

Chapter 3: *Genes, environment, and development*

- How do the mechanisms of Darwinian theory (variation, adaptation, and selection) drive species heredity?
- How does an evolutionary psychological perspective explain parenting behavior?
- How do cells created by meiosis combine at conception to form a zygote, especially in terms of the combination of chromosomes?
- What is the genetic relatedness of identical twins? Of fraternal twins? Of normal siblings? Of a parent and child?
- What is the structure of the human genome? How can we use knowledge of the genome in further research?
- How is sex determined?
- How do genes, in the genotype, generally work to produce specific characteristics in the phenotype?
- What are the major mechanisms of inheritance?
 - How does single gene-pair inheritance determine which hereditary trait will be exhibited, in dominant-recessive relationships, incomplete dominance, and codominance?
 - How are some traits linked to sex chromosomes?
 - What is polygenic inheritance? Why is it especially important for psychology?
- How do mutations lead to advantageous or disadvantageous inherited traits?
- What is meant by "chromosome abnormalities"? What are some examples of such abnormalities?
- What is heritability?
 - How does selective breeding establish heritability in lower animals?
 - What sort of studies establish heritability in humans (whom we cannot selectively breed)?
 - How do researchers use concordance rates and correlations to estimate heritability and other sources of influence?
- How do genes and the environment work to influence intellectual abilities? Temperament? Schizophrenia?
- How do genes and the environment interact with each other?
- What are the different ways in which genes and environment might be correlated?
- What are the implications that our genes are correlated with, and may even influence, our environment?
- How does knowledge of genetics help to prevent and treat genetic disorders, such as PKU?
- Do we know the exact molecular genetic mechanisms from which psychological traits arise?