OUTLINE 11

II. Theories of Inheritance

A. Informal knowledge

B. Early theories

1. Hippocrates - direct, blending inheritance
2. Aristotle - criticisms of blending inheritance

C. Knowledge of sexual reproduction

1. spontaneous generation
2. Animalculists vs Ovists

III. Mendel - A New Theory

A. Who was Mendel?

B. What did Mendel know?

C. Plant breeding

IV. Mendel's work

A. Monohybrid cross

B. Interpretation in modern terms

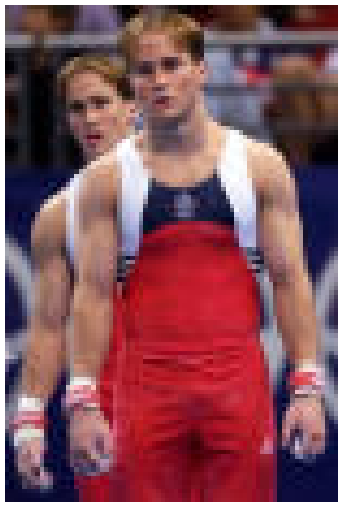
gene	dominant	homozygous	genotype	
locus	recessive	heterozygous	phenotype	allele

C. Quantitative results

1. quantitative results of monohybrid cross
2. tools for predicting patterns of inheritance
   - Punnet square
   - test cross

