

The genotype of the offspring from 2 brown foxes could be :

Parents pure breeding BB

One parent hybrid BB or Bb

Both parents hybrid BB or Bb or bb

2. The offspring has flower colour different to both parents, and the parents have different flower colour to each other. Choose appropriate labels and:

List all possible genotypes and associated phenotypes for parents and all offspring.

For example: W = White R = red

Parents: RR, red. WW, white.

F1: RW, pink.

Now list all possible genotypes and phenotypes for the F2 generation

F1: RW × RW

F2: RR, WW, RW  
Red white Pink

3. Draw punnets for all the possible combinations between homozygous red, heterozygous yellow and homozygous orange flowered plants. Use R for red and O for orange

Red × Red

	R	R
R	RR	RR
R	RR	RR

Red × Yellow

	R	O
R	RR	RO
R	RR	RO

Red × Orange

	O	O
R	RO	RO
R	RO	RO

Yellow × Yellow

	R	O
R	RR	RO
O	RO	OO

Yellow × Orange

	O	O
R	RO	RO
O	OO	OO

Orange × Orange

	O	O
O	OO	OO
O	OO	OO

## Inheritance revision

Define the following terms:

1. Intermediate inheritance:

When two alleles are equal in strength

2. Dominant/recessive inheritance:

When one allele dominates the other

3. Phenotype:

The physical appearance of the organism

4. Genotype:

The description of the alleles of the organism

5. Allele:

One type of a gene. i.e. "blue" for eye colour.

6. Homozygous

Matching pairs of alleles. Pure bred.

7. Heterozygous

Mixed pair of alleles. Hybrid.

1. If brown fur is dominant to white,

The genotype of a brown fox could be BB or Bb

B = brown

b = white

Look at the following list of terms

variation	diploid	heterozygous	genetics
dominant	mutation phenotype	zygote chromosomes	genotype hybrid
haploid mutant	heredity gamete	meiosis allele	mitosis homozygous

Choose one word from the list most appropriate to each phrase

- a) A cell with half the full chromosome set  
haploid
- b) The characteristics an organism shows as a result of the genes it receives. phenotype
- c) The study of heredity  
genetics
- d) Cell process which produces sex cells meiosis
- e) Cells with complete chromosome sets diploid
- f) The genes an organism has in order to express a characteristic genotype
- g) A new characteristic suddenly expressed in an organism mutation
- h) Contains two different genes for a characteristic heterozygous
- i) The organism with the new characteristic mutant
- j) Pure bred for a characteristic homozygous

