



Martian Garden

Getting Started Guide

[Project Overview](#)

[Project/Lesson Format](#)

[Big Question](#)

[Lesson components](#)

[Learning Path](#)

[Activate](#)

[Explain](#)

[Checkpoint](#)

[Practice](#)

[Reflect](#)

[Review](#)

[Provided Resources](#)

[Slide Deck](#)

[Lesson Plans](#)

[Additional Resources](#)

[Required Resources](#)

[TinkerCAD](#)

[FAQ](#)

[Can I alter the projects to make them more suitable for my class?](#)

[Are the projects free?](#)

Project Overview

In this project, students learn about the challenges of growing plants on Mars and set up a scientific experiment using the scientific method to answer the question: Can food grow on Mars?

Project/Lesson Format

Big Question

Each project in the Mars Explorer Program answers a big question. The big question for this project is 'Can plants grow on Mars?' Throughout the project, students will learn about the challenges of growing plants on Mars and use the scientific method to answer the question.

Lesson components

Each lesson is broken into six different components (however sometimes these components are repeated multiple times during a lesson). Each lesson contains an 'Activate', 'Explain', 'Checkpoint', 'Practice', 'Reflect' and 'Review' section. A description of each section can be found below.

Learning Path

The Learning Path plots how the lesson will progress and the topics that will be covered.

Activate

Each lesson begins with an 'Activate' task or question. These tasks and questions are designed to engage the student's prior knowledge.

Explain

Explain sections explain a new concept and contain the majority of the new learning in a lesson.

Checkpoint

Checkpoints assess whether students have taken on the new learning. It may be through a quiz, discussion or quick task.

Practice

Practice tasks help students apply the skills they've learned. In the lesson plans for this project, you will always see a 'Make it easier' and 'Make it harder' comment for each practice task. You can use these suggestions to ensure that the work students are completing is differentiated.

Reflect

The reflect section allows students an opportunity to reflect on the enjoyment and facility of the lesson by choosing a number between 1 and 5. These sections are consistent among most Mars Explorer Program projects.

Review

The review section contains another reference to the Learning Path - this time written in the past tense. Referring back to the Learning Path helps students consolidate what they learned in the lesson.

Provided Resources

Each project provides you key resources in order to deliver the project in your classroom.

Slide Deck

Each project includes a slide deck for each lesson in the project that can be used to display information, instructions or discussion questions to students.

Lesson Plans

Each lesson in a project is accompanied by a lesson plan in pdf format that can be used to guide the delivery of the project. Although these plans are detailed, they are meant as a guide only. You should feel free to go 'off-script' during lesson delivery - in fact - we encourage you to! In addition to the pdf version of lesson plans, lesson plans are also included in the speaker notes in the provided slide deck.

Additional Resources

In addition to the slide deck and lesson plans, some lessons include additional resources to support the project.

Required Resources

In order to effectively teach this unit in your classroom, you will need the following resources.

Martian Garden Kit

This unit makes extensive use of materials that you can find from martiangarden.com. We recommend purchasing the Martian Garden Kit, which has everything you need to run one experiment (you may want to purchase 1 per student, or 1 per group). You can also purchase soil simulant in bulk and use your own containers. We recommend using Clay Pots, which can be purchased cheaply from Canadian Tire or other garden supply centers. While the Martian Garden Kit comes with fertilizer pellets, you'll need to find some other type of plant food if you buy the simulant in bulk. We recommend liquid plant food which can again be purchased from Canadian Tire or other garden supply centers.

FAQ

Can I alter the projects to make them more suitable for my class?

Absolutely! In fact, we encourage you to! If you make a change that you think makes the project better make sure to leave feedback so that we can make the change permanent!

Are the projects free?

The Mars Explorer Program is a completely open-source project - there is no attribution or payment required. If you have found the projects valuable, we would love you to spread the word to others so that as many students in Canadian schools have an opportunity to learn about Mars! You can also financially support the project by donation.