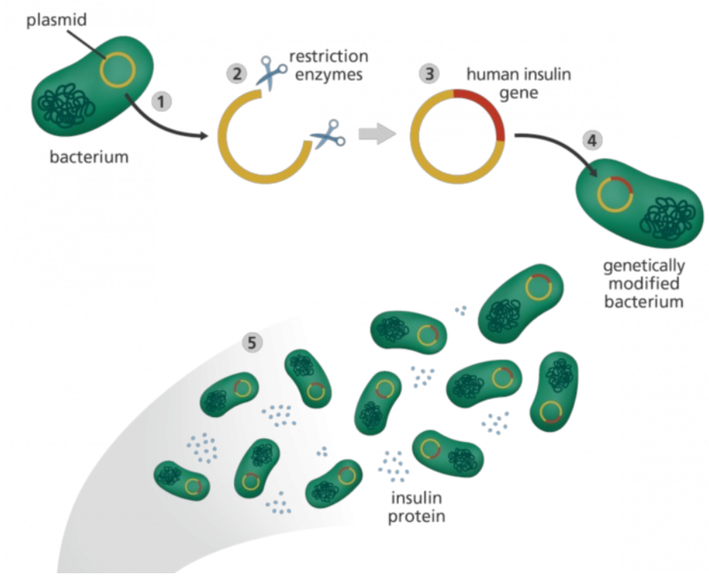
Genetic Engineering and Biotechnology

To help explain the application of genetic engineering we have taken the example of insulin, a protein that helps regulate the sugar levels in our blood.

- People with diabetes have to inject insulin to control their blood sugar levels.
- Genetic engineering has been used to produce a type of insulin, very similar to our own, from yeast and bacteria



The genetic engineering process

a) The gene for human insulin is inserted into a fragment of DNA called a plasmid and is then introduced into a bacteria or yeast cell.
b) This cell then divides rapidly and starts making insulin.
c) The bacteria or yeast cells can be grown in a large vessel called a fermenter to produce large amounts of the insulin protein
d) When fermentation is complete, the insulin is purified and packaged into vials for distribution to patients with diabetes.