Solutions for Essentials of Life-Span Development 6th Edition by Santrock

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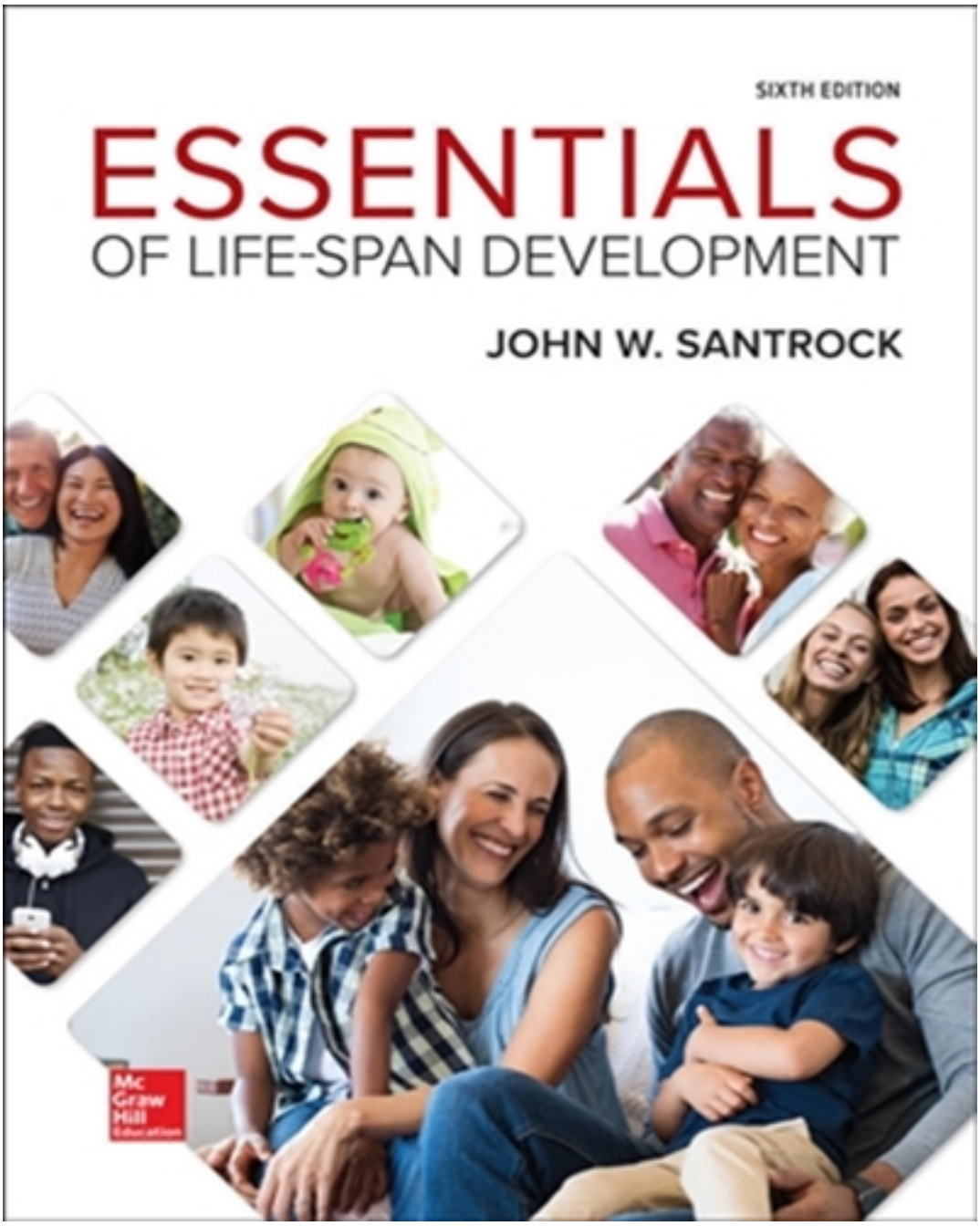

Solutions

Chapter 2: Biological Beginnings

Learning Goals

Learning Goal 1: Discuss the evolutionary perspective on life-span development.
Learning Goal 2: Describe what genes are and how they influence human development.
Learning Goal 3: Explain some of the ways that heredity and environment interact to produce individual differences in development.
Learning Goal 4: Describe prenatal development.
Learning Goal 5: Describe the birth process.
Learning Goal 6: Explain the changes that take place in the postpartum period.

Overview of Resources

Chapter Outline	Resources You Can Use
The Evolutionary Perspective	**Learning Goal 1: Discuss the evolutionary perspective on development.**
Natural Selection and Adaptive Behavior Evolutionary Psychology	🗣Lecture Suggestion 4: Evolution and Human Behavior 🗲Classroom Activity 6: Critical-Thinking Multiple-Choice Questions and Answers 🗲Classroom Activity 7: Critical-Thinking Essay Questions and Suggestions for Helping Students Answer the Essays 🗲Classroom Activity 8: Ethics 🧍 Personal Application 4: Evolutionary Angel on Your Shoulder 🎙 Research Project 3: Evolution and Trait Selection
Genetic Foundations of Development	**Learning Goal 2: Describe what genes are and how they influence human development.**
The Collaborative Gene Genes and Chromosomes Genetic Principles Chromosomal and Gene-Linked Abnormalities	🗣Lecture Suggestion 1: Three Laws of Behavior Genetics 🗣Lecture Suggestion 2: Prenatal Counseling 🗣Lecture Suggestion 3: Interaction Concepts 🗲Classroom Activity 1: Principles of Genetic Transmission 🗲Classroom Activity 4: Debate on Heritability of Intelligence 🗲Classroom Activity 6: Critical-Thinking Multiple-Choice Questions and Answers 🗲Classroom Activity 7: Critical-Thinking Essay

	Questions and Suggestions for Helping Students Answer the Essays 🗲 Classroom Activity 8: Ethics 🧍 Personal Application 1: All in the Family 🔍 Research Project 1: Heritability of Height 🔍 Research Project 2: Genetic Counseling Available to You
Heredity-Environment Interaction: The Nature-Nurture Debate	**Learning Goal 3: Explain some of the ways that heredity and environment interact to produce individual differences in development.**
Behavior Genetics Heredity–Environment Correlations The Epigenetic View and Gene ×Environment (G × E) Interaction Conclusions about Heredity-Environment Interaction	🗣 Lecture Suggestion 3: Interaction Concepts 🗲 Classroom Activity 4: Debate on Heritability of Intelligence 🗲 Classroom Activity 5: Explanations for Attention Deficit Hyperactivity Disorder: Nature or Nurture? 🗲 Classroom Activity 6: Critical-Thinking Multiple-Choice Questions and Answers 🗲 Classroom Activity 7: Critical-Thinking Essay Questions and Suggestions for Helping Students Answer the Essays 🗲 Classroom Activity 8: Ethics 🧍 Personal Application 1: All in the Family 🧍 Personal Application 2: I Am What I Am 🧍 Personal Application 3: The Same but Different 🔍 Research Project 1: Heritability of Height 🔍 Research Project 2: Genetic Counseling Available to You
Prenatal Development	**Learning Goal 4:** Describe prenatal development.
The Course of Prenatal Development Teratology and Hazards to Prenatal Development Prenatal Care Normal Prenatal Development	🗣 Lecture Suggestion 5: Technology and Images of Prenatal Development 🗣 Lecture Suggestion 6: Principles of Teratogenic Effects 🗣 Lecture Suggestion 2: Prenatal Counseling 🗣 Lecture Suggestion 8: Mothers' Experiences of Pregnancy 🗣 Lecture Suggestion 7: Dangers of Drug Use during Pregnancy 🗲 Classroom Activity 9: Killing Me Softly: Banning Smoking in Homes with Pregnant Women and Children 🗲 Classroom Activity 10: The Court's Treatment of Substance-Abusing Pregnant Women

	Classroom Activity 11: Fetal Alcohol Syndrome Quiz Classroom Activity 12: Educating Expectant Parents Classroom Activity 6: Critical-Thinking Multiple-Choice Questions and Answers Classroom Activity 7: Critical-Thinking Essay Questions and Suggestions for Helping Students Answer the Essays Personal Application 6: In a Family Way Personal Application 7: The Pitter Patter of Little Feet Research Project 4: Why Do Some Pregnant Women Drink, Smoke, or Use Drugs? Research Project 6: Teratogens in Pregnancy
Birth	**Learning Goal 5:** Describe the birth process.
The Birth Process Assessing the Newborn Preterm and Low Birth Weight Infants	Lecture Suggestion 9: Increase in Cesarean Births: Is It A Good Thing? Classroom Activity 6: Critical-Thinking Multiple-Choice Questions and Answers Classroom Activity 7: Critical-Thinking Essay Questions and Suggestions for Helping Students Answer the Essays Personal Application 7: The Pitter Patter of Little Feet Personal Application 8: Oh, the Pain! Research Project 7: Resources for Prospective Parents
The Postpartum Period	**Learning Goal 6:** Explain the changes that take place in the postpartum period.
Physical Adjustments Emotional and Psychological Adjustments Bonding	Lecture Suggestion 10: Postpartum Practices Classroom Activity 13: Postpartum Depression Classroom Activity 6: Critical-Thinking Multiple-Choice Questions and Answers Classroom Activity 7: Critical-Thinking Essay Questions and Suggestions for Helping Students Answer the Essays Personal Application 7: The Pitter Patter of Little Feet Research Project 5: Fatherhood

Review	↗Classroom Activity 6: Critical-Thinking Multiple-Choice Questions and Answers ↗Classroom Activity 7: Critical-Thinking Essay Questions and Suggestions for Helping Students Answer the Essays ↗Classroom Activity 8: Ethics

Resources

🗣Lecture Suggestions

Lecture Suggestion 1: Three Laws of Behavior Genetics
Learning Goal 2: Describe what genes are and how they influence human development.

Sir Francis Galton (1822-1911) was the first scientist to study heredity and human behavior systematically. The term "genetics" did not even appear until 1909, only two years before Galton's death. With or without a formal name, the study of heredity always has been, at its core, the study of biological variation. Human behavioral genetics, a relatively new field, seeks to understand both the genetic and environmental contributions to individual variations in human behavior.

The purpose of this lecture is to extend the discussion of behavior genetics relative to the nature–nurture debate. The traditional nature–nurture debate focused on whether genes influenced complex behavioral outcomes which, of course, they do. The current nature–nurture debate focuses on how to proceed from partitioning sources of variance to specifying concrete developmental processes. Turkheimer (2000) has synthesized three laws of behavior genetics:

First Law: All human behavioral traits are heritable.
Second Law: The effect of being raised in the same family is smaller than the effect of genes.
Third Law: A substantial portion of the variation in complex human behavioral traits is not accounted for by the effects of genes or families.

If the first two laws are taken literally, the nature side of the great nature–nurture debate wins. That is, genes matter and families or environment do not. However, this is a massive oversimplification. The claim that genes are involved in all traits does not preclude environmental influences. Individual genes and their environments (including other genes) interact to influence developmental processes. Interactivity is the primary component of this process. Subsequent environments are influenced by prior states, and these interactions influence developmental trajectories of the organism which affect future expression of genes. There are no direct cause-and-effect relationships in developmental processes; rather, any individual gene or environmental event influences

development only by interacting with other genes and environments.

