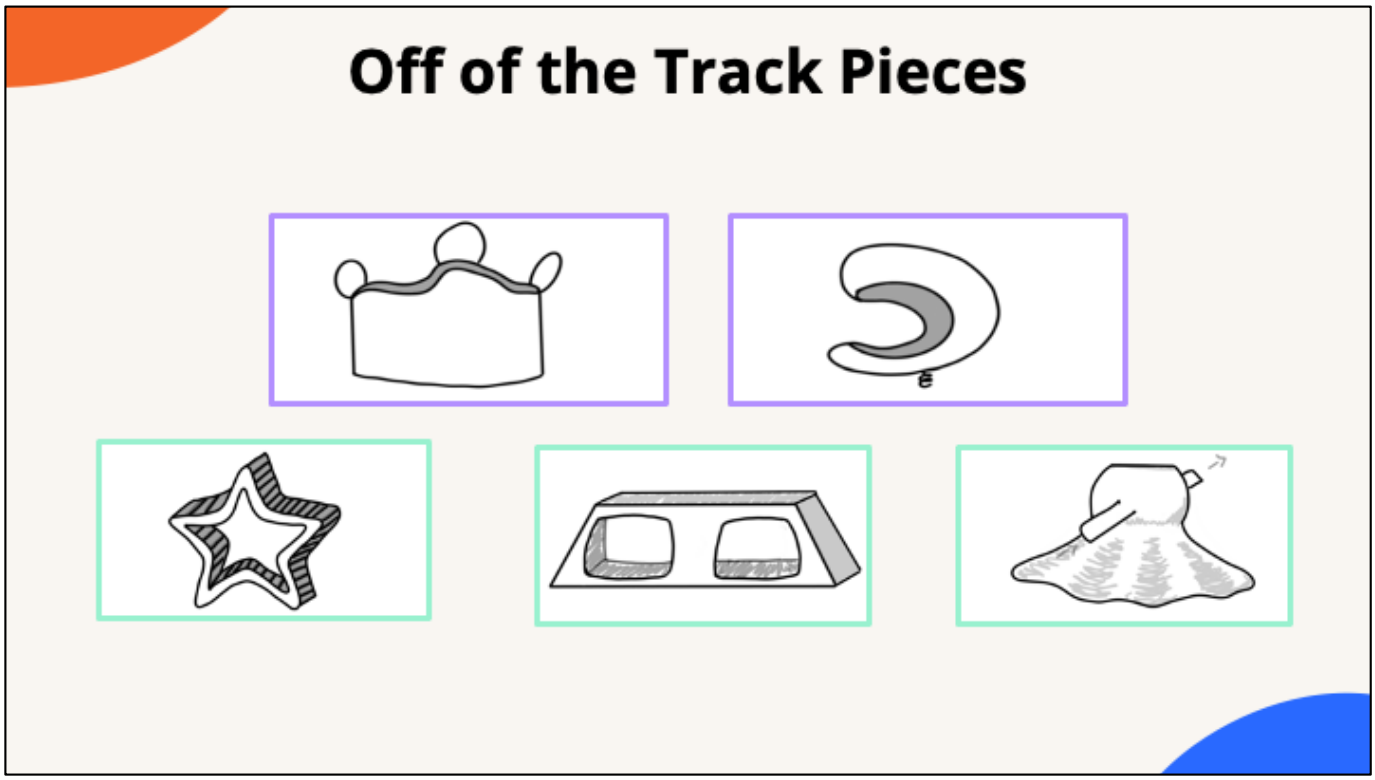


Each of these puzzles are fairly simple and once they have been discovered by the children they can be used as a point of conversation with new friends at the playground. Additionally, once they have mastered how to move the pieces they are able to change and personalize the spaces so that it fits the needs of their play.



In addition to our on-track pieces, we also included a few stable, but ambiguously shaped, pieces that can be used for climbing. Our inspiration for the ambiguity of these shapes was based on public art installations in cities because nothing is as climbable as something that does not look like it is meant for climbing. We included these off the track pieces, to give children a safe space to discover strategies for climbing seemingly unclimbable structures.

