



**DESIGN
CHALLENGE
2019**

Team Algonquin
ALGONQUIN
COLLEGE

Contents

Project Overview

Our Approach..... Page 1

You Spoke, We Listened..... Page 1

The Design

Kindergarten Area..... Page 3

The Schoolyard..... Page 5

Implementation

Phase One - Kindergarten Area Page 9

Phase Two - Forest Area Page 10

Phase Three - High-Impact Extras Page 10

Add-Ons - À La Carte Page 11

Suggested Plant List..... Page 12



Meet Our Team

The Algonquin College team is made up of driven students attending the Horticultural Industries program at the Woodroffe campus in Ottawa. Each team member bears unique skills and interests that contribute to the fabrication of their design. Come Alive Outside has allowed these hard-working and motivated students to experience designing for clients in a real-world scenario while applying their personal and professional knowledge and skills.

BACK ROW: Valérie Meunier, Reina Rainville, Jessica Barter, Nathan Elliott, Ben Christy.

FRONT ROW: Jennifer LeBlanc, , Nadia Malek, Braeden Ladouceur.

Project Overview

Our Approach

Nature *is* a playground. This is something our team took to heart when designing your new schoolground. We have many new and exciting play structures we will show you later in this document, however, we believe the natural aspects of your site will have the highest impact on your students' playing and learning experiences. By focusing on enhancing the natural aspects of your site, we will meet your goals of increasing learning and playing outdoors in a sustainable, environmentally-friendly way. Benefits of this approach include:

- Keeping costs low by using recycled and locally-sourced materials
- Providing habitat for local wildlife, which children can observe
- Ensuring the health and longevity of the beloved trees on your site for years to come

It is important that children engage in many different types of play. This is another key aspect we took into consideration when designing your space. Quiet spaces, active spaces, and opportunities for your students to use their imagination or generate musical sounds; these are essential experiences we built into our design. Sensory play is especially important in helping children make sense of the world. Your students will be able to navigate areas of play using all their senses: smell, taste, touch, sight, and hearing. All key play spaces will be accessible to ensure that everyone can play and learn within your new schoolground.

You Spoke, We Listened

Our team had the opportunity to speak to your staff, your students, and parents. Your insights are at the source of every aspect of our design. Based on your feedback, we were able to narrow-down our mission to the following goals:

- Encourage and support all types of play, particularly sensory play
- Provide opportunities to support curriculum learning outcomes
- Maintain sightlines and important safety considerations
- Sustain all ecological aspects of the site long-term
- Improve water retention and drainage
- Create a strategic implementation plan that considers budget restrictions and site limitations

Our vision is to meet these goals creatively, using concepts based on your students' ideas. Many of the features we will be presenting to you are based on the ideas your students presented to us during the design charette in October. On the next page is a list of student-generated ideas and requests that we have built directly into our design. You will see how these are incorporated into the design in the next section.

ENGAGING THE SENSES



Taste

Wintergreen, Blueberry, Serviceberry, Grapevine and kitchen herbs will be planted for children to taste. Additional pea planters will grow edible sweet peas to enjoy in late spring.



Touch

Sand and mulch are used for textured bases under play structures to dig and play in. Over 900 new plants are within reach for children to touch and explore. An outdoor chalkboard and interactive fence provide additional tactile experiences in the kindergarten area.



Smell

Aromatic herbs and flowers are planted in perennial garden beds near key sitting areas to enjoy.



Hear

Outdoor musical instruments such as drums and xylophones are in two key areas of the playground. The kindergarten area features many noise-making objects as part of their new interactive fence.



Sight

Pathways through tall, mature trees draw children into key play areas. Pollinator gardens and ecological areas attract various local insects and wildlife to be observed. The kindergarten area features a shelter with a stained-glass roof that casts colourful patterns onto the ground.

STUDENT IDEAS

OUR SOLUTION

Pirate Ship

A ship built of locally-sourced logs for students to climb on and use their imaginations.

