

17 Chromosomes, genes and DNA – 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)		
Chromosomes	染色体	_____	_____	_____
genes	基因	_____	_____	_____
codes	编码	_____	_____	_____
protein	蛋白质	_____	_____	_____
allele	等位基因	_____	_____	_____
sex chromosomes	性染色体	_____	_____	_____
ratio	比例	_____	_____	_____

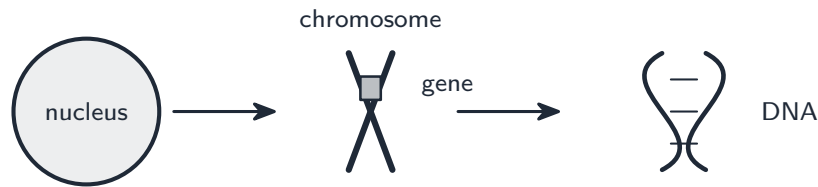
Recall

Chromosomes 染色体 are made of **DNA**, which carries the genetic information in units called **genes** 基因.

New ideas

Read these first, then do the Practice.

■ 1 Chromosomes, genes and DNA



- a **gene** is a length of DNA that **codes** 编码 for one **protein** 蛋白质;
- an **allele** 等位基因 is one form of a gene (e.g. a brown or a blue allele for eye colour).

■ 2 Boy or girl?

Sex is decided by the **sex chromosomes** 性染色体: females are **XX**, males are **XY**. An egg always carries X; a sperm carries X or Y, so the **sperm** decides the sex:

		father (sperm)		
		X	Y	
mother (eggs)	X	XX	XY	XX = girl
	X	XX	XY	XY = boy
				ratio 1 : 1

This gives a 1:1 **ratio** 比例 of girls to boys.

Watch out: a **gene** is a length of DNA coding for one protein; an **allele** is one *form* of that gene — don't use the words interchangeably. The **sperm** decides a baby's sex (it carries X or Y); the egg always carries X.

Practice

Try these in order.

17.1 What are chromosomes made of? [1]

17.2 What is a *gene*? [1]

17.3 What is an *allele*? [1]

17.4 What are the sex chromosomes of a male and of a female? [2]

17.5 Which parent's gamete decides the baby's sex, and why? [2]

17.6 Challenge. Explain why about half of all babies are boys and half are girls, using the sex chromosomes. [3]