# Playful Learning @ UW

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The world is a large place for children to learn and grow. The opportunities for language change throughout the years as children get older and gather a greater understanding of words, sounds, body language and observations. Children's language can be developed in the smallest of places using the language tools that we use everyday, including but not limited to, every day conversations, questions, observations and prompts.Throughout this paper, there will be discussion about learning through scavenger hunts and how this type of activity provides learning for young toddlers as they explore using their senses. There will then be discussion about learning through a combination of storytelling and a scavenger hunt for preschool age children. This activity provides opportunity reading and interactive comparisons through uncommon items, which can also prompt questions and curiosity. The third activity discusses learning through exploration and drawing which encourages imaginative play, questioning new ideas and prompting natural conversation between child and parent.

Through a simple landscape such as the University of Waterloo, we have developed activities for several age groups, that could be adapted for all age groups. This shows that it does not require a lot of materials to engage in active learning, and you don't need a classroom. Children are observing and developing their ideas everyday. These activities will provide some support with that in an engaging and fun

way while parents are spending time with their children anyway.

**Toddlers (12-35 Months)**
- Rock Garden
- Sensory Scavenger Hunt

**Preschoolers (3-5 years old)**
- Earth Sciences Museum
- Dino Scavenger Hunt

**Elementary School (6-9 years old)**
- PAS Garden
- Drawing Activity

Source Images
Unless otherwise indicated, photos were taken by the authors.

# Playful Learning @UW

**Toddler Edition**

# Sensory Scavenger Hunt

Visit our chosen location and use your senses to identify different items that fit with the key words. Use the map provided to help guide you. Done early? Refer to our alternative locations and see what you and your toddler can explore!

If families are short on time, our "make-your-own-adventure" activity is designed to be very flexible in that they can just pick and choose different senses that they want to focus on.

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Clipart Library. (2019). *Images of an ear #2340026* [Image]. Clipart Library. http://clipart-library.com/search1/?q=ear#gsc.tab=1&gsc.q=ear&gsc.page=1

Parents will be provided with this slide deck which includes instructions, suggestions on what to find, and location-specific keywords, presented through a cartoon squirrel, which children may find engaging. Although the main suggested location is the rock garden, we provide recommended additional locations so parents and their children can visit one, two, or all three of the locations depending on how much time is available to them.

Children of toddler age benefit the most from an increased number of words and different words when building language skills (Rowe, 2012). A theme centered on the senses was chosen for this activity since it would be easy to introduce this topic as it directly relates to the toddlers themselves and would be something they could grasp and perform. Actions that enable a person to use their senses (eg. sniffing, looking) are easily imitated and parents could lead by example. Additionally, the senses

could be a good conversation starter, allowing for conversational turns and introduction of new words. This is important because exposure to conversational turns and speech directed at the child at 18 months positively contributes to language development, cognitive development, and socioemotional competencies at 30 months (Gómez & Strasser, 2021).

All the prompts in the Peter Russell Rock Garden are linked to the sense for the child to experience and learn about. Key words are provided to prompt conversation from the parent and introduce novel words.

OpenClipart. (2018). *Green grass image* [Image]. Free SVG. https://freesvg.org/green-grass-image
OpenClipart. (2015). *Harvestable rock vector illustration* [Image]. Free SVG. https://freesvg.org/harvestable-rock-vector-illustration
OpenClipart. (2020). *Squirrel cartoon clip art* [Image]. Free SVG. https://freesvg.org/squirrel-cartoon-clip-art
OpenClipart. (2018). *Sun symbol clip art* [Image]. Free SVG. https://freesvg.org/sun-symbol-clip-art

Circled is the location we have chosen.
*See additional parking lot rates and information at:
https://uwaterloo.ca/parking/visitors
See a list of washrooms with changing tables at:
https://uwaterloo.ca/accessibility/getting-around/inclusive-washrooms-list
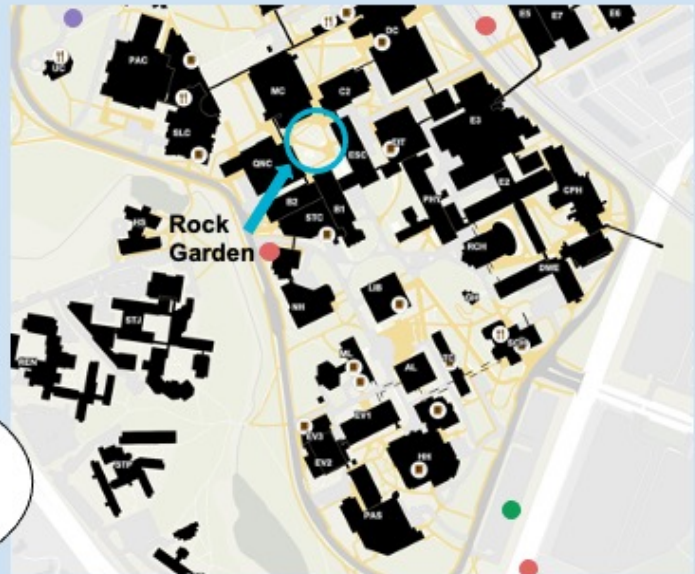
OpenClipart. (2020). *Squirrel cartoon clip art* [Image]. Free SVG.
https://freesvg.org/squirrel-cartoon-clip-art
Screenshot of Interactive University of Waterloo Map https://uwaterloo.ca/map/
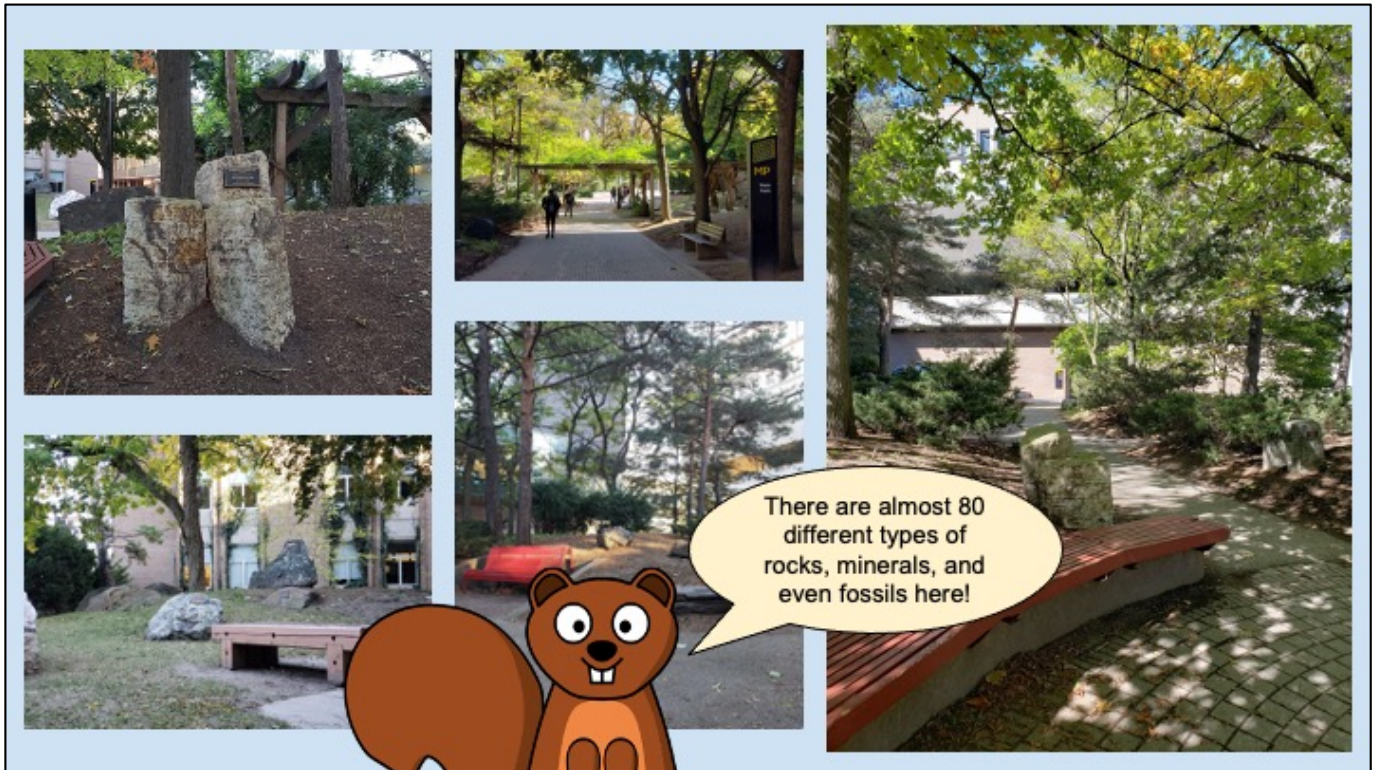
# Peter Russell Rock Garden

## Amenities
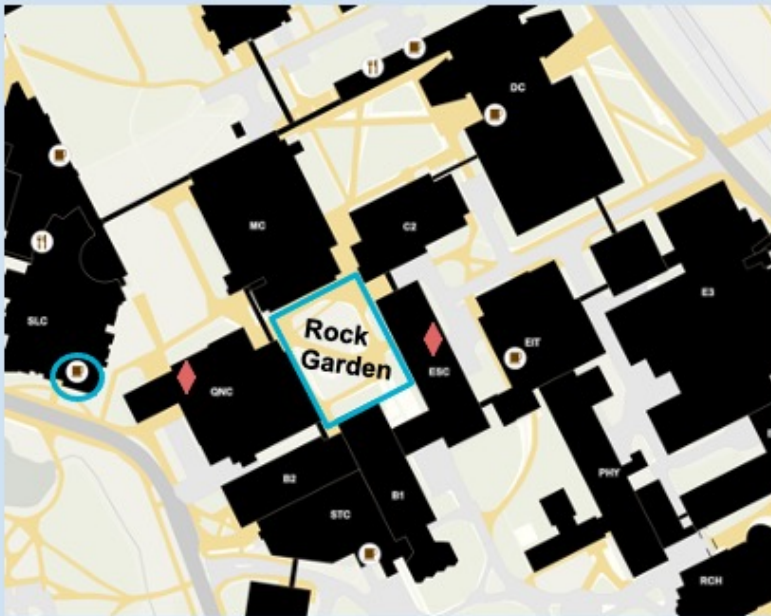
**Food and Drink:**
- SLC Brubakers Food Court
  - Mon - Fri 10 AM - 7 PM
- SLC International News (24h)
  - 24 Hours
- SLC Tim Hortons
  - Mon - Fri 7:30 AM - 8 PM
  - Sat - Sun 10 AM - 8 PM
- DC Bytes Food Court
  - Mon - Fri 10 AM - 7 PM
- DC Chatime
  - Mon - Fri 10 AM - 7 PM
- DC Tim Hortons
  - Mon - Fri 7:30 AM - 8 PM

**Washrooms with Changing Rooms**
- ESC Room 128 ♦
- QNC Room 1917 ♦

Screenshot of Interactive University of Waterloo Map https://uwaterloo.ca/map/

There are almost 80 different types of rocks, minerals, and even fossils here!

