

# Designing & Building A Playground

## Grade 2 & 3 Building Challenge

### Overview:

### Inquiry Focus:

Grade 3 students will plan and build a strong and stable structure that would be suitable for supporting playground equipment and creating play structures inspired by simple machines studied in Grade 2. Grade 2 students, will plan and use a simple machine (or a combination of simple machines) to create a play structure. Both grades will combine their models to create a larger playground in groups of 3 to 5.

### Extensions:

Following the successful creation of their playground, students can create a video, slideshow, or podcasts to convince other schools and parks to use their playground design, outlining its Health benefits, or to describe the process from the design stage to the completion of the project.

The students will create a sketch of their design, write a procedural text to explain how they built their play structures or their simple machine for the playground and reflect on the Technological design process. If modifications were required, they will explain how they modified their design. Worksheets are available in French and English.

# Curriculum Connections:

GRADE 3: SCIENCE & TECHNOLOGY	
Strand	<b>UNDERSTANDING STRUCTURES AND MECHANISMS:</b> Strong And Stable Structures
Big Ideas	1. A structure has both form and function. 2. Structures are affected by forces acting on them. 3. Structures need to be strong and stable to be useful.
Fundamental concepts	Structures and Functions Matter
Overall Expectation for this project:	2. investigate strong and stable structures to determine how their design and materials enable them to perform their load-bearing function.
Prior Knowledge	1. Assess the importance of form, function, strength, and stability in structures through time.

<p><b>Specific Expectations which can be assessed throughout this project.</b></p>	<p><b><u>Developing Investigation and Communication Skills</u></b></p> <p>2.1 Follow established safety procedures during science and technology investigations</p> <p>2.2 Investigate, through experimentation, how various materials and construction techniques can be used to add strength to structures</p> <p>2.3 Investigate, through experimentation, the effects of pushing, pulling, and other forces on the shape and stability of simple structures</p> <p>2.4 Use technological problem-solving skills, and knowledge acquired from previous investigations, to design and build a strong and stable structure that serves a purpose</p> <p>2.5 use appropriate science and technology vocabulary, including compression, tension, strut, ties, strength, and stability, in oral and written communication</p> <p>2.6 use a variety of forms to communicate with different audiences and for a variety of purposes</p>
<p><b>GRADE 3: SCIENCE &amp; TECHNOLOGY</b></p>	
<p><b>Strand</b></p>	<p><b>UNDERSTANDING MATTER AND ENERGY:</b></p> <p>Forces Causing Movement</p>
<p><b>Big Ideas</b></p>	<p>1. There are several types of forces that cause movement.</p> <p>2. Forces cause objects to speed up, slow down, or change direction through direct contact or through interaction at a distance.</p>
<p><b>Fundamental Concepts</b></p>	<p>Energy Change and Continuity</p>

<b>Overall Expectations for this project</b>	2. Forces cause objects to speed up, slow down, or change direction through direct contact or through interaction at a distance.
<b>Prior Knowledge</b>	1. There are several types of forces that cause movement.
<b>Specific Expectations that you will be able to assess throughout this project.</b>	<p><b><u>Developing Investigation and Communication Skills</u></b></p> <p>2.1 follow established safety procedures during science and technology investigations</p> <p>2.4 use technological problem-solving skills and knowledge acquired from previous investigations, to design and build devices that use forces to create controlled movement</p>

<b>GRADE 2: SCIENCE &amp; TECHNOLOGY</b>	
<b>Strand</b>	<p><b>UNDERSTANDING STRUCTURES AND MECHANISMS:</b></p> <p>Movement</p>
<b>Big Ideas</b>	<p>1. Movement is a change in position of an object.</p> <p>2. Simple machines help objects to move.</p> <p>3. Mechanisms are made up of one or more simple machines.</p> <p>4. Simple machines and mechanisms make life easier and/or more enjoyable for humans.</p>
<b>Fundamental</b>	Structures and Functions

<b>Concepts</b>	Energy
<b>Overall Expectations</b>	2. Investigate mechanisms that include simple machines and enable movement.
<b>Prior Knowledge</b>	1. There are several types of forces that cause movement.
<b>Specific Expectations that you will be able to assess throughout this project.</b>	<p><b><u>Developing Investigation and Communication Skills</u></b></p> <p>2.1 follow established safety procedures during science and technology investigations</p> <p>2.4 use technological problem-solving skills and knowledge acquired from previous investigations, to design and build devices that use forces to create controlled movement.</p>

Curriculum Expectations that can be used for assessment if you extend the project by writing a procedural text and/or creating a media text to promote their design.

GRADE 2 & 3: LANGUAGE ARTS	
<b>Strand</b>	<b>WRITING</b>
<b>Overall Expectations</b>	<p>1. Generate, gather, and organize ideas and information to write for an intended purpose and audience.</p> <p>2. Draft and revise their writing, using a variety of informational, literary, and graphic forms and stylistic elements appropriate for the purpose and audience.</p>

	3. Use editing, proofreading, and publishing skills and strategies, and knowledge of language conventions, to correct errors, refine expression, and present their work effectively.
<b>Strand</b>	<b>MEDIA LITERACY</b>
<b>Overall Expectations</b>	<p>1. Demonstrate an understanding of a variety of media texts.</p> <p>2. Identify some media forms and explain how the conventions and techniques associated with them are used to create meaning.</p> <p>3. Create a variety of media texts for different purposes and audiences, using appropriate forms, conventions, and techniques.</p>