Patterns of Inheritance

twins



sisters

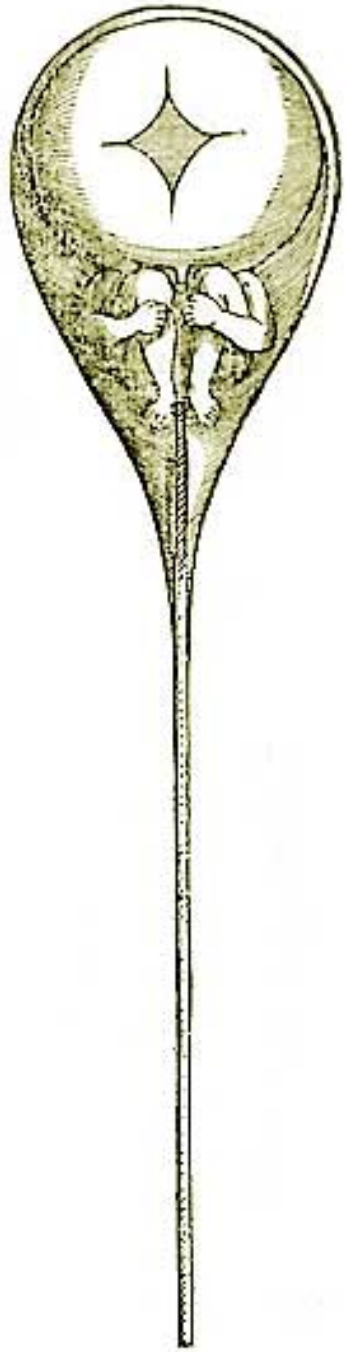
brothers

Father and son

Family

Mom and offspring

The Homonculus



Gregor Mendel

Two Varieties of Sweet Peas

Fig. 14.1

Plant Breeding

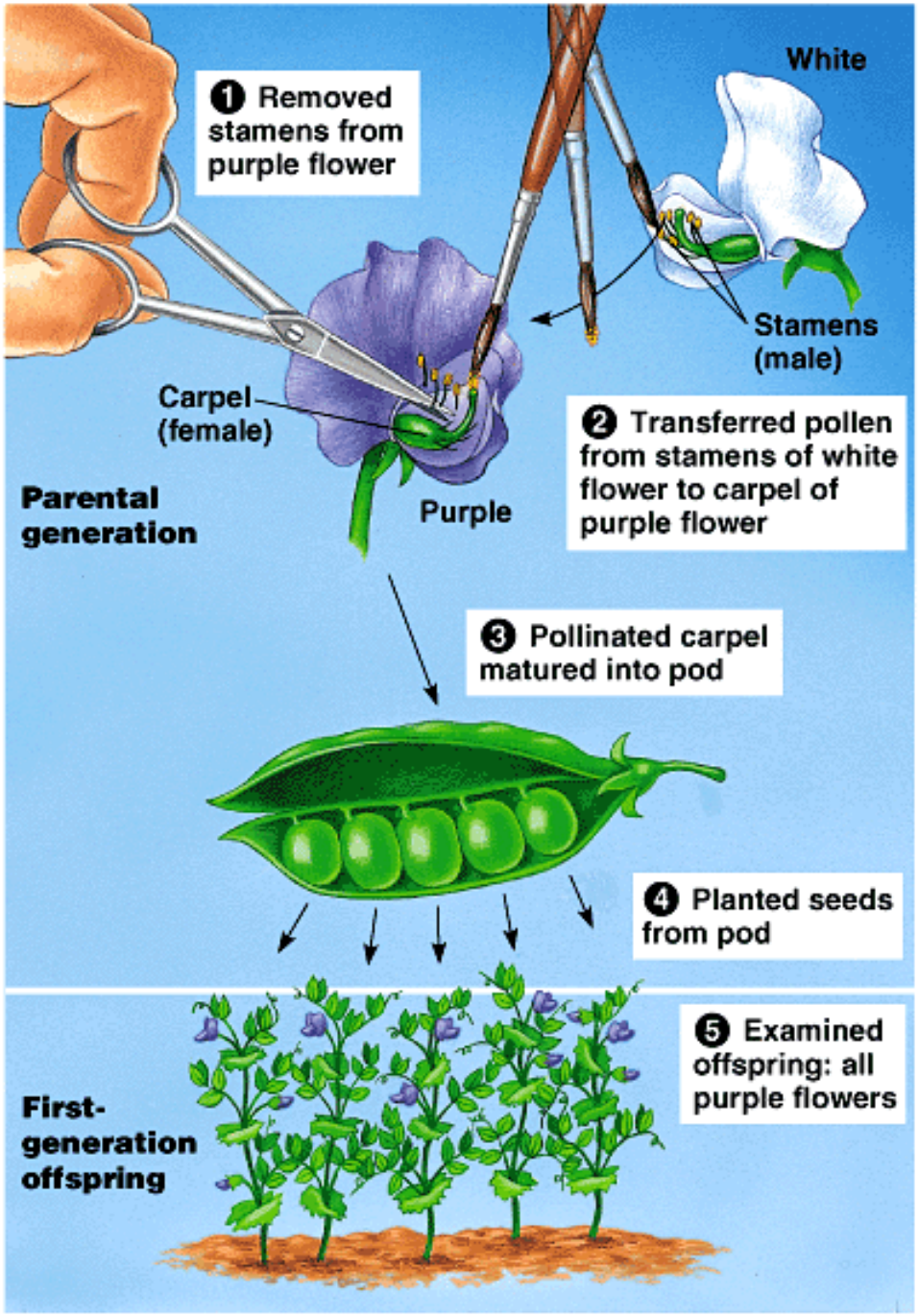


Table 14.1

Table 14.1 The Results of Mendel's F_1 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	6022:2001	3.01:1
Seed shape	 Round	×	 Wrinkled	5474:1850	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

