**4.5 Genetic Engineering**

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| What is genetic engineering? |



Genetic engineering is the direct\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_’s \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, which is the list of specific traits (genes) stored in the DNA.

Changing the genome enables engineers to give desirable \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to different organisms.

Organisms created by genetic engineering are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(GMO’s)

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| What is the GMO process?  |

All genetic changes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the organism.

By changing which proteins are produced, genetic engineers \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Genetic modification can be completed by a number of different methods:

* Inserting new \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ randomly or in targeted locations
* Direct replacement of \_\_\_\_\_\_\_\_\_\_\_\_\_\_ (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of genes
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of existing genes





**Table 1: Main Genetically Modified Crops in Canada**

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|  |  |  |  |  |
| **Crop Type** |  |  |  |  |
| **% that is Genetically Modified in Canada** |  |  |  |  |