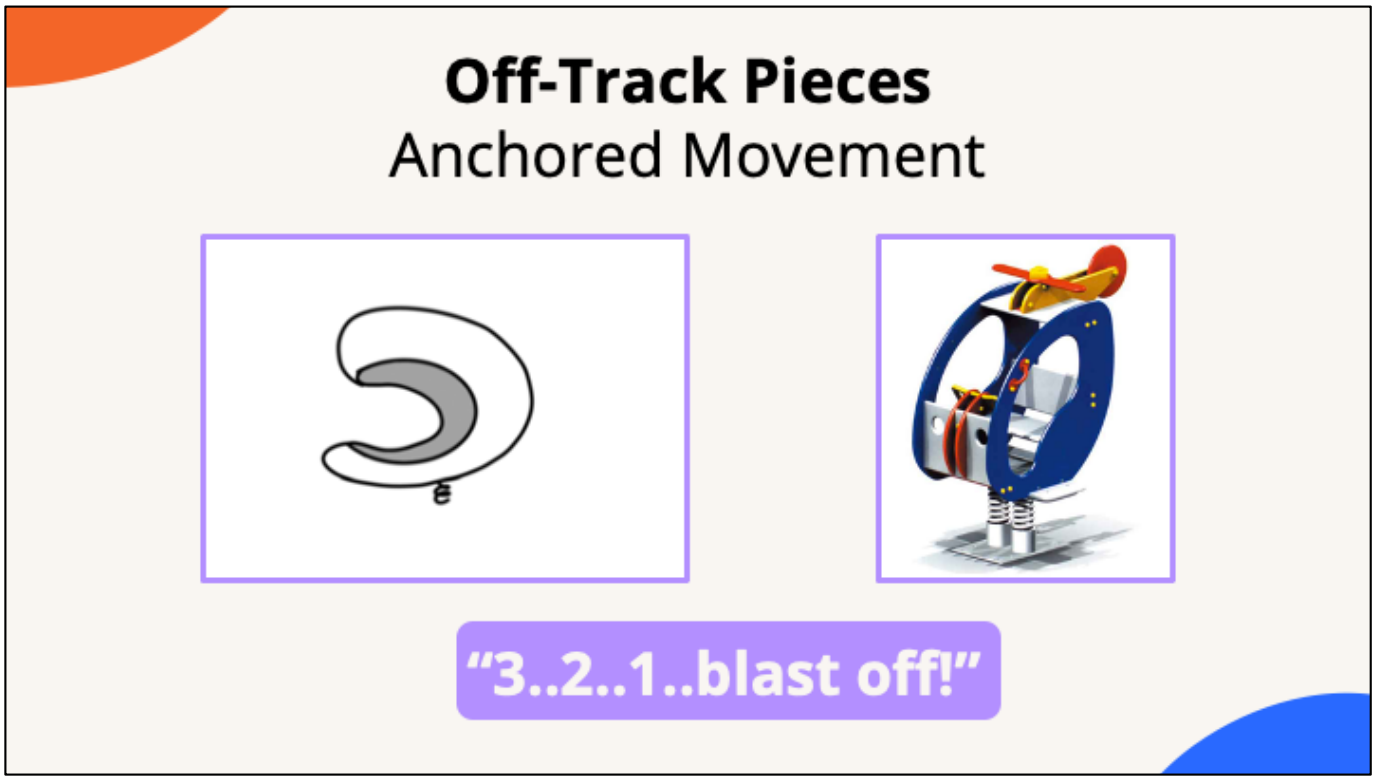
Image source:
https://www.google.com/imgres?imgurl=https%3A%2F%2Flive.staticflickr.com%2F3115%2F2837407804_1d46b31e65_b.jpg&imgrefurl=https%3A%2F%2Fwww.flickr.com%2Fphotos%2Feasyrew%2F2837407804&tbnid=Q0YRU0OH1Q3FnM&vet=12ahUKEwiuxaS9jfL2AhUoEVkFHSwNBSsQMygPegUIARDrAQ..i&docid=tTW6S1y4DM1eCM&w=1024&h=768&q=sliding%20monkey%20bars&ved=2ahUKEwiuxaS9jfL2AhUoEVkFHSwNBSsQMygPegUIARDrAQ



Here is an overview of the off the track pieces, the ones on the top of the screen are the anchored movement pieces which spin or rock, and the pieces on the bottom are fully stationary pieces. You will notice that not all of these pieces are ambiguously shaped, however, none of these pieces have clear holds, which allows them to be explored and mounted in different ways.

This is a piece that spins. You can liken it to the image on the right which shows a similar structure that already exists in a park. On our piece, 2-3 children can sit inside while 1-3 children hold the handles and run around the piece to spin it. The children inside can say things like "go faster!" or "stop! I'm getting too dizzy!".

