

GLOBAL SKILLS

Learning to learn/self-awareness and self-direction; collaboration

INITIATIVES & INTEGRATED LEARNING

[Foundations for a Healthy School](#)
[Social Emotional Learning Skills](#)
[A. STEM Skills and Connections](#)

MATERIALS

Marbles
Foam Tubing
Masking tape
Paper cup
Computer
Internet access
Projector and screen

RIDGE RUNNER MOUNTAIN COASTER

Intermediate (Grade 7-8) Level

ACTIVITY DESCRIPTION

Glide gently along the one-kilometre track and tour the beautiful Blue Mountain terrain, or turn it into a thrill ride with speeds up to 42 km/hour! Ridge Runner is a simple and equipment-free favourite for all ages. We'll keep you on track but as with most things at Blue Mountain you are the driver and fully in control.

CURRICULUM CONNECTIONS

[Science and Technology 2022](#)



Ontario
Curriculum



D. Structures and Mechanisms; Form, Function, and Design of Structures

D2. Exploring and Understanding Concepts: demonstrate an understanding of the relationship between structural forms and the forces acting on them.

TEACHING NOTES

BEFORE YOU GO

Learning Goal

- Students will learn about how mechanical systems work, the effects of gravity and friction, as well as science and technology vocabulary.

Minds On Activity:

- Introduce the concept of a mechanical system by showing students the [Simple Machines](#) video by Bill Nye the Science Guy.
- While watching the video, ask students to record examples of the following terms:
 - input
 - output
 - friction
 - gravity
 - work
 - force
 - mechanical advantage
- Explain how these variables can help to improve the efficiency of a mechanical system.

Action Activity

Building Machines

- To prepare for the Ridge Runner Coaster, show students the [Building Roller Coasters](#) video.
- Organize the class into groups of 4 and provide each group with a length of foam tubing (cut in half), masking tape, marbles and a paper cup.
- Using the materials provided, groups are to design and build their own small-scale model roller coasters that are completely driven by gravity.
- Groups will attempt to send a marble down the roller coaster into the cup and analyze the efficiency of their roller coaster using the key principles identified in the Minds On activity.
- Have groups take 30 additional minutes to revise their system for great efficiency, based on their analysis in the previous step.

Accommodations/Modifications

- Have a class competition to create the most efficient design.
- Students can use different types of marbles to represent varied passenger loads.

WHILE YOU ARE THERE

At Blue Mountain Resort

- Students will have the opportunity to assess the efficiency of the Ridge Runner Mountain Coaster and explain the effects of gravity and friction.

ONCE YOU GET BACK

Consolidation Activity

- Show students the [Blue Mountain Ridge Runner Mountain Coaster](#) video experience.
- Ask students to identify and describe an example of each key term discussed in the Minds On Activity. How does each contribute to the efficiency of the Ridge Runner Coaster?

BLUE MOUNTAIN RESORTS

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