The Peter Russell Rock Garden is located close to the University of Waterloo ION station and located centrally, surrounded by buildings. The area has a variety of benches for seating and there is lots of shade provided by the trees and a large pergola over the paths in the area. One of the main features of this area is its collection of nearly 80 different types of rocks and minerals (even some fossils), each with a plaque stating what they are and where they are from.

OpenClipart. (2020). *Squirrel cartoon clip art* [Image]. Free SVG.
https://freesvg.org/squirrel-cartoon-clip-art
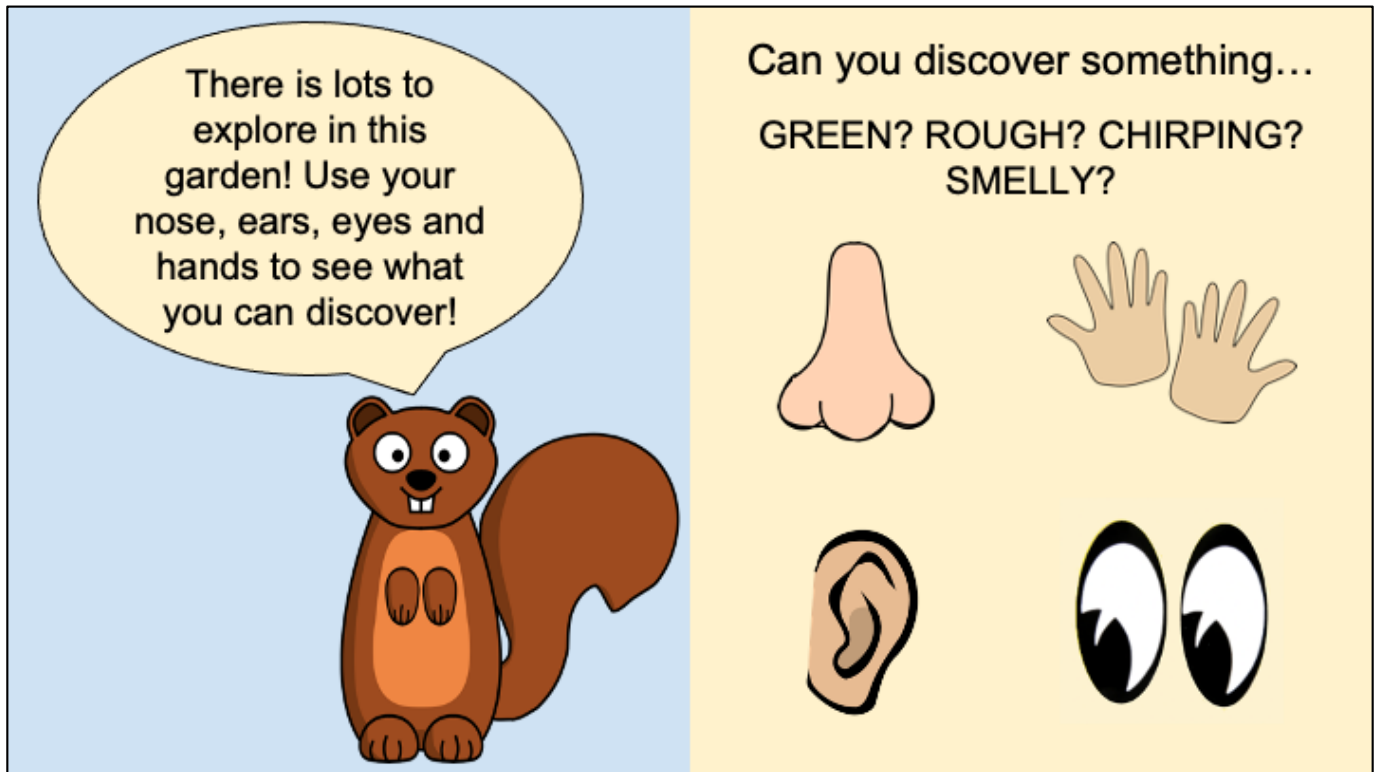
Our chosen location is the Peter Russell Rock Garden. While this area is nature based, the Rock Garden is unique in that it resembles a forest more than a typical flower garden. The landscape of the rock garden provides an excellent place for nature play with its rocks, benches, small slopes, and paths. These features of the garden allow children to explore and discover all while engaging in active and unstructured play, whose benefits will be later discussed. We have provided images of the different body parts used for the different senses that caregivers can use get started on the activity. Our mascot also engages in some dialogue to help toddlers get started along with some prompts.

There are many beneficial word and speech types that can happen while children and their caregivers are participating this activity. Some of these utterance types include informative, and declarative speech, which are important in the language development of 30 month olds (2002). These forms of speech would come naturally as part of the conversation as a caregiver helps their child

through the activity and discusses the attributes of the areas we chose. Informative speech could come from the caregiver helping the child understand the activity for example, "Do you think this rock is rough?". Declarative speech could be used to convey information to the child such as "This plant is green.". Overall, all of this conversation does help encourage conversational turns between the caregiver and child, as likely the caregiver will be continually providing feedback to the child throughout the activity and the child would be responding (Gomez & Strasser, 2021). These conversational turns can help to promote social and emotional skills (Gomez & Strasser, 2021).There is a large amount of variety in amount of types and tokens even within the same group and the amount of words and types spoken within the conversations during this activity will be beneficial for any child.

When encouraging children to roam and explore a natural environment, it is beneficial to be asking questions and guiding them using prompts and key words to assist in understanding of word tokens. The quantity of words produced in this stage of life is more beneficial to children in their language acquisition (Rowe, 2012). For this reason, there are several key words and prompts suggested on the powerpoint to assist parents in providing a plethora

of examples while their child explores.

The opportunity for free roaming and exploration promotes pretend play and developing affordance. Affordance is the many ways in which an item or object can be used as something other than it's natural purpose. For example, a stick can be used as a cane, a wand or a baseball bat (Wallin, 2019).

While it might be difficult for children, at this stage, to produce such words and ideas, parents can follow, learn and explore by their children's side while introducing different tokens and producing a larger quantity of terms for them to learn.

Another reason why we decided to choose the Peter Russell Rock Garden, was because of the presence of greenspace and its connections with nature. Contact with nature comes with health benefits for children, especially for those in low-income families (Fyfe-Johnson et al., 2021). Additionally, as many kids are growing up with little to no time playing outside, or in contact with nature in today's technology-dependant world, having a space where they are exposed to this can not only expose them to more vocabulary, but also promote social interactions through conversations with their parents/siblings.

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http://clipart-library.com/clipart/cartoon-hands-cliparts_9.htm

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OpenClipart. (2020). *Squirrel cartoon clip art* [Image]. Free SVG.
https://freesvg.org/squirrel-cartoon-clip-art

Try this activity at alternate locations!

EV3

PAS Gardens

EV3 and PAS Gardens are alternative locations families can go to while on their sensory scavenger hunt adventure. Having done this activity once before at the Peter Russell Rock Garden, we would like parents to engage in repetitive language, tying in what was found at the previous location. Repetition of words across time can help reinforce language development (Schwab & Lew-Williams, 2016). Repeating phrases and letting kids know that there are similar items in this building can help them, hopefully, find these items quicker and decrease the chances of the child experiencing frustration, or giving up. For example, the parent could read the given prompt to the child as well as the provided hint, just in case kids get stuck. Using prompts, narration, and modelling or repeating phrases has also been found to encourage language in children, being especially helpful for young children who may not be able to fully converse or get their thoughts across in words (Wing et al., 2007). This is why we wanted to encourage parents to engage in simple, descriptive conversations with their toddlers as this can help them expand their vocabulary over time.

As mentioned before, our scavenger hunt using the senses also promotes movement for toddlers, making them explore the space we have chosen. We also wanted there to be a movement activity that kids can do while they are completing the scavenger hunt where parents can point out the objects and the toddlers are free to

do what they like with the space. For example, if families were to visit EV3, the different colour tiles, as seen in the photos, could be used. Through research, it was found that unstructured play helps children benefit both physically and mentally (CPHA, 2019). One of these benefits include the promotion of cognitive skills development, skills that are necessary for language development. From these activities, and through our "keywords" suggestions, we hope that toddlers, with the help of parents prompting conversation, are able to engage in more diverse words.

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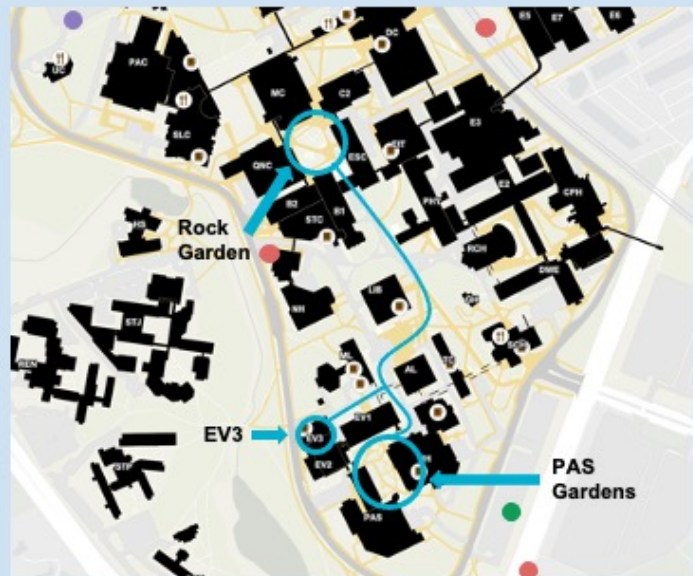
# OVERALL LOCATIONS MAP

Circled in blue are the three locations we are highlighting
- PAS Gardens
- EV3
- Rock Garden

**Transportation Options**
- Public Transit Stops
- M Lot Parking $6/day
- H Lot Parking after 3:45 PM and on weekends $5/day

Circled are the three locations we have chosen, with the line showing possible routes between them that avoid Ring Road for safety.
*See additional parking lot rates and information at:
https://uwaterloo.ca/parking/visitors
See a list of washrooms with changing tables at:
https://uwaterloo.ca/accessibility/getting-around/inclusive-washrooms-list

Screenshot of Interactive University of Waterloo Map https://uwaterloo.ca/map/

# UW Playful Learning

## Preschool Edition

Story-telling has been a lifelong tradition for families across centuries. Not only has it served as a form of entertainment, but also a learning tool for the formative years of development in language acquisition.