Image source:
https://i.pinimg.com/originals/9d/91/24/9d9124a3d6ad1d57971e150db165abd6.jpg



This is a spring rider, a piece with an anchored rocking movement where 2-3 children can sit inside together. We chose to have an ambiguous shape rather than a clear shape because this encourages children to imagine that they are riding in anything from a seahorse to a spaceship, the possibilities and conversations are endless.

Image source:
https://www.angelplayground.com/uploadfile/products/20170622/2.jpg

Off-Track Pieces

Stationary

"Let's race our cars down the legs!"

This octopus-like piece does not move and serves as a low-stakes climbing piece. With 8 raised legs of different slope heights, children can play on this piece by climbing the legs to get to the top or by rolling things down the legs and figuring out which leg causes things to roll down the fastest and work together to figure out why that is (Kurkul et al., 2017).

Image source:
https://www.google.com/imgres?imgurl=https%3A%2F%2Fwww.miracle-recreation.com%2Fcontent%2Fuploads%2F2021%2F01%2Ften-spin-304-600x450.jpg.webp&imgrefurl=https%3A%2F%2Fwww.miracle-recreation.com%2Fproduct-category%2Fspinners%2F&tbnid=80nibyBEaOlYiM&vet=12ahUKEwiEs7iY_vL2AhVpqnIEHRcRCxAQMygIegQIARBe..i&docid=O0NSCsK1HjW0yM&w=600&h=450&q=moving%20interactive%20board%20playground&ved=2ahUKEwiEs7iY_vL2AhVpqnIEHRcRCxAQMygIegQIARBe

Off-Track Pieces

Stationary

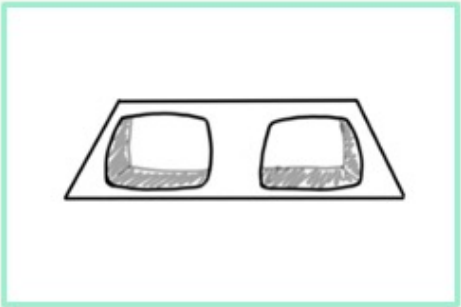
"Try putting your other hand on the pointy part!"

This star piece can be compared to the TORONTO installation at Nathan-Phillips Square in downtown Toronto. As we can see in the image on the right, and as mentioned before, climbing things that are not easy to climb is fun. Since this piece is difficult to climb, children can also help the climber out by telling them where to put their hands or feet next.

Image source:
https://www.playandpark.com/uploads/product-images/Net_Climber_IMG_1121-4906.jpg

