17 Chromosomes, genes and DNA – Part 1

Name: _____ Class: _____ Date: _____

Vocabulary

Write each word three times.

English	**Write it 3 times** (English)		
Chromosomes			
genes			
codes			
protein			
allele			
sex chromosomes			
ratio			

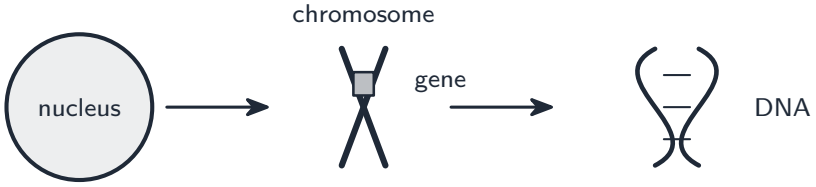
Recall

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

New ideas

Read these first, then do the Practice.

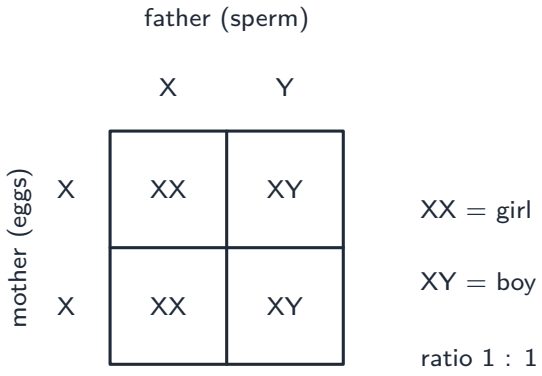
1 Chromosomes, genes and DNA



- a **gene** is a length of DNA that **codes** for one **protein**;
- an **allele** 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**: females are **XX**, males are **XY**. An egg always carries X; a sperm carries X or Y, so the **sperm** decides the sex:



This gives a 1:1 **ratio** 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]