

# Refuse collection tender

## Collecting Waste

Every district or borough council gives a contract to a waste management firm for the removal of household waste. A lot of planning is needed to make sure companies know what they are expected to do.

## Where will the waste be collected from?

Decide where the bins will be left in order for the collectors to find them.  
Draw a map here.



## Any extra jobs that need to be done?

Do you need someone to tidy up the classroom at the end of the day? What about the corridors? What if the refuse collectors leave a mess?

## Where will it be tipped?

Are you collecting rubbish and recycling? Where would you like to send it you send it for recycling? What materials would you like collected

## How often will it be collected?

Weekly? Daily? Make sure you have enough collections to get rid of your waste but not so many that the collectors are taking half empty bins every time.

Put the contract out to tender. You may receive several bids. The big question is: Are you going to choose the contractor who makes the lowest bid or the one you think will do the job best.

## Collecting Waste

Now look at the list of everything that needs to be done. Do you have any better ideas of how you could do it?

You need to say you'll do it for a certain price.

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## How will you do the job better than anyone?

Think about how many bins there are. You may need more than one person to carry each bin if it is heavy. How far do they have to carry the bins? Think about how much you will need to pay them.

Is there a better way to do it?

## Where will it be tipped?

You will need to get permission to use disposal sites. (even if these are the school's main bins)

## Equipment

Think about any equipment you will need. What will this cost?

## Making the difference

Wouldn't it make life easier if all your customers understood what you were doing? How will you let people know what items to put in which bin? How can you make sure they do this?

Try to think about this like a business, ask too much and you won't get the job. Ask too little and you'll never get rich although you might be very busy!

# Collecting rubbish

Dustcarts use diesel fuel. They can travel 6 miles to the gallon. The fuel also provides the power for the machinery at the rear of the lorry.



The dustcarts are kept at a Council Depot where there are workshops to maintain them



The real name for a dustcart is a Refuse Freighter. It weighs 10 tonnes when empty and carries up to 7 tonnes

Each dustcart has a crew led by a charge hand driver. He has two, three or four refuse collectors in his team

A charge hand driver needs to have a licence to drive a large vehicle. He needs to control his crew and know his round

The crew wear safety boots or trainers with steel toe caps. They have protective coats, trousers and gloves. They have high visibility waistcoats.

Refuse collectors know how to lift heavy weights correctly. They have to have a very safety conscious attitude to work



- To do:**
- How do you carry equipment safely? Ask your PE teacher and practice.
  - Which colours can be seen from furthest away. Do your own high visibility test
  - How many jobs can you think of that are involved in collecting waste? Make a list.
  - Don't forget the people who build and maintain the vehicles. What about the people who test the charge hand driver for his special licence?

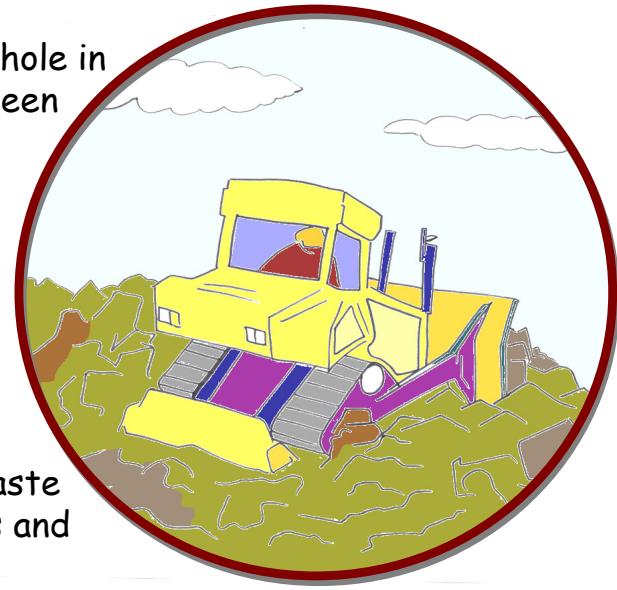
# Getting rid of rubbish

## Landfill

Most waste is tipped into a landfill site which is a large hole in the ground where sand, gravel, or other minerals have been dug out.