Books have served as a "vital source" of vocabulary, and through this, children are able to learn and build on their existing knowledge of concepts implicitly. Thus, we have introduced an activity for preschool aged children on campus to engage and follow along with Jamie the Dinosaur on their adventure of searching for their lost friend. This activity has been developed through the concept of a story and a treasure hunt to combine old and new concepts to children and encourage new language acquisition.

Throughout her adventure, Jamie will discover new treasures that lead her to find her friend Dustin. The first letter in each treasure will spell out DUSTIN in the end, which is the name of Jamie's lost friend. Jamie's adventurous treasure hunt will introduce the concept of storytelling and incorporate other learning opportunities

such as counting, rhyming, memory recall and shared narratives. Providing a story online is important for a couple of reasons. First, there is a gap in access to books for those in lower socioeconomic status groups. By providing an opportunity to read or be read to, we have created an alternative access to storybooks. Second, the use of decontextualized language that it can produce prompts back and forth conversations between child and parent, aiding with language development and the sophistication of language skills.

# The Earth Sciences Museum

**The Museum is in the EIT building**
Main exhibit "Dino Pit"
- Open Monday - Friday 8:30am - 4:30pm

**Transportation Options:**
- C Lot Parking: $5/day
- Public Transit Stops



Image Source:
Earth Sciences Museum Map from https://uwaterloo.ca/earth-sciences-museum/visit-us

# Meet Jamie!

Hi! My name is Jamie. What's yours?

I was on an adventure with my friend, but I've lost them. Would you help me look for them? I found a map, maybe it is a treasure map! As we find the treasure, I think we will get closer to finding my friend. I wonder if an adult could help you read the signs at each treasure. What if the <u>first letter</u> of each treasure gave us a clue?

Use the pencils near the first treasure!

Are you ready? Put your adventure hat on! Here we go!

Story books are a simple tool that people have used for years to engage with their children and begin their journey of language acquisition and storytelling. It is becoming more apparent, however, that access to story books is becoming a larger issue, particularly in lower socioeconomic neighbourhoods. Income segregation in neighbourhoods has created a barrier to access books and other reading materials, resulting in consequences for children and their development (Neuman & Moland, 2019). Children living in poverty are already at a disadvantage across many aspects of their lives. They are limited to many resources, books included, and struggle to find access to tools that encourage healthy development. By creating an online storybook that incorporates an interactive component of both exploration and storytelling, we have provided alternative access to some of those resources. While it is required to have internet access the story, the campus provides internet access to both students and faculty. The importance of having access to books is important because impoverished children are already at a disadvantage.

Reading books and being read to can be an aid in correcting these language acquisition and reading comprehension problems. Reading books has a positive correlation to a child's vocabulary

knowledge and are vital in language acquisition (Kaefer et al., 2015). While children may not learn words directly from storybooks, their pre-established context can help them understand, indirectly (Kaefer, Neuman & Pinkham, 2015). This means that while they may not be learning a new word from the context of a book, depending on their prior knowledge of a word, they may begin to associate words and develop a larger understanding. Through the story of Jamie and their treasure hunt, children may be able to relate the treasures they find to experiences they have already encountered in their life, and thus be able to make connections between the narrative and new words they're reading.

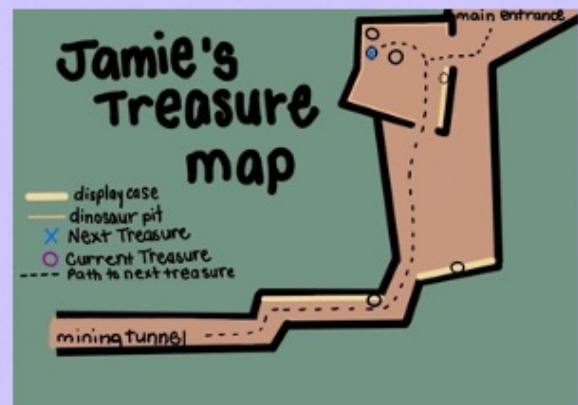OpenClipart. (2018). *Sitting baby dino* [Image]. Free SVG.
https://publicdomainvectors.org/en/free-clipart/Sitting-baby-dino/78645.html

By providing a treasure map and reframing the story as a treasure hunt, we are encouraging an element of pretend, or imaginative play, which is another tool to help aid in language and learning. Play can enhance complexity and richness of language as they verbalize and practice their words (Singer, 1995). In a study observing children's play over the course of a year, it was found that those who were engaging in more imaginative play were stronger in future verbs and subjunctive moods (Sutton-Smith, Pellegrini, & Singer, 1995). The use of imaginary play in combination with storytelling provides an excellent foundation for child exploration and language acquisition.

OpenClipart. (2018). *Sitting baby dino* [Image]. Free SVG. https://publicdomainvectors.org/en/free-clipart/Sitting-baby-dino/78645.html
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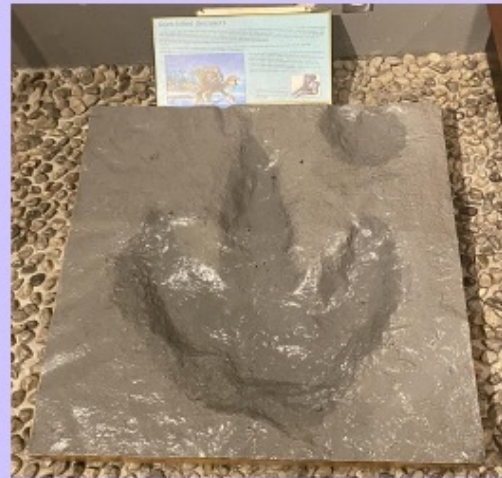
Story-telling, as mentioned before, can be used as a learning tool for children during the early stages of language development. The conversations that children engage in, either through self-talk, with their parents, or with other children can often be a result of exposure to these stories. Lou et al. (2014) found in their study that children's contributions during book-sharing predicted children's independent narrative skills one year later. This is important to note as the more children engage in conversation, the more likely they are to reap other benefits. For example, children can expand their vocabulary and these conversations can also lead to other learning opportunities when engaging in a back-and-forth conversation with others such as their parents. Another important point to mention is that children can relate to stories personally, which, again, encourages both children and parents to engage in further conversations. When socio-cognitive themes were highlighted during book sharing sessions, it enhanced the interactions children had (Aram et al., 2013).

Following the story of our mascot, Jamie the Dinosaur, we are striving to

introduce more vocabulary and engaging prompts to involve the child and their parents, encouraging conversation. Through the use of prompts, we aim to relate them back to the child as a way to not only keep them interested, but start to think more about their connections to various parts of our storyline. Another crucial finding from the 2014 study by Lou et al., was that engaging in dialogic questions during storytelling related to how much a child contributed, benefitting future language use. Due to this finding, we decided to incorporate questions within our story in hopes of evoking more conversation and deeper thinking. This also puts less pressure on the parents to have to come up with questions to ask their child in order to keep them engaged.

Play is crucial for different areas in a child's development including their physical strength, cognitive growth, and linguistic growth (Wallin, 2019). In addition to this, pretend play was found to be extremely helpful. Specifically, as children engage in more complex styles of pretend play, they develop and strengthen their social skills (Wallin, 2019). Tying this into our activity, we used our prompts and chose specific objects so that it would be easy for children to engage in pretend play and imagination. For treasure #1, parents ask their children, through Jamie, questions in relation to the object's size such as, "I wonder what kind of dinosaur has feet this big?" Or, they may ask them, "Are your feet bigger than this?" From these questions, kids may start to imagine the animal to whom this footprint belongs, or may make visual comparisons from the object to themselves. Additionally, since the object is on the ground, it makes it easier for the preschooler to interact with it (ex. putting their foot next to it).

OpenClipart. (2018). *Cartoon running dino* [Image]. Free SVG. https://publicdomainvectors.org/en/free-clipart/Cartoon-running-dino/78646.html
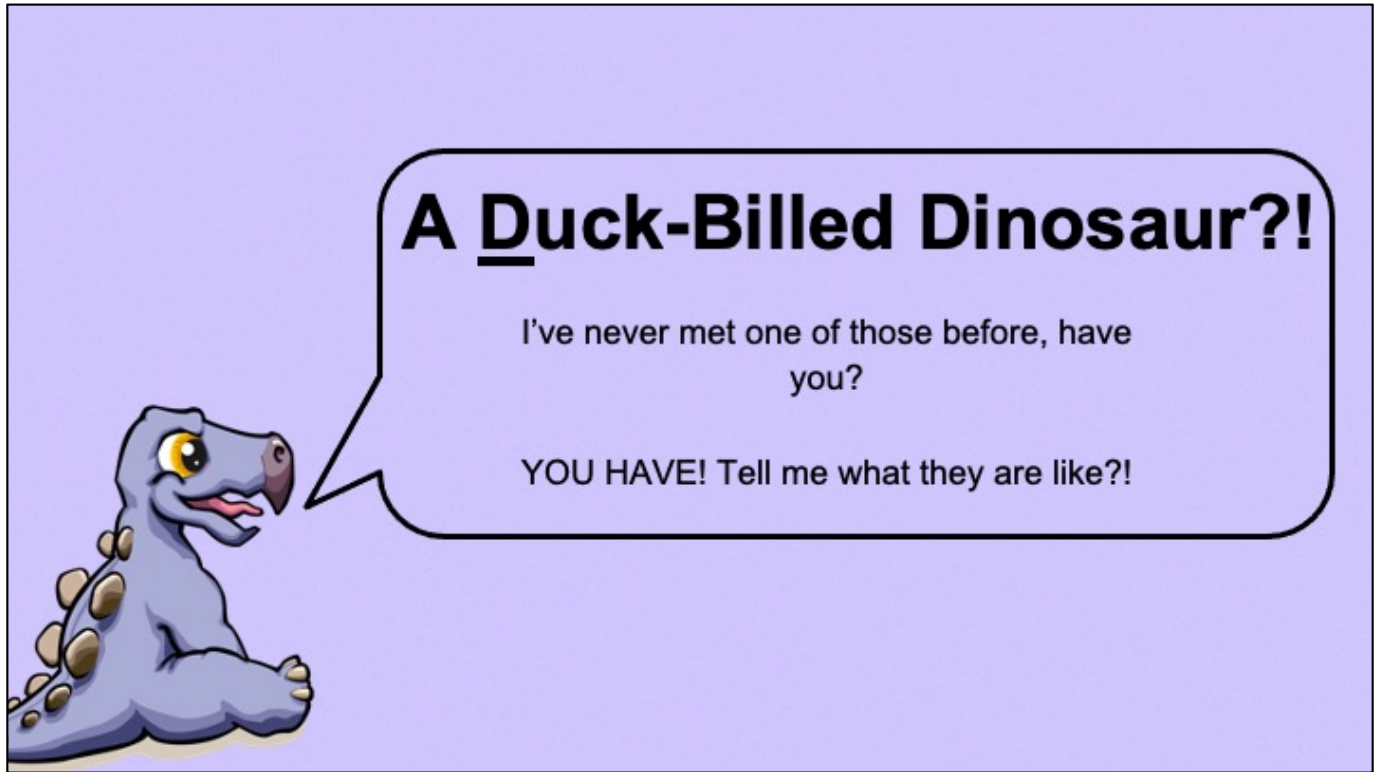
OpenClipart. (2018). *Sitting baby dino* [Image]. Free SVG.
https://publicdomainvectors.org/en/free-clipart/Sitting-baby-dino/78645.html
Source Images

Treasure #2

This treasure looks like bones that form a large shape. Almost like a giant! Now it looks like the shape of an unbelievably large bear, but I'm looking for a very unusual name for it.