Heritability per se has few implications for scientific understanding of development. It is important to keep in mind the following point: Heritability does not have one certain consequence. Correlations among biologically related family members are not prima facie evidence of sociocultural causal mechanisms. Just because a child of a depressed mother becomes depressed does not demonstrate that being raised by depressed mothers is itself depressing. That child might have become depressed regardless of the environment due to the influence of the mother's genes.

Related to the second and third law, Plomin and Daniels (1987) asked the question: Why are children in the same family so different from one another? They proposed that children in the same family are different because nonshared environmental events are more potent causes of developmental outcomes than shared environmental factors. In other words, children's environments, their peers, and the aspects of parenting their siblings do not share all help to explain differences between siblings. The part of the family environment that siblings do not share appears to matter more than the part of the family environment that siblings do share. Plomin and Daniels also state that the salient environment is almost impossible to research, because it is a combination of unsystematic, idiosyncratic, or serendipitous events.

Genetic material is a more systematic source of variability in development than environment. Yet this statement is based on methodological issues rather than substantive issues. Genetic experiments (identical and fraternal twins) statistically assess this component better than social scientists' ability to assess nonsystematic and idiosyncratic events within environments. Turkheimer states that twin studies are a methodological shortcut, but that they do not demonstrate that genes are more important than environments. Turkheimer further states that human developmental social science is difficult to conduct for two major reasons: (1) human behavior develops out of complex, interactive nonlinear processes; and, (2) experimental control is impossible to implement in human developmental processes because of ethical constraints.

The instructor could discuss some of the concepts given in the following link: http://web.ornl.gov/sci/techresources/Human_Genome/index.shtml.

Sources:
Plomin, R., & Daniels, D. (1987). Why are children in the same family so different from one another? *Behavioral and Brain Sciences, 10*, 1–60.
Turkheimer, E. (2000). Three laws of behavior genetics and what they mean. *Current Directions in Psychological Science, 9*, 160–164.

Lecture Suggestion 2: Prenatal Counseling
Learning Goal 2: Describe what genes are and how they influence human development.
Learning Goal 4: Describe prenatal development.

Students often find the role of a genetics counselor difficult to understand. Invite a genetics counselor to come and discuss what he or she does to assist couples who want testing. You might ask the counselor to discuss reasons why couples come for testing (see next paragraph) and methods of testing. If you are not able to have a guest speaker attend your class, give a lecture on these ideas.

According to the National Society of Genetic Counselors' Definition Task Force (2006): "Genetic counselors are Master's-trained health care professionals who combine their knowledge of basic science, medical genetics, epidemiological principles, and counseling theory with their skills in genetic risk assessment, education, interpersonal communication and counseling to provide services to clients and their families for a diverse set of genetic or genomic indications. Genetic counselors help people '… understand and adapt to the medical, psychological and familial implications of genetic contributions to disease." The process of genetic counseling "… integrates the following: interpretation of family and medical histories to assess the chance of disease occurrence or recurrence; education about inheritance, testing, management, prevention, resources and research; counseling to promote informed choices and adaptation to the risk or condition.'"

Genetic counselors are employed in many settings, such as medical centers, physicians' offices, health maintenance organizations, advocacy organizations, governmental agencies, public health departments, and biotechnology companies. Those in clinical practice provide education and counseling in areas including reproductive genetics, infertility and preimplantation genetic diagnosis, pediatric genetics, newborn screening follow-up, cancer genetics, neurogenetics, and cardiovascular genetics. Many genetic counselors are actively involved in teaching and research.

The following reasons are among those listed by Packard Children's Hospital at Stanford (2001) for seeking a referral for genetic counseling and/or genetic evaluation:

- Family History Factors:
  - Previous child with, or family history of:
    - Chromosome abnormalities (such as Down syndrome)
    - Heart defects
    - Single gene defects (such as cystic fibrosis or PKU)
    - Learning disabilities
    - Psychiatric disorders
    - Cancers
  - Either parent with an autosomal dominant disorder or any disorder seen in several generations
  - Both parents carriers for an autosomal recessive disorder diagnosed either by the birth of an affected child or by carrier screening
- Pregnancy Factors:
  - Maternal age 35 years or greater at delivery
  - Abnormal prenatal diagnostic test results or abnormal prenatal ultrasound examination

- Other Factors:
  - Persons in specific ethnic groups or geographic areas with a higher incidence of certain disorders, such as Tay–Sachs disease, sickle cell disease, or thalassemias

Sources:
https://agcpd.org/AboutUshttp://www.lpch.org/DiseaseHealthInfo/HealthLibrary/genetics/counsel.html

Lecture Suggestion 3: Interaction Concepts
Learning Goal 2: Describe what genes are and how they influence human development.
Learning Goal 3: Explain some of the ways that heredity and environment interact to produce individual differences in development.

The concept of interaction takes some time to master. There are numerous examples of interaction among the topics taught in a life-span development course. One of the clearest examples comes from the principles of gene expression.

An organism's genetic experession detremines its development. Both internal and external factors influence which genes are expressed and when they are expressed. Internal factors, such as hormones and metabolism, are active in the organism's internal environment. An extremely important internal factor, seen in sex-influenced and sex-limited tratits, is gender. External factors, such drugs, chemicals, temperature, and light, are found in the environment around the organism.

Present a lecture on gene expression and the influence of environment. Myers (2004) addresses this issue from the standpoint of disease prevention. He raises the following key points:

- Abnormal proteins resulting from gene mutations or different forms of alleles unquestionably can and do cause disease. However, epidemiological studies usually reveal that only a small percentage of disease cases are actually attributable to the presence of the mutated gene.
- Inappropriate gene expression—whether or not a gene is turned on or off at the appropriate time—can be just as important to disease susceptibility.
- New research is demonstrating that low-level exposures to a variety of agents, including environmental contaminants, can alter gene expression.
- A high priority should be placed on identifying environmental agents that can disrupt gene expression.

Sources:
Myers, J. (2004). Gene expression and environmental exposures: New opportunities for disease prevention. *San Francisco Medicine, 77*(4).
http://www.nature.com/scitable/topicpage/environmental-influences-on-gene-expression-536 (2008)

Lecture Suggestion 4: Evolution and Human Behavior
Learning Goal 1: Discuss the evolutionary perspective on life-span development.

Although theories of evolution on there are unlikely to fully explain human behavior,

some of the potential relationships are insightful, if difficult to substantiate via scientific inquiry. Darwin's theories of evolution can be used to explain psychological development of humans as well as physiological. Ask students to propose examples.

Explain domain specific mechanisms and how they may have developed. Cover the most pertinent modules such perception, language acquisition, and mathematics. Some of these evolutionary mechanisms are also difficulties for humans because they are mismatched with our rapidly changing world (see Li, van Vugt, and Colarelli 2018). The simplest example may be the attraction towards salt, sugar, and fats in a world where food is generally plentiful and these types of foods are often the most accessible. Ask if students have other mismatches between current human life and evolutionary mechanisms that come to mind.

It is also important to present the drawback and qualifiers of evolutionary psychology. Gannon (2002) presents a number of these critiques. Of particular note is the difficulty evolutionary psychology has explaining the longevity and continued development of humans after the age of reproduction has ended. Present the diagrams in Figure 2 (page 52) and ask students to provide examples for each. For the first diagram, students would share a benefit from evolution to the young or a negative trait in older adulthood that has been allowed to persist. For the second diagram, students would recall ways in which people were able to be independent through middle age or ways in which the elderly depend or and/or bargain for services of others.

Sources:
Gannon, L. (2002). A critique of evolutionary psychology. *Psychology, Evolution & Gender*, 4(2), 173.
Li, N. P., van Vugt, M., & Colarelli, S. M. (2018). The Evolutionary Mismatch Hypothesis: Implications for Psychological Science. *Current Directions In Psychological Science*, 27(1), 38-44.

Lecture Suggestion 5: Technology and Images of Prenatal Development
Learning Goal 4: Describe prenatal development.

A compelling way to bring home the value of observation as a research technique and, at the same time, stress the importance of prenatal development as a pivotal period in human development, is to present and discuss images of prenatal development. Amazing images of prenatal development are available at "The Visible Embryo" website (http://www.visembryo.com/). The chart represents the 23 stages occurring in the first trimester of pregnancy and every two weeks of the second and third trimesters. Use the chart to navigate through the 40 weeks of pregnancy and to preview the unique changes in each stage of human development. Images are provided for the first trimester with in-depth descriptions for all 40 weeks of pregnancy. The Endowment for Human Development website (http://www.ehd.org/prenatal-images-index.php) also has beautiful images of prenatal development and some video sequences.

The instructor could refer to http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2788813/ (2008) to give some more details on this topic.

Lecture Suggestion 6: Principles of Teratogenic Effects
Learning Goal 4: Describe prenatal development.

The concept of an interaction can be elaborated with a lecture about the principles that govern the effects of teratogens on the developing embryo. These effects vary depending upon the genotype of the mother and the baby, as well as the amount and timing of exposure to the teratogen. Some of the principles of teratogenic effect are as follows:

- The effects of a teratogen vary with the developmental stage of the embryo.
    - Systems or organs in the process of development (organogenesis) are generally affected more than are completed organs and systems. Since the various organ systems begin and end their prenatal development at different times, their sensitivity to agents varies over time.
    - The most vulnerable time for the brain is from 15 to 25 days postconception, for the eye from 24 to 40 days postconception, and the heart from 20 to 40 days postconception.
- Individual teratogens influence specific developing tissue, which leads to particular patterns of developmental deviations.
    - German measles (Rubella) affects mainly the heart, eyes, and brain. Thalidomide, the antinausea drug from the 1960s, results in malformation of the limbs.
- Both maternal and fetal genotypes can affect the developing organism's response to teratogenic agents and may play an important role in the appearance of abnormalities in offspring.
    - Not all pregnant women who used thalidomide or had German measles during early pregnancy produced infants with abnormalities.
- The physiological or pathological status of the mother influences the action of a teratogen.
    - Not only will nutritional deficiencies themselves directly affect prenatal development, they may intensify the adverse effects on the fetus of certain drugs ingested by the mother. Other maternal factors such as obesity, high blood pressure, and liver dysfunction may increase the impact of damage by teratogens.
- The level of teratogenic agent that will produce malformations in the offspring may show only mild detrimental effects on the mother or none at all.
    - Radiation from X-rays, drugs (alcohol, thalidomide, etc.), and dietary deficiencies may have no impact on the mother but may cause gross deviations in the infant.

As you present each principle, relate it to the concept of interaction and other relevant developmental concepts. For example, the first principle is an example of an interaction in which developmental level mediates the influence of a specific experience. This idea is related to the concepts of critical/sensitive period, fixation, and developmental readiness. The third principle provides a complicated example of heredity/environment interaction, and an example of dyadic interaction (physiological level).

Sources:
Hogge, A. (1990). Teratology. In I. R. Merkatz & J. E. Thompson (Eds.), *New perspectives on prenatal care*. New York: Elsevier.
Moore, K., & Persaud, T. (1993). *The developing human: Clinically oriented embryology* (5th ed.). Philadelphia: Saunders.

Lecture Suggestion 7: Dangers of Drug Use during Pregnancy
Learning Goal 4: Describe prenatal development.