Butterflies, Bugs and Nature

A pollinator garden will be built in the main schoolyard and in the kindergarten area. We will also install protected ecological areas that will be planted with native species to attract birds and other small wildlife.

Outdoor Kitchen

A sand kitchen will be installed in the kindergarten area.

Paintable Fence

A paintable, interactive fence will be installed in the kindergarten area.

More Seating

Additional seating will be installed in several areas throughout the school yard. There will also be benches and hooks near the school so students can hang jackets and backpacks while they play.

Keep Sports, Improve Problems

We have re-oriented the basketball courts to help prevent basketballs from rolling away down the hill. The four square courts have their own dedicated space. The soccer field and rink have been moved to use the space more efficiently. The kick ball court has been optimized to double as seating around the skating rink in winter.

Keep Existing Play Structures

We will be keeping the existing play structures because they are in good shape and used often by students. The only one we will remove is the monkey bars in the kindergarten area as they are dated and dangerous.



PHOTO:
Valérie Meunier of Team Algonquin works with students during the October 2019 Design Challenge Charette in Archbishop O'Sullivan's gymnasium.

The Design

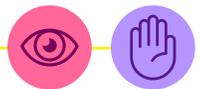
Kindergarten Area

An rubber track, tunnel, and berms transform this previously flat, unstimulating space into an adventure. Vines growing on cables add much needed shade while creating an engaging and cozy 'ceiling' of leaves overhead. The area is bright and full of vibrant colour from the track, stained glass shelter, and interactive fence. The fence separating the area from the rest of the schoolyard has been moved to allow for more room to play.



Adventure Track

The track is made from recycled rubber. It can be surfaced with many bright colours, patterns, textures, and shapes to suit your imagination. Children can run along the track or ride a tricycle. A tunnel and a ramp add grade changes that create more opportunities for adventure and imagination.



Stained Glass Shelter

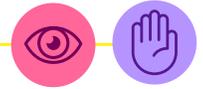
The stained-glass shelter is not made of glass at all – colourful polycarbonate sheets are angled to withstand snow load. The structure is a simple wood frame similar to a gazebo. The colourful light patterns casted onto the ground add imagination to play.



Sand Kitchen

The structure and accessories are made out of recycled pallet wood with a corrugated plastic roof. Rainwater is collected and made accessible to students for play. Key features include a recycled sink, pots, pans and kitchen accessories. Students can fill up their pots using sand and water. Kitchen herbs like rosemary and thyme are planted nearby for students to use in their sandy creations.





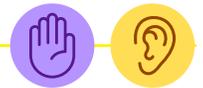
Interactive Fence

The fence is made of wood panels, which are fastened to the existing fence. The panels are untreated so students can paint them. Window frames and dome port holes are cut into panels. Mirrors, shutters, and other objects are fastened to the fence for added interactivity. Wood plank pathways lead to key elements on the fence.



Overhead Vines

Overhead cables are run between the fence and the school with wild grape vines growing along them. This creates shade and shelter for students. The vines produce safe, edible berries for birds and children to enjoy.



Music

A xylophone and PVC pipe organ are permanent fixtures in the space. The xylophone is a stand-alone unit while the PVC pipe organ is hand made from repurposed wood and PVC. Tongue drums, boom whackers, and half-cut barrels are removable instruments that can be locked away in storage bins when not in use.



Other

Also included in the kindergarten area are a wood bench with built-in storage and herb planters for taste and smell, and stump seating under trees. A window box pea planter provides snap peas for tasting in late spring, and a viewing window to watch worms and other creatures in the soil. A chalkboard is mounted on the wall of the school to allow class lessons to be taught outdoors. It will be low enough that students can also use it for creative play.



The Schoolyard

Our goal in designing the schoolyard was to appeal to five senses and to all types of personalities, while promoting conservation and biodiversity keeping accessibility in mind. Protected tree areas with added plants and mulch will reduce compaction over time and will, along with the dry creak bed, utilize rainwater and bring a solution to drainage. New parkour installations, a log ship and improved sports areas will provide high energy spaces, while quiet zones and additional seating will give people a chance to recharge. An accessible walkway links all sections of the schoolyard.