Answer: Ursus Spelaeus

The cave bear, scientifically called the Ursus Spalaeus, was the second treasure we wanted preschoolers to find on their adventure. Unlike the first treasure's prompt, we did not ask any dialogic questions, instead focusing more on describing the object and its size. Using unique objects or ones that we felt would be interesting or fascinating to children was important as these would have a more likely chance of bringing about conversation. This cave bear, for example, would require preschoolers to look pretty high up to see the full size of the object, so noticing the huge difference between themselves and the object can leave them surprised. For example, the child may remark, "Wow! Look how tall it is compared to me!" The sheer size of the object can also encourage preschoolers to engage in imagination and play in general which, is extremely helpful in a child's development, contributing to better emotion regulation and more creative problem-solving (Wallin, 2019).

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https://publicdomainvectors.org/en/free-clipart/Sleeping-dino/78644.html
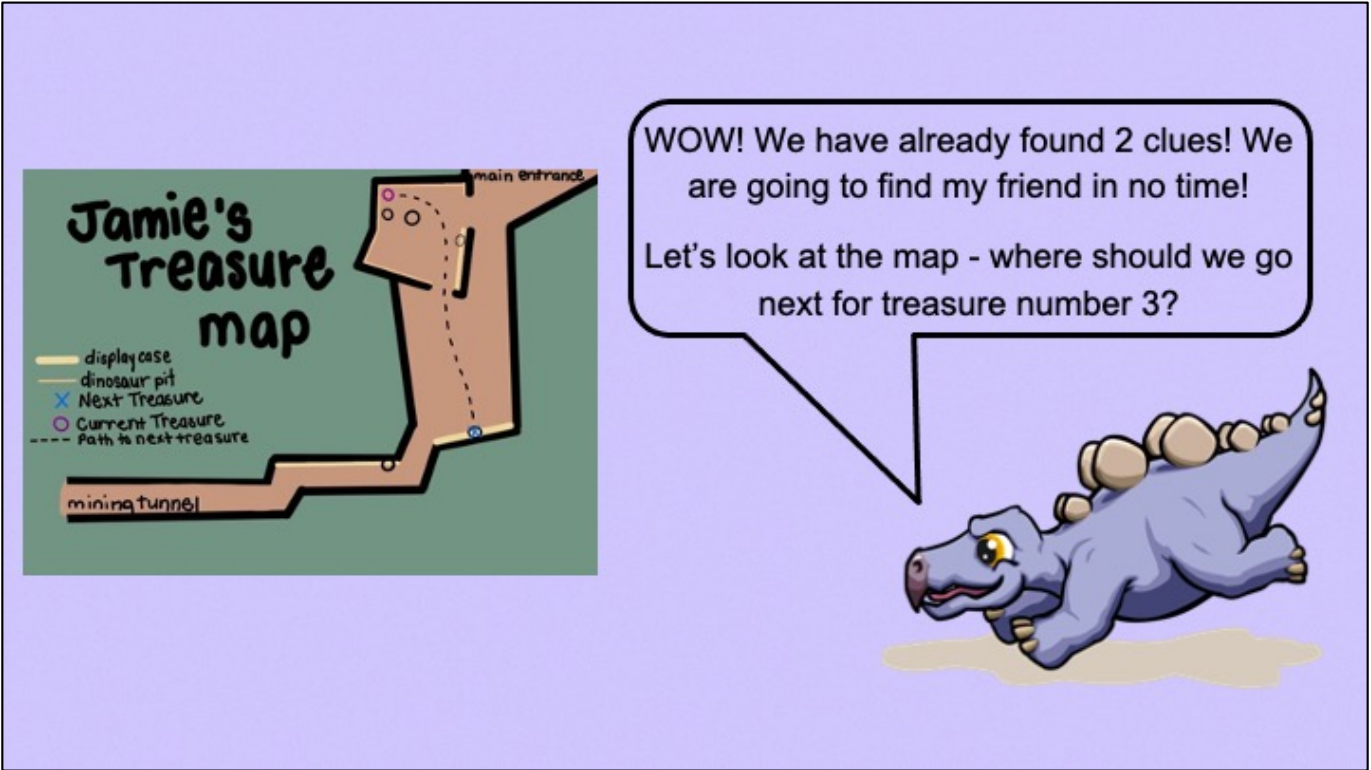
**Ursus Spalaeus?!**

It is okay, I don't think I can pronounce that very well either. Great job trying! This treasure reminds me of a time I was playing pretend and tried to stand on my back legs. It was fun being silly.

When was a time that you felt silly?

OpenClipart. (2018). *Cartoon running dino* [Image]. Free SVG.
https://publicdomainvectors.org/en/free-clipart/Cartoon-running-dino/78646.html
Source Images

The use of more decontextualized language with preschoolers is highly correlated with an increase in conversational turns and longer episodes of turn-taking (Leech & Rowe, 2021; Rowe & Snow, 2020). This is important because the number of conversational turns between a 4-year-old child and their parents display a significant positive correlation with children's brain processing on language tasks, as well as their abilities on standardized vocabulary and syntax tests (Rowe & Snow, 2020). This highly suggests that back-and-forth conversation between parent and child is a supporter of children's language development.

In our Playful Learning activity, the dinosaur mascot, "Jamie," asks the children hypotheticals and questions that can both relate to an event in the child's past and to Jamie's past while they search for the list of treasures. This incorporates both decontextualized language, and prompts back-and-forth conversation between the parent and child, assuming the parent is reading the questions to their child. These questions create an opportunity for the parent to use an elaborate reminiscing style (ex. Remember when we went to the park yesterday? Remember what we saw?), which is a predictor of children's later language comprehension skills, narrative sophistication, and autobiographical memories (Rowe & Snow, 2020).

Our activity's encouragement of parent-child conversations is also a valuable

feature since it allows for children to better understand the social conventions and uses of language. In their study, Lindsay et al. (2019) found that as preschoolers learn to converse with others, much like adults, they begin formulating their responses while the other person is still talking by predicting what their partner is going to say. Then, as they further learn to coordinate language comprehension and production, they optimize their timing of conversational turns. Adults can therefore monitor the timeliness of a child's response to assess their understanding and provide appropriate feedback, acting as a scaffold for children as they navigate conversations, an applicable element for our activity. If a child appears to have slower response times to questions surrounding a specific object, it may be a signal to the parent to further explain or break down their question.

In terms of the items children must find in the activity, once finding the Sodalite Rock, the parent can discuss its appearance with the child, including its multicoloured and roughly textured surface. This can lead to questions such as, "does this look like rocks we've seen in the past?" or "how heavy do you think the rock is?" The decontextualized language in these interactions encourage conversational turns and can benefit the child's language development.

OpenClipart. (2018). *Sleeping dino* [Image]. Free SVG. https://publicdomainvectors.org/en/free-clipart/Sleeping-dino/78644.html
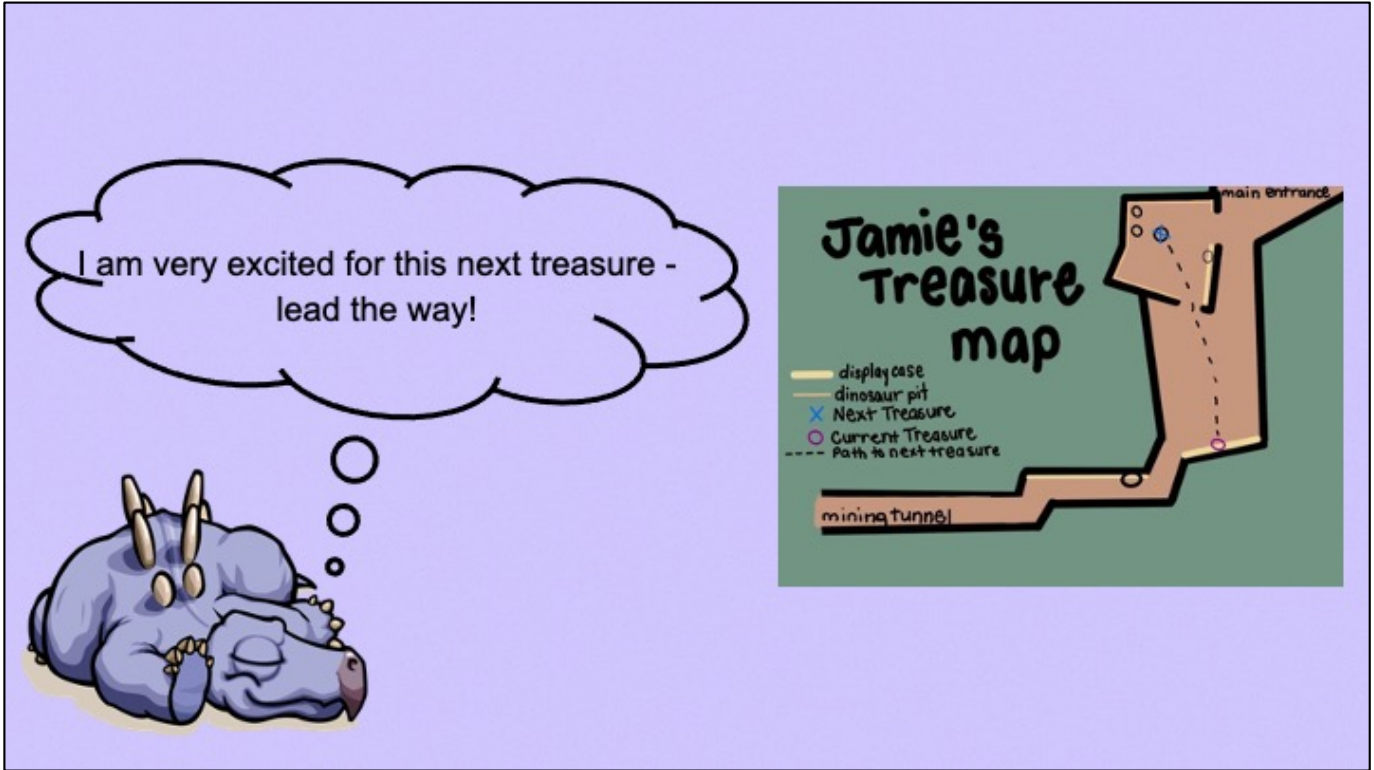
**SODALITE ROCK!**

Don't you love that shade of blue?

