



FortWhyte Alive
HUMAN. NATURE.

Naturescape for Educators

bringing biodiversity into the schoolyard

Incorporating Biodiversity Into Your Schoolyard

Before you can build a biodiverse schoolyard, you have to make a plan to meet the needs of your school, students, faculty and community.

There are many details to consider however; remember that building a green space is a journey, not a destination, and there are many paths to take towards your goal. Planning your schoolyard can be just as rewarding, exciting and inspiring as putting the plan into action.

Develop Priorities

Reflect on what you would like to see in the schoolyard. Deciding on the different components of the greenspace and what they will look like is a perfect project for creative collaboration. Students, faculty and members of the community should all contribute ideas to determine the components they would love to see in the school's greenspace.

A few examples of possibilities are:

- **Gardens** – vegetable, flower or specialty (such as butterfly or xeriscape – low maintenance)
- **Textured Play Spaces** – hills, understory, tiered planting (planting for different heights) boulders, variety of grass types
- **Trees and Shrubs** – fruit bearing and flower bearing for wind blocks, shade, wildlife habitat, wildlife food or even human food (such as raspberries)
- **Wildlife Homes** – bird boxes, bat boxes, or insect homes (such as leaf-litter)
- **Wildlife Feeders** – bird seed, woodpecker suet, hummingbird nectar, oriole fruit, squirrel, or insect feeders
- **Water Features** – ponds, streams, dippers, spitters or butterfly puddles
- **Open Spaces** – for sunlight, soft grass and sport
- **Small Spaces** – for crawling through
- **Natural Play Structures** – such as willow huts, trees or hills for tobogganing
- **Man-Made Play Structures** – tire tunnels, slides or other play structures
- **Artwork** – student designed and developed
- **Outdoor Classroom** – area outside for students to work (gazebo, pergola, benches, picnic tables or tree stumps in a circle)
- **Building Blocks** – students can use natural or man-made materials (sticks, leaves, logs, clay, pine cones and snow) to build structures of their own
- **Compost**
- **Rain barrels**



Things to Consider:

Safety is of foremost concern when planning a schoolyard design. Consider:

- Vehicle traffic (roads, parking lots)
- Barriers (fences/walls)
- Ease of Supervision
- Height of climbable objects
- Moving parts that might pinch or swing and hit
- Distance of jumpable objects (such as stones or boulders)
- Stability of the structures in place
- Size of openings (ensure no body parts can be trapped)
- Elimination of sharp or serrated parts
- Substrate (grass is quite soft compared to concrete)

Ensure **pre-existing structures** such as parking lots, fences or school buildings are acknowledged and built into your plan.

Keeping **functionality** in mind will help you plan areas for multi-use and make the most of a small space. Consider age appropriateness, available resources, accessibility (including wheelchair access), upkeep and community needs.

Create a balance with Naturescape (planning for biodiversity) and Playscape (planning for outdoor recreation)

Many grants require **long-term goals** be in place before you can access funding. Upkeep and expansion are both important factors in future planning.

Identifying the **size** of your schoolyard and its property boundaries will give you a precise understanding of the area you can work with. Are there options for the project to expand? Include neighboring stakeholders in the planning process if the greening project expands past school boundaries.

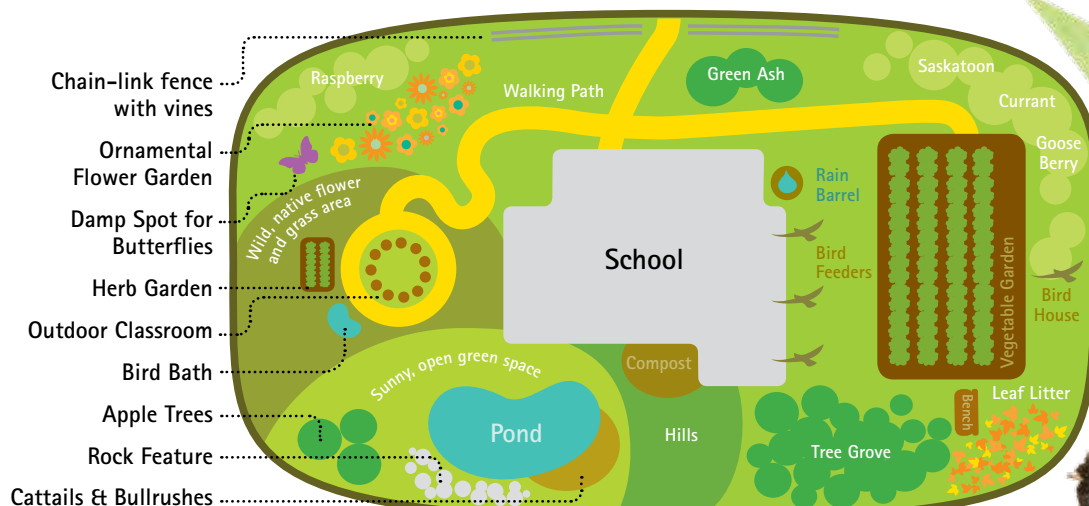
Soil type will influence which species of plants are viable in that area. The type of soil will also affect how much erosion may occur from wind, rain or student use. Sandier soils will allow for more erosion; planting sand-loving plants such as Tamarack will reduce erosion.