Information about the teratogenic effects of "everyday drug use" is very important to students who may become parents in the future. You may wish to underscore this with a lecture that explores this issue in greater depth than is possible in the text. Place special emphasis on the potential dangers of even normal everyday drug use, in particular the use of caffeine (coffee), nicotine (cigarettes), and alcohol. Some important points to address include the following:

- These teratogens have graded effects which make it risky to talk about "safe" levels of exposure. For example, having just one serving of alcohol a day increases risks for developmental disorders. Fetal alcohol syndrome can have mild, moderate, or severe effects on the developing fetus.
- Effects of drug exposure may be direct or indirect. Alcohol use may lead to organic abnormalities; nicotine use may lead to temperamental difficulties in babies which can reduce the quality of their interactions with their caregivers.
- Risks can be lessened by discontinuing use of the drug; it is not reasonable to continue using a drug on the grounds that harm has already been done and cannot be reversed.
- Risks may be dependent on the timing of prenatal exposure (see Lecture Suggestion 1: Technology and Images of Prenatal Development).
- The drug-use habits of both parents can affect the fetus, either directly or indirectly.
    - Second-hand smoke has been found to adversely affect fetuses. Maternal exposure to environmental tobacco smoke for one hour or more per day is associated with spontaneous abortion (Windham & others, 1992).
    - The quality of care and support a husband can provide to his pregnant wife could influence the outcome of the pregnancy.
- Caffeine exposure is common in pregnancy. Maternal caffeine intake is linked to lower birth weight and babies being born small for gestational age (Sengpiel & others, 2013).
- An important addition to your lecture could be an examination of how mothers (and fathers) can deal with drug use habits that may endanger their unborn baby. Classroom Activity 2: The Court's Treatment of Substance Abusing Pregnant Women addresses issues related to drug use during pregnancy and the social ramifications for the mother, father, and child.
- Antiepileptic drugs can affect the fetus in the following ways:
    - Fetal loss

- Intrauterine growth radiation
- Congenital malfunctions
- Impaired postnatal development
- Behavioral problems

Instructors can refer to the following site to help them with this lecture suggestion: http://www.metroplexbaby.com/ParentGuides/Teratogens.htm

Sources:
Sengpiel, V., et al. (2013). Maternal caffeine intake during pregnancy is associated with birth weight but not with gestational length: Results from a large prospective observational cohort study. *BMC Medicine, 11*, 42. (http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3606471/)
Tomson, T., & Battino, D. (2012). Teratogenic effects of antiepileptic drugs. *The Lancet Neurology, 1*(9):803-13. (http://www.ncbi.nlm.nih.gov/pubmed/22805351)
Windham, G. C., Swan, S. H., & Fenster, L. (1992). Parental cigarette smoking and the risk of spontaneous abortion. *American Journal of Epidemiology, 135*, 1394–1403. (http://www.ncbi.nlm.nih.gov/pubmed/1510085)
Wisborg, K., Kesmodel, U., Bech, B., Hedegaard, M., & Henriksen, T. (2003). Maternal consumption of coffee during pregnancy and stillbirth and infant death in first year of life: prospective study. *BMJ, 326*(7386):420. (http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=149440)

Lecture Suggestion 8: Mothers' Experiences of Pregnancy
Learning Goal 4: Describe prenatal development.

Most life-span textbooks focus on prenatal development from the perspective of the developing baby as opposed to from the mother's perspective. Pregnant women have a variety of experiences ranging from changes in their body to changes in their emotions. If women do not seek support during this time, these changes may be confusing, unexpected, and even scary. There are hundreds of conditions or symptoms that can occur for women during pregnancy. Some of them include:

- *Fatigue*: from a little increased tiredness to extreme fatigue
- *Nausea*: often called "morning sickness"; some women experience nausea and/or vomiting in the morning or all day long. This symptom can last from a few weeks to the entire pregnancy.
- *Frequent urination*: the urge to urinate more often
- *Breast tenderness*: increasing levels of hormones cause tender breasts
- *Headaches or dizziness*: circulatory changes in pregnancy can cause these symptoms
- *Weight gain*: women gain an average of 25 to 30 pounds during pregnancy
- *Back pain*: the joints between a woman's pelvic bones soften and loosen to prepare for the baby passing through, and the center of gravity changes as the uterus enlarges; thus, the body compensates with resulting back pain or strain
- *Lower abdominal pain*: stretching ligaments can be painful
- *Other symptoms*: leg cramps, skin changes (darkening around the nipples and navel)

Despite the many symptoms that *may* occur for some women, there are many exciting

sensations and experiences that occur with pregnancy as well, including feeling the baby move, experiencing special food cravings, being pampered by those around you, learning about your body, learning about your developing baby, preparing for parenthood, etc.

If you are in a classroom with the necessary technology, call up the following websites or refer your students to them:

Pictures of real women's bellies at various weeks of pregnancy can be found at:
http://pregnancy.about.com/od/pregnancyphotos/a/galleryguide.htm

Pregnancy-related sites can be found on today.com at:
http://www.today.com/parents

Source: Johnson, R. V. (1994). *Mayo Clinic complete book of pregnancy and baby's first year*. New York: Mayo Foundation for Medical Education and Research.

Lecture Suggestion 9: Increase in Cesarean Births: Is It A Good Thing?
Learning Goal 5: Discuss the birth process.

Discuss the increasing use of cesarean births, and generate a discussion on the pros and cons. Here are some ideas and questions to get you started:

Until the past 10 years or so, cesarean delivery, when the baby is removed from the mother's uterus through an incision made in her abdomen, was used only in cases when the baby was in a breech position (with the baby's buttocks, rather than its head, being the first part to emerge from the vagina).

Today, more cesarean sections are performed in the United States than in any other country in the world. The cesarean delivery rate in 2014 was 32.2 percent.

One reason for this increase may be the ability to identify babies in distress earlier in the process. Cesarean procedures are also being utilized on the increasing number of obese and seriously overweight pregnant women in this country.

Another reason includes the fact that doctors wish to avoid any chance of a malpractice claim if something goes wrong in the normal birth process. An even more controversial reason is doctors and mothers wanting to schedule the baby's birth to the hour.

Ask students how many women they know have delivered through this method. Ask if any students' mothers did deliver them that way. Ask the women if they would prefer cesarean birth to normal birth. Why?

Higher medical costs are associated with cesarean delivery. Should insurance companies pay for "elective" cesarean section?

Is it ethical to expose the mother and child to the risks of major surgery without there being a medical need?

Here is a resource to provide further background information for you and your students:

Childbirth Connection
http://www.childbirthconnection.org

Sources:
https://www.cdc.gov/nchs/data/nvsr/nvsr67/nvsr67_01.pdfhttps://www.cdc.gov/nchs/products/databriefs/db287.htm

Lecture Suggestion 10: Postpartum Practices
Learning Goal 6: Explain the changes that take place in the postpartum period.

Despite the similarities in care during birth where the physical processes are the driving factor, the postpartum period is mainly culturally driven. Ask students to suggest practices after birth which are socially oriented. New parents in hospitals in the United States are typically instructed in breastfeeding and kangaroo care by medical and pseudo medical personnel such as nurses, lactation consultants, and La Leche League members. Women who have just given birth are evaluated for post partum depression while in the hospital, although generally that period is limited to 1-5 days. Unfortunately, most serious issues peak 4 weeks later, during a time when many women are at home alone with their new child.

Recent news articles have been critiquing family leave practices in the United States. The Family and Medical Leave Act of 1993 (FMLA) provides for 12 weeks of unpaid leave while many companies offer a variety of policies. In 2016, some branches of the U.S. military increased their paid leave to 12-18 weeks. In 2018, several private companies, including General Mills, Microsoft, and Virginia Tech University, offered increases of paid leave to 8-20 weeks. In comparison, OECD countries (38 countries in the Organisation for Economic Co-operation and Development) typically mandate an average of 18 weeks maternity leave at 30-100% pay.

Various scientists have been interested in cultural differences in this period, providing a large number of articles available. They aim to improve outcomes for women and infants. In relationship to the rest of life-span development, students should be encouraged to consider and discuss the effects of cultural practices during this time period on the infant and parents.

Sources:
Addati, L., Cassirer, N., & Gilchrist, K. (2014, May 13). Maternity and paternity at work: Law and practice across the world. International Labour Organization. 978-92-2-128630-1[ISBN].
Tully, K. P., Stuebe, A. M., & Verbiest, S. B. (2017). The fourth trimester: a critical transition period with unmet maternal health needs. *American Journal Of Obstetrics & Gynecology*, 217(1), 37. doi:10.1016/j.ajog.2017.03.032
https://www.oecd.org/els/soc/PF2_1_Parental_leave_systems.pdf

Classroom Activity 11: Fetal Alcohol Syndrome (FAS) Quiz
Learning Goal 4: Describe prenatal development.

The purpose of this activity is to increase students' understanding of fetal alcohol syndrome (FAS). Have students get into groups of two or three and complete the "Fetal Alcohol Syndrome Quiz" in **Handout 8**. After they have discussed the questions and indicated the answers they believe to be correct, discuss the correct answers as a class. The answers are given in **Handout 9** (explanations for some of the answers can be found in the website http://www.nofas.org/faqs/).

Logistics:
- Materials: Handout 2 (FAS Quiz) and Handout 3 (Answers).
- Group size: Small-group discussion and full-class discussion.
- Approximate time: Small groups (10 minutes) and full class (10 to 15 minutes).

Sources:
Kellerman, T. (2006). *Fetal Alcohol Syndrome Quiz*.
http://come-over.to/multiplechoice/fasquiz1.htm
http://www.well.com/user/woa/fsfas.htm

Classroom Activity 12: Educating Expectant Parents
Learning Goal 4: Describe prenatal development.

Your textbook covers a variety of research about prenatal development and factors that influence it. However, many expectant parents are unaware of this research and lack important knowledge. In this activity, students will design a poster to educate future parents about some aspect of prenatal development. Divide students into groups and have each group chose a topic that they believe is important (e.g., FAS, maternal nutrition, drug use during pregnancy). Make sure students consider their method of presentation (e.g., facts, stories, illustrations, charts). Students can spend the majority of class time creating posters, and then the final 10-15 minutes can be used to present to the rest of the class. In an online or blended course, students could be asked to collaborate and create a blog or wiki instead of a poster.

Logistics:
- Materials: Poster-making supplies.
- Group size: 2-5 students.
- Approximate time: Small groups (30 to 45 minutes) and full class (10 to 15 minutes).

Classroom Activity 13: Postpartum Depression
Learning Goal 6: Explain the changes that take place in the postpartum period.

The purpose of this activity is to increase students' understanding of psychiatric disorders that can accompany pregnancy. Pose the question: Is it possible that a mother's mental health during the postpartum period can cause her to harm herself and/or her child? Have students get into groups of two or three to discuss the well-known case of Andrea Yates as reported on the CNN.com website and discussion in the article written by attorney and psychology professor Elaine Cassel (see link below). After they have discussed the case, lead a full-class discussion providing information on postpartum depression, including symptoms and how to help a person suffering from this disorder.

Logistics:

- Group size: Small-group discussion and full-class discussion.
- Approximate time: Small groups (10 minutes) and full-class (10 to 15 minutes).