Do you have a favourite colour? I would love to hear about it!

We are one step closer to finding my friend! 3 more treasures to go. Let's see what we need to find next!

OpenClipart. (2018). *Sleeping dino* [Image]. Free SVG.
https://publicdomainvectors.org/en/free-clipart/Sleeping-dino/78644.html
Source Images

Treasure #4

This treasure is one of my favourites. She is one of my closest friends! You can find her on the floor that has rocks on it!

Here is another hint: she is green and has horns!

Answer: Trish the Triceratops

Similarly, "Trish the Triceratops" is another treasure children are instructed to find, and this small character is introduced as one of Jamie's friends. Parents can initiate conversation with their preschooler using the character, asking questions such as, "do you think dinosaurs were really this small in real life?" or referencing previous items found such as, "do you think Trish made the footprint we saw earlier?" This item, again, provides many opportunities for decontextualized language, further supported by prompts shown on the slide. In turn, it can promote back-and-forth conversation.
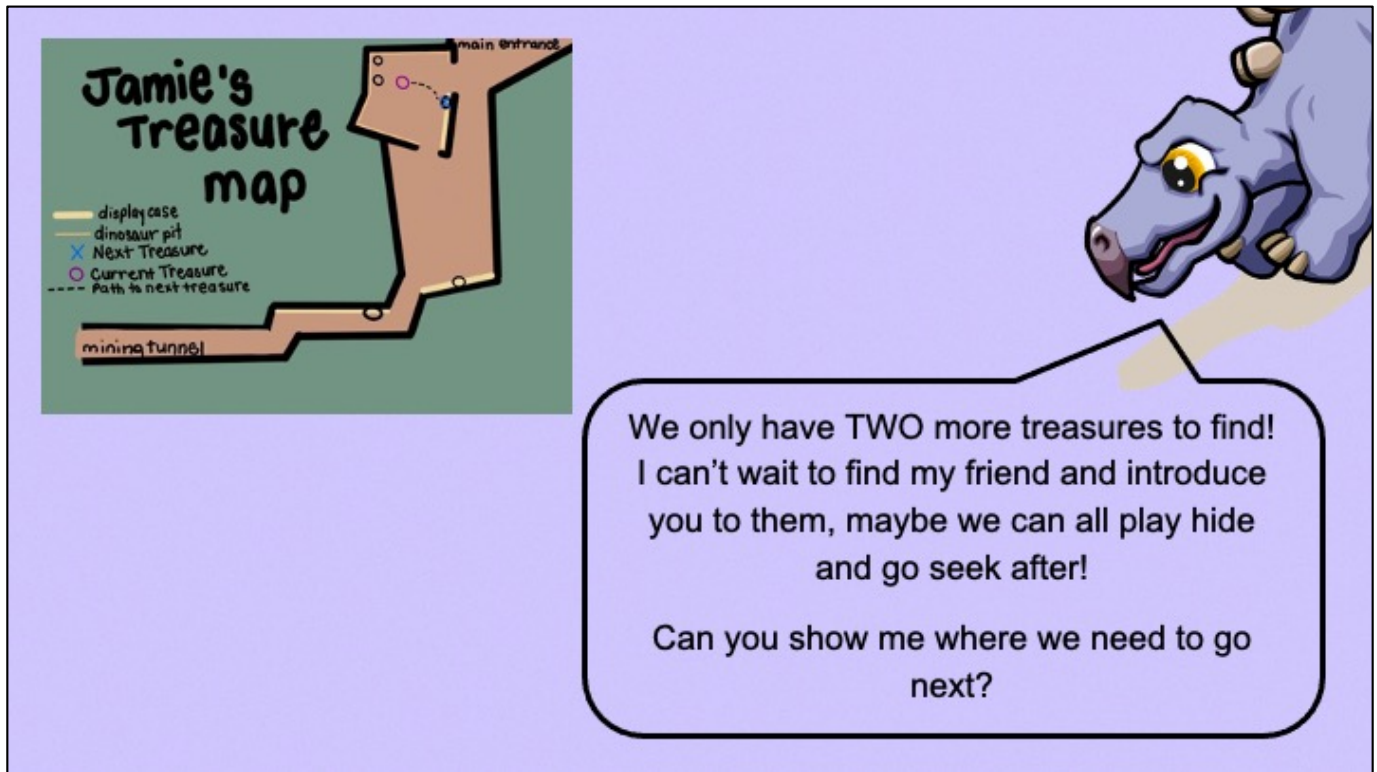
Overall, at preschool age, the quantity of parent-child talk was not as influential on language processing and skills as responsive and engaging interaction between parent and child (Rowe & Snow, 2020). The encouragement of conversational turns in our Playful Learning activity supports preschoolers' language development in this domain.

OpenClipart. (2018). *Cartoon running dino* [Image]. Free SVG. https://publicdomainvectors.org/en/free-clipart/Cartoon-running-dino/78646.html

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Source Images

**Treasure #5**

This treasure is very cool. It LOOKS like a big rock, but if you look close, it has an imprint of a sea creature. This is called a fossil. I wonder if you can tell me what kind of fossil it is?

Answer: Isotelus Fossil

The fifth item that we have chosen is an Isotelus Fossil. This fossil is located near the dinosaur pit on the lowest shelf in the display case, making it easy for preschoolers to see at eye level. Although children at this age will likely not have much background knowledge of fossils and how they are created, Jamie's dialogue can explain to them that while this fossil may look like a rock, it is not a rock, and give basic background knowledge on what fossils are that children could then build ipon in the future. If the children ask questions about what the fossil is, their caregiver may be prompted to provide some simple explanations. When children ask questions involving 'why's' and 'how's,' the explanations they receive can lead to more questions which provides more conversational turns (Rowe & Snow, 2020). As previously stated, this is overall beneficial for the language acquisition of children (Rowe & Snow, 2020).
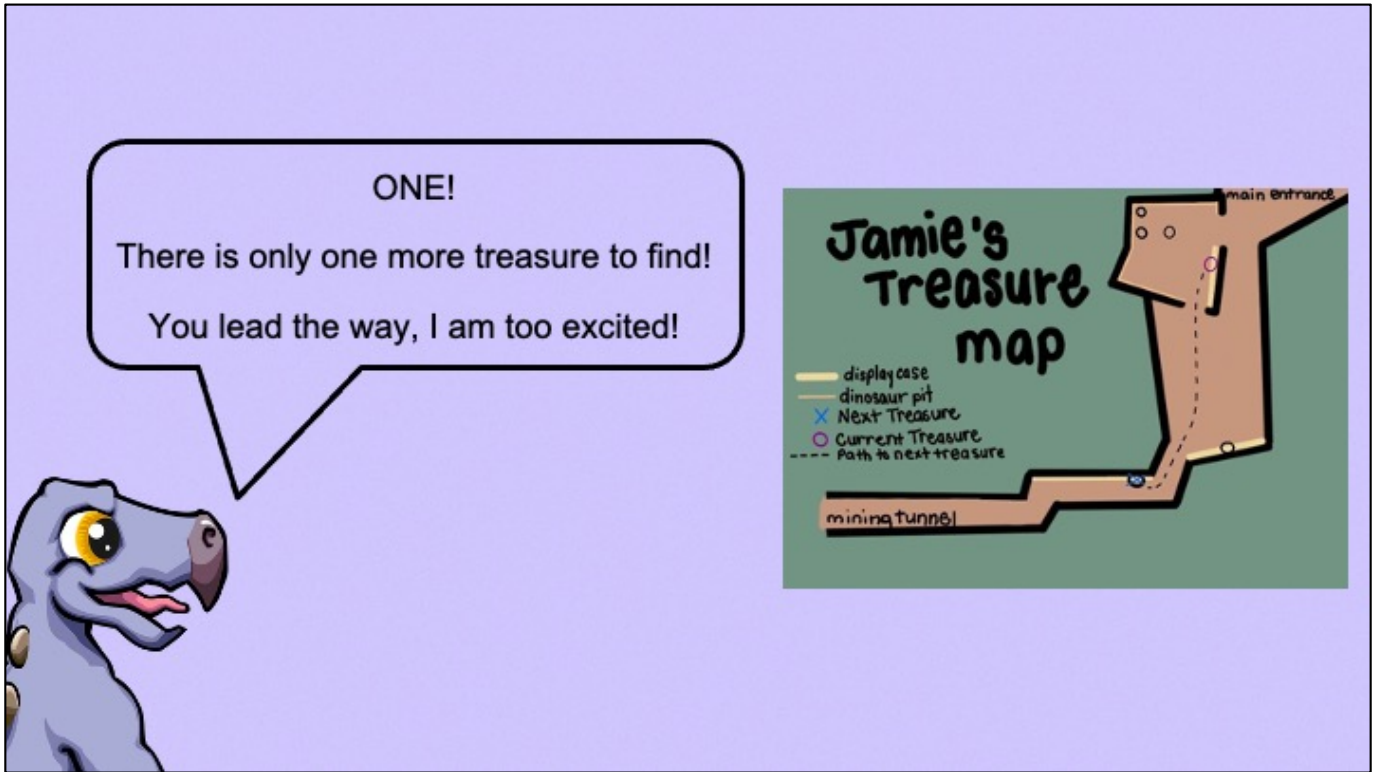
OpenClipart. (2018). *Sleeping dino* [Image]. Free SVG. https://publicdomainvectors.org/en/free-clipart/Sleeping-dino/78644.html

OpenClipart. (2018). *Sitting baby dino* [Image]. Free SVG.
https://publicdomainvectors.org/en/free-clipart/Sitting-baby-dino/78645.html
Source Images

Treasure #6

This treasure looks like another rock!

The first part of this rock's **n**ame is a **n**ame we call **one** of our coins in Canada

The second part of this treasure's **n**ame rhymes with:

M<u>ore</u>, St<u>ore</u>, C<u>ore</u>

Can you think of **a**ny**more** words that rhyme?

