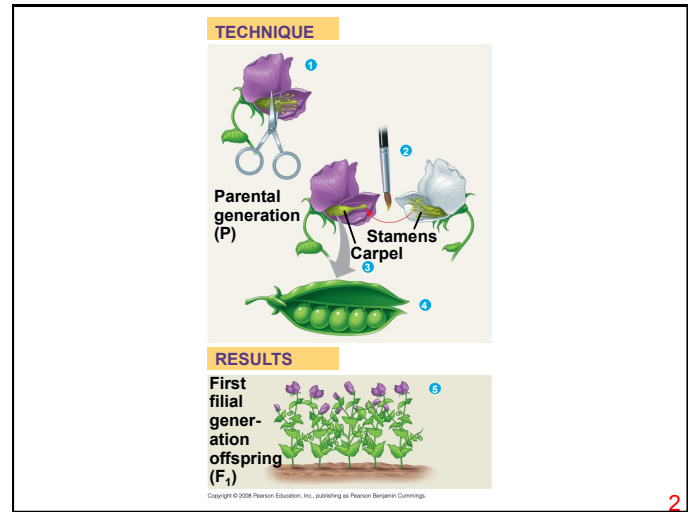
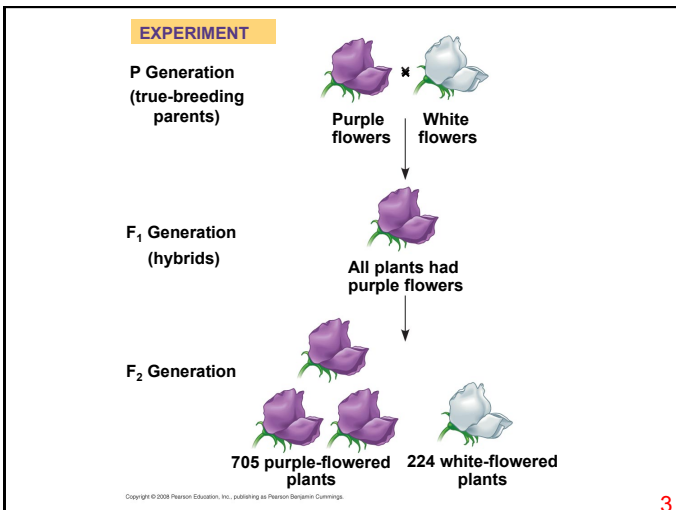




