

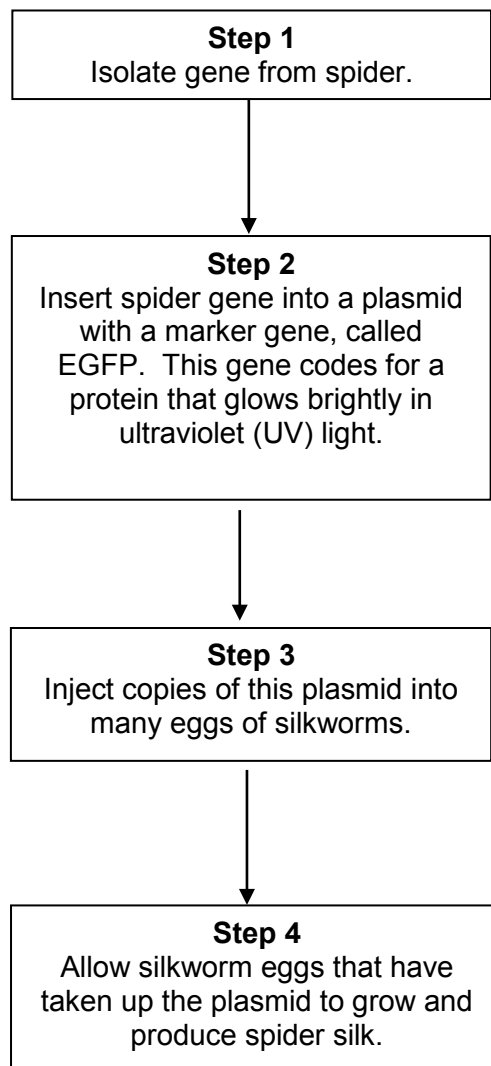
**5** Silkworms secrete silk fibres, which are harvested and used to manufacture silk fabric.

Scientists have produced genetically modified (GM) silkworms that contain a gene from a spider.

The GM silkworms secrete fibres made of spider web protein (spider silk), which is stronger than normal silk fibre protein.

The method the scientists used is shown in **Figure 5**.

**Figure 5**



**0 5 . 1** Suggest why the plasmids were injected into the eggs of silkworms, rather than into the silkworms. **[2 marks]**

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**0 5 . 2** Suggest why the scientists used a marker gene and why they used the EGFP gene. **[2 marks]**

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The scientists ensured the spider gene was expressed only in cells within the silk glands.

**0 5 . 3** What would the scientists have inserted into the plasmid along with the spider gene to ensure that the spider gene was only expressed in the silk glands of the silkworms? **[1 mark]**

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**0 5 . 4** Suggest **two** reasons why it was important that the spider gene was expressed only in the silk glands of the silkworms. **[2 marks]**

1 

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2 

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