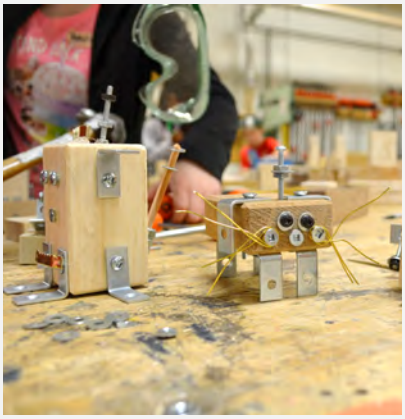
GRADE 5 LESSON PLAN
WOOD WOBOTS – WOODWORKING

Wood Wobots Lesson Plan Information	
Grade: 5 Subject: Arts (Visual Arts), Science and Technology (Understanding structures and mechanisms) Topic: Forces acting on structures and mechanisms Duration: 2 hours	

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Curriculum Expectations

The Arts

D1.2 Demonstrate an understanding of composition using selected principles of design to create narrative art works or art works on a theme or topic.

D1.3 Use elements of design in art works to communicate ideas, messages, and understandings.

D1.4 Use a variety of materials, tools, and techniques to determine solutions to design challenges.

D2.1 Interpret a variety of art works, and identify the feelings, issues, themes, and social concerns that they convey.

D3.2 Demonstrate an awareness of ways in which visual arts reflect the beliefs and traditions of a variety of peoples and of people in different times and places.

Science and Technology – Understanding structures and mechanisms: Forces acting on structures and mechanisms

1.2 Evaluate the impact of the environment on structures and mechanisms and suggest ways in which they can be modified to achieve objectives.

2.1 Follow established safety procedures for working with tools and materials.

2.3 Use scientific inquiry/research skills to investigate how structures are built to withstand forces.

2.4 Use technological problem-solving skills to design, build, and test a structure that will withstand the application of external force.

2.5 Use appropriate science and technology vocabulary in oral communication.

3.2 Identify external forces acting on a structure and describe their effects on the structure, using diagrams.

Fundamental Concepts for Grade 5

Elements of Design

line – hatching and cross-hatching to add depth; gesture drawings; chenille stick sculptures of figures in action; lines for movement and depth

shape and form – symmetrical and asymmetrical; positive and negative shapes; convex, concave, non-objective shapes

space – shading and cast shades; atmospheric perspective; microscopic and telescopic views

colour – complementary colours, hue, intensity (mixing colour with complementary hue)
texture – created with variety tools; patterning
value – gradations of value to create depth, shading

Principles of Design
Proportion – size and shape of parts of figure to whole figure; scale of object compared to surroundings

Lesson Plan Overview and Objectives
Using sculptural materials, students will design and build a wobots (wooden robots) based on their understanding of structures and mechanisms. They will discover how structures and mechanisms are built, and how they withstand force. They will learn how the purpose of structures and their mechanisms influence the final design. Through their design, they will demonstrate understanding of elements of design and principles of design. Students will learn basic woodworking techniques. They will learn about different types of sculptural/building materials and how they can be used to build their structures.

AT QUEEN ELIZABETH PARK COMMUNITY AND CULTURAL CENTRE

Playground Architect - Woodworking	
Materials	Images of Louise Nevelson's assemblages, pieces of wood in various sizes and shapes, dowels, hot glue gun, hot glue stick, handsaw, hand drill, sand paper, screwdrivers
Introduction Inspiration	Students explore and discuss assemblages made with found materials, mostly wood. They explore Louise Nevelson's structures using elements of design and principles of design. Discuss types of wood and the trees each comes from. Personal approaches and reflections. ***Guiding questions*** - What kinds of lines or shapes can you find in the structures? - What are the proportions of the shapes to the whole? - What colours does the artist use? Art ***terms to be covered*** - Elements of design - Principles of design (proportion) - Design (composition) - Dimension - Geometric shape - Sculpture - Found object sculpture - Free-standing sculpture
Demonstration Activity	***Planning – Idea Sketch*** Students will create an idea sketch of a wobot they would like to make, a robot or figure made from wood. Use shape templates provided by QEP as a resource. Students look through bins of scrap wood for inspiration.

	Demonstration by the woodworking instructor The woodworking instructor will explain different types and characteristics of building materials, and how they can be used to build a structure. The instructor will demonstrate woodworking techniques (sawing, drilling, sanding, gluing). ***Building/Woodworking*** Based on the instruction and demonstration, students will build their wobot using a variety of wood scraps, nails, screws, hooks and various metal hardware. They will create families and villages of wobots, working together to produce them.

POST-VISIT ACTIVITIES

Post-Visit Activity	Artist reflection questions, drawing (optional)
Materials	Pencil, eraser, paper, crayon

Artist Reflection
Students describe the wobots they have made – what is special about them?
How has the understanding of a structures' mechanisms influenced the creation of their wobots?
What do they like best about their finished work and why?

Drawing – Designing a House
Students draw homes based on the wobots that they have created.
What kind of houses or buildings do they want to design? When designing, ask students to think about the purpose of their structures and how it will influence design and materials.

Resources
The Sculpture of Louise Nevelson: Constructing a Legend, Jewish Museum
American Architecture Now Louise Nevelson, Diana MacKown, 1976, 29",
https://www.youtube.com/watch?v=SRTLKcwE2ik
A Wobots Christmas, 2003, 60"
https://www.youtube.com/watch?v=C3pUikyuArw

CURRICULUM CONNECTIONS

Cross Curricular and Integrated Learning	Science and Technology

Science and Technology (Understanding structures and mechanisms)

Assemblage of found objects

Materials
Cardboard (half a box or a flat piece to mount to the wall
Reusable materials like cardboards forms from inside display boxes (plastic does not hold the paint well)
Black tempera paint
Brushes
Glue guns
Scissors

Instructions

Cut a cardboard box in half to use as the frame, or cut a large flat piece of cardboard for back support
Arrange objects aesthetically inside the box or on the square. Cut the pieces to fit. Think about what the objects were before and how they will be read in the piece.
Glue pieces.
Paint the entire sculpture black.
You can assemble them all together as a 3D sculptural piece, or affix them to the wall. Nevelson did both in her work.