Off-Track Pieces

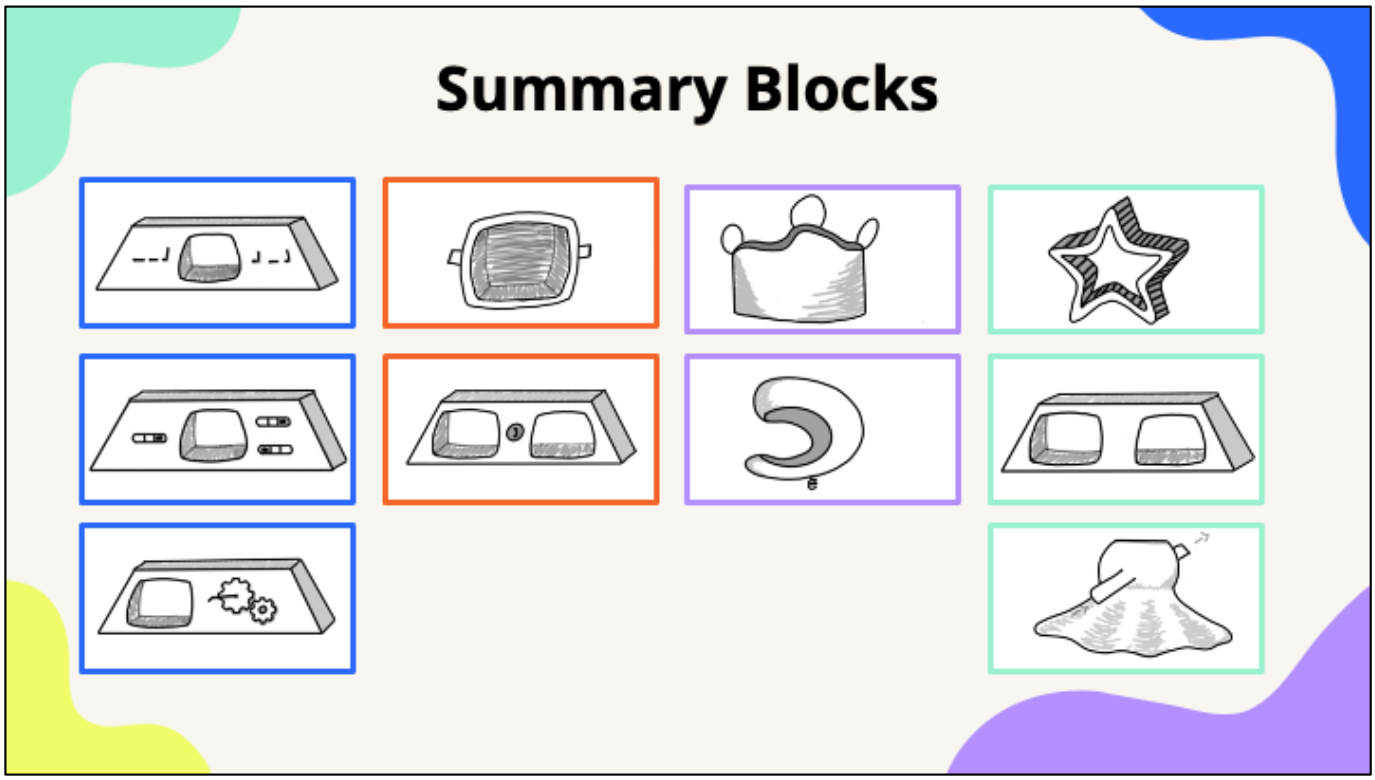
Stationary



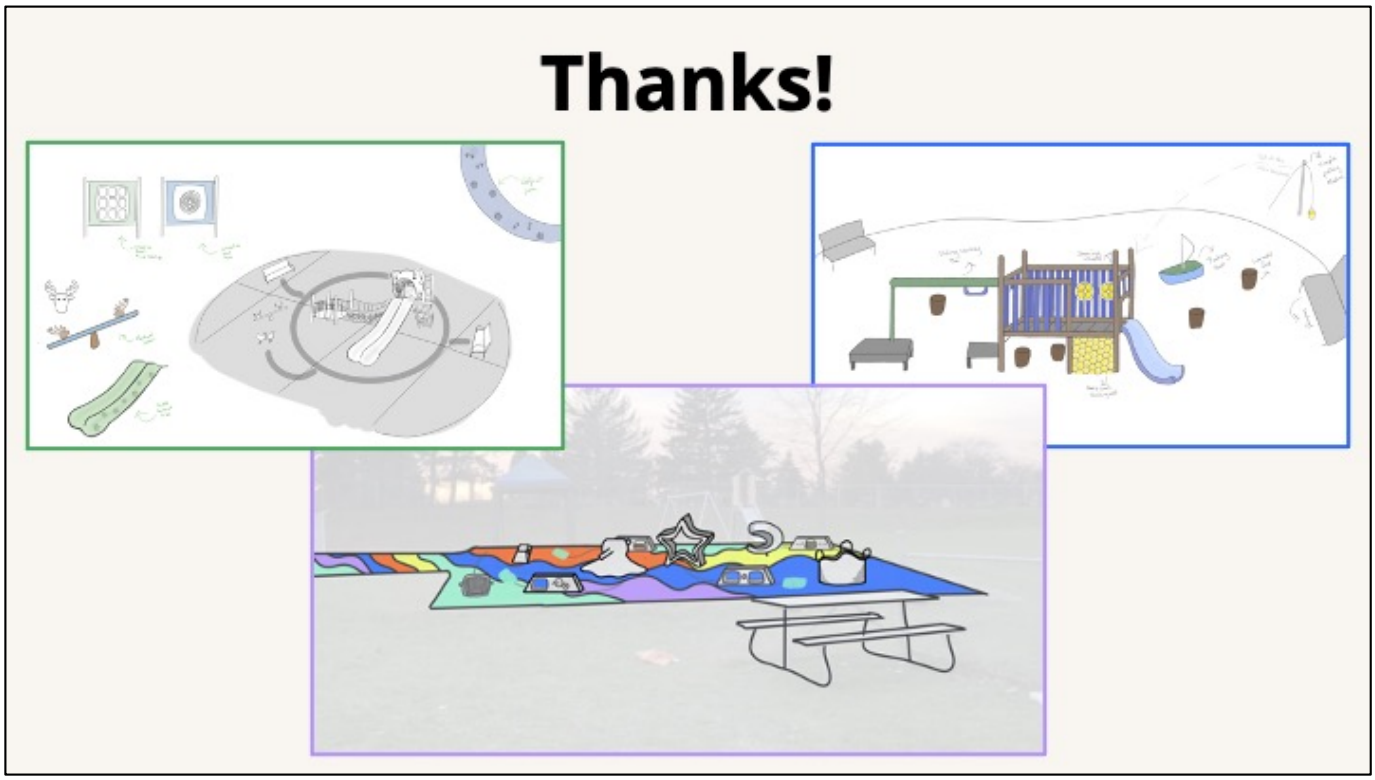
"All aboard! The train leaves in 10 seconds!"