Answer: Nickel Ore

The sixth and final item that we have chosen is a piece of nickel ore that is part of the mining tunnel display. We thought having an item that is part of the mining tunnel display would be beneficial in that it would bring the child and caregiver over to an area of the museum that is tucked away and could be missed initially. While many of the signs in this area would be of more interest to children in older age groups, the mining tunnel area is an interesting and unique environment and provides an opportunity for pretend play. This type of pretend play could evoke decontextualized language if children and their caregivers participate in enacting a script (Rowe, 2012). During pretend play, the mining tunnel could be imagined as whatever environment fits best with the scenario the child or caretaker have come up with.

Instead of drawing on more complex background knowledge that preschoolers may not know yet about things such as mining and money, we chose to focus Jamie's dialogue on the concept of rhyming. Rhyming is one of the early steps that can contribute to the development of preschoolers' phonological awareness skills that they can then build upon in the future (Grofčíková & Máčajová, 2020). Phonological awareness is an important skill for preschoolers to develop as there is evidence that it is an important tool that they use when they are learning how to read and write, by allowing them to recognize that words can be divided into different segments of sounds (Grofčíková & Máčajová, 2020).

OpenClipart. (2018). *Cartoon running dino* [Image]. Free SVG.

# NICKEL ORE!

Wow, that was a tough one. Rhyming words are hard, but we did it!

Now, can you remember the 6 letters from each treasure that we need to find my friend?

Remember, we need the FIRST LETTER of each treasure!

OpenClipart. (2018). *Sitting baby dino* [Image]. Free SVG.
https://publicdomainvectors.org/en/free-clipart/Sitting-baby-dino/78645.html

At the end of the activity, children will have followed along with Jamie's journey and will hopefully have strengthened their language abilities along the way. Simply providing children with resources does not guarantee that they will use them in a way that is productive to the development of their language abilities (Neuman & Celano, 2012). Because of this fact, it would be beneficial for the activity to be structured in a way that would promote collaboration between the caregiver and child, while they follow along with the story and interact in ways that help to develop language skills, while it still being fun (Neuman & Celano, 2012). For example, if a child has questions about some aspects of the activity, the dialogue that we have created provide a template for the caregiver to have answers for the child and to help them understand what is happening.

Some of Jamie's dialogue, such as when he says, "when was a time when you felt silly?" that occur throughout the activity have been written in a way that can encourage the child and caregiver to reminisce about events or memories that may have happened in the past. In creating these kinds of shared narratives, caregivers are able to scaffold some of the important concepts that can help children to continue developing their autobiographical consciousness (Fivush & Nelson, 2020). This example of Jamie's dialogue is also useful in that it prompts children to put words to their internal states by reminiscing about an event and paying attention to what they felt at the time, while also perhaps hearing their caregivers perspective of the event, both of which are important to autobiographical consciousness (Fivush & Nelson, 2020). Examples of dialogue that are similarly helpful to the development of language

can be found throughout the story.

Literacy is an essential skill for children to develop in order to achieve a high amount of success in life. Snow (2015) found that language learning benefits children in ways other than just literacy. Having strong language skills can help children during their academic career as well as in other beneficial ways, such as bettering mental health and interpersonal skills, all of which will be useful throughout their lives (Snow, 2015). We hope that this activity can contribute to strengthening these skills.

OpenClipart. (2018). *Cartoon running dino* [Image]. Free SVG. https://publicdomainvectors.org/en/free-clipart/Cartoon-running-dino/78646.html
OpenClipart. (2018). *Smiling cartoon dino* [Image]. Free SVG. https://freesvg.org/smiling-cartoon-dino

# Playful Learning @ UW

Elementary School Edition

**OVERALL LOCATION MAP**

Circled in blue is the location we are highlighting
- PAS Gardens

**Transportation Options**
- 🔴 Public Transit Stops
- 🟣 M Lot Parking $6/day
- 🟢 H Lot Parking after 3:45 PM and on weekends $5/day

PAS Gardens

Circled is the location we have chosen.
*See additional parking lot rates and information at:
https://uwaterloo.ca/parking/visitors
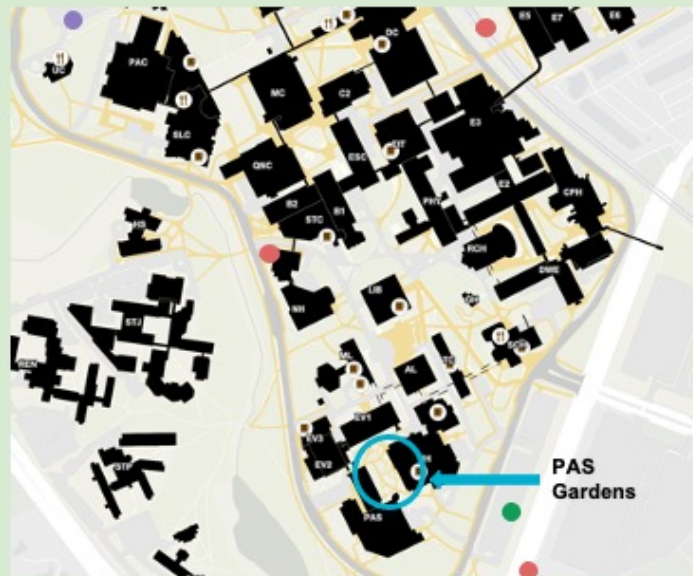
Screenshot of Interactive University of Waterloo Map https://uwaterloo.ca/map/

# PAS Gardens

**Bathrooms:**

- Hagey Hall main floor (Accessible)
- PAS (Inaccessible)

**Picnic Areas:**

- Tables and Benches throughout the gardens

**Food:**

- Liquid Assets Cafe on Hagey Hall main floor (Mon-Fri 8AM-3:30PM)

Screenshot of University of Waterloo Interactive Map https://uwaterloo.ca/map/

PAS GARDENS PHOTOS

The PAS Gardens is located on the university campus' south-west side, tucked away between PAS and Hagey Hall. The area has a variety of benches and picnic tables for seating and the large trees and buildings provide the area with good amounts of shade, which can be particularly useful in sunny weather. The main feature of this area is the presence of a variety of different types of plants (as well as rocks and a torii structure), with plaques stating what they are and where they are from.
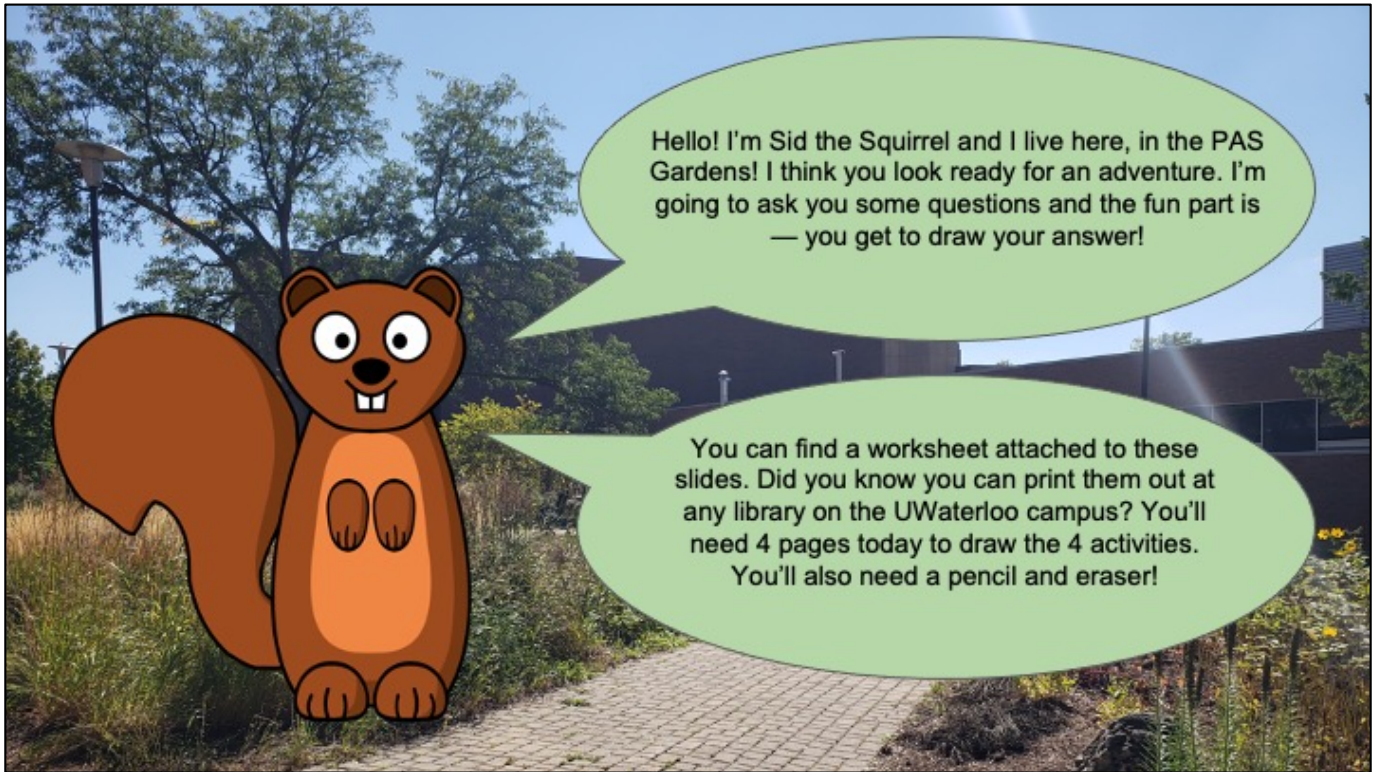
This is an introduction to the mascot Sid the Squirrel and an introduction to the activity. The drawing worksheets can be printed out at any campus library for 10 cents a page. Given this activity uses 4 activities, the child will require 4 printed out pages. They will also require a pencil and eraser and optionally pencil crayons or markers to colour with.

At an elementary school age, children have already developed substantial language skills. However, some children have lower levels of language skills as they enter school.

Extended discourse is associated with later vocabulary and reading skills (Snow & Beals, 2006).

Our activity focuses on questions since, "... questions are more likely to elicit a response from children compared to directives or comments." (Tompkins et al., 2013). This activity allows all children to wonder and ask about different aspects of their environment, while also providing a channel

for them to think critically. The topics can additionally encourage the child to ask questions to their caregivers which can prompt extended discourse with satisfactory explanations.

OpenClipart. (2020). *Squirrel cartoon clip art* [Image]. Free SVG. https://freesvg.org/squirrel-cartoon-clip-art

Asking questions and receiving adequate explanations is instrumental in early learning, contributing to vocabulary-rich interactions and enhancing concept-learning for future school readiness (Kurkul & Corriveau, 2018). Our activities aim to foster this.

