From: lMGreen@renewplc.com
To: research@greengrp.co.uk
Subject: Sorting and Recycling

Dear Research Group,

We are a recycling facility who separate and sort household and industrial waste materials before crushing them and sending them to treatment plants to be processed and recycled. The materials we sort are: aluminium, steel, glass, plastic, paper and card and mixed materials (e.g. some vehicle parts or circuit boards).

We have problems sorting so much waste by hand. We would like your help to improve the following recycling processes:

- Separating aluminium and steel cans. These are sorted using magnets, but we need to find a more efficient way to use the magnets.
- Crushing cans for transport.
- Efficient movement of materials from one area of the site to another.

We need you to:

1. Find out how to separate the different materials, in particular steel and aluminium.
2. Explain the most efficient way to crush the cans/containers (taking their shape into account).
3. Investigate suitable material for our conveyor belt to move waste from one process to the next.
4. Find out more about what happens to materials when they go from us to the treatment site to be recycled (e.g. paper).
5. Design a poster to make the public aware of the benefits of recycling or disadvantages of not recycling.

We look forward to hearing from you with your results.

Isla Green

Research manager – Renew plc

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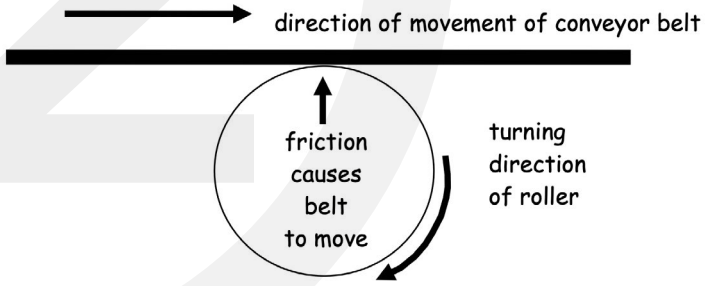
Disclaimer

This email transmission is confidential and intended solely for the organisation to whom it is addressed.

Activity Sheet 12: Surface friction investigation

Investigation Question

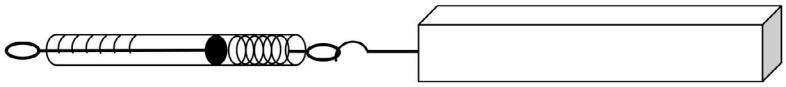
Which surface has the highest friction?



Predict

Which surface do you think would be best for the underside of the belt?

Draw 3 forces acting on the block, when the Newton meter is pulled.



Measure the friction of the materials you choose.

Results

Repeat your investigation three times to get reliable results.

Surface	Force to pull (N)			
	1	2	3	Average

Conclusion

Which surface has the highest friction?

Was your prediction correct?

Would this be suitable material for a conveyor belt in a recycling plant?

Why/why not?

What ways could you increase the surface friction?