



Growing Up Organic operates on traditional and unceded territory of the Algonquins: now known to many as Ottawa, and now home to many from across Turtle Island and beyond.

Grade 5

Planning the Garden

Mindfulness minute: If it speaks to you, take two minutes with your students before this workshop to slow down and root down with this mindfulness minute.

LESSON FOCUS AND GOALS

In this workshop, students work in groups to develop a plan for the garden. We begin to discuss how the garden will differ from most conventional farms – a theme carried through the grade 5 workshops. In particular, we discuss how plant diversity contributes to a sustainable garden. We build on concepts from lower grade level garden workshops around companion planting to discuss in more detail how we can use a diversity of plants to our benefit in the garden. Students choose the vegetables they wish to plant in the garden and justify their choices with companion planting principles.

LEARNING OBJECTIVES

Grade 5

Science and Technology: Understanding Life Systems

OVERALL EXPECTATIONS:

1- Analyse the impact of human activities and technological innovations on human health

SPECIFIC EXPECTATIONS:

1.1 -Assess the effects of social and environmental factors on human health, and propose ways in which individuals can reduce the harmful effects of these factors and take advantage of those that are beneficial

Health and Physical Education: Healthy Living

OVERALL EXPECTATIONS:

D3 -Demonstrate the ability to make connections that relate to health and well-being – how their choices and behaviours affect both themselves and others, and how factors in the world around them affect their own and others' health and well-being

Mathematics: Measurement

SPECIFIC EXPECTATIONS:

E1.2 -Identify and construct congruent triangles, rectangles, and parallelograms

E2.1 -Use appropriate metric units to estimate and measure length, area, mass, and capacity



MATERIALS NEEDED

GUO Garden Planning Cards
Paper roll cut into square segments (2 feet x 2 feet) – one for each group of 3 to 4 students
Colouring crayons, markers or pencils, Rulers
GUO Garden Planning Calendar
Companion Planting Slide Deck
GUO Biodiversity Planning Cards (Section: Plants)

STRUCTURE / ACTIVITY

Part 1: Planning your garden

Before starting to plan the garden, take some time to discuss with the students and reflect about why we're planting a school garden. Discussion points:

What is the value of growing our own vegetable gardens at the school?

What do we mean when we say our garden is organic?

Using the slide deck, present some photos of conventional farms and ask the students what they notice about these photos. What are the words that come to mind? What are some of the risks this type of activity might pose? What solutions do conventional farmers use to deal with pests and disease problems that risk damaging their crops?

Why do you think it might not be a good idea to use pesticides or synthetic fertilizers?

Where could they end up?

Since we'll be planting an organic garden, what are some of the ways we can enrich our soil and keep pests away without using pesticides or synthetic fertilizers?

Together, brainstorm a list of the strategies you will use. Once a preliminary list is complete, begin a discussion about companion planting. Let the students know that they will be using this knowledge to plan where they will plant various vegetables in their garden.

The first way of deterring pests and preventing losses in our garden will be to plant many different varieties of vegetables. Planting many different vegetables is also important for our use of the garden, so that we have vegetables ready to harvest at different times of the year.



Plants, like humans, have companions or “friends” they prefer to be next to.

□What do we think that means?

□Think of what a friend does for you? How could plants do this for each other?

Use the slide deck to discuss how different plants help each other in more detail. With each slide, add to a list of plants and vegetables that could be included in the garden.

Slide 1. Attracting Beneficial Insects Some plants are particularly effective at attracting beneficial insects to the garden, including pollinators such as bees and butterflies. These plants tend to be ones that have attractive flower blossoms. To make sure we attract pollinators all season, we have to have blossoms in the spring, summer and fall. Make a list of possible flowering plants to include in the garden.

Slide 2. Deterring Harmful Insects Instead of using pesticides to deter pests from the garden, we can include plants that are particularly effective at repelling harmful insects. Some plants, like onions, have a strong odour that discourages pests from entering the garden, while others, like nasturtiums, trap pests by attracting them and coaxing them away from other vegetable plants. Add the vegetables listed as examples to your list of possible vegetables to be included in the garden.

Slide 3. Sharing Nutrients Some plant combinations work well because they allow plants to share nutrients with little competition: shallow rooted plants grow well near deep rooted plants because each can get their nutrients from different levels. Brainstorm a list of shallow and deep rooted vegetables and add them to the list of possible vegetables to include in the garden.

Slide 4. Giving Nutrients- Beans and peas are part of a special plant family called “Legumes” – they are the only plants able to put nutrients back into the ground. Specifically, they are able to take Nitrogen, a very important nutrient that helps plants produce green leaves, out of the air and put it into the soil, where other plants are able to then absorb it. Leafy greens are particularly in need of nitrogen. Make a list of other leafy vegetables you could include in the garden next to legumes.

Slide 5. Sun and Shade Plants- Plants are a lot like people – some love to sun-bathe, while others prefer the shade. Luckily, we can use plant structures to our advantage to be able to provide each plant with the amount of sunlight they prefer. Taller plants, like sunflowers, or climbing vines, like beans, can provide shade for shade-loving vegetables, like lettuce and spinach. Make a list of tall and climbing plants to add to your garden list.



Part 3: Mapping the Garden

Divide the students into small groups of 3-4, and provide each group with:

- A biodiversity planning card that explains one type of companion plant interaction that was discussed
- One sheet of 2' x 2' paper
- Colouring pencils

Let the groups know that they are to divide their paper into four equal square sections and allocate each square to a single vegetable, chosen based on the interaction they are portraying. Once the teams have selected which vegetables to include, they can use the garden planning cards to draw each of the 4 square feet with the appropriate number of vegetables depending on the space required of each vegetable. Together students should discuss how the neighbouring plants are helping each other and draw connections onto the map.

Part 4: Sharing the map

Invite groups to present their selection and map to the rest of the class, letting the other students know what they chose and the reasons these plants work well together. Compile a list of all the vegetables selected by the groups to plant for the planting and seed starting follow-up workshops.