Raised Deck/Platform

The cedar deck provides a raised space to sit and enjoy the views of nature and the sound of wind chimes. A ramp and built-in bench seating around the edges make the deck wheelchair and stroller friendly.



Boardwalk

The boardwalk is 4” high and made of cedar. Its elevated height and location in the trees makes you feel like you are crossing a bridge in the forest. It also improves your view of the ecological areas on each side.



Ecological Areas

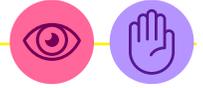
These are planted areas enclosed by a fence. They are protected to reduce compaction around the roots of existing trees. They contain native plant species that have three jobs: to look good, to provide habitat for local wildlife, and to absorb excess water. Wind chimes will be hung in the trees to add an extra sensory experience. To increase learning opportunities, we’ve installed signs along the fence that provide information about the plant and animal species you can observe in this area.





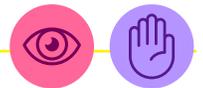
Parkour

The parkour course is made of engineered wood fiber safety surfacing with obstacles made of wood and recycled tires. This is a high-energy area where students can climb and jump their way through the course. To increase the sensory experience, whale drums will be installed the area.



Log Ship and Tire Gators

A ship made of locally-sourced cedar logs creates a new climbing structure that is inexpensive and safe. We've named the ship H.M.C.S. Kingston; after the real life naval ship currently in the Canadian fleet. Beside the ship are alligators made of recycled tires. Kids can use their imaginations to sail on voyages or avoid the alligators.



Quiet Sitting Areas and Balance Beam

Additional seating has been added to quiet areas under trees. They provide a place to sit and relax or watch anyone playing on the play structures. A new raised log structure can double as seating or as a balance beam.



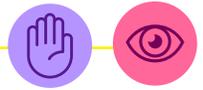
Gazebo

A gazebo, constructed from a cedar wood gazebo kit with aluminum roof, will be placed in the back corner of the field. It will provide a quiet, private area to sit and enjoy the pollinator garden.



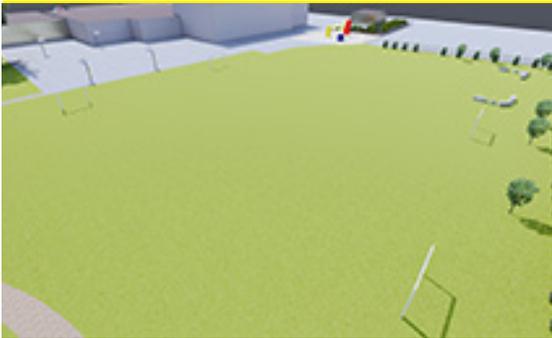
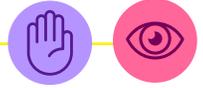
Pollinator Garden

The garden is on a berm that surrounds the gazebo. It creates a private, quiet space for sitting and relaxing. The berm will be planted with trees and pollinator-friendly flowers that will attract an assortment of insects. Serviceberry trees, echinacea, asters, wild bergamot, and milkweed are a few of the plants you would find in this area.



Outdoor Classroom

The new outdoor classroom will include log seating on a compacted mulch base to give the area a natural look and feel. A chalkboard mounted on cedar log posts will also be added to help teachers organize lessons outside.



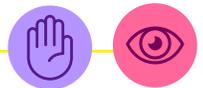
Soccer Field and Skating Rink

The skating rink has been moved closer to the fence along the parking lot to give more space to the soccer field. Large rocks have been placed at the corner of the rink that will work as seating and double as the kickball court. The cage for the kickball court has been removed to allow for a more open flow of space. The soccer field has also been moved for better space efficiency.



Bioswale and Drainage Creek Bed

A large planted area acts as a swale to collect water and improve drainage. Like the ecological areas, the plants in this space will be picked to do three jobs: to look good, to provide habitat for local wildlife, and to absorb excess water. A dry creek bed connects to the swale, draining all water on the site. Learning opportunities have been added to the area in the form of info signs that provide information on plants and animals that can be observed in the area.



