

The Recycling Factory

Suppose that you are the new owner of the Owl Recycling Factory and you are looking for business.

An official from the city of Westminster, Mr. Smith, tells you that they have a dump truck full of recycled materials that must be separated, and they will pay you \$5,000 if you can do it. Unfortunately, the job is made more difficult by the fact that someone has ground all of the materials into a fine powder, making it impossible to separate them by hand.

Fortunately, Mr. Smith knows what the materials in the truck are, as well as their densities:

Material	Density (g/cm ³)
Aluminum soda cans	2.7
Steel cans	5.7
Milk jugs	0.95
Soda bottles	1.4

In your factory, you have the following materials at your disposal:

- A long conveyor belt
- A large tank that can be filled with water
- Another large tank labeled “Concentrated sugar water, density = 1.5 g/cm³”
- Several powerful magnets hanging above the conveyor belt
- Several nets for skimming the tanks and scooping material from the bottoms.

Your job: Find a way to separate the four recycled materials. You may need to do this in several steps.

You will have to write a letter to the city official that describes your plan. You may draw diagrams if they are neat.

Scoring:

- All parts of a letter are included
- Your plan will work
- Your plan is understandable
- You describe what will be separated by each step
- Your work is neatly done
- You use correct grammar and spelling
- Your letter should be one page, standard conditions

Good luck!