Sources:

Cassel, E. (2002). *The Andrea Yates Verdict and Sentence: Did the Jury Do the Right Thing?*http://writ.news.findlaw.com/cassel/20020318.html

Williams, D. (2002). *Postpartum psychosis: A difficult defense*. Retrieved from: http://www.cnn.com/2001/LAW/06/28/postpartum.defense/

Classroom Activities

Classroom Activity 1: Principles of Genetic Transmission

Learning Goal 2: Describe what genes are and how they influence human development.

The purpose of this activity is to help students understand the principles of genetic transmission. Ask students to bring in as complete a description as possible of the hair type (straight or curly) of their siblings, parents, grandparents, and, if possible, great-grandparents. Some students will be unable to get the information, so it might be a good idea to break them into groups and have them use the data of the student with the most complete history. Using Mendel's principles of genetic transmission, have students draw genetic models that explain how they and their siblings got their hair type. Encourage the students to include their parents and grandparents in their models.

The allele for curly hair is dominant (represent it as C) and the allele for straight hair is recessive (c). Children who inherit either a homozygous pair (CC) of dominant alleles or a heterozygous pair (Cc) will have curly hair (though the Cc individuals could pass on a straight hair gene to their children, thus they are called carriers). Children who inherit a homozygous recessive pair (cc) will have straight hair.

If the father is homozygous for straight hair (cc) and the mother is heterozygous for curly hair (Cc), 50 percent of the children will be heterozygous for curly hair and 50 percent will be homozygous for straight hair.

Logistics:

- Group size: Individual or small group (5).

- Approximate time: 10 minutes.

Classroom Activity 4: Debate on Heritability of Intelligence
Learning Goal 2: Describe what genes are and how they influence human development.
Learning Goal 3: Explain some of the ways that heredity and environment interact to produce individual differences in development.

The purpose of this activity is to foster thinking about the contribution of life-span developmental research for setting public policy. Divide the class into two groups to debate the issue of heritability of intelligence and its effect on public policy. Should data about parents' (or grandparents') intelligence be used to determine what kinds of schooling to give to children? One group should provide evidence consistent with a strong genetic position on intelligence. The other group should argue a strong environmental position on intelligence. Students should think about how this issue would be further complicated by information about whether heritability of intelligence is high or low. Each side of the debate should generate evidence from the text that supports their side. The groups should select a couple of spokespersons.

Logistics:
- Group size: Divide class in half, and then full class for a debate.
- Approximate time: 25 minutes for evidence/argument development and 25 minutes for debate.

Classroom Activity 5: Explanations for Attention Deficit Hyperactivity Disorder: Nature or Nurture?
Learning Goal 4: Explain some of the ways that heredity and environment interact to produce individual differences in development.

Understanding the origins of attention deficit hyperactivity disorder (ADHD) has implications for treatment and educational practices for such children. However, the scientific community is somewhat divided about the origins of this disorder. This activity involves students in an informed debate about the origins of ADHD.

Demonstration:
Students will be divided into two groups to debate the origins of ADHD after considering recently published articles about the disorder.

Time:
Fifteen minutes of one class period and approximately 30 minutes of another class period.

Materials:
All students will read the following two articles about the origins of ADHD placed on

reserve by the instructor:

Joseph, J. (2000). Not in their genes: A critical view of the genetics of attention deficit hyperactivity disorder, *Developmental Review, 20*(4), 539–567.

Farone, S., & Biederman, J. (2000). Nature, nurture and attention deficit hyperactivity disorder, *Developmental Review, 20*(4), 568–581.

Procedures:

1. Ask students to read the two articles on ADHD before coming to class. Explain that one article (Joseph) refutes genetic origins of the disorder in favor of psychosocial explanations, while the other article (Farone and Biederman) rejects the arguments of the first article in favor of a more interactive view of genetics and environment in explaining ADHD.
2. In class, divide the students into two groups. This activity can accommodate larger classes by asking about five students to volunteer for each of the two groups. Assign each of the groups one of the articles to support in a class debate. For the first half of the class period, have students work in their groups to prepare for the debate (see questions below).
3. During the second half of the class period, hold the informal brief debate. Have each group present the main points of their article. Then ask each group to try to convince one another that either a genetic explanation for ADHD makes the most sense or that an interaction of genetics and environment is more critical to understanding ADHD. The following questions may be asked of the groups (and the class as a whole) by the instructor to stimulate discussion:
    - From a parent's point of view, what are the pros and cons of each author's perspective?
    - What conclusions can be drawn from this activity regarding the nature–nurture debate? What about the connections between mind and body? How might developmental psychologists differ in their positions on these issues from physicians or philosophers?
    - What implications do the authors' perspectives have on a biological explanation for behavior?
    - How might treatment approaches for ADHD differ when considering the two authors' perspectives on the origins of ADHD?

Source: Jarvis, P., & Creasey, G. (2002). *In-class activities for Lifespan Developmental Psychology Courses: An Instructor's Manual*. Boston: McGraw-Hill.

Classroom Activity 6: Critical-Thinking Multiple-Choice Questions and Answers
Learning Goal 1: Discuss the evolutionary perspective on development.
Learning Goal 2: Describe what genes are and how they influence human development.
Learning Goal 3: Explain some of the ways that heredity and environment interact to produce individual differences in development.
Learning Goal 4: *Describe prenatal development.*

Discuss the answers to the critical-thinking multiple-choice questions presented in **Handout 1**.

For question 1, be sure the class understands the evolutionary process. The question will provide a concrete example of natural selection.

The purpose of question 2 is to apply the material presented in Chapter 1. The goal is to become aware of these developmental issues, because they define the nature of developmental psychology.

The answers to these critical-thinking multiple-choice questions are presented in **Handout 2.**

*Logistic*s:

- Materials: Handout 1 (Critical-Thinking Multiple-Choice Questions) and Handout 2 (Answers).
- Group size: Small groups (5) to discuss the questions, then a full-class discussion.
- Approximate time: Small groups (10 to 15 minutes), full-class discussion of any questions (15 minutes).

Classroom Activity 7: Critical-Thinking Essay Questions and Suggestions for Helping Students Answer the Essays
Learning Goal 1: Discuss the evolutionary perspective on development.
Learning Goal 2: Describe what genes are and how they influence human development.
Learning Goal 3:Explain some of the ways that heredity and environment interact to produce individual differences in development.
Learning Goal 4: Describe prental development.

The purpose of this activity is threefold. First, answering the questions listed in **Handout 3** facilitates students' understanding of concepts in Chapter 2. Second, these types of essay questions afford the students an opportunity to apply the concepts to their own lives, which will, in turn, facilitate their retention of the material. Third, the essay format will also give students practice expressing themselves in written form. Ideas to help students answer the critical-thinking essay questions are provided in **Handout 4**.

This activity can be modified based on how much time you have. Students could be asked to answer a subset of the questions or questions could be divided up among the class. Additionally, you could add a small group component to the activity and have students answer the questions individually and then in groups before returning to the full-class discussion.

Logistics:

- Materials: Handout 3 (Essay Questions) and Handout 4 (Ideas to Help Answer).
- Group size: Individual, then full class.
- Approximate time: Varied.

Classroom Activity 8: Ethics
Learning Goal 1: Discuss the evolutionary perspective on development.
Learning Goal 2: Describe what genes are and how they influence human development.
Learning Goal 3: Explain some of the ways that heredity and environment interact to produce individual differences in development.
Learning Goal 4: Describe prenatal development

Ethical concerns in the conduct of research are handled in the scientific community in a variety of ways. This activity has students examine various written codes of ethics from psychology, medicine, and sociology to compare ethical considerations in science. While this activity could fit into any chapter, the area of biology in human development engenders many ethical dilemmas and considerations.

Demonstration:
Instructors will supply students working in small groups with codes of ethics from psychology, medicine, and sociology. Students will be asked to compare the various codes across the related disciplines of study for similarities and differences and for completeness in dealing with aspects of life-span study.

Time:
Approximately 30 minutes.

Materials:
All students will share copies of the written ethical codes for psychology, medicine, and sociology. The ethical codes for psychology, medicine, and sociology respectively are available at:
http://www.apa.org/ethics/code/index.aspx
https://www.ama-assn.org/delivering-care/ama-code-medical-ethicshttp://www.asanet.org/images/asa/docs/pdf/CodeofEthics.pdf

Instructors may include ethical codes from other disciplines as well.

Procedures:
1. Before conducting this activity, the instructor will explain the importance of ethical guidelines in the conducting of any research with humans and nonhuman animals.
2. For this activity, divide the class into groups of 3-5.
3. Students should compare and contrast the various ethical codes for similarities and differences. Each group should elect a leader to guide discussion within the group and to report back to the class as a whole. Students should consider the following questions in evaluating the codes of ethics:
    - How comprehensive are the various ethical codes?

- Are there discipline-specific differences between the codes, and, if so, what are they? If not, what are the differences between the codes, and why do students think such differences are there if they are not specific to that discipline?
- Does each code contain information on resolving ethical dilemmas? If so, describe.
- What similarities exist across the various ethical codes? What general conclusions can be drawn about ethics from evaluating ethical guidelines from several different, but related, disciplines of study?

4. After approximately 20 minutes, each group should report on what they thought about the codes in terms of the questions above. Instructors should underscore the importance of ethics in research and help students appreciate the considerations scientists take into account in working with minors and vulnerable populations in life-span development.

Source: Jarvis, P., & Creasey, G. (2002). *In-class activities for Lifespan Developmental Psychology Courses: An Instructor's Manual*. Boston: McGraw-Hill.

Classroom Activity 9: Killing Me Softly: Banning Smoking in Homes with Pregnant Women and Children
Learning Goal 4: Describe prenatal development.

In March of 2002, a child custody judge in Utica, New York, ruled that a mother must quit smoking or lose visitation rights for her child. The judge said the mother could not smoke in her home or car whether the child was present or not. The ruling revolved around medical reports about the harm of passive or residual smoke to health. The ruling was intended to guarantee a smoke-free environment for the child. However, there is controversy over the ruling as it raises a civil liberties issue about the rights of the mother in her private home. This activity asks students to consider the pros and cons of the ruling and provides a real application of course material to the developing child. Discussion should extend to the role of passive smoke in the homes of pregnant women (including the effects of teratogens) and in restaurants and public buildings.

Source:
http://www.freerepublic.com/focus/fr/652170/posts

Demonstration:
The instructor should introduce the topic of teratogens and present the basic case, as given above, to the class. Then, ask students to discuss pros and cons for each side of this argument. The class should discuss their reasoning for their opinions and integrate course material on teratogens into the discussion.

Procedures:
Material on teratogens and biological hazards to developing infants and children should be covered before conducting this activity. The National Center on Birth Defects and Developmental Disabilities (http://www.cdc.gov/ncbddd/index.html) has a useful website

to visit prior to conducting this activity. It should be emphasized that cigarette smoking during pregnancy can result in low birth weight babies. Cigarette smoking has been associated with infertility, miscarriages, tubal pregnancies, infant mortality, and childhood morbidity. Additionally, cigarette smoking may cause long-term learning disabilities. Secondary smoke may also harm a mother and her developing baby. It is best, while pregnant and after the baby is born, to avoid people who are smoking, according to leading scientists at the National Center on Birth Defects and Developmental Disabilities.

Instructors should present the basic case against passive smoke as stated above.

