Genetic Engineering:

Enzymes:

- Restriction enzymes recognise sequences of DNA and cut the DNA at these points.
- Ligase enzymes are used to join two pieces of DNA together.
- Two different bits of DNA stuck together are known as recombinant DNA.

Vectors:

- A vector is something that's used to transfer DNA into a cell. There are two sorts plasmids and viruses.
 - Plasmids are small, circular molecules of DNA that can be transferred between bacteria.
 - Viruses insert DNA into the organisms they infect.

How:

- 1. The DNA you want to insert is cut out with a restriction enzyme. The vector DNA is then cut open using the same restriction enzyme.
- 2. The vector DNA and the DNA you're inserting are mixed together with ligase enzymes.
- 3. The ligases join two pieces of DNA together to produce set abinant DNA.
- 4. The recombinant DNA is inserted into other other
- 5. These cells can now use the generoou inserted to make the protein you want.

Genetically Modified Plan

- crops can be genetically monified to increase food production in lots of different ways one it to make them resistant to insects, another is to make them resistant to herbicides.
- Making crops insect-resistant means farmers don't have to spray as many pesticides

 so wildlife that doesn't eat the crop isn't harmed. It also increases crop yield, making more food.
- Making crops herbicide-resistant means farmers can spray their crops to kill weeds, without affecting the crop itself. This also can increase crop yield.
- There are concerns about growing genetically modified crops though. One is that transplanted genes may get out into the environment. For example, a herbicide resistance gene may be picked up by weeds, creating a new weed variety. Another concern is that genetically modified crops could adversely affect food chains or human health.
- Some people are against genetic engineering altogether they worry that changing an organism's genes might create unforeseen problems – which could then get passed on to future generations.