

18 Variation and mutation – Part 1

Name: _____ Class: _____ Date: _____

Vocabulary

Write each word three times.

English	Write it 3 times (English)		
Variation	_____	_____	_____
species	_____	_____	_____
continuous variation	_____	_____	_____
genes	_____	_____	_____
environment	_____	_____	_____
discontinuous variation	_____	_____	_____
blood groups	_____	_____	_____
mutation	_____	_____	_____
alleles	_____	_____	_____
Ionising radiation	_____	_____	_____
rate	_____	_____	_____

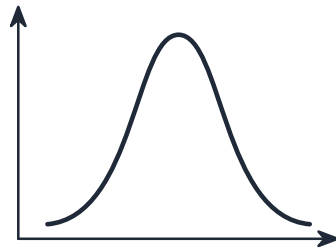
Recall

Variation means the differences between individuals of the same **species** .

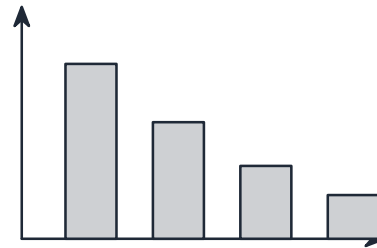
New ideas

Read these first, then do the Practice.

■ 1 Two kinds of variation



continuous
(a smooth range)



discontinuous
(separate groups)

- **continuous variation** – a smooth range (e.g. height); caused by **genes and the environment** ;
- **discontinuous variation** – a few separate groups (e.g. **blood groups**); caused by genes only.

■ 2 Mutation

A **mutation** is a random change in the DNA. It makes **new alleles**
– the source of all variation:

original:	A T G C A	→ a change in the bases = a new allele
mutated:	A T <u>T</u> C A	

Ionising radiation (e.g. X-rays) and some chemicals raise the **rate** of mutation.

Watch out: **continuous** variation is a smooth range (e.g. height), caused by *genes and environment*; **discontinuous** variation falls into separate groups (e.g. blood group), caused by *genes only*. A **mutation** is a random DNA change – the source of new alleles.

Practice

Try these in order.

18.1 What is *variation*? [1]

18.2 Give one example of continuous variation. [1]

18.3 What two things cause continuous variation? [1]

18.4 What is a *mutation*? [1]

18.5 Name one thing that increases the rate of mutation. [1]

18.6 Challenge. Height is continuous but blood group is discontinuous. Explain the difference in how each is caused. [2]