Students should be asked to list two reasons for supporting the court ruling described above, based on class material, and two reasons why they think the judge's ruling may be overturned on appeal. Then the class should discuss their reasoning for their opinions. Integrate course material on teratogens into the discussion.

Logistics:
- Materials: Paper and pencil.
- Approximate time: 10 to 20 minutes.

Source: Jarvis, P., & Creasey, G. (2002). *In-class activities for Lifespan Developmental Psychology Courses: An Instructor's Manual*. Boston: McGraw-Hill.

Classroom Activity 10: The Court's Treatment of Substance-Abusing Pregnant Women
Learning Goal 4: Describe prenatal development.

In August, 1989, 23 year-old Jennifer Johnson was found guilty of delivering a controlled substance to a minor; the minor was her baby who was born a cocaine addict. She could have received a 30-year sentence, but she was sentenced to a year of house arrest in a drug rehabilitation center and 14 years of probation. In your discussion, inform students of typical effects of cocaine on offspring (babies whose mothers used cocaine during pregnancy had significantly lower cardiac output, lower stroke volume, and higher mean arterial blood pressure with a higher heart rate). Divide students into groups, and have them discuss the questions listed in **Handout 7**.

Currently, the laws regarding substance abuse in pregnant women differ by state (https://www.childwelfare.gov/pubPDFs/drugexposed.pdf). Provide your students with specific information about the procedures in your state to help them connect this story to their own lives.

Logistics:
- Materials: Handout 7 (The Court's Treatment of Substance-Abusing Pregnant Women Activity).
- Group size: Small groups.

- Approximate time: 30 minutes.

Sources:
Roeleveld, N, Vingerhoets, E., Zielhuis, G. A., & Gabreels, F. (1992). Mental retardation associated with parental smoking and alcohol consumption before, during, and after pregnancy. *Preventive Medicine, 21,* 110–119.
Van Bel, F., Van de Bor, M., Stijnen, T., Baan, J., & Ruy, J. (1990). Decreased cardiac output in infants of mothers who abused cocaine. *Pediatrics, 85,* 30–32.
Van Pelt, D. (1990a). Smokers' offspring more prone to asthma. *Insight, 47*.
Van Pelt, D. (1990b). Sperm abnormalities among cocaine users. *Insight, 50*.
Windham, G. C., Swan, S. H., & Fenster, L. (1992). Parental cigarette smoking and the risk of spontaneous abortion. *American Journal of Epidemiology, 135,* 1394–1403.

Personal Applications

Personal Application 1: All in the Family

Learning Goal 2: Describe what genes are and how they influence human development.
Learning Goal 3: Explain some of the ways that heredity and environment interact to produce individual differences in development.

The purpose of this exercise is for students to recognize the varied influence of heredity and environment within a family. The power of genetics is phenomenal, and though each cell only contains 23 pairs of chromosomes, the possible manifestations of this hereditary material are nearly limitless. Sayings such as "Blood is thicker than water" indicate that we feel very close to our family members, because we share inherited traits. However, we can't ignore the fact that we grow up in the same environment. To what extent does the environment contribute to our similarities with our siblings? Or does it? The challenge of identifying the relative influences of nature and nurture is tremendous.

Instructions for Students: Describe the major traits you share with each of your siblings. What major traits are very different for you and your siblings? Which ones do you believe are biologically based, and which ones do you think are the result of your environment? How do you explain the differences, given you have the same parents and grew up in the same family? If you are an only child, compare and contrast your traits with those of each of your parents.

Use in the Classroom: Have students contribute examples of both similar and dissimilar traits shared with siblings. Make a list on the board of all traits, and discuss which ones appear to be more "nature" based and which ones seem to be more a function of "nurture." Are there discrepancies among what students believe or is there a common perception of inherited and noninherited traits? Challenge students to provide evidence, counterarguments, reasoning, or research methods that might serve to determine the answer.

Personal Application 2: I Am What I Am

Learning Goal 3: Explain some of the ways that heredity and environment interact to produce individual differences in development.

The purpose of this exercise is for students to understand the correlation between heredity and environment from Sandra Scarr's perspective of the three major influences on development. Genetic and situational contributions to an individual's make-up are inexorably linked, and the combination of influences impacts individuals in three distinct ways. The way in which we are raised not only impacts us because of the experience itself, but because those very experiences are the result of the combination of genetic and environmental influences on our *parents*. Furthermore, it is our own genetic make-up that influences both the environmental influences that come to us and those that we particularly seek out. The combination of these three processes of confounded influence creates the person we become.

Instructions for Students: Present your profile with regard to Sandra Scarr's three ways in which heredity and environment are correlated.

- Passive: What kind of environmental experiences did your parents provide for you because of who they were?
- Evocative: What environmental experiences did you have due to your genetic make-up?
- Active: What environmental experiences did you seek out due to aspects of your genetic make-up?

Use in the Classroom: Plan to help your students get in the frame of mind for thinking through these concepts. Provide examples from your own life—including specifics about parents and their characteristics, and particular inherited traits that obviously served to influence life experiences. This may be difficult to grasp, so you may have to have students work through it in class. If certain students feel they have good examples, have them share in order to provide as many concrete examples as possible, then have students proceed to write their full responses.

Source: Scarr, S. (1993). Biological and cultural diversity: The legacy of Darwin for development. *Child Development*, *64*, 1333–1353.

Personal Application 3: The Same but Different
Learning Goal 3: Explain some of the ways that heredity and environment interact to produce individual differences in development.

The purpose of this exercise is to enable students to realize that a combination of factors contributes to one's environmental experiences. We automatically assume that because we live in the same house and have the same parents, we share the same environment with our siblings. But very few siblings would admit that they share similar life experiences. The older siblings will swear that the younger ones always get their way,

and that their parents are not nearly as hard on their younger brother or sister as they were on them. The younger ones believe the older siblings get to do everything, and they are treated like babies with all their restrictions. Then there are the middle children! Developmental psychologists know that it is very different to be an older brother than to have an older brother, and that despite living under the same roof, siblings' environments are not, in fact, the same.

Instructions for Students: Consider how your environment growing up was different from those of your siblings, given you were raised in the same household.

Use in the Classroom: This can be a fun way to get students talking and sharing childhood (and even current) stories. Feel free to share some of your own, and encourage students to compare their experiences with those of their siblings. How many felt they had an overall easier time than their siblings? A harder time? Were their parents' reactions to them stricter, harsher, and more unfair? Conclude by emphasizing the varying circumstantial influences experienced by people functioning in very close proximity, and how this contributes to differences in behavior.

Personal Application 4: Evolutionary Angel on Your Shoulder
Learning Goal 1: Discuss the evolutionary perspective on development.

This exercise considers the debate between evolutionary development and the critics of this theory in regard to each student's own personal development. As with many theories, it is easy to either jump on the theoretical bandwagon or simply dismiss the theory without considering some of the ramifications. A personalized debate between the two perspectives not only allows a more nuanced understanding of the perspectives but also a personal relationship to them.

Instructions for Students: Write a short conversation between two imaginary figures sitting on your shoulders. One is a proponent of evolutionary development and the other is a critic. What would they cite in your own personal development that either supports or questions evolutionary theories of development?

Use in the Classroom: Hang a large sheet of poster board or newsprint and divide it in half with a line. Label one half "Evolutionary Angel" and the other "Evolutionary Critic." Solicit appropriate ideas from students to put under each in a column such as "evolved biology encouraging social behaviors" under angel and "behaviors due to social and environmental factors" under critic. Invite students to come stand in front of the poster and share one idea from the angel and one idea from the critic in regards to their own development. At the conclusion of the exercise, discuss whether the angel or the critic seemed more persuasive.

Personal Application 5: Frankenstein's Adoption

Learning Goal 3: Identify some important reproductive challenges and choices.

This is an opportunity for students to put themselves into a prospective adoptive parent's shoes. Students will then consider why they might desire particular traits in an adoptive child and how that might compare to having a biological child. Finally, students will consider how these differences and similarities between parent and child might affect the child's development.

Instructions for Students: Sketch the outline of a person and divide off the arms, legs, and head from the torso. Imagining you are an adult who wishes to adopt a child, write down some of the qualities you would desire in the child. On the head write one or more things the child would know, on the torso write down the child's attitude, on the arms, write something the child would do, and on the legs write a physical quality of the child. Then consider how the child is similar or different from you. How close does the child approximate a biological child you might have? Why do you think these traits are desirable to you?

Use in the Classroom: Have students share their adoptive children in small groups and discuss how similar each child is to their adoptive parent. What are some of the differences in parenting a biological child versus an adopted child? How would these similarities and differences to their parents effect a child's development?

Personal Application 6: In a Family Way
Learning Goal 4: Describe prenatal development.

The purpose of this exercise is to demonstrate the significance of pregnancy from a cultural standpoint. Each culture takes its own particular view of the major stages of life: birth, childhood, puberty, parenthood, work, old age, and death. It is interesting and important to be aware of the different cross-cultural perspectives, especially in our multicultural society.

Instructions for Students: Describe your cultural views of pregnancy. How is a pregnant woman viewed and treated by society? What beliefs are held about the biological processes occurring with regard to her body? What is the perception of the developing fetus? What preparations are made for the upcoming labor, delivery, and birth? How is impending parenthood anticipated?

Use in the Classroom: If you are fortunate and have an ethnically diverse group of students, make a grid on the board comparing and contrasting beliefs for each of the above categories. If you have a homogeneous class, put students in groups and assign them particular cultures to research with regard to the various aspects of pregnancy and childbirth. Each group will then present their findings to the class.

Personal Application 7: The Pitter Patter of Little Feet

Learning Goal 4: Describe prenatal development.
Learning Goal 5: Discuss the birth process.
Learning Goal 6: Explain the changes that take place in the postpartum period.

The purpose of this exercise is to prompt students to think about all that is involved in preparing to become parents. It is not just becoming a parent that is demanding and has numerous implications; planning, conceiving, and sustaining a healthy pregnancy also require a great deal of preparation as well—from both the mother and the father! The more we understand about each person's role in this delicate process, the more we can ensure a successful outcome.

Instructions for Students: If you are not yet a parent, think and write about the following:

- Women: Your physical condition prior to becoming pregnant—how will you take care of and prepare your body for conception? Address nutrition, physical shape, drugs, alcohol, smoking, and other environmental stressors. What might be your health-care plans (physician, midwife, etc.)? What kind of labor and delivery experience do you want (hospital versus home delivery)? Who will you want with you during this time? What postpartum situation do you anticipate? How might you prepare yourself to be an exceptional mother?
- Men: Your physical condition prior to conception—address nutrition, physical shape, drugs, alcohol, smoking, and other environmental stressors. How do you plan to support the mother during pregnancy? Labor and delivery? Postpartum? Were you surprised to read of the important role fathers play in this extensive process? How might you prepare yourself to be an exceptional father?

Use in the Classroom: Put together several different profiles of couples, or single women, who want to conceive or are already experiencing pregnancy. Present the profiles to students to read, then have a class discussion on the implications of the various circumstances surrounding each pregnancy and impending birth. Emphasize the dangers of poor choices, the risks of particular behaviors, and the benefits of planning, preparation, and healthy living.

Personal Application 8: Oh, the Pain!
Learning Goal 5: Discuss the birth process.

