



Mysterious Machines

TEACHER'S GUIDE
CYCLE THREE ELEMENTARY



**MONTREAL
SCIENCE
CENTRE**



SOCIÉTÉ IMMOBILIÈRE DU CANADA
CANADA LANDS COMPANY

Canada

Mysterious Machines



Assemble and activate a mysterious machine. This activity is an entertaining way to discover the principles of simple machines: wheels, levers, pulleys, etc.

WELCOME

to the Montréal Science Centre

The educators at the Montréal Science Centre invite you to discover the world of **Mysterious Machines**. This **90-minute** activity follows the Quebec Education Program and provides an experience where the joy of learning leads to the acquisition of new skills.



DID YOU KNOW?

That our school programs...

- adhere to the MELS progression of learning;
- offer a variety of experiences that are different from classroom activities;
- are run by an educator who takes charge of the group;
- comprise student-centered, interactive activities that make learning fun.

A FIVE-STEP TEACHING APPROACH

1

Introduction

Using simple objects, a bit of mechanics and no electricity, anyone can create Fabulous Moving Machines. We are looking for mechanics who can assemble and verify the operation of some mysterious new machines that are in the prototype stage. These machines could serve as interactive elements in a maze. All the modules have been delivered to us, but they need to be assembled.

2

Simple machines make up complex machine

Before assembling a complex machine, you first need to understand and know how to recognize simple machines like the pulley, the lever, the wheel and the inclined plane. These simple machines are used to create more complex machines.

3

Assembly and testing

Now, to work! Each team will work on one module, following a plan that shows them how to assemble different mechanical parts (pulleys, gears, levers, etc.) that will be part of strange creatures as yet unknown to the students. To make sure that their mechanisms work, the teams will then have to test them.

4

Putting the creatures together

Once the mechanisms are ready and are all working, it's time to give them some personality. Through an observation game, the teams will dress up their machines with all kinds of crazy objects, most of them recycled. No two creatures will be alike, for it's up to each team to put together an original, amazing creature.

5

Presenting the mysterious machines

Then the teams will move around the room, checking out each other's mysterious machines. They'll activate the different mechanisms to bring the creatures to life and see what they're made from. Once everyone has had a chance to look at all the machines, they'll share their impressions and talk about the experience.



LINKS TO THE PROGRESSION OF LEARNING

MATERIAL WORLD		
SYSTEMS AND INTERACTION	Primary Cycle Three	
	5 th	6 th
SIMPLE MACHINES		
Recognizes simple machines (lever, inclined plane, screw, pulley, winch, wheel) used in an object (e.g. lever in a seesaw, inclined plane for an access ramp).	●	●
Describes the uses of certain simple machines (to adjust the force required).	●	●
TECHNIQUES AND INSTRUMENTATION		
USE OF SIMPLE MACHINES		
Appropriately uses simple machines (lever, inclined plane, screw, pulley, winch, wheel).	→	★
DESIGN AND MANUFACTURE OF MACHINES		
Interprets a diagram or a plan containing symbols.	→	★
Uses appropriate assembling methods (e.g. screws, glue, nails, tacks, nuts).	→	★
Uses simple machines, mechanisms or electrical components to design or make an object.	→	★

→ Student constructs knowledge

★ Student applies knowledge

● Student reinvests knowledge

