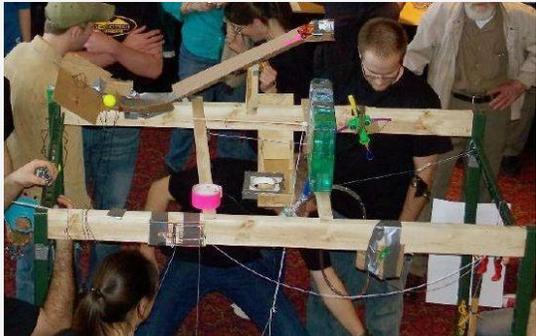


**GRADE 1, 2, 3 LESSON PLAN
MARBLE RUN – WOODWORKING**

<p>Lesson Plan Information</p> <p>Grade: 1-3</p> <p>Subject: Arts (Visual Arts)</p> <p>Science and Tech (Understanding structures and mechanisms)</p> <p>Duration: 2 hours</p>	
---	--

<p>Lesson Plan Overview and Objectives</p> <p>Students will design and build a playground based on their understanding of structures and mechanisms using sculptural materials. They will discover how structures and mechanisms are connected and influence the final design. Through their sculpture, they will demonstrate an understanding of the elements and principles of design.</p> <p>Students will learn basic woodworking techniques, different types of sculptural/building materials and how they can be used to build their structures.</p>

AT QUEEN ELIZABETH PARK COMMUNITY AND CULTURAL CENTRE

<p>Playground Architect – Woodworking inspired by artists Fischli & Weiss</p>	
<p>Materials</p>	<p>1 cardboard sheet 12" w x 24" l, 2 cardboard sheets 6" w x 24" l, 12" lengths of stock wood mouldings that are ½" thick, various widths, various edge details, wood offcuts any shape, woodshop bits and hardware, cardboard offcuts, construction paper, elastics, thin gauge sculpture wire, dowel ¼"-1/2" diameter, 12" lengths</p>
<p>Introduction Inspiration</p>	<p>Students explore and discuss the sculptural work of Swiss collaborative duo Peter Fischli & David Weiss.</p> <p>Fischli & Weiss fill rooms with large installations that have domino affects as objects (usually found objects, recycled material) roll and trigger other objects. The pieces are performatic and cinematic: they use water, fire, gravity and chemistry to trigger a continuum of movement. The kinetic sculptures can last up to 30 minutes and end in self-destruction.</p> <p>Their work deals with themes of chaos and order, illusion and transformation. The installations have been called prehistoric and apocalyptic.</p> <p>Instructor shows images of their work and then groups watches (if time permits) a 4-minute documentary on their work, called "The Way Things Go".</p> <p>Fischli & Weiss' work is based on a Rube Goldberg Machine. This is a machine that performs a simple task in an overcomplicated fashion. Simple devices are linked together to produce a domino effect: each device triggers the next one and the original goal is only achieved after many steps.</p> <p>The machine was named after cartoonist Rube Goldberg, who depicted these contraptions. His most famous one was the cartoon of the "Self-Operating Napkin".</p>

	<p>Guiding questions</p> <ul style="list-style-type: none"> - What kinds of lines or shapes can you find from the structure? - What can you do on the structure? Can you slide, climb, swing, ride or jump? - What makes the structure a 'good' or 'special' structure? Does it depend on safety, size, uniqueness or variety of activities that you can do? - What types of materials are used for the structure? <p>Art terms to be covered:</p> <ul style="list-style-type: none"> - Elements of design - Principles of design (contrast) - Design (composition) - Dimension - Geometric shape
<p>Demonstration Activity</p>	<p>Planning – Idea Sketch: Students create an idea sketch of a marble run using a 2D planning template. The instructor shows them images of various marble runs. What kind of marble run do they want to design? When designing, ask students to think about the purpose of their structures and how it will influence their design and materials.</p> <p>Demonstration: The woodworking instructor explains different types and characteristics of building materials, and how they can be used to build a structure. The instructor demonstrates woodworking techniques (sawing, drilling, sanding, gluing).</p> <p>Building/Woodworking: Based on the instruction and demonstration, students build their structures based on their idea sketches. Students will create a miniature marble run that seeks to move a marble to different areas on a slanted surface. Students design the structure and add in obstacles to move their marble around.</p> <ol style="list-style-type: none"> 1. Prepare a slope. <ol style="list-style-type: none"> a. On large cardboard sheet, measure 15cm from end of sheet along the long edge and make a pencil mark. b. Make a pencil mark 15cm from the end of sheet on the opposite edge. c. Draw a straight line connecting these two points with a straightedge and pencil d. Use a cardboard knife to score along the line e. Fold cardboard sheet along the score line f. Use hot glue to affix 6" x 24" cardboard sides to folded cardboard slope. 2. As a group, brainstorm some interesting journeys, obstacles, and narratives for the marble to engage in. Write these on the board. Examples below: <ol style="list-style-type: none"> a. Obstacles that create randomness b. Obstacles that spin c. Obstacles that bounce d. Gates e. Mechanisms that trigger another marble or obstacle to fall

	<ol style="list-style-type: none"> 3. Determine a satisfying starting point for the marble run. One could create a 'track' for the marble to follow by cutting some stock wood material to an appropriate size and gluing it to the slope. 4. Begin construction on obstacles, guides, gates, etc using saws, hot glue, hammers and nails. Feel free to make use of techniques used in the example marble run. 5. Encourage participants to test their marble runs constantly, experiment with different setups, try things out and evaluate on the fly. Making a marble run is all about trial and error. Fine tuning should be encouraged. 6. While the class is engaged in building their runs brainstorm ways to end the marble run in a satisfying way. Perhaps the marble is caught in a web, or a cardboard 'bucket'. Maybe the marble drops through a discrete hole in the slope. 7. Cleanup any glue mess, decorate as necessary with markers, construction paper, wood. 8. Clean up tools and put away materials.
--	---

FOR TEACHER BACK AT SCHOOL – POST-VISIT ACTIVITIES

Post-Visit Activity	Artist reflection questions, drawing (optional)
Materials	Pencil, eraser, paper, crayon
Artist Reflection	
<p>Students describe structures they have created for their marble run – what is special about them? How has the understanding of the structures' mechanisms influenced the creation of their structures? What do they like best about their finished work and why?</p>	
Resources	
Peter Fischli and David Weiss, "The Way Things Go", 1987 https://www.youtube.com/watch?v=J4-0AvEiL9k Art Film on Fischli and Weiss https://en.wikipedia.org/wiki/The_Way_Things_Go Rube Goldberg Machine https://en.wikipedia.org/wiki/Rube_Goldberg_machine Fischli & Weiss biography https://en.wikipedia.org/wiki/Peter_Fischli_%26_David_Weiss	

FOR TEACHER REFERENCE ONLY – CURRICULUM CONNECTIONS**Curriculum Expectations****The Arts** (Visual Art)

Fundamental Concepts:

Elements of Design (line, shape and form, space, colour, texture, value)

Principles of Design

Grade 1: Contrast

Grade 2: Repetition and Rhythm

Grade 3: Variety

Grade 4: Emphasis

Science and Technology (Understanding Structures and Mechanisms)

Topic Grade 1: Materials, Objects, and Everyday Structures

Topic Grade 2: Movement

Topic Grade 3: Strong and Stable Structures