

# Tower building on a budget



**GRADE**  
**6**

In this lesson, students compare the benefits and costs of spending decisions by working in teams to build the tallest tower on the lowest budget.



## Subject

Mathematics

\*Can be adapted for Science by asking students to build a structure that can hold the most weight and then comparing costs.

## Suggested timing

40 minutes

## Financial literacy objectives

At the end of this lesson, students will:

- compare benefits and costs of spending decisions;
- define budget and its importance;
- make simple financial decisions.

## Curriculum expectations

Mathematics, grades 1-8 (2005)  
Mathematics

### Number sense and numeration

Solve problems involving the multiplication and division of whole numbers (four-digit by two-digit) using a variety of tools (e.g., concrete materials, drawings, calculators) and strategies (e.g., estimation, algorithms).

## Assessment

Collect: Tower building budget sheet (Appendix B).

## What you need

- 400 Straws
- 100 Paper Clips
- Rolls of masking tape
- Scissors – one per group 5 (to cut straws and tape)
- Camera (for photo of towers)
- Blueprint sheet (Appendix A)
- Tower building budget sheet (Appendix B)

## Minds on

Enquire if anyone in the class has made a purchase in the last few days and elicit responses about what kind of products were purchased.

Ask if any of the students who did make a purchase took the time to write down or record their purchases in order to keep a record of their spending.

Explain that people who are good with money often take extra care to track and monitor how their money is spent. At this point, introduce the concept of a budget and describe its features. Model a simple budget worksheet (Appendix B) and explain how this tool can help individuals control their spending.

Next, introduce the lesson's key activity by sharing with students that today they will be comparing the benefits and costs of spending decisions by building a tower on a budget.

## Action

### **Activity: Building a tower**

Have students form groups of 5 and set up the activity by stating the following:

"Imagine that this classroom is a building materials store. Working in your group, you will be given a builders' account balance of \$1,000. The goal of the activity is to build a tower with paper clips, masking tape and straws – but there is a catch. The winning team will build the HIGHEST free-standing tower on the LOWEST budget."

Instruct students to use any knowledge they have about structures and shapes to come up with a plan. Explain that the first step involves making a blueprint of their design on a template (Appendix A). Next, they will need to make decisions about what materials they want to purchase from the store (which should be located on your desk).

Introduce the Budget Worksheet (Appendix B) and explain that each group will be required to track their spending using this handout. Remind students that this sheet will be collected at the end of class and emphasize that everyone in the group should either participate in filling out the sections and/or checking the final totals.

Make it clear that students will have approximately 20 minutes to plan and build the tower.

## Action (cont'd)

### Cost of items for the tower build

Hold up each item and explain to students that all of these items will be 'for sale' at the teacher's desk during the activity.

Straw: \$50.00  
Paper clip: \$10.00  
5cm Masking tape: \$5.00

Remind students that the use of scissors requires a one-time investment of \$100.00.

Note: Straws may only be cut with use of scissors.

### Rules for the tower building challenge

Go over the following rules with the class:

- All group members must participate in planning and building the tower and each must help make calculations on the budget sheet.
- Use only the materials provided.
- If you waste materials, you must pay for them.
- Explain that when the timer sounds at the end of the activity, work stops, and the towers will be measured for height and stability.
- The groups will then make the following adjustments on their budget sheet:
  - Highest - subtract \$100 from total amount spent
  - Second highest - subtract \$50 from total amount spent
  - Third highest - subtract \$30 from total amount spent
  - Fourth highest - subtract \$20 from total amount spent
  - Fifth highest - subtract \$10 from total amount spent

### Group work

- Before starting the activity, assign the following roles to group members:
  - Timekeeper - Watches the clock; lets group members know how much time is left.
  - Mediator - Keeps the group on track and helps make final decisions about what to buy.
  - Materials Manager - Counts materials, measures and cuts tape.
  - Record Keeper - Tracks materials used and 'money' spent (Note that everyone must audit the sheet before handing it in).
  - Spokesperson - Shares results with the class.

Assign stop time (approximately 20 minutes) and periodically notify students about the time remaining.



## Consolidation/ debrief

Measure the tallest free-standing towers; have students calculate the total cost of their resources used and, based on height, subtract the bonus. Determine a winner or share budgets and congratulate everyone on their effort. Take photos of each tower.

Have students reflect on the activity by conducting a class discussion using the questions below:

1. Describe the process you used to make decisions about what and how to spend money.
2. When building the tower, what were the risks and benefits you needed to consider when making your spending decisions?
3. In what way(s) did the budget worksheet help you to control spending?
4. Sometimes it is necessary to spend more money for quality materials. Did you experience anything during this exercise that illustrates this?



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# Tower building on a budget blueprint

Group: \_\_\_\_\_

Use the space below to sketch out the blueprint of your tower.

A large, empty rectangular area defined by a thick, hand-drawn blue border. This area is intended for students to sketch their tower blueprint.



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# Tower building budget sheet

Group names: \_\_\_\_\_

**Instructions:**

Fill in information for all the shaded boxes

INCOME			Amount
Bank account			\$1000
			Total income
			\$
EXPENSES	Number of pieces purchased	Price for each item	Total
Straws		\$50	\$
Paper clips		\$10	\$
5 cm of masking tape		\$5	\$
Use of scissors		\$100	\$
			<b>Total expenses</b>
			\$
			<b>Money remaining</b>
			\$
			<b>Deduction for height (# provided by teacher)</b>
			\$
			<b>Final total</b>
			\$

**Budget check up** ✓

What was your starting budget?	\$	
How much did you spend?	\$	
Did you stay within your budget	YES	NO