This last stationary piece is meant to throw another curve ball at the kids as they discover that not all trapezoids can move. Using this piece, they can imagine that they are at a sleepover and on bunk beds with one child above and one child below or they can use it as a place to hide when playing games like hide-and-seek.

Image source:
https://www.playgroundoutfitters.com/wp-content/uploads/2020/03/movingTunnels.jpg



These pieces have many elements (such as levers and gears) from which you could pick and choose and apply to other more traditional park structures. All of these pieces draw on traditional interactions that children would experience at a park but presenting these functions in a slightly unconventional or ambiguous form can promote more creativity and imagination in these spaces.



Though we have proposed three different redesigns for all three parks, any of these features can be applied to any of these parks. At the end of the day, we hope that we have provided helpful suggestions for designing beautiful and engaging parks for our community that are centred around fun and language development. Thank you for your time.

References - Oaten

Ellwood-Lowe, M. E., Foushee, R., & Srinivasan, M. (2022). What causes the word gap? Financial concerns may systematically suppress child-directed speech. Developmental science, 25(1), e13151.

Gómez, E., & Strasser, K. (2021). Language and socioemotional development in early childhood: The role of conversational turns. Developmental science, 24(5), e13109.

Lacroix, V., Pomerleau, A., & Malcuit, G. (2002). Properties of adult and adolescent mothers' speech, children's verbal performance and cognitive development in different socioeconomic groups: a longitudinal study. First Language, 22(2), 173-196.

Outdoor Play Canada | Seven Cs: An Informational Guide to Young Children's Outdoor Play Spaces. (2022). Retrieved 6 February 2022, from https://www.outdoorplaycanada.ca/portfolio_page/seven-cs-an-informational-guide-to-young-childrens-outdoor-play-spaces/

Rowe, M. L., Pan, B. A., & Ayoub, C. (2005). Predictors of variation in maternal talk to children: A longitudinal study of low-income families. Parenting: Science and Practice, 5(3), 259-283.

Rowe, M. L. (2012). A longitudinal investigation of the role of quantity and quality of child-directed speech in vocabulary development. Child development, 83(5), 1762-1774.

Wing, C., Kohnert, K., Pham, G., Cordero, K. N., Ebert, K. D., Kan, P. F., & Blaiser, K. (2007). Culturally consistent treatment for late talkers. Communication Disorders Quarterly, 29(1), 20-27.

Wang S-h, Lang N, Bunch GC, Basch S, McHugh SR, Huitzilopochtli S and Callanan M (2021) Dismantling Persistent Deficit Narratives About the Language and Literacy of Culturally and Linguistically Minoritized Children and Youth: Counter-Possibilities. Front. Educ. 6:641796. doi: 10.3389/feduc.2021.641796

References - Kinzie

Allee-Herndon, K. A., Roberts, S. K., Hu, B., Clark, M. H., & Stewart, M. L.. (2022). Let's Talk Play! Exploring the Possible Benefits of Play-Based Pedagogy on Language and Literacy Learning in Two Title I Kindergarten Classrooms. Early Childhood Education Journal, 50(1), 119–132. https://doi.org/10.1007/s10643-020-01141-6

Aram, D., Fine, Y., & Ziv, M. (2013). Enhancing parent–child shared book reading interactions: Promoting references to the book's plot and socio-cognitive themes. Early Childhood Research Quarterly, 28(1), 111–122. https://doi.org/10.1016/j.ecresq.2012.03.005