The purpose of this exercise is for students to recognize the various ways the human body carries out and experiences the same biological processes. Mammals giving birth is one of nature's most fundamental experiences. It involves a series of physiological stages that all members of the same species are programmed to go through. However, rarely are they experienced in the same way and to the same degree by different mothers. As we have been studying the influences of both biology and environmental factors on human behavior, it is important to recognize the varying contributions of both to such a fundamental life process.

Instructions for Students: Ask your mother if she can recall her experience giving birth to you and your siblings. If you are a parent, recall the experience of the birth of your child/children. What is different about each situation? What is similar? What might account for the differences? What factors might contribute to the variety of birthing experiences women have?

Use in the Classroom: Comparing labor and delivery stories can be very interesting and informative. If you feel comfortable, share your own stories of the birth of your children, and bring in contrasting stories from friends and family. Have students share their stories, and follow these up with a discussion of what might contribute to each mother's particular experiences. Have students then try to conclude which of those factors result from nature and which may be due to environmental circumstances. Were there any aspects of labor and delivery that the mother may have been able to change somehow? Were there any mothers who had drastically different birthing experiences with their different children? Why might this have been?

Research Project Ideas

Research Project 1: Heritability of Height
Learning Goal 2: Describe what genes are and how they influence human development.
Learning Goal 3: Explain some of the ways that heredity and environment interact to produce individual differences in development.

The purpose of this project is to demonstrate the concept of heritability by using height as an example (**Handout 5**). Have students do a kinship study of two families (one of the families can be their own) to collect the necessary data. Students should record the height of all family members over 18 years of age and separate them by sex. Next, they should calculate the mean and range of heights of both sexes for both families and compare them. This exercise is intended to give them experience both with a kinship study design and with the concept of having a variable with a clear operational definition. Once data collection is completed, students should answer the questions that are listed at the end of **Handout 5**.

Use in the Classroom: Have students examine family differences for the following factors:

- Evidence for the heritability of height: The expectation is that the closer the relative is genetically, the more similar the characteristic measured will be—identical twins, fraternal twins and siblings, parents, (blood) uncles and aunts, cousins, etc.
- Environmental influences: The data from those in the older generations may be difficult to interpret because 60 or more years ago different health and nutrition standards may have influenced growth (cohort effects).
- The effect of gender: The data must be segregated by sex because humans are sexually

dimorphic in height. Males are characteristically larger than females.

- Advantages of using height as a measure rather than intelligence or temperament: Height is a good measure to use, because it has an easy, uncontroversial, operational definition. Intelligence and temperament are harder to define in exact terms and are therefore more controversial.
- If you have a TA, or a small class, you could enter all of the students' data and show them the results across the class.

Research Project 2: Genetic Counseling Available to You
Learning Goal 2: Describe what genes are and how they influence human development.
Learning Goal 3: Identify some important reproductive challenges and choices.
Learning Goal 4: Characterize some of the ways that heredity and environment interact to produce individual differences in development.

Chapter 2 introduces the concept of genetic counseling and how genetic counseling can help expectant couples learn about the possibility that their infants will suffer from genetically based problems. While the focus in the text is on the process of counseling, it does not say much about how this service is delivered from community to community.

For this project, have students find out if genetic counseling services are available in your community (**Handout 6**). They will want to discuss how people can find out about these services. Form groups of up to four individuals, and divide the following tasks between individuals or pairs. Students should contact hospitals to learn whether they disseminate information about genetic counseling, and, if they do, students should obtain the pamphlets or handouts that they provide. If there are other services or organizations for expectant couples (e.g., a crisis pregnancy center), they should find out what they offer. If the students can identify individuals in the community who provide such information, they should contact them to see if they will allow the students to interview them about their services. In addition, they can go to the public library and look up books or other reference materials about genetic counseling.

Once they have determined what information is publicly available, have them write a report that answers the questions at the end of **Handout 6.**

Use in the Classroom: Have the groups report their findings to the class, and then lead a general discussion to summarize the findings. Are the reports consistent? Why or why not? How well do the results correspond to the material in the text? What implications do the findings have for people seeking genetic counseling in your area?

Research Project 3: Evolution and Trait Selection
Learning Goal 1: Discuss the evolutionary perspective on development.

Students often have difficulty understanding how evolution works. One way to illustrate

natural selection is to have students pick a trait like sickle cell anemia or schizophrenia. First, have students do an online search (or literature review depending on course level), for information on the consequences of the trait. Then write a 1-2 paragraph description of the trait and its consequences. Next, have them generate evolutionary hypotheses for what the advantage of that trait is. In other words, how might evolution have selected for a trait that seems maladaptive? For example, sickle cell anemia has very negative consequences but also offers a protection from malaria. It is for this reason it is found predominantly in persons of African descent. So here, evolution may have selected a trait that has a strong survival value but is clearly a double-edged sword. Have them write 2-3 paragraphs describing their arguments.

Use in the Classroom: This could also be adapted for online courses as a discussion topic or in class as a group project with 4-person groups. What other traits may it be difficult to find a positive effect for? Remind students if you see a trait at any degree of frequency, evolution selected for it.

Research Project 4: Why Do Some Pregnant Women Drink, Smoke, or Use Drugs?
Learning Goal 4: Describe prenatal development.

The dangers of drinking alcohol, smoking, and other drug use on fetal development are now well known and widely publicized. Despite this fact, many women continue to use these substances while they are pregnant. This research activity attempts to find out why (**Handout 14**).

Have students ask a number of female friends who smoke or drink to talk to them about whether they will do these things when they are pregnant. Then have them ask their friends whether they know that smoking and drinking endanger prenatal development and about what they know in detail. Have them talk about the dangers, and then ask again whether their friends will drink and smoke. You may want to suggest that students prepare an interview schedule of questions to ask. Be sure to instruct the students to avoid judgmental statements and to interview the women individually so their answers will be confidential.

Discuss the findings in class. Do different people give different reasons? Or are there common reasons among many? Discuss whether the women suggested ways that the message about the dangers of drinking and smoking for prenatal development can be made more convincing to prospective parents.

Source: Salkind, N. (1990). *Child development*. Fort Worth: Holt, Rinehart, & Winston.

Research Project 5: Fatherhood
Learning Goal 6: Explain the changes that take place in the postpartum period.

How actively are fathers participating in the births of their children? Have students find

out by carrying out the interview project described in **Handout 15**. They should identify two first-time, expectant fathers and two fathers of children under the age of 2, and then interview these men using the questions provided.

Instruct students to write a brief report summarizing their findings. They should describe their sample and how they interviewed the fathers and soon-to-be fathers, and then summarize similarities and differences between the two pairs of men. Finally, they should relate what they learned to material on fathers' participation in childbirth from the text.

Have students form groups of three or four to discuss and compare their findings. Have each group report to the class to identify any trends and generalizations that seem warranted by their findings.

Source: Salkind, N. (1990). *Child development*. Fort Worth: Holt, Rinehart, & Winston.

Research Project 6: Teratogens in Pregnancy
Learning Goal 4: Describe prenatal development.

Have students, either individually or in small groups, perform a review of the literature on what things are well-known teratogens and what the potential side effects. Further, what things might be teratogenic (e.g., nitrates in lunch meat). Have students write a short summary or table of what their research revealed. Then compile their results and present and discuss with the class.

Research Project 7: Resources for Prospective Parents
Learning Goal 5: Describe the birth process.

Ask students to review a section of childbirth preparation video made for prospective parents:
https://www.babycenter.com/childbirth-class

Cultural products like video material can be very informative about the cultures that create them. How a subject is portrayed is just as important as the information given to scientists who study such artifacts.

Students should discuss or journal about how the video presented the birth process. They might consider things such as what information was given, who was featured in the video, the musical soundtrack, the apparent audience, and what the goals of the video might be. For first time parents, this is often a time to learn about their bodies in a new way with very practical application. How was the birth process portrayed? Do you think the video cover the most important aspects of the stage(s) of the birth process covered? What would you change or add? How does your culture support expecting parents? How does the birth process affect the development of both the parents and the child?

Resources:
https://www.babycenter.com/childbirth-class
Laugh and Learn About Childbirth DVD, 618.4 LAU- 2007, 2 videodiscs (255 min.) featuring Sheri Bayles, RN
Having your Baby: A Complete Lamaze Prepared Childbirth Class DVD, 618.2 Ha-2004, 1 videodisc (124 min.)

Videos and Feature Films

"Prenatal Testing Can Mean Hard Choices" From CBS News

A brief clip that highlights some of the issues that may arise from prenatal testing when test results indicate Down syndrome can be found at: http://www.cbsnews.com/2100-500195_162-1975002.html.

"How to Understand Prenatal Testing and Genetic Screening" From Howdini

A clip that covers the different types of chromosomal tests that are common in prenatal care. Covers blood tests and genetic disorders. Does not cover diagnostic tests like CVC or Amnio. Can be found at: https://www.youtube.com/watch?v=3MatKSc-Ax8.

***Immediate Family* (1989)**

Starring: Glenn Close, James Woods, Mary Stuart Masterson, Kevin Dillon
Directed by Jonathan Kaplan

Married 10 years, an infertile couple turns to adoption. Through an agency, they meet a teenage single mother. They spend time together, eventually creating a bond, and she agrees to sign away custody to the couple. But things don't go exactly as planned, and they are all emotionally tested while waiting for the young girl to do the right thing.

Dr. Richard Dawkins and Dr. Steven Pinker, "The Genius of Charles Darwin"

Dr. Richard Dawkins has done interviews with several prominent evolutionary psychologists. His interview with Dr. Steven Pinker, "The Genius of Charles Darwin," can be found on YouTube.
https://www.youtube.com/watch?v=yIMReUsxTt4

Dr. Richard Dawkins and Dr. David Buss, "Evolutionary Psychology"

Dr. Richard Dawkins has done interviews with several prominent evolutionary psychologists. His interview with Dr. David Buss on evolution can be found on YouTube (posted in various "parts.").
Part 1:
https://www.youtube.com/watch?v=fRpfPyIM5lc&list=PLHMxDAtAsOmuYHVL14IJGhEaCqRQ7x372

Website Suggestions

At the time of publication, all sites were current and active; however, please be advised that you may occasionally encounter a dead link.

The Evolutionary Psychology FAQ
http://www.anth.ucsb.edu/projects/human/evpsychfaq.html

Dr. David Buss
http://buss.socialpsychology.org/
Evolutionary Psychology Lab
http://www.toddkshackelford.com/

Behavior Genetics Association
http://www.bga.org/

Children's Disability Information
http://www.childrensdisabilities.info/

Holt International Children's Services: Adoptions
http://www.holtintl.org/

National Down Syndrome Society
http://www.ndss.org/

Handout 1 (CA 6)

Critical-Thinking Multiple-Choice Questions

1. At one time, there were both tall and short giraffes. The short giraffes could only feed from the sides of the trees since they were unable to reach the tops of the trees. There are no short giraffes today. What concept described in Chapter 2 best explains the disappearance of short giraffes? Circle the letter of the best answer, and explain why it is the best answer and why the other answers are not as good.

   a. genetic imprinting
   b. genetic foundations of development
   c. meiosis
   d. natural selection
   e. bidirectional view

2. Chapter l describes several important issues in developmental psychology. Which of these issues receives the greatest emphasis in Chapter 2? Circle the letter of the best answer, and explain why it is the best answer and why the other answers are not as good.

   a. biological, cognitive, and social processes
   b. continuity versus discontinuity
   c. nature versus nurture
   d. stability versus change
   e. periods of development

Handout 2 (CA 6)

Answers for Critical-Thinking Multiple-Choice Questions

1. At one time, there were both tall and short giraffes. The short giraffes could only feed from the sides of the trees since they were unable to reach the tops of the trees. There are no short giraffes today. What concept described in Chapter 2 best explains the disappearance of short giraffes? Circle the letter of the best answer, and explain why it is the best answer and why the other answers are not as good.

   a. Genetic imprinting is not the best answer. It refers to the differing effects genes can have when they are inherited either from the mother or the father.
   b. Genetic foundations of development is not the best answer. It focuses specifically on genes, and how they transmit the characteristics of a species from one generation to another.
   c. Meiosis is not the best answer. It describes a specialized form of cell division.
   d. Natural selection is the best answer as it refers to the evolutionary process by which the best adapted within a species survive and reproduce.
   e. Bidirectional view is not the best answer. It refers to human evolution, and how environmental and biological conditions influence each other.

