

# Separating Recyclables

We are all being asked to reduce the quantity of waste that we produce. Recycling programs are expanding across Ontario. Recyclable materials are generally brought to a recycling depot all mixed together. The various parts must be separated before the materials can be turned into new, useful objects. How are the parts separated? Your challenge is to design and test equipment to separate a mixture of recyclable materials.

## SKILLS MENU

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| <input type="checkbox"/> Identify a Problem/Need           | <input type="checkbox"/> Designing     |
| <input type="checkbox"/> Planning                          | <input type="checkbox"/> Testing       |
| <input type="checkbox"/> Selecting Materials and Equipment | <input type="checkbox"/> Modifying     |
|  | <input type="checkbox"/> Communicating |

## Scenario

Your school administration has asked your class to suggest ways to sort mixed recycled materials. You will work in teams. You will be shown a sample of the kinds of materials that will be in the mixture. Each team will design and test their own separator, or series of separators.

## Design Brief

Your challenge is to (a) plan a process, and then to (b) design, build, and test a separator for mixed recyclable materials. Your process should be efficient, with as few steps as possible. It should also have the least possible impact on the environment.

## Research and Consider

Discuss, in your group, how to address this challenge. What separation methods would be most appropriate? What steps are required? What equipment and materials will you need? Is there anything you need to research?

## Plan and Construct

1. Write a detailed plan for processing the recyclable materials.
2. Draw a flow chart to illustrate how your separator will work.

3. Collect the equipment and materials that you need and build your separator.
4. Modify your plan during the building process, if necessary. Remember to record your changes.

## Test and Modify

Using a sample of the recyclable mixture, test your separator. Does it meet the Design Brief? Make any necessary changes. Retest your separator until it efficiently separates the mixture into the various categories, which you should collect in different containers.

## Evaluate

Did your separator separate the mixture of recyclable materials as required? How could it be improved? How could it be made more efficient? How could it be less damaging to the environment?

## Communicate

Create a poster about your separator. Include a large, labelled diagram, with notes on how the separator works. Explain why your design is efficient and why it has little negative impact on the environment.