1



2



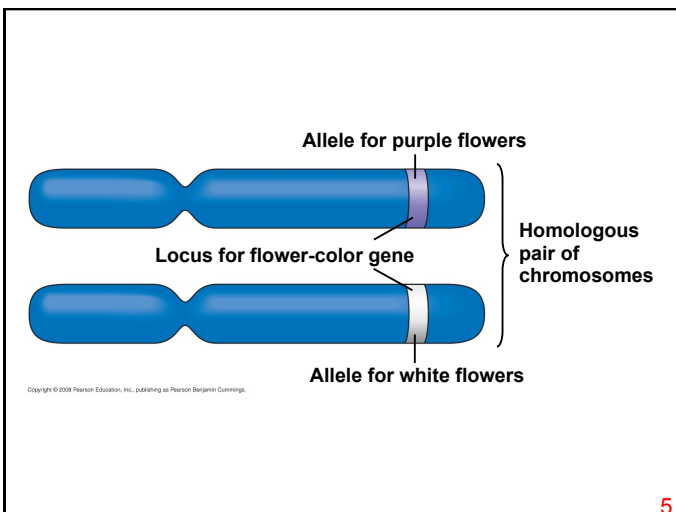
3

Table 14.1 The Results of Mendel's F₁ Crosses for Seven Characters in Pea Plants

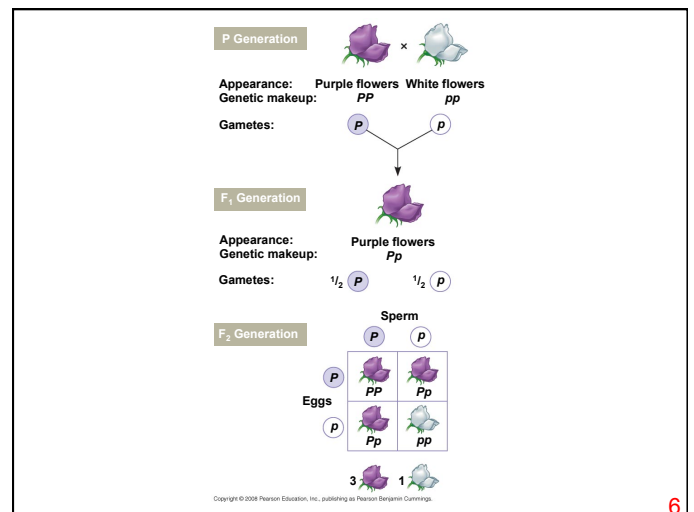
Character	Dominant Trait	×	Recessive Trait	F ₂ Generation Dominant:Recessive	Ratio
Flower color	Purple	×	White	705:224	3.15:1
Flower position	Axial	×	Terminal	651:207	3.14:1
Seed color	Yellow	×	Green	6,022:2,001	3.01:1
Seed shape	Round	×	Wrinkled	5,474:1,850	2.96:1
Pod shape	Inflated	×	Constricted	882:299	2.95:1
Pod color	Green	×	Yellow	428:152	2.82:1
Stem length	Tall	×	Dwarf	787:277	2.84:1

Copyright © 2008 Pearson Education, Inc., publishing as Pearson Benjamin Cummings.