Scientists and engineers have to make sure that the site is in a safe place and that people can be protected from the dangers

Other scientists check that there is no danger of the waste polluting the streams, ponds and rivers.



A landfill site can continue to cost between 5 and 6 million pounds per year AFTER it has closed

Waste disposal firms use the space in the hole. They fill up the space and the owners have to make the hole safe to look after it for many years. This costs a lot of money.

## Who pays?

We do. This is one of the services that we pay for through our council tax

The county council is responsible for getting the waste tipped into a landfill site. It pays about £48 a tonne to have the waste tipped at the site as well as a landfill tax of £24 per tonne.

## To do:

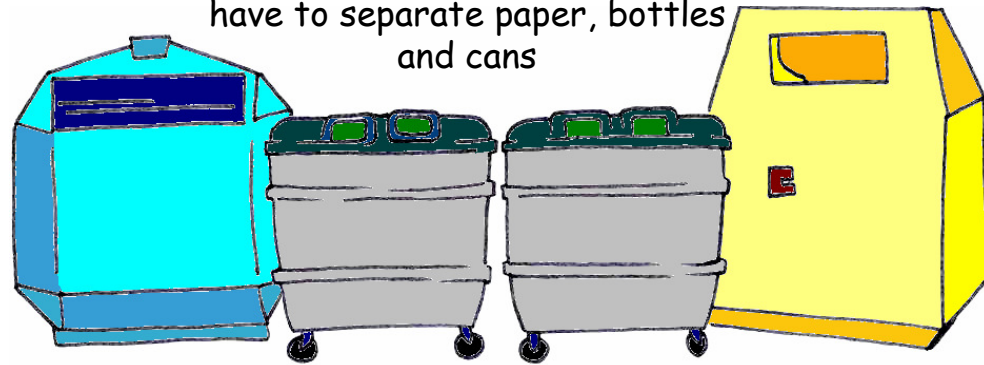
- One lorry takes 7 tonnes. Can you work out how much it costs to empty a lorry into a landfill site?
- Shops and factories have to make their own contracts with waste management firms. Until recently schools had to do this too. Find out how much your school had to pay last year.
- What other ways could you get rid of rubbish? Would it be more environmentally friendly to burn it?

# Recycling



Recycling is when you take something that has already been made, break it down and turn it into something else. The recycling logo represents this because some things can be recycled over and over again in a big loop to save having to produce more raw materials.

Some places have recycling banks. These are large bins for everyone to use. You normally have to separate paper, bottles and cans



Because the banks are far enough from home it may be necessary to drive the waste there in your car. How does driving short distances affect the environment?

Dustcarts are used to collect the recycling from people's houses. There are different ways of doing this.

## Kerbside sorted

You have to separate all your recycling into different bins and put them all out, sometimes on different days

The refuse collectors pick up a recycling box with many different things in it and sort them into different compartments in their lorry.

This takes a long time and so more refuse collectors are needed to complete the work

## Co-mingled

You only need one bin for everything that is recyclable.

The refuse collectors throw everything into the back of the same lorry and they are sorted later at a place called a materials recovery plant.

This makes the collection quicker but means that more people have to work at the sorting plant.

## To do:

- Find out how far away your nearest recycling banks are. Are they near something else that people might be driving to anyway?
- Think about kerbside sorting, how long does it take you to sort your recycling? How much space does it take up at home?
- What other people do you need to make recycling work? Don't people need to buy recycled products?
- Which method would you prefer to use: kerbside sorting or co-mingled, and why?

# Waste reduction

## Factsheet 4

At the rate we're going now, by the year 2015 we will no longer have space in Surrey to landfill any of our waste. The last of the landfill sites will be closed and we will have to dispose of rubbish some other way.

Recycling is one thing we can do

We can compost some things

...But what about the rest?

What about incineration or 'Energy from Waste' Is this better for the environment?



How old will you be in 2015?

**We may have to do all of these things... and perhaps some other things.**

What about planning to reduce the amount of waste we produce? Being less wasteful takes more time, thought and sometimes costs a little money.

