

18 Variation and mutation – Part 1

Name: _____ Class: _____ Date: _____

Vocabulary 词汇

Write each word three times. 把每个单词抄写三遍。

English	中文	Write it 3 times (English)		
Variation	变异	_____	_____	_____
species	物种	_____	_____	_____
continuous variation	连续变异	_____	_____	_____
genes	基因	_____	_____	_____
environment	环境	_____	_____	_____
discontinuous variation	不连续变异	_____	_____	_____
blood groups	血型	_____	_____	_____
mutation	突变	_____	_____	_____
alleles	等位基因	_____	_____	_____
Ionising radiation	电离辐射	_____	_____	_____
rate	速率	_____	_____	_____

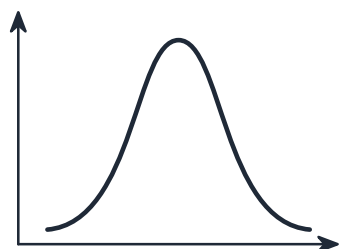
Recall

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

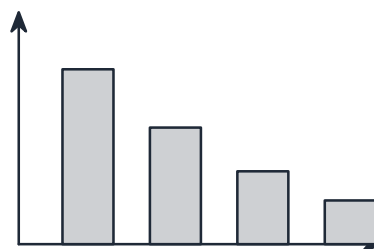
New ideas

Read these first, then do the Practice.

■ 1 Two kinds of variation



continuous
(a smooth range)



discontinuous
(separate groups)

- **continuous variation** 连续变异 — a smooth range (e.g. height); caused by **genes** 基因 and the **environment** 环境;
- **discontinuous variation** 不连续变异 — a few separate groups (e.g. **blood groups** 血型); caused by genes only.

■ 2 Mutation

A **mutation** 突变 is a random change in the DNA. It makes **new alleles** 等位基因 — the source of all variation:

original: A T G C A

mutated: A T T C A



a change in the
bases = a new allele

Ionising radiation 电离辐射 (e.g. X-rays) and some chemicals raise the **rate** 速率 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]