2. Chapter l describes several important issues in developmental psychology. Which of these issues receives the greatest emphasis in Chapter 2? Circle the letter of the best answer, and explain why it is the best answer and why the other answers are not as good.

   a. Biological, cognitive, and social processes in development is not the best answer. These processes are simply not uniformly discussed in the chapter. The focus of the chapter is on one aspect of biological processes: genetic determination.
   b. Continuity versus discontinuity is not the best answer. The course of development—either prenatally or postnatally—is not described.
   c. Nature versus nurture is the best answer. This is a continuing theme of the chapter, throughout which the point is made that environments interact with genotypes in the course of development. For example, natural selection determines which genotypes survive. In the discussion of genetic principles, it is clear that genetic expression is a function, in varying degrees, of environmental influence. Research on intelligence is driven by the question of how much of the variation in each individual is determined by heredity and how much is determined by environment.
   d. Stability versus change is not the best answer. There is material on this issue in the discussion of intelligence, but the issue is not as pervasive as the nature–nurture issue.
   e. Periods of development is not the best answer. These simply receive no treatment in this chapter. The discussion of the biological bases of development is not organized around separate developmental periods.

Handout 3 (CA 7)

Critical-Thinking Essay Questions

Your answers to these kinds of questions demonstrate an ability to comprehend and apply ideas discussed in this chapter.

1. Explain the concepts of natural selection and evolutionary psychology.

2. Explain the relationship among genes, chromosomes, and DNA. Indicate how these entities function in reproduction.

3. In your own words, what is a genotype and what is a phenotype? Explain how these concepts relate to the concepts of dominant and recessive genes.

4. Describe the methods used by behavior geneticists to study heredity's influence on behavior.

5. Indicate and explain at least three examples of abnormalities in genes and chromosomes.

6. Assume that you have received a number of tests to assess fetal abnormalities. Identify and explain each procedure, and what you would learn from it.

7. What is infertility? What causes infertility? Explain what an infertile couple can do to have a baby.

8. Indicate how you would explain to a friend that heredity and environment interact in various ways to produce developments. Also, provide an example of each of the three types of interaction and shared and nonshared environmental influences that you would use to help your friend understand this concept.

Handout 4 (CA 7)

Ideas to Help You Answer Critical-Thinking Essay Questions

1. These concepts are inherently connected to specific examples of the phenomena of this aspect of development. Read the examples presented in the text, then come up with your own example(s). Use this to launch your explanation of natural selection and evolutionary psychology and their tenets.

2. A visual representation will be helpful when approaching this essay. Create a careful drawing of genes, chromosomes, and DNA, as there is a building block structure to these. Establishing their physical relationship to one another will provide a clearer context in which to explain their roles in reproduction.

3. The best way to describe something in your own words is either to teach someone else about it or to pretend to teach it to someone else. When you imagine approaching an audience who knows nothing about the subject matter, you are forced to explain things in a number of different ways, anticipate questions regarding the topic, and provide explicit examples to demonstrate the concepts. Do this as you write about genotypes, phenotypes, and dominant and recessive genes.

4. Begin by describing the bigger issue of trying to assess the relative influences of biology and the environment on behavior. This will provide the context to better explain and understand the methods used to study the specific contributions of heredity.

5. For a more complete learning experience, combine your efforts on this question and the next. Create a grid delineating genetic and chromosomal abnormalities on one axis. On the other, list the tests used to assess fetal abnormalities. In the resulting intersecting squares, describe the characteristics and causes of the abnormalities, and the procedures and results of the testing methods relating to them.

6. Look at the suggestion for question 5 above for help on this question.

7. Pretend you are providing counseling to couples having difficulty conceiving a child. Your job is to inform them about the nature of infertility, what may contribute to it, and their options to overcome it.

8. Begin with either a brief story about your life and a description of the person you have become, or have a friend provide one. Make a list of what you believe are genetic-based traits and a list of traits you have acquired from experience. This will demonstrate the difficulty in knowing for certain the contributions of nature and nurture in an individual’s development. It will also provide a preface for your presentation of examples for each of the three types of interaction and shared and nonshared environmental influences.

Handout 5 (RP 1)

Heritability of Height

The purpose of this project is to demonstrate the concept of heritability by using height. You will do a kinship study of two families (one of the families can be your own) to collect the necessary data. Record the height of all family members over 18 years of age and separate them by sex. Calculate the mean and range of heights of both sexes for both families and compare them. This exercise is intended to give you experience both with a kinship study design and with the concept of heritability for a variable with a clear operational definition. Use the following data sheet to record heights. Then answer the questions below:

Person/Sex	Family 1	Family 2	Data	Family 1	Family 2
Self			Average Female		
Mother			Average Male		
Father			Tallest Female		
Grandmother 1			Tallest Male		
Grandmother 2			Shortest Female		
Grandfather 1			Shortest Male		
Grandfather 2					
Sibling					
Sibling					
Sibling					
Aunt					
Aunt					
Aunt					
Uncle					
Uncle					
Uncle					
Cousin					
Cousin					
Cousin					
Cousin					
Other					
Other					
Other					

Questions:

- Which family in your sample is on average taller (for both males and females)?
- Of the taller family, how many females are taller than the females in the shorter family? How many of the males are taller than the males in the shorter family?
- From your data, does it appear that height is an inherited trait?
- What is the advantage of examining the heritability of a variable like height rather than a variable such as temperament or intelligence?

Handout 6 (RP 2)

Genetic Counseling Available to You

Chapter 2 introduces the concept of genetic counseling and how genetic counseling can help expectant couples learn about the possibility that their infants will suffer from genetically based problems.

For this project, you will find out and report if genetic counseling services are made available in your community. You will want to discuss where one can go for these services in your community, as well as how people can find out about genetic counseling services. Form groups of up to four individuals, and divide the following tasks between individuals or pairs. Contact hospitals to learn whether they disseminate information about genetic counseling, and, if they do, obtain the pamphlets or handouts that they provide. If there are other services or organizations for expectant couples (e.g., Planned Parenthood or divisions of social service agencies), find out what they offer. If you can identify individuals in the community who provide such information, contact them to see if they will allow you to interview them about their services. Go to the public library and look up books or other reference materials about genetic counseling.

Once you have determined what information is publicly available, write a report that summarizes the information that you obtained. In addition, address the following questions:

- How current is the information?
- What source of information is most easily and inexpensively available?
- What attitude does the material seem to take toward genetic counseling?
- Are couples able to make their own decisions about their infants' chances of suffering a genetic defect with the information they obtain from genetic counselors in your community?
- What options or alternatives are available in your community?
- Are any alternatives discouraged by the genetic counselors?
- Are the services uniformly available to all community members?
- Are there significant controversies about their use?
- What political/ethical/legal issues did you discover?

Handout 7 (CA 2)

The Court's Treatment of Substance-Abusing Pregnant Women Activity

1. Do you think that mothers who use drugs during pregnancy should face criminal prosecution?

2. Might this policy keep some pregnant women from getting prenatal care and having a hospital delivery?

3. How far should the prosecution go?

4. What alternative solutions can you suggest?

5. Is fetal abuse equivalent to child abuse?

6. Should fathers who use drugs during their partner's pregnancy face criminal prosecution?

7. Do you think a wife should be able to sue her husband for infertility problems caused by use of cocaine? (Cocaine usage lowers sperm count, increases abnormally shaped sperm, and decreases sperm mobility. Infertility problems may last more than two years after a man quits using cocaine.)

8. Research suggests that mothers who smoke tobacco during pregnancy and up to the time their children are 5 years old increase the risk of their offspring getting asthma. Should smoking mothers be prosecuted?

Handout 8 (CA 3)

Fetal Alcohol Syndrome (FAS) Quiz

1. Which set of definitions best matches these terms: fetal alcohol syndrome (FAS), fetal alcohol effect (FAE), fetal alcohol spectrum disorders (FASD)?

   a. FAS is an umbrella term for all of the effects from alcohol consumption in pregnancy; FAE refers to a diagnosis given by doctors for the combination of mental retardation, stunted growth, and facial abnormalities in an infant caused by alcohol consumption by the mother in pregnancy; FASD refers to those effects of alcohol consumption in pregnancy that are not part of the classic set of effects in a diagnosis of FAE.
   b. FAS refers to a diagnosis given by doctors for the combination of mental retardation, stunted growth, and facial abnormalities in an infant, caused by alcohol consumption by the mother in pregnancy; FAE is an umbrella term for all of the effects from alcohol consumption in pregnancy; FASD refers to those effects of alcohol consumption in pregnancy that are not part of the classic set of effects in a diagnosis of FAS.
   c. FAS refers to a diagnosis given by doctors for the combination of mental retardation, stunted growth, and facial abnormalities in an infant, caused by alcohol consumption by the mother in pregnancy; FAE refers to those effects of alcohol consumption in pregnancy that are not part of the classic set of effects in a diagnosis of FAS; FASD is an umbrella term for all of the effects from alcohol consumption in pregnancy.

2. What percentage of women of child-bearing age who could become pregnant are drinking alcohol (many before realizing they are pregnant)?

   a. 10 percent
   b. 25 percent
   c. 35 percent
   d. 55 percent
   e. 75 percent

3. What is the cause of fetal alcohol syndrome?

   a. Alcohol in the pregnant woman's bloodstream contracts her blood vessels and prevents her from providing the fetus with adequate nutrition.
   b. Alcohol in the pregnant woman's bloodstream crosses the placenta into the unborn fetus's system and disrupts its ability to get enough oxygen for normal growth and development.
   c. Alcohol in the pregnant woman's bloodstream makes her reckless and more likely to fall or otherwise cause injury to the fetus.
   d. Alcohol in the pregnant woman's bloodstream makes her irritable and irrational,

and her bad temper affects the fetus's development.
e. Alcohol in the pregnant woman's bloodstream upsets her hormonal balances and prevents her from delivering the right amounts of testosterone to a male fetus or estrogen to a female fetus.

