

## GLOBAL SKILLS

Critical thinking and problem solving  
Innovation, creativity and entrepreneurship  
Collaboration

## INITIATIVES & INTEGRATED LEARNING

[A. STEM Skills and Connections](#)

## MATERIALS

Paper  
Marbles  
Cup or small container  
Large sheets of paper  
Variety of paper tubes (e.g. paper towel, wrapping paper, toilet paper)  
Variety of tape (e.g. masking tape, packing tape, electrical tape)

# CHUTES AND LUMBER

Primary (Grade 1-3) Level

## ACTIVITY DESCRIPTION

3, 2, 1, Go! Let your wooden ball roll down over 30 metres of track built into the hillside of Blue Mountain. Interactive elements like peg mazes, tunnels, twists and turns keep you on your toes as your ball plunks its way through our latest attraction. Students will get the opportunity to see how a variety of simple machines can make an object move.

## CURRICULUM CONNECTIONS

[Science and Technology 2022](#)



Ontario  
Curriculum



### D. Structures and Mechanisms; Everyday Materials, Objects, and Structures

**D1. Relating Science and Technology to Our Changing World:** evaluate the impacts of various machines and their mechanisms on society and the environment

**D2. Exploring and Understanding Concepts:** demonstrate an understanding that objects, including structures, have observable characteristics and are made from materials with specific properties that determine how they are used

# BEFORE YOU GO

### Learning Goal

Students learn to use a variety of materials to create a marble run. They will learn to make changes to an experiment in order to achieve desired results, then describe the impact of various changes and present findings.

### Minds On Activity:

- Hold up a marble and a paper towel roll that is uncut. Place a cup directly under the tube.
- Ask your students what they think will happen if you drop the marble (e.g. it will fall into the cup, it will get stuck in the tube, etc.).
- Drop the marble into the tube, then ask your students to describe what happened.
- Ask students to give some suggestions of what could be done to slow down the speed of the marble as it falls through the tube toward the cup (e.g. angle the tube, squeeze the tube, etc.).
- Follow one of the suggestions from your students and see if that action helps to slow down the speed of the marble.

### Action Activity

- Provide students with a variety of materials to use in building their own marble run.
- Explain that students will be creating race courses for marbles.
- Divide your class into groups of 4-5 students.
- Give each group the following:
  - 3 pre-cut paper towel and/or toilet paper rolls (6 halves)
  - 1 large sheet of paper or a section of wall on which to tape their racetrack
  - Tape
  - 1 cup or other small container (to catch the marbles at the bottom of the track)
- Encourage students to make one change at a time and then run a marble through the course after each change. Ask students to observe how the speed and path of the marble is affected by each change.
- Have students predict how the changes will impact how the marbles will go down the track.
- After they make their prediction, ask them to drop a marble at the top of the track and observe how the new paper roll impacts the way that the marble travels down the track.

# WHILE YOU ARE THERE

### At Blue Mountain Resort

While at the Chutes and Lumber activity, students will observe a variety of simple machines. Ask them to observe how peg mazes, tunnels, twists and turns are used to move a ball from one location to another.

# ONCE YOU GET BACK

### Consolidation Activity

- Ask students to compare and contrast their marble run to the chutes and lumber activity. *What was similar? What was different?*
- Extension activity:
  - Have students experiment with “racing” other small objects, such as coins/beads/paper clips, down the tracks they have created. Before placing the new objects on the tracks, ask students to predict whether they think the new object will go down the course faster or slower than the marbles did.
- Guiding question:
  - *Think about some real-world examples of how the structures used in your marble run move objects? Think about some real-world examples of how the structures used in the Chutes and Lumber Activity move objects (e.g. playground slides that are less steep will usually take longer to go down than the same-sized slide that has a steeper angle).*