

Plastic degradation

Professor:

You want to take the problem by the root and break down plastic. To do this we need to create a cell that can break down plastic.

Emma:

I've heard of that. Isn't there some way to change a cell?

Professor:

Exactly Emma, you can change the genetic material, i.e. information of the entire cell. The genetic material is located in the nucleus of the cell and is very, very small.

Amira:

But isn't that dangerous?

Professor:

Don't worry scientists usually change cells in such a way that they cannot survive at all without the researcher's action.

Simon:

But how is that possible? You can hardly see these cells, how can you change something?

Professor:

First you must know what exactly you want to change. The genetic material of the cell is composed of smaller units, the so-called genes. Each of these genes stands for a specific information. So if you know which information you would like to change you have to think about which information you would like to insert - exchange the existing gene for another one.

Amira:

Wow that sounds really exciting. So you can exchange everything for any information you want?

Professor:

In general, yes, but you have to be careful that you don't change information the cell needs to survive. Now if we want to have a cell that degrades plastic, we need a gene for an enzyme which can degrade plastic.

Simon:

Enz-what?

Emma:

Oh Simon, the people from Teutolab had already told us that this is a topic in the course for older students. Wasn't there something about a lock?

Amira:

A lock? What does that have to do with it?

Professor:

You could describe the enzyme reaction with the key-lock principle to. Only one specific key fits into a lock and this is exactly the same with enzymes.

Simon:

So if you know what and where you want to change something, then you just swap it?

But how could you do this? The cells are so small.

Professor:

Yes, cells are very small but we researchers have our methods.

Narrator:

Look at the methods on the treasure map and choose one of the 3.