Grade One

Lesson 4: Build a Chair for Mr. Bear

Lesson Objective: To familiarize the students with specific Lego building strategies

- How to make a sturdy structure
- Building a structure to size
- Building a vocabulary

Learning Objective: To learn the basic building strategies with the Lego blocks. To learn about size differentiation of objects.

The Challenge: To build a sturdy chair that will withstand the drop test as well as be the correct size for Mr. Bear.

Materials:
Lego Simple Machine kits or other Lego building pieces
Engineer's Journal (the handout)
Fictional book: A Chair for Mr. Bear or Goldilocks and the Three Bears
A small stuffed bear about the size of a beanie baby

Vocabulary

- Sturdy
- Overlapping
- 'Drop Test'
- Size
- Shape

Procedure:

Take a moment before today's lesson and see if the children can recall the Lego Tips that were talked about in the last lesson.

Lego Tips:

- Overlapping beams and bricks are stronger than non-overlapping ones.
- Three stacked plates are the same height as one beam or one brick.
- Discuss overlapping beams and bricks on the corner of a structure.

The teacher begins this lesson by reading a version of A Chair for Mr. Bear or Goldilocks and the Three Bears. Discuss what happened to Goldilocks when she sat in the three different chairs.

Engineering Challenge:

Your Engineering challenge today has two parts.

1. The first part is to build a sturdy chair for Mr. Bear with your partner. You may only use the Lego pieces that we have talked about. Your chair must withstand the 'drop test'. The teacher needs to demonstrate a 'drop test' to show the children what is expected. (Drop the bear's chair from the teacher's knees to the floor.) You need to build your chair in a way that will not break from the teacher's drop.
2. The second part of the challenge is to make the chair the correct size for Mr. Bear. He needs to be able to fit in the chair.

This is a good lesson to share as a class. Save the chairs and talk about each one at the end of the session. This is also a good lesson to photograph and then write about another day.

- What building technique made a sturdy chair?
- What difficulties did you encounter today?
- Describe what it was like to build a structure to size.

When the students have finished building they should complete the Engineer's Journal response sheet.
Extensions:

- Build a bed for Mr. Bear
- Build something special for Mr. Bear. It must be 'his size.

In the last part of the lesson, students will be instructed on how to properly care for, put away, and store Lego materials.

Assessment:

- name learned pieces, using size and type
  - sort pieces into correct bins
- teacher observations and interviews
- completion of engineering challenge (did Mr. Bear fit in the chair?)

Trouble Shooting:

- Some students will be very familiar with vocabulary and building while for others this will be a new experience

- First grade students are on different levels of reading comprehension and math ability

Resources:
Lego/Tufts website- www.ceeo.tufts.edu/curriculum
Lego Dacta "Simple and Motorized Machines" Teacher Guide

Engineer: _____ Date: _____

Partner: _____

Engineer's Journal

1. Draw a picture of your chair. Try to show where the pieces overlap. Write about how you made it.