



UNDERSTAND

Modelling game instructions (IM10)

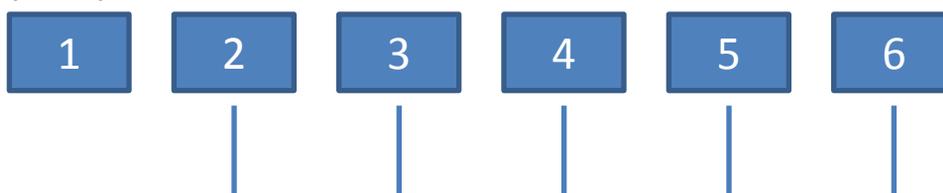
Aim: To show that even if 50% of drinks cans are recycled, we will still end up using up all the raw materials and with all the cans in landfill. This is because every time the materials are cycled round the system, 50% is lost to landfill.

Equipment:

7 boxes without a lid

60 plastic ball (30 in one colour, 30 in another colour)

Stage 1 (If time)



Place 6 boxes in a line with a gap between them. Each box will be a station. Each station represents a stage in the life of a drinks can:

1. Raw Materials
2. Refinery
3. Drinks can factory
4. Shop
5. Home
6. Landfill

Place 30 balls of one colour at the 'Raw Materials' station. Each ball represents the amount of material it takes to make one drinks can.

Divide into 5 groups. One group lines up behind each station except the 'Raw Materials' station and are now part of the life of a drinks can.

The first person in the line at the 'Refinery' station has to run to the 'Raw Materials' station, pick up one ball, take it back and put it in their 'Refinery' and go to the back of their line.

Then next person does the same. Practice this.

There will now be some balls in the refinery.

The group at the 'Drinks Can Factory' will do the same thing as the 'Refinery' group, but get their balls from the 'Refinery'. This can start as soon as balls are available at the 'Refinery station'.

This process is continued for all the stations. Thus, the balls travel from station to station until eventually, all the balls have been transferred to the 'Landfill' station and there are none left in the 'Raw Materials' station. Give it a try.

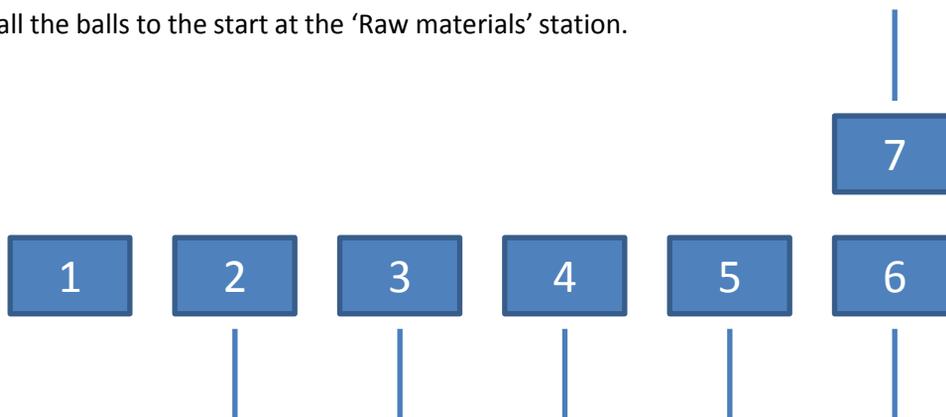
It doesn't take long for all the raw materials to run out. What can we do to improve this?



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Stage 2: Recycling

Return all the balls to the start at the 'Raw materials' station.



Introduce a new station: 7, 'Recycling Plant'. Place another box next to the 'Landfill'. One person from each of the groups should go and line up behind the 'Recycling Plant' station.

The people at home are going to recycle 50% of their drinks cans. So the 'Landfill' and the 'Recycling Plant' need to take it in turns to collect a ball from the 'Home' station and take it back to their station. Practice this.

One person needs to stand beside the 'Recycling plant'. They will be the actual 'Recycling machine'. Their job is to change the balls which go into the 'Recycling Plant' from one colour (e.g. blue) to another (e.g. yellow). This will make the recycled materials being introduced into the process clearly visible.

This means that at the start, the 'Drinks Can Factory' will get their materials from the 'Refinery' station, but when there are different coloured balls in the 'Recycling Plant', every other person in the 'Drinks Can Factory' line will need to collect a ball from the recycling plant instead of the 'Refinery'

Discussion

This modelling game shows that recycling simply delays the problem and the raw materials will still run out and everything will still end up in landfill eventually.

How can we stop this happening? How can we make products that can be truly cycled like in Nature? Think about what materials we should use to make products.