Fig 14.2

A monohybrid cross

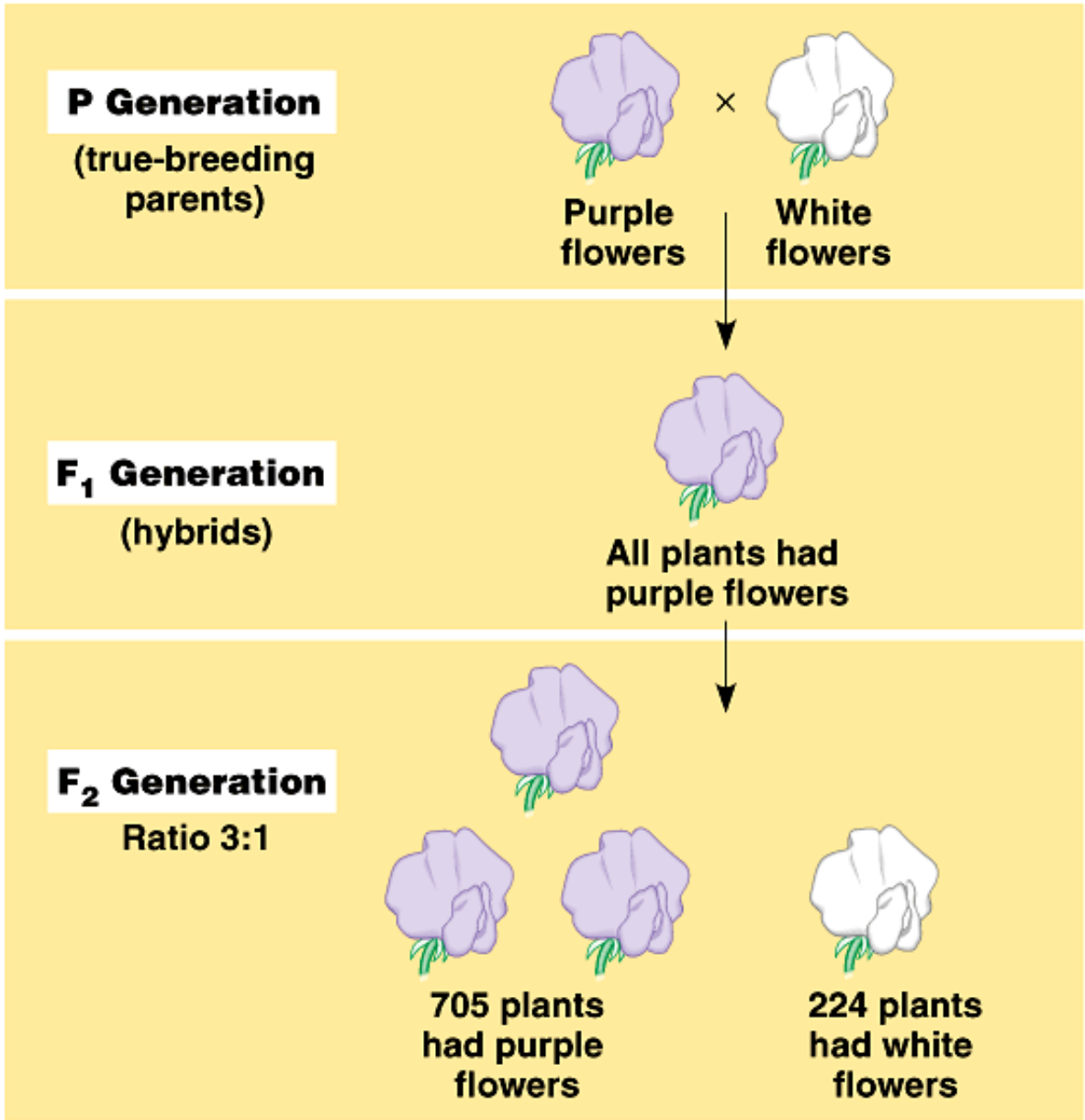


Fig 14.5

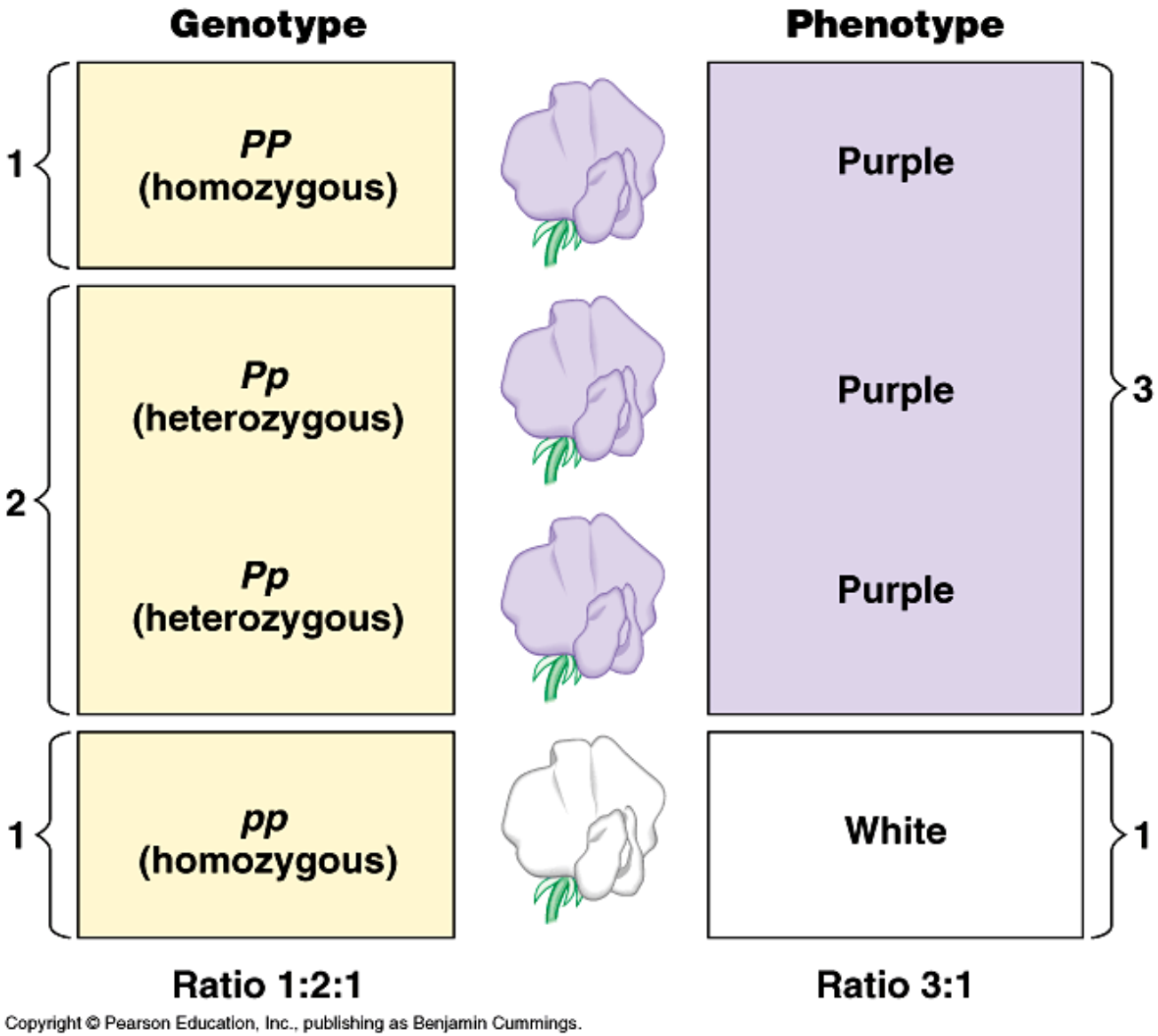


Fig. 14.6

A Test Cross