Eastern Ontario Health Unit. (2017). Let's talk: 3 to 4 Years [Video]. Retrieved from https://www.youtube.com/watch?v=K0aHjxzDb7I&ab_channel=EasternOntarioHealthUnit%2FBureaudesant%C3%A9del%E2%80%99estdel%E2%80%99Ontario

Hoff, E. (2006). How social contexts support and shape language development. Developmental Review, 26(1), 55–88. https://doi.org/10.1016/j.dr.2005.11.002

Leech, Kathryn A.; Rowe, Meredith L. (2020). An intervention to increase conversational turns between parents and young children. Journal of Child Language, (), 1–14. doi:10.1017/S0305000920000252

Luo, Rufan; Tamis-LeMonda, Catherine S.; Kuchirko, Yana; F. Ng, Florrie; Liang, Eva (2014). Mother-Child Book-Sharing and Children's Storytelling Skills in Ethnically Diverse, Low-Income Families. Infant and Child Development, 23(4), 402–425. doi:10.1002/icd.1841

Macdonald, K., Milne, N., Orr, R. et al. Associations between motor proficiency and academic performance in mathematics and reading in year 1 school children: a cross-sectional study. BMC Pediatr 20, 69 (2020). https://doi.org/10.1186/s12887-020-1967-8

Nelson, K. E., Welsh, J. A., Trup, E. M. V., & Greenberg, M. T. (2011). Language delays of impoverished preschool children in relation to early academic and emotion recognition skills. First Language, 31(2), 164–194. https://doi.org/10.1177/0142723710391887

Neuman, S.B., & Celano, D. (2012). Worlds Apart: One City, Two Libraries, and Ten Years of Watching Inequality Grow. The American Educator, 36, 13.

Neuman, S. B.; Moland, N. (2016). Book Deserts: The Consequences of Income Segregation on Children's Access to Print. Urban Education, (), 0042085916654525–.doi:10.1177/0042085916654525

Rowe Meredith L.; Snow, Catherine E. (2019). Analyzing input quality along three dimensions: interactive, linguistic, and conceptual. Journal of Child Language, (), 1–17. doi:10.1017/S0305000919000655

Snow, C. E., & Beals, D. E. (2006). Mealtime talk that supports literacy development. New Directions for Child and Adolescent Development, 2006(111), 51–66. https://doi.org/10.1002/cd.155

References - Idlewood

AY, S. (2010). Young Adolescent Students' Foreign Language Anxiety in Relation to Language Skills at Different Levels. Journal of International Social Research, 3(11).

Balım, A. G. (2009). The Effects of Discovery Learning on Students' Success and Inquiry Learning Skills. Eurasian Journal of Educational Research (EJER), (35).

Barrett, P., Davies, F., Zhang, Y., & Barrett, L. (2017). The holistic impact of classroom spaces on learning in specific subjects. Environment and behavior, 49(4), 425-451.

Callanan, M., Rigney, J., Nolan-Reyes, C., & Solis, G. (2012). Beyond pedagogy: How children's knowledge develops in the context of everyday parent-child conversations. Knowledge development in early childhood: Sources of learning and classroom implications, 52-70.

Kaefer, T., Neuman, S. B., & Pinkham, A. M. (2015). Pre-existing background knowledge influences socioeconomic differences in preschoolers' word learning and comprehension. Reading Psychology, 36(3), 203-231.

Kurkul, K. E., & Corriveau, K. H. (2018). Question, explanation, follow-up: A mechanism for learning from others?. Child Development, 89(1), 280-294.

Snow, P. C. (2016). Elizabeth Usher Memorial Lecture: Language is literacy is language-Positioning speech-language pathology in education policy, practice, paradigms and polemics. International Journal of Speech-Language Pathology, 18(3), 216-228.

Tompkins, V., Zucker, T. A., Justice, L. M., & Binici, S. (2013). Inferential talk during teacher–child interactions in small-group play. Early Childhood Research Quarterly, 28(2), 424-436.

Wang, S. H., Lang, N., Bunch, G. C., Basch, S., McHugh, S. R., Huitzilopochtli, S., & Callanan, M. (2021). Dismantling persistent deficit narratives about the language and literacy of culturally and linguistically minoritized children and youth: Counter-possibilities. In Frontiers in Education (p. 260). Frontiers.