This first activity in the program involves the child being asked to draw what the flowers in the PAS garden would look like, not in the current season, but in the upcoming season. Hints are also provided in an information box. This activity is designed to prompt questions from the child they can ask their caregiver, planting the seed for both fact-based questions (ex. "When do the seasons change?") and causal questions (ex. "Why do flowers look different in different seasons?").

In some cases, parents may not have adequate knowledge to answer their children's causal questions. Our first activity presents a simple premise with a basic scientific explanation. Flowers change from season to season because of their environment's climate, as well as from following their life cycle. Hints in the information box don't just help the child, but can guide the parents as well in their explanations. Parents can feel empowered to elaborate and provide more exemplary responses.

Additionally, our first activity encourages inferential talk, which is talk going beyond the here and now (Tompkins et al., 2013). The activity influences the child to think about the future, given they must draw what the flowers will look like in a future season. Inferential questions and talk are important in early learning because it's critical in understanding written text at higher levels (Tompkins et al., 2013).

Our first activity provides children with the opportunity to think critically about the future and ask casual questions, and makes it easy for parents to answer with satisfactory explanations. These factors together can be greatly beneficial for a child's language development and school readiness.

OpenClipart. (2020). *Red_Flower* [Image]. Free SVG. https://freesvg.org/jean-victor-balin-red-flower
OpenClipart. (2021). *Rose17Yellow* [Image]. Free SVG. https://freesvg.org/rose17yellow
OpenClipart. (2020). *Squirrel cartoon clip art* [Image]. Free SVG. https://freesvg.org/squirrel-cartoon-clip-art
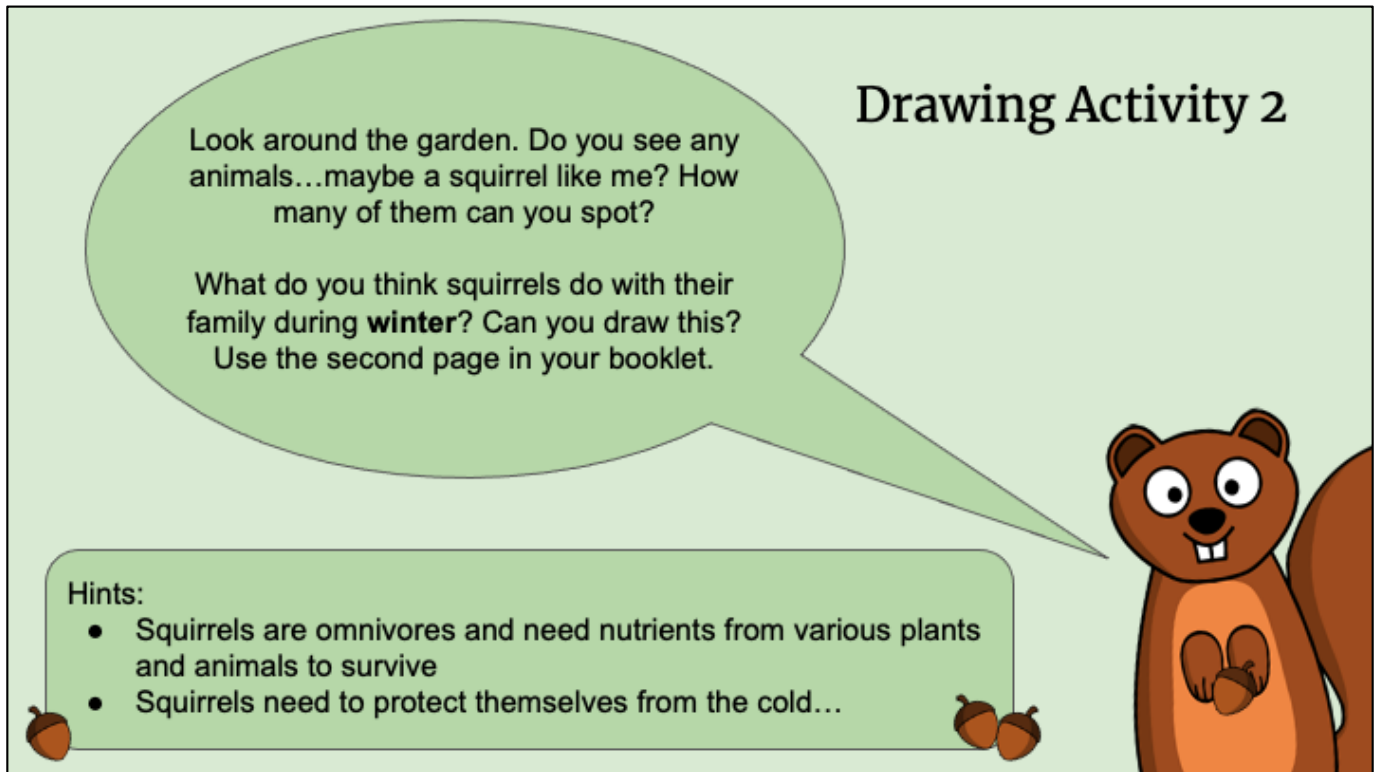
Narrative and explanatory talk have been found to positively influence and promote language and literacy development. More specifically, Snow and Beals found in their 2006 study, that in an environment in which distractions that are taking away from engaging in conversation are minimized, children can experience and discover various social uses of language. For example, children can learn what appropriate topics are, how to stay on a topic, how to give enough information to the listener, and what are socially acceptable means of communication.

Going further, this sort of environment offers opportunities for extended discourse, both in explanatory and narrative talk. Engaging in extended discourse is associated with children's vocabulary and reading achievement scores in the future (Snow & Beals, 2006). Taking this information and applying it to our activity, PAS Garden offers a quiet atmosphere, tucked away from the bustle of campus life. As touched on earlier, this location has some informative plaques for various objects found in the garden. These pieces of information can be good conversation/discussion starters as children may read the signs and ask questions.

Along with this, the prompts/blurbs we have our mascot "saying" can also promote the children's engagement in conversation. Both the plaques and activity prompts will open up to and trigger deeper, more meaningful conversations between the children and their caregivers. As a result, increased exposure to vocabulary and more knowledge on various topics and the way things work will occur. In direct relation to the second drawing activity, parents may read the prompt to the child saying, "Look around the garden. Do you see any animals…maybe a squirrel? How many of them can you spot?" From this, they might wait for the child to respond and engage in conversation. Additionally, this sort of talk can encourage the child to respond back with questions, allowing the parent to engage in more of an explanatory-type talk, which, as brought up prior, benefits children in the long run.

OpenClipart (2020). *Cartoon acorn* [Image]. Free SVG. https://freesvg.org/lemmling-cartoon-acorn
OpenClipart. (2020). *Squirrel cartoon clip art* [Image]. Free SVG. https://freesvg.org/squirrel-cartoon-clip-art

Our third drawing activity is focused on the idea of Japanese gardens as children are directed to focus on the Zen Garden area of the PAS gardens. There is a plaque in the zen garden providing some additional context about what is in the garden, including information about some of the plant species that can be found there. It also explains the sense of peace and relaxation that the garden is meant to evoke. In grade 2, which is included in the age range this project is focusing on, children will begin to learn about other countries across the world and their lifestyles and cultures (Ontario Ministry of Education, 2018). Connecting these ideas that they have learned about in school to the Zen Garden may cause children to ask questions about the relation between the two.

The question we have provided may also provoke children to ask questions about the concept of why different plants grow in different places around the world as in elementary school children will also be learning about the characteristics of plants including information about their lifecycle and what they require to be able to grow (Ontario Ministry of Education, 2022).

This talk of how the Zen Garden relates to a type of garden that originates in a different country can be considered inferential language as it is talking about a place that is removed from the here and now (Tompkins et al., 2015). The specific question on the slide that asks about the differences

between the zen garden and the rest of the PAS garden asks children to compare the features of the two gardens. Asking inferential questions of this level generally prompted children to respond with a response with the same level of abstraction (Tompkins et al., 2015). This type of abstract inferential language is useful for children as they continue to develop their ability to read and comprehend what they are reading which is important for school readiness (Tompkins et al., 2015).

j4p4n. (2014). Torii - Shinto gate vector image [Image]. Free SVG.
https://freesvg.org/torii-shinto-gate-vector-image
OpenClipart. (2020). *Squirrel cartoon clip art* [Image]. Free SVG.
https://freesvg.org/squirrel-cartoon-clip-art

Drawing Activity 4

There is so much space to explore here in the gardens! Why don't you lead and tell me what your favourite part of the garden is!

I wonder what your **favourite part** looks like! Can you draw it? Use the fourth page in your booklet.
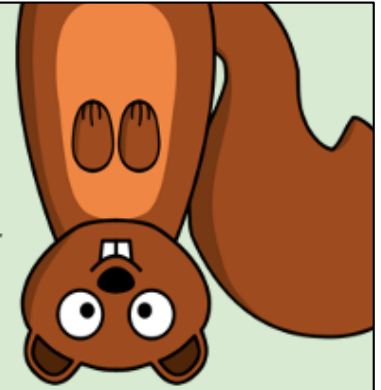
Hints:
- There is a secret trail within one of the gardens
- Butterflies are common around this area in the spring and summer months

Everyday conversation plays a crucial key in children's knowledge and language development. As children have conversations with their parents or other adults, they are often asking questions about things they encounter that might be unfamiliar to them, or learn through testimony. Children often ask "why" and "how" questions which is helpful in retaining information while learning due to their significant interest in the topic at the time (Callanan et al., 2012). Through testimony, children are left to trust the information they are given from other people, due to the inability to observe the phenomenon for themselves.

Children are encountering new and different things every day while out in the world. Conversations are important during these observations, as they are absorbing new concepts and learning how to draw boundaries and theories to different domains in their brain (Callanan et al., 2012). By learning what different items are, children sort them into various schemas that they have previously developed in their mind in order to categorize that information, allowing them to access it easily the next time they come across it.

During this activity question, children are asked to pick their favourite part of the garden and draw it. Some hints prompt to a more adventurous area, the hidden trail in one of the gardens, and exploring the different butterflies that could be flying around. These hints can be utilized as prompts to use their imagination and draw what they see from their perspective. This allows children to ask their "why" and "how" questions if they aren't sure what something is or why butterflies like certain

plants, and creates an opportunity for them to retain that information by letting them gear their learning to their own interest.

