

2 The phenotype of an organism is affected by its genotype and its environment.

(a) The table below shows the mean difference in two phenotypes, height and mass, from a study on several human identical twins and non-identical twins. Each pair of twins was brought up together.

| Phenotype | Type of twins | |
|-----------------------------|---------------|---------------|
| | Identical | Non-identical |
| Mean height difference / cm | 1.7 | 4.4 |
| Mean mass difference / kg | 1.9 | 4.6 |

Explain how the data in the table show the effects that genotype and the environment have on the phenotypes.

(3)

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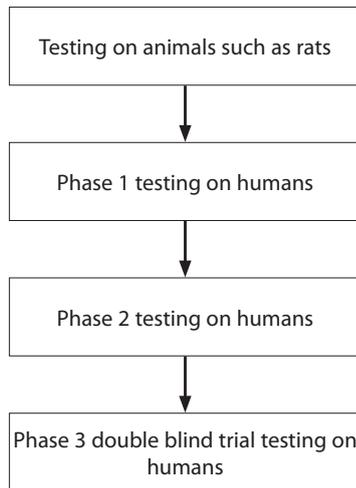
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(b) When a drug is being developed, it goes through a series of different test stages. Some of these are shown below.



(i) Suggest why a drug can be tested on rats before testing on humans.

(2)

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(ii) State what is done during each of the following phases of testing on humans.

(3)

Phase 1

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Phase 2

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(Total for Question 2 = 8 marks)

