

17 Inheritance and crosses – Part 2

Name: _____ Class: _____ Date: _____

Vocabulary

Write each word three times.

English	Write it 3 times (English)		
genotype	_____	_____	_____
phenotype	_____	_____	_____
dominant	_____	_____	_____
recessive	_____	_____	_____
homozygous	_____	_____	_____
heterozygous	_____	_____	_____
Punnett square	_____	_____	_____

Recall

We use special words to describe what alleles an organism has, and what it looks like.

New ideas

Read these first, then do the Practice.

1 Key words

Word	Meaning
genotype	the alleles an organism has
phenotype	the features you can see
dominant	shown even with one copy (capital letter)
recessive	shown only with two copies (small letter)
homozygous	two same alleles (BB or bb)
heterozygous	two different alleles (Bb)

BB	→	brown eyes	B (brown) is dominant b (blue) is recessive
Bb	→	brown eyes	
bb	→	blue eyes	

2 A monohybrid cross

A **Punnett square** predicts the offspring. Two heterozygous parents (Bb × Bb) give a **3:1** ratio:

	B	b	
B	BB	Bb	3 dominant (B_)
b	Bb	bb	
			1 recessive (bb)
			ratio 3 : 1

Watch out: **genotype** = the alleles you have; **phenotype** = the features you can see. A **recessive** allele only shows when there is *no* dominant allele (two recessive copies, e.g. bb). A Bb × Bb cross gives a **3:1** phenotype ratio.

Practice

Try these in order.

17.6 What is the difference between *genotype* and *phenotype*? [2]

17.7 What does *homozygous* mean? [1]

17.8 A recessive allele shows in the phenotype only when...? [1]

17.9 Two heterozygous parents ($Bb \times Bb$) are crossed. What ratio of phenotypes do you expect? [1]

17.10 Write the four offspring genotypes from a $Bb \times Bb$ cross. [2]

17.11 Challenge. Two brown-eyed parents, both **Bb**, have a child. State the chance the child has blue eyes (**bb**), and show the cross that gives your answer. [3]