

Review for Meiosis and Genetics Test OL

Meiosis:

- How many cells are produced at the end of meiosis? 4 What types of cells are these? haploid gametes
- Give two examples of gametes: egg, sperm (pollen)
- A nucleus with 22 chromosomes divides by meiosis. How many chromosomes are in the gamete? 11
- A nucleus with 16 chromosomes divides by meiosis. How many chromosomes are in the gamete? 8
- A somatic cell with 46 chromosomes divides by meiosis. How many chromosomes are in the gamete? 23
- What process occurs in Prophase I that leads to genetic variation? Crossing over
- Why is Crossing Over important? Leads to genetic variation in offspring

Monohybrid:

In rats, brown hair (B) is dominant over white hair (b).

- What are the parent genotypes if you cross a heterozygous brown rat with a white rat? Bb x bb

- What are the genotypes of the offspring if you cross a white rat with a homozygous brown rat?

bb x BB all Bb

	B	B
b	Bb	Bb
b	Bb	Bb

- If you cross two heterozygous brown rats, how many different phenotypes will be in the offspring? 2
How many different genotypes? 3

Bb x Bb

	B	b
B	BB	Bb
b	Bb	bb

- 75% of the offspring are brown and 25% are white. What are the parent genotypes? Bb x Bb

	B	b
B	BB	Bb
b	Bb	bb

- All the offspring are white. What are the parent genotypes? bb x bb

	b	b
b	bb	bb
b	bb	bb

- A mother has AB blood type, the father has AO blood type. What are the possible blood types of their offspring? A (AA:AO), B (BO), AB

	A	B
A	AA	AB
O	AO	BO

- A mother has type O blood, her baby has type B blood. What possible genotypes could the father be?

	O	O
B	BO	O
O	O	O

BO, BB, AB

Dihybrid:

D is for dimples and F is for freckles, d is no dimples and f is no freckles.

15. The parents are $DdFF \times DdFf$.

Which trait will ALL the offspring have - dimples, no dimples, freckles or no freckles? Freckles

How do you know? Parent 1 has (FF) - this is the only allele to be passed on so all offspring have it

16. The parent cross is $ddff \times DDFF$, what traits will all the offspring have in common? Dimples + Freckles

17. In a cross between $DdFF \times ddFf$, what is the phenotypic ratio?

	DF	DF	dF	dF
dF	$DdFF$	$DdFF$	$ddFF$	$ddFF$
df	$DdFf$	$DdFf$	$ddFf$	$ddFf$
dF				
df				

Dimple Freckle - 2
 No Dimple Freckle - 2
 Dimple No Freckle - 0
 No Dimple No Freckle - 0

1:1

18. In a cross between $DdFf \times DdFf$, what is the phenotypic ratio?

	DF	Df	dF	df
DF				
Df				
dF				
df				

Can't cross any other! so,

9:3:3:1