



## LEGO™ Education Program

### Overview

The Bruce County Museum & Cultural Centre has lots of LEGO™! Students get to learn and design with their class. Programs can be custom-made for your grade and the theme your class is currently studying (note the curriculum tie-ins below). This program can be catered to Kindergarten to grade 3 depending on what they are learning in science. Although the actual program remains the same, the conversation the students will have will alter depending on the grade and their knowledge. Within the current curriculum for science, one of the four categories is “understanding structures and mechanisms”, so all grades will have some sort of knowledge when it comes to structures – whether it’s made of bricks or LEGO™!

This program can also go outside the Museum in Museum Mobile!

### Program Overview

Introduction and LEGO™ Discussion – 10-20 minutes

Activity #1 – Egg Drop – 45 minutes

Students will create a structure out of various materials in which they will place an egg. The point of the structure is to keep the egg safe from breaking if we were to drop the structure with the egg inside. Once finished their structures students will watch their structure being dropped and hope their egg doesn't break! This activity is done in teams.

Activity #2 – Tallest Tower – 45 minutes

Students will create a tall tower completely out of LEGO™. Students are challenged to think about what shapes will make a stable structure. This challenge will take the entire team to create a tower taller than their classmates' creations!

Conclusions – 5-10 minutes

**\*Note – if this is for an older grade, we can incorporate the LEGO™ WeDo™ robotics workshop, ideal for grade 3+ instead of activity #2 above.**

## Curriculum Expectations

### Grade One

Understanding Structures and Mechanisms – Materials, objects, and everyday structures

- "Investigate characteristics of various objects and structures, using their senses"
- "Investigate through experimentation, the properties of various materials"
- "Use technological problem-solving skills, and knowledge acquired from previous investigations, to design, build, and test a structure for a specific purpose"
- "Use appropriate science and technology vocabulary, including *experiment*, *explore*, *purpose*, *rigid*, *flexible*, *solid*, and *smooth*, in oral and written communication"
- "Describe objects as things that are made of one or more materials"
- "Describe structures as supporting frameworks"
- "Describe materials as the substances from which something is made"
- "Describe the function/purpose of the observable characteristics of various objects and structures, using information gathered through their senses"
- "Identify the materials that make up objects and structures"
- "Describe the properties of materials that enable the objects and structures made from them to perform their intended function"
- "Identify the sources in nature of some common materials that are used in making structures"

### Grade Two

Understanding Structures and Mechanisms – Movement

- "Investigate and describe different kinds of movement"
- "Describe different ways in which objects move"
- "Identify ways in which the position of an object can be changed"

### Grade Three

Understanding Structures and Mechanisms – Strong and stable structures

- "Investigate, through experimentation, how various materials and construction techniques can be used to add strength to structures"
- "Investigate through experimentation, the effects of pushing, pulling, and other forces on the shape and stability of simple structures"
- "Use technological problem-solving skills, and knowledge acquired from previous investigations, to design and build a strong and stable structure that serves a purpose"
- "Use appropriate science and technology vocabulary, including *compression*, *tension*, *strut*, *ties*, *strength*, and *stability*, in oral and written communication"
- "Define a structure as a supporting framework, with a definite size, shape, and purpose, that holds a load"
- "Identify the stability of a structure as its ability to maintain balance and stay fixed in one spot"
- "Identify properties of materials that need to be considered when building structures"
- "Describe ways in which the strength of different materials can be altered"
- "Describe ways to improve a structure's strength and stability"
- "Explain how strength and stability enable a structure to perform a specific function"
- "Describe ways in which different forces can affect the shape, balance, or position of structures"