### **Repair:**

This is not always the cheapest thing to do and it takes time. It **does** reduce waste

### **Reduce:**

Buy less. Use up all you buy and keep things longer.

### **Refill:**

Many things that you buy have refills which saves you having to throw away the container.

### **Recycle:**

This means breaking up the thing that has been thrown away and making something new from it. You don't waste the material, you use it. Recycling is expensive and you may have to take things a long way to be recycled. It may be hard to sell the things you have made.

### **Re-use:**

Buy milk in bottles, not cartons. Use returnable bottle schemes. Pass on second hand clothes. Give things to jumble sales and charity shops.

- To do:**
- Look up the names of businesses in the area that repair things. You can use the internet or the phone book.
  - Make a list of all the things that you can buy refills for. Are there others that could be refilled if refills were available?
  - How can you persuade manufacturers to make refills?
  - Design a poster advising people how they can throw away less rubbish

# Thinking about rubbish



KS1 age 5 – 7 years

Although the approach can be adapted for use with different age groups and can be tailored for use as a starting exercise for the waste audit

## Aims:

- To illustrate the many types of waste that is produced by society
- To illustrate the many different methods used for disposal of wastes, for example incineration and land-filling and some of the environmental problems associated with waste disposal and to discuss the impact of our ever increasing levels of waste production
- To highlight the different agencies involved in the collection, disposal, regulation of waste and to emphasise the importance of individual responsibility for what we do to the environment
- To emphasise that waste disposal is a business, and that it requires input from many individuals

## Key Issues

- Waste avoidance is more environmentally friendly than any recycling or disposal method
- Incineration and energy from waste are not necessarily better for the environment
- Landfilling can lead to leachate and methane gas production and pressure on space has become a problem.

## Suggested structure

The exercises are intended to get children thinking about the processes involved in rubbish collection and disposal and many of the issues affecting it.

The activity can be split into several exercises spread over a number of sessions beginning with a discussion of the kind of waste produced in a classroom and what can be done about disposing of it.

Does the class need separate rubbish and recycling collections?

The whole class can discuss together what the needs are and develop a service outline that they will put out to tender.

The second exercise would involve discussion of the details of waste collection.

One technique would be to split the class into several research teams depending on interest and ability. In terms of group sizes; think about the later groups for final exercise these initial groupings can supply the “experts” for each waste contract firm at the end of the unit.

Alternatively, each segment could be delivered to the whole class as a short project.

**Factsheet 1** will help students think about the dustcarts and crews and the job that they have to do. More able students may be asked to find out the cost of diesel fuel and try and work out the cost of a certain journey. Say: 18 miles to and from the depot. Other pupils may like to weigh each bin and work out how much the refuse crew will have to be carrying on each collection and how far.

**Factsheet 2** outlines the issues surrounding landfill and deals with rough figures to help plan the finances of the bid. An alternative outcome may be: what is the average waste volume produced by the school? (an 1100 litre bin will weigh roughly 600kg) therefore, how much would the school pay if it was charged directly?

**Factsheet 3** is about the various techniques of recycling collection. It has to be stressed that there is no point in recycling without completing the loop by having a market for recycled goods. Children can be encouraged to think about the practical aspects of collecting from many households and how the materials get sorted in the end.

This makes links with aspects of **Unit 3: Materials**

**Factsheet 4** encourages pupils to think about selling sustainability. Getting them to think about waste reduction. This is a creative element to the project, involving designing an advertising campaign to persuade the whole school to think about the waste it produces.

**The final part** may take a whole lesson to complete. The class will need to be split again into groups of four to five. Each question on worksheet 2 addresses one of the fields of expertise that the class has been working on so far. Each group prepares and presents their bid for the collection tender outlined in the first session.

The whole class then takes a vote on which bid to accept.

**The plenary** should be aimed at discussing why the winning bid was chosen. In the real world, the next step would be for the winning contractor and the customer to discuss in more detail and develop a contract. The contract may still adopt some of the other groups suggestions because they were good ideas. This is all a healthy part of the process.

A recurring theme throughout will be that any waste disposal method will have an environmental impact and the only way to limit this is to cut down on waste where it is produced.