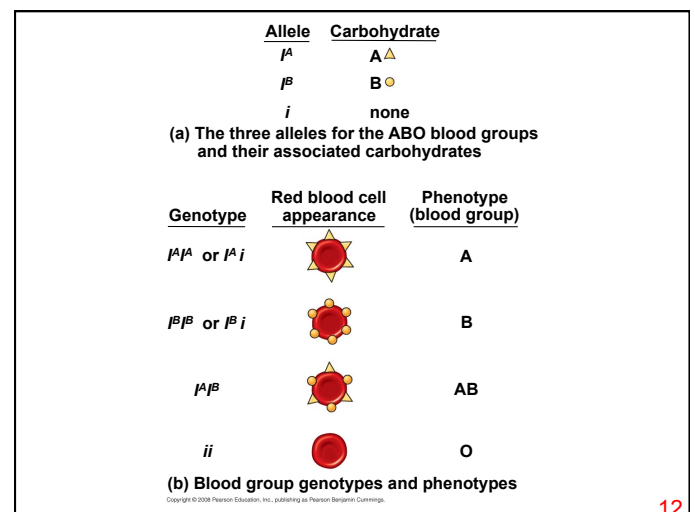
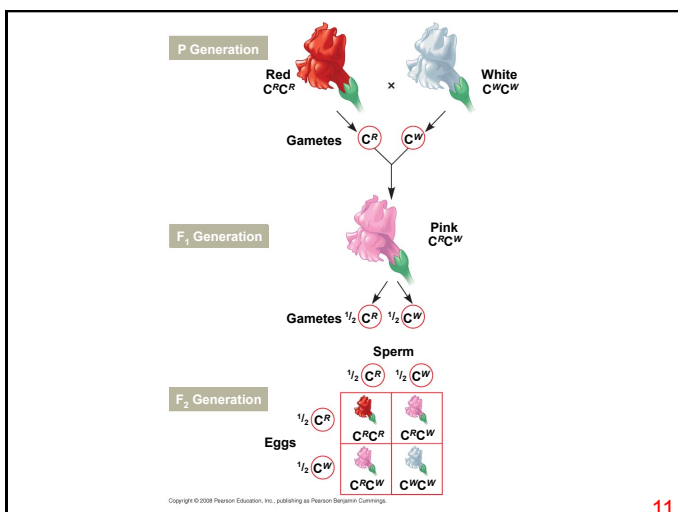
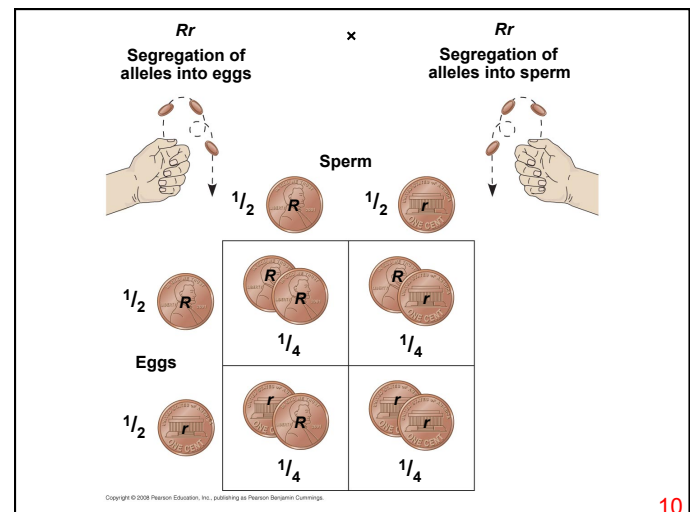
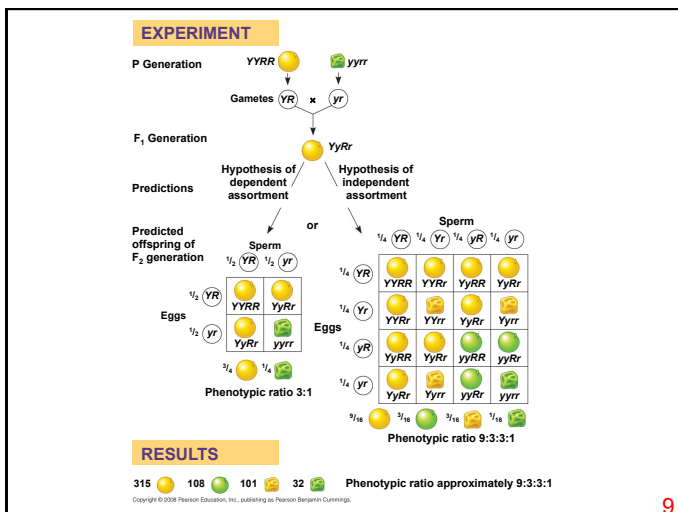
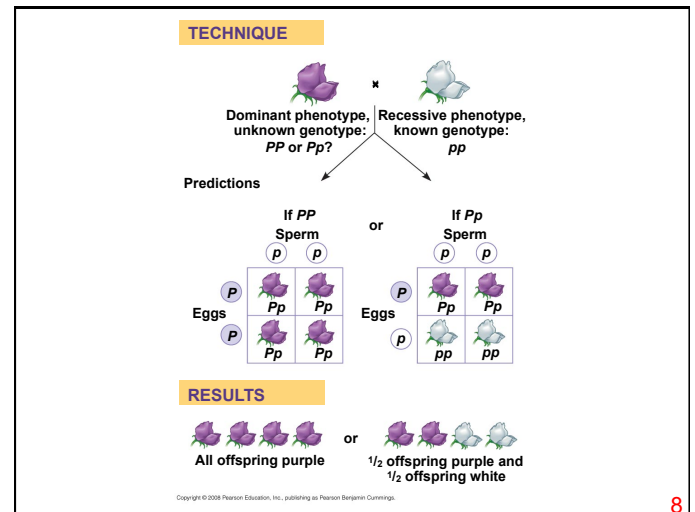
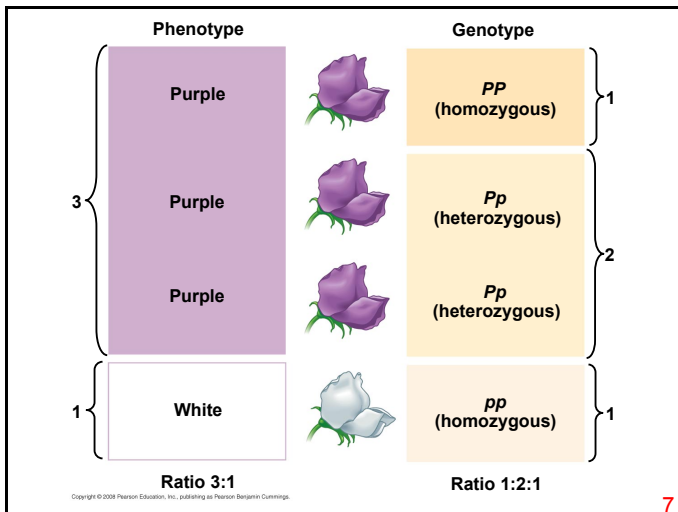
4