Four Square and Basketball

The four square courts have been moved so they don't get in the way of any basketball games. The basketball courts are rotated to face the opposite direction. This will help reduce the amount of basketballs that go rolling down the hill. It also opens a better path of travel when you're walking through.



New Green Space And Hedges

Pavement has been removed and replaced with plants. The plants create privacy, protection from the wind, and block the view of the parking lot. Native plants provide habitat and food for insects. This section will also help absorb more rain water to improve drainage and prevent pooling areas. A cedar hedge has been planted along the entire north fenceline for additional privacy and protection.



Accessible Pathways

New gravel paths lead you to key play spaces in the school yard. They are made of compacted crushed gravel. This is an ideal surface because it's inexpensive and permeable. It's also wheelchair and stroller friendly, making it completely accessible. It will add to the sensory experience by making a crunching sound when you walk on it.



Existing Play Structures

Almost all existing play structures in the playground are remaining as is. The only structure we are removing is the dated/dangerous monkey bars in the kindergarten section.

Implementation

Phase One - Kindergarten Area

This first area to be implemented will be the kindergarten yard. Our design suggests a bigger area to include mature trees and will use natural, locally sourced and repurposed materials whenever possible. All of the proposed items were included and are within 5% of the budget, except for the stained glass shelter, which can be implemented in a subsequent phase.

FEATURE	COST
Music Area	\$1,954.13
Kitchen Area	\$1,984.74
Path to Kitchen	\$988.00
Storage Boxes	\$367.50
Play Structure	\$52.50
Track	\$17,300.20
Quiet Area	\$851.75
Interactive Play Fence	\$1,516.16
Steel Cables	\$1,853.00
Wood Plank Pathways	\$160.00
Storage Bench and Planter	\$470.37
Pea Planter	\$279.99
Plants	\$1,400.50-\$2,801.00*
Moving Existing Soccer Posts	\$390.00
TOTAL	\$29,568.84-\$30,969.34*

All above prices include labour.

**Cost varies depending on volume of donated plant material. Minimum cost assumes a 50% savings.*

Phase One Cost Saving Strategies

- Using donated plants and kitchen items
- Postponing the installation of the Stained Glass Shelter to a subsequent phase
- Creating homemade music instruments
- Using natural, locally sourced materials like log stumps for seating and rough-milled planks for pathways
- Using repurposed materials: pallet wood for kitchen, repurposed kitchen utensils, home made instruments

Phase Two - Forest Area

The second phase focuses on protecting the forested area and mitigating drainage issues, while creating interactive features for education and play.

FEATURE	COST
River Beds	\$9,215.80
Bioswale Base and Fence	\$1,130.54
Planting Within Bioswale Area	\$2,289.50-\$4,579.00*
Outdoor Classroom	\$6,241.46
Log Ship and Tire Gators	\$4,532.60
Raised Balance Beam	\$219.80
Gravel Paths	\$1,341.40
Fence Around Ecological Areas	\$964.92
Planting Within Ecological Areas	\$744.00-\$1,488.00*
Log benches	\$895.96
TOTAL	\$27,575.97-\$30,609.47*

All above prices include labour.

**Cost varies depending on volume of donated plant material. Minimum cost assumes a 50% savings.*

Phase Two Cost Saving Strategies

- Using cheap, repurposed, and natural materials
- Postponing the installation of the Parkour area to a subsequent phase
- Using donated plants
- Using crushed gravel as a pathway surface: cheap, permeable, and accessible
- Using plants to help mitigate drainage issues
- Applying sustainable practices to ensure long-term health of the site

Phase Three - High-Impact Extras

For the third phase, we combined high-impact items that we thought should be prioritized next, ahead of some final elements. Those spaces include both high energy structures and quiet areas which appeal to all senses and attract biodiversity.