OpenClipart. (2012). *Gold star clip art* [Image]. Free SVG. https://freesvg.org/star2
OpenClipart. (2020). *Squirrel cartoon clip art* [Image]. Free SVG. https://freesvg.org/squirrel-cartoon-clip-art
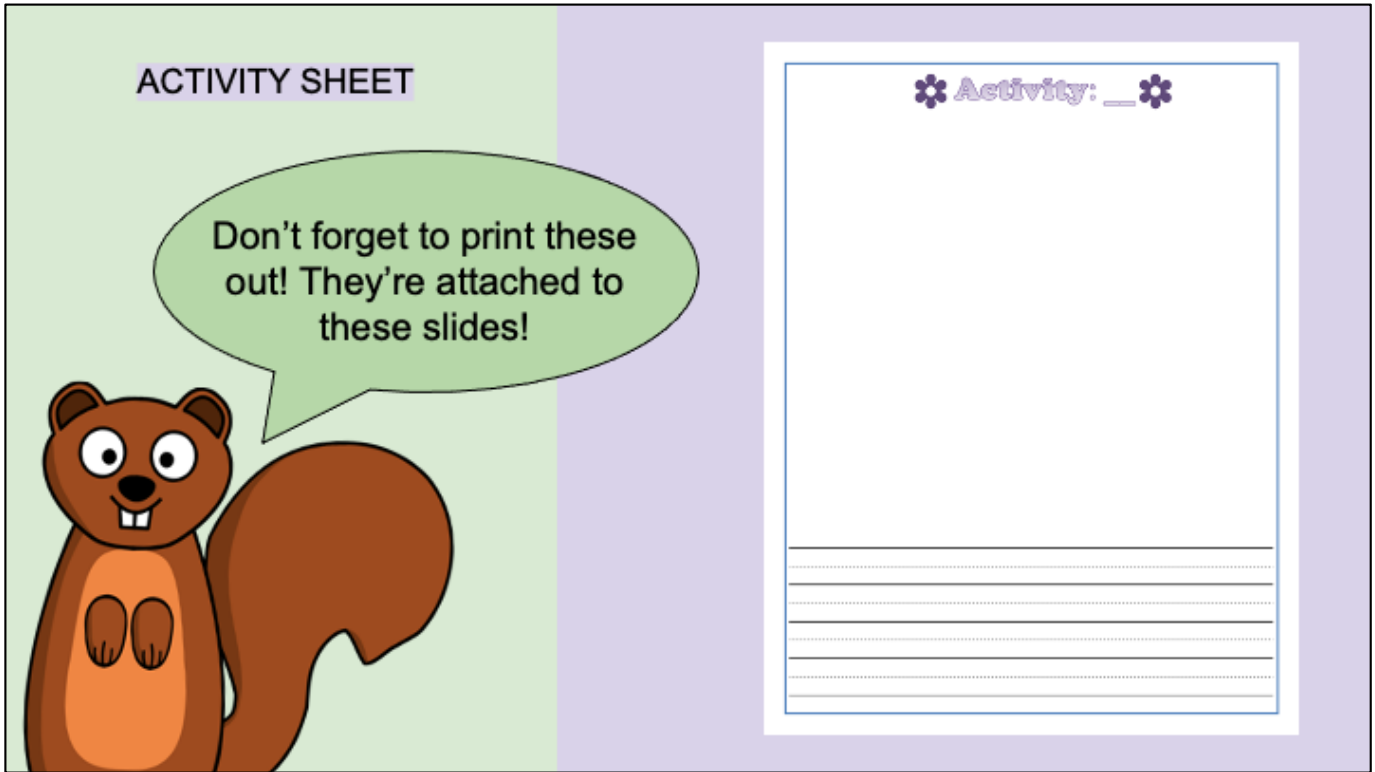
The activity sheet can be printed just once, or for as many locations as you are going to. It has space for the children to draw what they are prompted to draw by each activity, and there is space below for them to write about their drawing if they wish to do so.

OpenClipart. (2020). *Squirrel cartoon clip art* [Image]. Free SVG. https://freesvg.org/squirrel-cartoon-clip-art

There are always going to be opportunities for children to learn through language and their everyday lives. From questions and answers to everyday dialogue, children absorb the world around them like a sponge. By providing them with opportunities, such as this activity, it allows them to expand their world just a little bit further in a way that might not be available to them. Our activity not only provides a learning environment, but also structure where parents can learn through info plaques throughout the gardens about different elements. The more opportunities provided for children to learn, the stronger their ability to develop language and inquiry thought processes.

OpenClipart. (2020). *Squirrel cartoon clip art* [Image]. Free SVG.
https://freesvg.org/squirrel-cartoon-clip-art

To conclude, there are a variety of ways that children learn and engage with us daily without us even realizing. There are conversations being had, observations being made, mimicry being applied, and storytelling being done. Children are observant in their everyday lives, they are curious about new things, and they want to spend time with their parent or caregiver. This assignment has provided a few simple activities that can be adapted and shared with any age group, but has specifically been applied to the appropriate ages they were developed for. It shows that there are learning opportunities around every corner, on every adventure, and the more children are exposed to, the stronger their language skills develop.

OpenClipart. (2018). *Sitting baby dino* [Image]. Free SVG. https://publicdomainvectors.org/en/free-clipart/Sitting-baby-dino/78645.html
OpenClipart. (2020). *Squirrel cartoon clip art* [Image]. Free SVG. https://freesvg.org/squirrel-cartoon-clip-art

# References

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

Canadian Public Health Association (CPHA). (2019). Children's unstructured play position statement. https://www.cpha.ca/childrens-unstructured-play

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.*

Fjørtoft, I. (2001). The natural environment as a playground for children: the impact of outdoor play activities in pre-primary school children. *Early Childhood Education Journal, 29*(2), 111-117. https://doi.org/10.1023/A:1012576913074

Fyfe-Johnson, A. L., Hazlehurst, M. F., Perrins, S. P., Bratman, G. N., Thomas, R., Garrett, K. A., Hafferty, K. R., Cullaz, T. M., Marcuse, E. K., & Tandon, P. S. (2021). Nature and children's health: A systematic review. *Pediatrics, 148*(4), 72–94. https://doi.org/10.1542/peds.2020-049155

Gómez, E., & Strasser, K. (2021). Language and socioemotional development in early childhood: The role of conversational turns. *Developmental science, 24*(5), e13109. https://doi.org/10.1111/desc.13109

Grofčíková, S., & Máčajová, M. (2020). Rhyming in the Context of the Phonological Awareness of Pre-School Children. *Center for Educational Policy Studies Journal. 11*(1), 115-138. https://doi.org/10.26529/cepsj.685

Isik, M. A. (2016). The impact of storytelling on young ages. *European Journal of Language and Literature Studies, 2*(3), 115–118. https://doi.org/10.26417/ejls.v6i1.p115-118

Kaefer, T., Neuman, S. B., & Pinkham, A. M. (2014). Pre-existing background knowledge influences socioeconomic differences in preschoolers' word learning and comprehension. *Reading Psychology, 36*(3), 203-231. https://doi.org/10.1080

# References

Kurkul, K. D., & Corriveau, C. H. (2018). Question, Explanation, Follow-Up: A Mechanism for Learning From Others? *Child Development*, 89(1), 280-294. https://doi.org/10.1111/cdev.12726

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. https://doi.org/10.1177/014272370202206503

Leech, K. A., & Rowe, M. L. (2021). An intervention to increase conversational turns between parents and young children. *Journal of Child Language*, 48, 399-412. https://doi.org/10.1177/014272370202206503

Lindsay, L., Gambi, C., & Rabagliati, H. (2019). Preschoolers Optimize the Timing of Their Conversational Turns Through Flexible Coordination of Language Comprehension and Production. *Psychological Science*, 30(4), 504-515. https://doi.org/10.1177/0956797618822802

Luo, R., Tamis-LeMonda, C. S., Kuchirko, Y., Ng, F. F., & Liang, E. (2014). Mother-child book-sharing and children's storytelling skills in ethnically diverse, low-income families. *Infant and Child Development*, 23, 402–425. https://doi.org/10.1002/icd.1841

Nelson, K., & Fivush, R. (2020). The Development of Autobiographical Memory, Autobiographical Narratives, and Autobiographical Consciousness. Psychological Reports, 123(1), 71–96. https://doi.org/10.1177/0033294119852574

Nelson, K. E., Welsh, J. A., Vance Trup, E. M., & Greenberg, M. T. (2010). 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) 13-23. https://www.aft.org/ae/fall2012/neuman-celano

Neuman, S. B., & Moland, N. (2019). Book deserts: The consequences of income segregation on children's access to print. *Urban Education.* 52(1), 126-147. https://doi:10.1.1177/004208591665425

# References

Ontario Ministry of Education (2022). *Science and Technology Elementary Curriculum.* https://www.dcp.edu.gov.on.ca/en/curriculum/science-technology

Ontario Ministry of Education (2018). *Social Studies, History, and Geography Elementary Curriculum.* https://www.dcp.edu.gov.on.ca/en/curriculum/elementary-sshg

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. https://doi.org/10.1111/j.1467-8624.2012.01805.x

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, 5*(3), 259–283. https://doi.org/10.1207/s15327922par0503_3

Rowe, M. L., & Snow, C. E. (2020). Analyzing input quality along three dimensions: interactive, linguistic, and conceptual. *Journal of Child Language,* 47, 5-21. https://doi:10.1017/S0305000919000655

Schwab, J. F., & Lew-Williams, C. (2016). Repetition across successive sentences facilitates young children's word learning. Developmental Psychology, 52(6), 879–886. https://doi.org/10.1037/dev0000125

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, https://doi.org/10.3109/17549507.2015.1112837

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

Sutton-Smith, B., Pellegrini, A. D., & Singer, J. L. (1995). Imaginative play in childhood: precursor of subjunctive thought, daydreaming, and adult pretending games. In *The Future of Play Theory: A Multidisciplinary Inquiry into the contributions of Brian Sutton-Smith* (pp. 187-220). Essay, State University of New York Press.

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, https://doi.org/10.1016/j.ecresq.2012.11.001

University of Waterloo. (2022). *Environment 3 First Floor Plan*. University of Waterloo. https://plantops.uwaterloo.ca/floor_plans/pdf_drawings/057EV3_01FLR.pdf

University of Waterloo. (2022). *Interactive Campus Map*. University of Waterloo. https://uwaterloo.ca/map/

University of Waterloo. (2022). *Map of Earth Sciences Museum*. University of Waterloo. https://uwaterloo.ca/earth-sciences-museum/visit-us

Wallin, M. L. (2019). Let's play outside: The importance of pretend play in natural settings. Community Playthings. https://www.communityplaythings.com/resources/articles/2019/the-importance-of-pretend-play-in-natural-settings

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. https://doi.org/10.1177/1525740108314862