

Litterbug

Related outcomes

- M 3.1 (a): A student selects from a range of units and measuring devices to measure accurately and record in practical situations.
- M 3.5: A student measures and records the mass of objects to the nearest gram.
- N 3.2 (a): A student recognises and represents common fractions, decimals and percentages.
- N 3.5: A student selects and uses appropriate mental, written and calculator techniques to approximate and calculate solutions to problems involving whole numbers, money and decimal fractions.
- S 3.5: A student displays, reads and interprets a variety of graphs.
- WM 3.3: A student uses mathematical terminology and some conventions to explain, interpret and represent mathematical situations in a variety of ways.
- WM 3.6: A student selects appropriate technology and uses it to help carry out mathematical investigations.
- VA 2: A student demonstrates a positive response to the use of mathematics as a tool in practical situations.
- VA 5: A student demonstrates a willingness to work cooperatively with others and to value the contributions of others.

Possible indicators

A student can:

- measure and record the mass of objects
- choose appropriate units to solve problems involving mass, interpreting the results in the context of the question
- read and write fractions in the form a/b and use them in practical situations
- use a calculator to find a percentage of a total amount.
- solve realistic money problems
- record and interpret information from a problem.

Syllabus links

Space	Graphs 3, 4
Measurement	Mass 10, 11, 12, 13
Number	Money 6, 7 Fractions and decimals 11

Teaching activity

1. As a class, students list categories for various types of litter, such as paper, glass, aluminium and food.
2. Students, in groups of 3 or 4, are assigned a designated area of the school environment in order to determine the type and amount of litter found there. The type and quantity of litter are recorded in a table.
3. Students collect and sort the litter and place it into garbage bags which have been labelled with the categories of litter suggested by the students.
4. Groups weigh their individual garbage bags and determine the total mass for each category of litter.

5. As a class, students report on the litter found in their area, stating the type, amount and weight of litter. Students collate the information with teacher guidance, then display it in a tally, table or graph.
6. Students list reasons why various types of litter were found in particular locations.
7. Students develop a plan to reduce the amount of litter in the school. This could include strategies to reduce, reuse, and recycle litter. They present suggestions to the Student Representative Council, or equivalent school body, to ensure whole-school support.
8. Students implement their litter reduction plan.
9. After implementing the litter reduction plan, ask students to assess its effectiveness.

Pose the following questions:

- (a) Did the amount of litter change after the plan was implemented? By how much?
 - (b) What percentage of the litter could be recycled? (This may require showing students how to calculate percentages using a calculator.)
 - (c) Can the school make money by recycling any of the litter?
10. The students write a report on the success of the litter reduction campaign and present this to the principal.

Note: Ensure students are provided with appropriate implements and protective garments when handling litter. Hands should be washed at the end of the activity to maintain normal hygiene requirements.

Language

weight, mass, kilogram, gram, percentage, cost, category, tally marks

Equipment

garbage bags