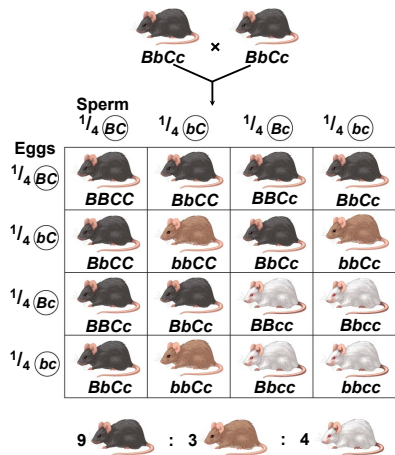


5



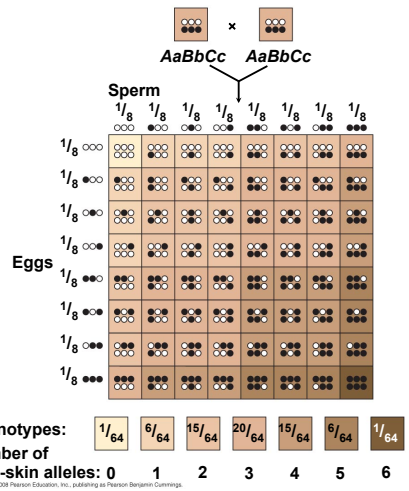
6





Copyright © 2008 Pearson Education, Inc., publishing as Pearson Benjamin Cummings.

13



Phenotypes: 1/64, 6/64, 15/64, 20/64, 15/64, 6/64, 1/64

Number of dark-skin alleles: 0, 1, 2, 3, 4, 5, 6

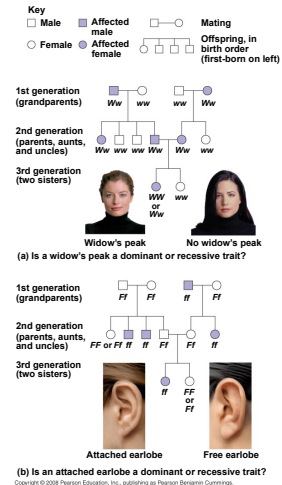
Copyright © 2008 Pearson Education, Inc., publishing as Pearson Benjamin Cummings.

14



Copyright © 2008 Pearson Education, Inc., publishing as Pearson Benjamin Cummings.

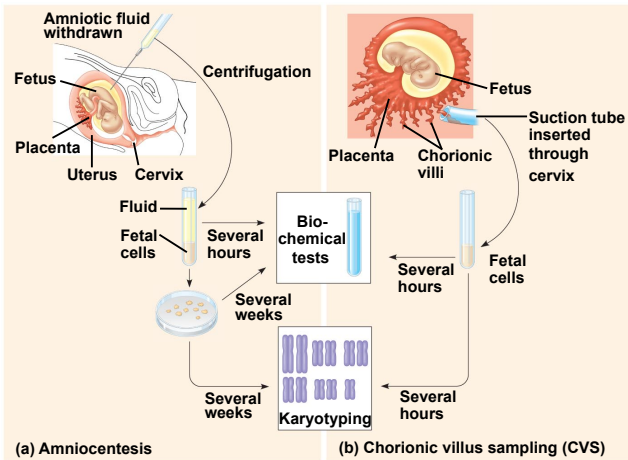
15



(b) Is an attached earlobe a dominant or recessive trait?

Copyright © 2008 Pearson Education, Inc., publishing as Pearson Benjamin Cummings.

16



(a) Amniocentesis

(b) Chorionic villus sampling (CVS)

Copyright © 2008 Pearson Education, Inc., publishing as Pearson Benjamin Cummings.

17

Degree of dominance	Description	Example
Complete dominance of one allele	Heterozygous phenotype same as that of homozygous dominant	PP (purple flower) Pp (purple flower)
Incomplete dominance of either allele	Heterozygous phenotype intermediate between the two homozygous phenotypes	$C^R C^R$ (red flower) $C^R C^W$ (pink flower) $C^W C^W$ (white flower)
Codominance	Heterozygotes: Both phenotypes expressed	$I^A I^B$ (AB blood type)
Multiple alleles	In the whole population, some genes have more than two alleles	ABO blood group alleles: I^A, I^B, i
Pleiotropy	One gene is able to affect multiple phenotypic characters	Sickle-cell disease

Copyright © 2008 Pearson Education, Inc., publishing as Pearson Benjamin Cummings.

18

Relationship among genes	Description	Example
Epistasis	One gene affects the expression of another	<p>$BbCc \times BbCc$</p> <p>9 : 3 : 4 </p>
Polygenic inheritance	A single phenotypic character is affected by two or more genes	<p>$AaBbCc \times AaBbCc$</p>

Copyright © 2008 Pearson Education, Inc., publishing as Pearson Benjamin Cummings.