

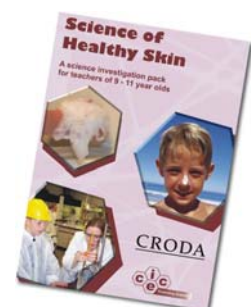
**Problem with Grease 1**

As an operator I work in part of the factory where we make product in large amounts. I work in a team and we help each other out.

Making a product is a little like baking a cake but on a much larger scale. First we take the ingredients which arrive at our site in bags and we load them into our big tanks. If the bags are too big or heavy for us to lift we can use machinery that will dangle the bags over the tank. We can then cut the bottom of the bags to drop the material into the tank.

If it's a liquid we can use a pump to move the liquid from one tank to another or from a drum to the tank. Sometimes the material is very sticky and gloopy like wool-grease and needs to be pumped out of the drum into big tanks where extra ingredients will be added to separate the lanolin.

But there's a catch, because wool-grease is a very sticky and a very thick material, not at all runny like water. It will not go through our pipes and our pumps easily so we need to do something to help it move more easily.



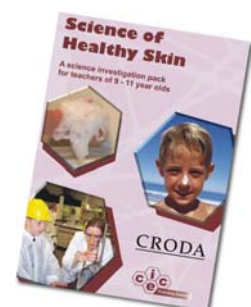
**Problem with Grease 2**

The best way to move the wool-grease from the drums to the tank is by heating it so it melts. Think of butter in a fridge: if it's taken out it gets warm and it melts. This is what wool-grease is like. For us to melt the wool-grease it needs to be put into giant ovens so we drive forklift trucks to lift the barrels in and out of the ovens.

Nowadays a lot of the machines are automated and controlled by a computer, and the main part of my job is to make sure everything works properly. I use the computer to set up the machine so it will do the right job at the right time.

When the final product is made in the tank we need to put it into smaller containers so it can be used by our customers. We can't find a container big enough to hold a swimming pool full of liquid, so we fill small containers one by one, a bit like filling a small bottle of water from a large bottle of water.

When we put them on the pallet we drop them off in the warehouse, and they are then shipped to our different customers.



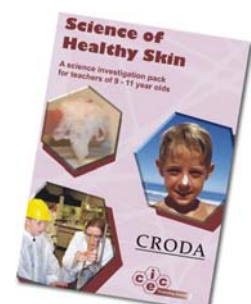
## Lanolin Layers



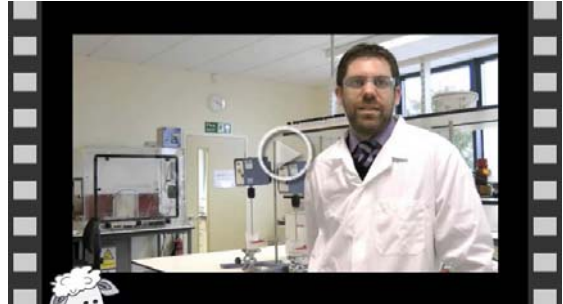
Hello! My name's Richard and I work as a chemical engineer. My job involves changing simple ingredients into useful products.

Chemical engineers work out how to scale up the processes use to make small amounts of products in the lab, so we can make huge tank loads for sale. I also have to work out how to do this without wasting energy or materials; and I have to choose the right kind of machines to help to do this safely.

Like many engineers I have to use science and maths skills to solve problems, and work in a team to get the product just right.



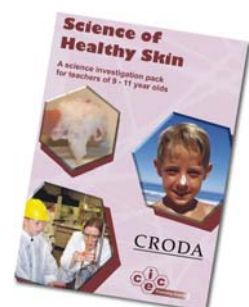
## Lumpy Problem



Hi! My name's Grant. I'm a scientist in the laboratories at Croda.

In our factory we make an ingredient that is used in sun protection cream.

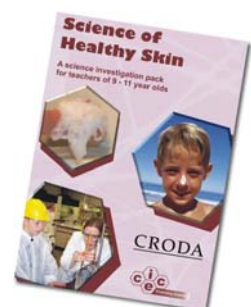
When this ingredient is made it's in the form of big white lumps, but we cannot use these lumps in our recipe.



## Lumpy Solution



I have to find the way to change the big lumps into fine powder. My idea is to shake the big lumps in a container with other materials to break the lumps apart, but I don't know which material would work best. Could you help me?



## Quality Control

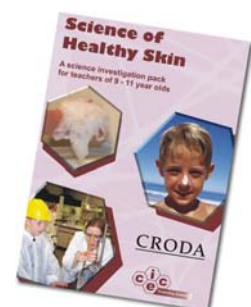


Hi! I'm Chris and I'm a quality control scientist at Croda.

On our plant we make lots of large batches of different products. When our plant operators have made the products we need to test each one to check that they are almost identical.

We carry out a number of different tests on all the products and they must pass each to allow them to be sold on to our customers.

Can you test the samples of sunscreen we have for you to see if they can be sold on to our customers, please?



## Selling the Message

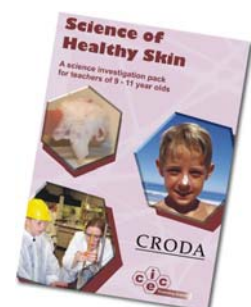


Hi! My name's Katie and I'm a sales representative for Croda. My job is to visit customers in the UK and around the world and show them new materials they can buy from Croda.

Our customers are people that work for companies such as L'Oreal or Unilever and they put our ingredients into their mixtures.

I take with me samples and technical information which help me explain why they should add Croda ingredients into their products; and when a customer is interested I give them the price of the product, I give them information about the pack size and the delivery.

I can also help customers develop new and original mixtures. My scientific knowledge and experience helps me have successful discussions with our customers.



## A Recipe for Success



Hello! My name is Bernice and I'm an application scientist at Croda. It's my job to find out the best way to use the products we make.

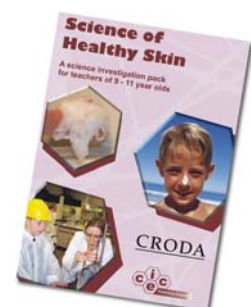
For example, we need to know which oils to use to make products feel nice, and which thickeners to use to make products which are not too thick or not too thin.

I also give technical information to the marketing and sales teams to help sell our products.

I make new ingredients and then test these to see how they can make our customers' final product mixtures even better. We sell our products to other companies and not members of the public.

Sometimes our customers want their products to foam more or to feel nicer on the skin when used. I make up mixtures, called formulations, and test them in our labs to make sure our ingredients work really well, and I present my results to the customers.

I use my scientific knowledge to understand which ingredients work best and why. By using this information we are always able to make something new and original with our ingredients.





## Marketing the Mixture



Hello! My name is Sarah and I'm a marketing coordinator at Croda.

Our scientists in the labs send their experiment results to me and I make the scientific information easier for our customers to understand. I put information into exciting communications like posters, web sites and articles for magazines.

I also go to trade shows, where lots of different companies present their products to potential customers.

To do my job I need to be good at understanding science and also good at making information easier for people to understand. But most importantly I need to be creative. Marketing is the way we present our company to people who might become our customers, so we need to make sure we stand out from the crowd.