Sunlight can influence plant choice and the level of maintenance required to upkeep your green space. Shaded areas will provide a refuge for students and wildlife from the heat of the sun. Take note of the direction your school faces and plan your greenspace accordingly.

Assessing **drainage and water sources** is important to ensure your greenspace is not constantly being flooded or facing drought. Appropriate drainage can help reduce maintenance and prevent ice formation, while keeping plants healthy and promoting a beautiful, biodiverse landscape.

Shareholders such as the School Board, School Division, the City, Parent Council, Community Members, UNESCO and other individuals may have a stake in schoolyard greening depending on the size and scope of the project.

An Example of a School Greenspace



Greenspace Activities

DESIGNING A SCHOOL NATURESCAPE

Have your students help design the school greenspace. Designs can be as simple as designating areas for flowers, forbs and trees or as complicated as designing the school logo in the garden using flower colour or height. Mapping, modeling, drawing or painting are useful greenspace representation strategies. Students can then research viable plants for the soil, sun and water conditions available, and plant the seeds to make their vision a reality.

Math: Modeling, Counting and Spatial Relationships

Social Studies: Active Democratic Citizenship, Managing Information and Ideas, Critical and Creative Thinking, Our Local Community, Exploring the World, Living in Manitoba, Communication, Me, My Environment, Connecting with Others

Science: Colours, Position and Motion, Needs of Living Things, Growth and Changes in Plants, Structures, Habitat and Communities, Soils in the Environment, Air and Water in the Environment, Light, Maintaining a Healthy Body

English: Viewing and Representing, Reading and Writing, Listening and Speaking

Art: Creative Expression, Valuing Artistic Experience, Understanding Art in Context, Art Language and Tools



HAPPY SPACES IN THE SCHOOLYARD

Happy Spaces are areas that students can use to express positive feelings about the environment. Have students find a sanctuary or comforting area in the schoolyard greenspace. Ask students to describe why they chose that space. Do they feel different in natural "happy spaces" as opposed to man-made ones? Have students describe, draw or represent their space while thinking about what they see, hear, smell and feel. Discuss the importance of the natural world to mental and physical health, the impact of living in a city with little green space and ways to protect or maintain natural happy spaces. Modified from Green Teacher Issue 93.

Science: Colours, Senses, Characteristics of Objects, Air and Water in the Environment, Habitat, Maintaining a Healthy Body

Social Studies: Me, The World Around Me, My Environment, Our Local Community, Living in Manitoba

Art: Creative Expression, Valuing Artistic Experience, Understanding Art in Context, Art Language and Tools

Grade 1

GARDEN FRIENDSHIP

Discuss what plants need to grow and survive. Have students make a picture checklist that they could use to take care of the plants in the garden. Assign each student or group a small patch of the garden to care for. As a class, take 5 or 10 minute trips to the garden weekly to manage the small plots and watch the plants grow.

Science: Characteristics and Needs of Living Things

Social Studies: Active Democratic Citizenship, Communication, My Environment

Grade 2

WATER

Have students explore the garden and search for signs of water – hidden in soil, in leaves and even in the stems of plants. Place a metal cylinder (a can without a bottom) in the soil. Pour water in and have students count how long it takes for the water to soak in. Try the same experiment for other parts of the schoolyard or at different times of the year. Discuss why water is so important.