FEATURE	COST
Parkour Obstacle Course	\$14,567.10
Gazebo Corner (Berm, Flagstones, etc.)	\$4,087.54
Pollinator Garden and Plants Around Gazebo	\$2,581.00-\$5,162.00*
Remove Pavement For New Green Space	\$1,356.75
Plants for New Green Space	\$4,416.50-\$8,833.00*
TOTAL	\$27,008.89-\$34,006.39*

All above prices include labour.

**Cost varies depending on volume of donated plant material. Minimum cost assumes a 50% savings.*

Phase Three Cost Saving Strategies

- Minimizing labour costs by grouping large installation projects together
- Using donated plants
- Using recycled materials for parkour obstacles, such as used tires and pallet wood

À La Carte

Some elements, including items requested by students, have a higher cost and were deemed as less urgent. We put together a list of those lower impact features along with their estimated cost, so the school can implement them in a timeframe they see fit and once budget permits.

FEATURE	COST
Planting - South-East Corner	\$1,263.50-\$2,527.00*
Planting - Rock Wall, Northern Half	\$2,682.50-\$5,365.00*
Planting - Rock Wall, Southern Half	\$2,471.00-\$4,942.00*
Hedge By Fence	\$3,550.27
Move and Re-Grade Soccer Field	\$4,257.50
Move Skating Rink, Add Rock Seating	\$4,946.50
Re-orient Basketball Courts, Re-Pave Area	\$21,680.00
Move Foursquare Courts, Re-Pave Area	\$3,160.00
Deck, Boardwalk and Remaining Paths	\$19,915.00
Stained Glass Kindergarten Structure	\$7,604.00
Benches and Hooks for Backpacks	\$895.96

All above prices include labour.

**Cost varies depending on volume of donated plant material. Minimum cost assumes a 50% savings.*

Suggested Plant List

PLANT SPECIES	VOLUME	BENEFIT			
		POLLINATOR	TEXTURE 	EDIBLE 	SOUND 
Bloodroot	19			<input checked="" type="checkbox"/>	
Woodland Sunflower	8	<input checked="" type="checkbox"/>			
White Trillium	29				
Ontario Aster	33	<input checked="" type="checkbox"/>			
Common Milkweed	5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Echinaceae	8	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
New England Aster	4	<input checked="" type="checkbox"/>			
Beebalm	19	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Blue Stem Goldenrod	15	<input checked="" type="checkbox"/>			
Wild Lupine	6	<input checked="" type="checkbox"/>			
Staghorn Sumac	4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Trembling Aspen	2				<input checked="" type="checkbox"/>
Appalachian Sedge	15				
Zigzag Goldenrod	37	<input checked="" type="checkbox"/>			
Wild Geranium	31			<input checked="" type="checkbox"/>	
Creeping Foamflower	44	<input checked="" type="checkbox"/>			
White Wood Aster	28	<input checked="" type="checkbox"/>			
Solomon's Seal	17				
Wild Columbine	27	<input checked="" type="checkbox"/>			
Wild Ginger	39			<input checked="" type="checkbox"/>	
Winterberry Holly	6				
Paw Paw	1			<input checked="" type="checkbox"/>	
Pagoda Dogwood	5	<input checked="" type="checkbox"/>			
Sum and Substance Hosta	34				
Serviceberry	2	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
Virginia Strawberry	11	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
Wood Anemone	35	<input checked="" type="checkbox"/>			
Wintergreen	16			<input checked="" type="checkbox"/>	
Canadian Reedgrass	20				
Prairie Dropseed	37				
Tufted Hairgrass	28		<input checked="" type="checkbox"/>		
Sweetfern	3			<input checked="" type="checkbox"/>	
American Elderberry	7	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
Spice Bush	28	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
Fringed sedge	24				
Woodland Phlox	32	<input checked="" type="checkbox"/>			
Fragrant Sumac	5	<input checked="" type="checkbox"/>			
Blue Beech	1				
Canadian Yew	17				
Dense Blazing Star	45	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
Haskap	5	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
False Solomon's Seal	7	<input checked="" type="checkbox"/>			
Wild Grape Vine	3			<input checked="" type="checkbox"/>	