

Lesson Plan: Truss Bridge Construction

NZC Level:	N/A	Class	
Year:	Early Years		
Ages:	5 and up	Teacher	
Duration:	30-60 minutes		
Class Size:	Up to 5 children	Date	

NOTE: Constructables components are safety certified for children aged **5 years and older** (this is because this is the age range we tested for). While this activity is designed for early years, close adult supervision is required at all times. Educators are advised to assess the developmental readiness of each child and ensure safe use of all parts during play. Constructables do not take responsibility for use of toys by children under 5 years of age.

NOTE: Additional, simple design drawings are freely available with this lesson plan. Please contact us at info@constructables.co.nz.

Subject:	Key Competencies:
Technology	<ul style="list-style-type: none"> • Belonging Mana Whenua • Contribution Mana Tangata • Communication Mana Reo • Exploration Mana Aotūroa
Materials Needed:	
<ul style="list-style-type: none"> • Constructables Truss Bridge Set: 1 box per 2-4 children • Additional materials: cars, signs, animals, rocks 	
Lesson Structure:	
Set Up: <ul style="list-style-type: none"> • Place Constructables in a central open area, like a large mat. 	
Introduction: <ul style="list-style-type: none"> • Talk about bridges children have seen. Show photos or media examples. Introduce terms: H-beam, road slab, connector. • Ask open-ended questions: <ul style="list-style-type: none"> ○ What can a bridge be used for? ○ Where have you seen a bridge before? ○ Why do we use H-beams? ○ Can we fit these pieces together? What shapes can we make? ○ Which beam is longer? Let's measure them. 	
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Main Activity:

Children explore freely. Sit with them, guide as needed. Encourage peer interaction. Allow them to create and modify structures.

Support:

Children may need to problem solve as they build. Key things to watch out for are:

- Make sure the H-beams are flat to the ground if you are planning to use the floor pieces.
- Help push connections in as needed. Acknowledge the development of fine motor skills.

Reflection:

- What did you enjoy building?
- What was tricky, and how did you solve it?
- What did your team do well together?
- What will you try differently next time?

Lesson Goals and Learning Outcomes:**Core Competencies****Belonging | Mana Whenua**

Children and their families experience an environment where they can connect with the wider world and their ideas are affirmed and extended.

Children will be offered opportunities through both visual and hands on experiences allowing them to make connections between the bridges they have seen in real life, books and other media to our Constructables. Photos and other displays can be shown to help with this connection. In time and with encouragement children can learn to make these connections through play.

Contribution | Mana Tangata

Children will experience an environment where there are equitable opportunities for learning and every child will be encouraged to learn alongside others. Each child will be affirmed as and individual as well.

The pieces are large enough there are no choking parts and children are encouraged to work alongside each other sharing materials and creating in their own ways to build. Through this process children can recognize their own ability to learn.

Communication | Mana Reo

Children experience an environment where they can discover different ways to be creative and expressive. They will be exposed to opportunities where they can develop verbal and non verbal communication skills.

Over the course of this activity children will hear facts about bridges. They will be guided both verbally and non-verbally to build the bridge shape. They will be exposed to

mathematical concepts such as shapes and weight. Through time they will learn how to look at and recreate the bridge shapes. Building alongside peers children will learn to communicate with one another in order to express themselves.

Exploration | Mana Aotūroa

Children will experience an environment where there play is valued and meaningful learning is occurring. They will gain confidence in their bodies. They will learn strategies for active exploration, thinking and reasoning and develop working theories for making sense of the natural, physical and material world.

Constructables is a strong engineering toy that will allow generous free play for children to explore. They will develop their fine motor skills by grasping and handling each piece. Building those hand muscles for pre-writing activities. As they build, they will become increasingly capable of imagining and inventing. Experimenting how pieces fit together and what shapes they can create on their own. Constructables is created to allow children to explore and come up with their own creations. With the addition of other materials (cars, blocks, animals, rocks, water, etc.) the possibilities are endless. Children will learn to problem solve, learning to build stronger bridges, longer bridges, construction of different sorts. They will have opportunities to develop spatial understandings by fitting the pieces together and taking them apart, rearranging, re shaping the pieces to learn more.

Extension Ideas:

- Add a cardboard road on top of the bridge.
- Use toys to test strength.
- Create different types of bridges.
- Use outside in sandpits or gardens.
- Build buildings or other structures from the same parts.
- Build a railroad track across the bridge.
- Constructables are very sturdy and could be used outside in a sand pit or garden to allow a more natural connection to the world.

Should you have any questions, comments, or suggestions, please get in touch with us at info@constructables.co.nz.



Website

[Constructables.co.nz](https://constructables.co.nz)