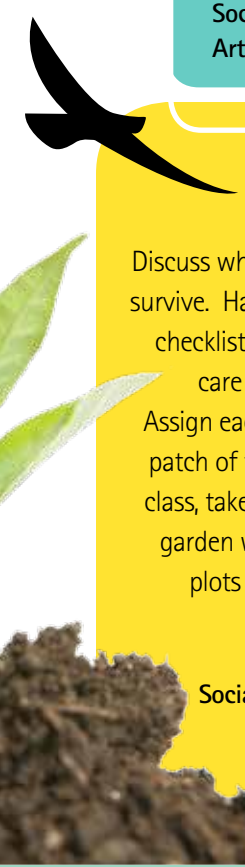
Science: Water in the Environment; **Social Studies:** Critical and Creative Thinking, Communication.

RAIN BARREL

Look at a rain barrel. Describe how rain is gathered and collected. Ask students to think of reasons why rain barrels are helpful. Discuss whether the water is safe to drink. Have students use water from the barrel to water the plants.

Science: Water in the Environment

Social Studies: Active Democratic Citizenship, Critical and Creative Thinking, Communication, Our Local Community, Communities in Canada, Values



Greenspace Activities

Grade 3

SOIL PROFILE IN A JAR

Collect enough jars with lids so that every few students can have their own. Have students dig soil out of the schoolyard and place it in their jar so that it is about half full. Fill the rest of the jar with water. Twist on the lid so that it is water tight and get students to shake their jar and place them on a shelf for at least 24 hours (note: soils with high clay content may take extra time to settle). The soil should divide into distinguishable layers: sand at the bottom, then silt, next clay and finally humus floating at the top. Have students label their layers. Discuss what makes each layer different. The best soil profile for a garden is one with a lot of humus and equal amounts of all three soil types. Soil conditions may impact the layout of your greenspace.

Science: Soils in the Environment

Social Studies: Critical and Creative Thinking, Communication

Grade 4

NEEDY SEEDS

Plants have adaptations too! Explore the wonderful world of plant seeds in the fall. Have students collect seeds from the schoolyard. They may find these seeds as fruit on a shrub, helicopter seeds from the tree or even burrs on their socks. Place the various seeds on a white sheet or piece of paper. Discuss seed dispersal methods such as hitch-hikers, tummy travelers, wind flyers or borers. Show a few pictures of other seeds in the schoolyard and see if students can find them.

Science: Habitats and Communities

Social Studies: Active Democratic Citizenship, Critical and Creative Thinking, Communication, Living in Manitoba.

Grade 5

HEALTHY PLANTS

Many plants are edible or are used as medicine. Nutritional information can be found for plants, just as it is found on food labels. Have students research and present the nutritional or medicinal uses of the flowers in the garden. Use a small patch to plant mint – a weed-like plant that requires very little maintenance. Once the mint is large enough, pick the leaves, bruise them, and place them in boiling water. Serve the students mint tea with honey. Another variation is to use rose hips (remember not to eat the seeds), although a rose's growing time is much longer than mint's.

Science: Maintaining a Healthy Body

Social Studies: Active Democratic Citizenship, Managing Information and Ideas, Critical and Creative Thinking, Communications, First Peoples

Grade 6

FIELD GUIDE

In groups, have students visit the greenspace and collect or count as many plant, insect, spider, worm, bird or mammal species as they can. Ask students to organize their lists into categories appropriate for a field guide. Students can research one or two species in each category to make the field guide more informative. Pictures, either drawn or found on the internet, as well as classification keys or personal accounts of experiences they've had with the species, can add zest to the guide. This project can also be done as a group or as a class and the final product could be something they take home as a "published" work.

Science: Diversity of Living Things

Social Studies: Active and Democratic Citizenship, Managing Information and Ideas, Critical and Creative Thinking, Communications, Canada Today

Art: Art and Language Tools, Creative Expression in Art, Understanding Art in Context, Valuing Artistic Experience

English: Clarify and Extend, Use Strategies and Cues, Respond to Texts, Understand Forms and Techniques, Plan and Focus, Select and Process, Organize, Record and Assess, Generate and Focus, Enhance and Improve, Attend to Conventions, Present and Share, Develop and Celebrate Community, Encourage, Support and Work with Others