4. What is the incidence rate of FAS in the United States? Estimates vary but most are in the range of:

a. 0 to 20 per 1,000 live births
b. 10 to 15 per 1,000 live births
c. 3 to 7.5 per 1,000 live births
d. 0.33 to 1.0 per 1,000 live births
e. 0.2 to 0.5 per 1,000 live births

5. How much does it cost U.S. taxpayers each year to treat infants, children, and adults with full FAS?

a. $250,000 each year
b. $1,900,000 each year
c. $2,800,000 each year
d. $5,400,000,000 each year
e. almost nothing, as expenses are incurred by private insurance

6. Which of the following groups of women are at high risk for drinking during pregnancy?

a. women with a college education
b. unmarried women
c. female students
d. women in households with greater than $50,000 annual income
e. all of these

7. In which of the following ways does alcohol affect a man's ability to father healthy children?

a. lowered levels of testosterone that interfere with sexual performance
b. reduced mobility of healthy sperm at time of conception
c. increased risk of inherited tendency toward alcoholism
d. possible adverse effects on DNA in sperm before conception
e. all of these

Sources:
Questions 2, 5, 6, and 7 are from:
http://come-over.to/multiplechoice/fasquiz1.htm
http://www.nofas.org/faqs/
http://www.well.com/user/woa/fsfas.htm

Handout 9 (CA 3)

Answers to the Fetal Alcohol Syndrome (FAS) Quiz

1. (c) FAS refers to a diagnosis given by doctors for the combination of mental retardation, stunted growth, and facial abnormalities in an infant, caused by alcohol consumption by the mother in pregnancy; FAE refers to those effects of alcohol consumption in pregnancy that are not part of the classic set of effects in a diagnosis of FAS; FASD is an umbrella term for all of the effects from alcohol consumption in pregnancy.

2. (d) 55 percent (the actual figure is 54.9 percenw)

3. (b) Alcohol in the pregnant woman's bloodstream crosses the placenta into the unborn fetus's system and disrupts its ability to get enough oxygen for normal growth and development

4. (d) 0.33 to 1.0 per 1,000 live births

5. (d) $5,400,000,000 each year

6. (e) all of these

7. (e) all of these

Sources: See the explanation of these answers on the following websites:
Answers 2, 5, 6, and 7:
http://come-over.to/multiplechoice/testexplain.htm
http://www.nofas.org/faqs/
http://www.well.com/user/woa/fsfas.htm

Handout 10 (CA 6)

Critical-Thinking Multiple-Choice Questions

1. Chapter 2 illustrates a number of the issues discussed in Chapter 1. Which of the following topics taken from Chapter 2 correctly illustrates the Chapter 1 topic paired with it? Circle the letter of the best answer, and explain why it is the best answer and why the other answers are not as good.

   a. germinal, embryonic, and fetal periods: stability
   b. embryonic development: maturation
   c. teratology: biological determinants and influences
   d. miscarriage/abortion: discontinuity

2. Teratology is the field that investigates the causes of birth defects. Research has found that certain agents influence the development of birth defects. Which of the following is *not* a concern regarding the research methodology involved in teratology? Circle the letter of the best answer, and explain why it is the best answer and why the other answers are not as good.

   a. exposure to many teratogens
   b. long-term effects
   c. animal research
   d. correlational research
   e. potential effects

3. During the past two decades, parents, researchers, and physicians have reacted against the so-called standard childbirth, once very widely practiced in American hospitals. Most have begun to favor a variety of prepared or natural forms of childbirth. Which of the following statements represents a basic assumption of standard childbirth practice that critics have rejected? Circle the letter of the best answer, and explain why it is the best answer and why the other answers are not as good.

   a. Important individuals were excluded from the birth process.
   b. The mother was separated from her infant in the first minutes and hours after birth.
   c. Giving birth was like a disease.
   d. Babies were slapped or spanked.
   e. Babies were scared by the bright lights.

Handout 11 (CA 6)

Answers for Critical-Thinking Multiple-Choice Questions

1. Chapter 2 illustrates a number of the issues discussed in Chapter 1. Which of the following topics taken from Chapter 2 correctly illustrates the Chapter 1 topic paired with it? Circle the letter of the best answer, and explain why it is the best answer and why the other answers are not as good.

   a. Germinal, embryonic, and fetal periods do not illustrate the concept of stability. Prenatal development involves rapid and radical change, not stability. These phases better illustrate periods of development.
   b. Embryonic development illustrates the concept of maturation. Embryonic development illustrates a clear, orderly sequence of changes that most likely are dictated by a genetic blueprint.
   c. Teratology does not illustrate the concept of biological determinants and influences. Teratogens do not influence biological development, rather they are environmental influences.
   d. Miscarriage/abortion does not illustrate the concept of discontinuity. The concept of discontinuity is that development produces qualitatively new and different features, often in what appears to be a progression of stages. These events represent an end to development.

2. Teratology is the field that investigates the causes of birth defects. Research has found that certain agents influence the development of birth defects. Which of the following is *not* a concern regarding the research methodology involved in teratology? Circle the letter of the best answer, and explain why it is the best answer and why the other answers are not as good.

   a. Exposure to many teratogens is not the best answer. Given that every fetus is exposed to teratogens, it is difficult to determine which one influenced the birth defect; thus, exposure to many teratogens is a methodological issue.
   b. Long-term effects is not the best answer. Given that some of the effects of teratogens are not evident until later in development (about half are evident at birth), long-term effects are a methodological concern.
   c. Animal research is not the best answer. Much of teratology research is conducted on animals, and there are questions as to the generalizability to human prenatal development of the animal research findings.
   d. Correlational research is not the best answer. Given that experiments involving exposure to teratogens cannot ethically be conducted on humans, cause-and-effect statements should not be made.
   e. Potential effects is the best answer. Given the correlational nature of teratogen studies, one avoids methodological issues if potential effects are discussed rather than stating cause-and-effect relationships.

3. During the past two decades, parents, researchers, and physicians have reacted against the so-called standard childbirth, once very widely practiced in American hospitals. Most have begun to favor a variety of prepared or natural forms of childbirth. Which of the following statements represents a basic assumption of standard childbirth practice that critics have rejected? Circle the letter of the best answer, and explain why it is the best answer and why the other answers are not as good.

   a. Important individuals were excluded from the birth process is an observation. It is a straightforward statement about who was allowed to be present at a birth.
   b. The mother was separated from her infant in the first minutes and hours after birth is an observation.
   c. Giving birth was like a disease is an assumption and thus the best answer. The statement does not describe any specific practice, but rather expresses the guiding analogy that directed medical procedures for assisting a birth.
   d. Babies were slapped or spanked is an observation. It is a practice that Lamaze vehemently rejected.
   e. Babies were scared by the bright lights is an inference. It states the presumed (but not directly known) effect of bright lights on newborn infants.

Handout 12 (CA 7)

Critical-Thinking Essay Questions

Your answers to these kinds of questions demonstrate an ability to comprehend and apply ideas discussed in this chapter.

1. Describe development during the germinal, embryonic, and fetal periods. Also, explain what factors might contribute to complications at specific times during gestation.

2. What is organogenesis, and why is this concept important to the process of development?

3. Discuss medical, ethical, psychological, and personal issues pertinent to the decision to have an abortion.

4. Define *teratogen,* and give at least two examples of teratogens and their specific effects.

5. Compare and contrast the risks to expectant mothers who are teenagers, twenty-somethings, or thirty-somethings.

6. Describe the stages of birth, and also explain three birth complications.

7. Imagine that you are about to give birth. What questions about cesarean sections and the use of drugs during delivery would be important to you? What reasons would lead you to accept or reject a cesarean section and drugs such as tranquilizers, sedatives, and analgesics during delivery?

8. Imagine that you are an expectant parent. What would you do and learn in a parent education class on pregnancy, prenatal development, and childbirth strategies?

9. Why and how have fathers become more involved in childbirth? Discuss the pros and cons of this involvement.

10. How do preterm and low birth weight infants differ?

11. What would you learn about your newborn from the Apgar and Brazelton Neonatal Behavioral Assessment Scales?

12. Explain why some claim that the postpartum period should be termed the fourth trimester.

Handout 13 (CA 7)

Ideas to Help You Answer Critical-Thinking Essay Questions

1. Create a timeline for the prenatal stages of development. Note developmental milestones along with periods associated with particular concerns about complications.

2. In describing the nature of organogenesis, you will automatically address why it is important to the process of development.

3. Few people can address this issue from an objective standpoint, yet this is your challenge here. Make a chart and include each of the four issues listed as pertinent to the consideration of an abortion. Referring to the text, list the relevant information in each category to compile a substantial presentation of information upon which to base such a decision. As you discuss what you have considered for each category, weigh the significance of your information based on its scientific merit, objectiveness, and meaningfulness with regard to the contribution toward a sound conclusion.

4. Do this in your own words. Read the description in the text, and then proceed to expand on it, including a presentation and discussion about examples and their particular effects.

5. Create a chart with all the possible risks, both physiologically and environmentally based, for the varying age groups of pregnant women. Color code each maternal age group, then indicate the particular groups associated with each risk. This will provide a concrete illustration of maternal age and the associated risks of pregnancy shared by, and different for, each group.

6. Imagine you are teaching a childbirth class, and your job is to inform expectant parents of the stages of birth and to explain the three particular birth complications. Anticipate their particular questions and concerns to create a more complete presentation of the information.

7. Begin by rereading the relevant sections of the text, imagining that either you are pregnant or your wife is about to give birth. As you bring this personal perspective to your consideration of the information, you should easily begin to develop questions as you would if you were actually facing these circumstances yourself.

8. If you are an expectant parent, you will approach pregnancy, prenatal development, and childbirth in very practical terms. You are less interested in the information for the information itself, but rather you want to be able to apply it. This is a primary reason for the existence of childbirth classes—to inform parents of what they can do to successfully experience each of these stages based on the scientific information.

9. Begin by thinking about your own father's involvement. Ask your mother or your father about the extent of his role during your mother's pregnancy, labor and delivery, and childrearing. Compare what you find out to what you now know about the new and changing role of fathers.

10. Preterm infants always experience low birth weight, but low birth weight infants are not always preterm. Explain why that is, and what leads to each.

11. Present this information as if you were a pediatrician explaining these assessments to new parents. Remember, the parents are most likely to have no working knowledge of developmental psychology.

12. Begin by describing the "first" three trimesters to establish the context for explaining the views about the postpartum period. Then discuss whether or not it should be considered the fourth trimester.

Handout 14 (RP 1)

Why Do Some Pregnant Women Drink, Smoke, or Use Drugs?

The dangers of drinking alcohol, smoking, and other drug use on fetal development are now well known and widely publicized. Despite this fact, many women continue to use these substances while they are pregnant. This research activity attempts to find out why.

Ask a number of female friends who smoke and/or drink to talk to you about how a future pregnancy may affect these behaviors. Determine what your friends know about the effects of smoking and drinking on prenatal development. Then talk about the dangers, and ask again whether your friends will smoke and/or drink during pregnancy. You may want to prepare an interview schedule of questions to ask before meeting with your friends. You will want to come up with a list of about 10 questions to ask. Be sure to avoid judgmental statements/questions. You will want to interview the women individually so their answers will be confidential.

Handout 15 (RP 2)

Fatherhood

How actively are fathers participating in the births of their children these days? Find out by carrying out an interview project. Identify two first-time, expectant fathers and two fathers of children under the age of 2. Interview these men using the following sets of questions:

Expectant Fathers:

- What are your feelings about becoming a father?
- How have you been involved in your partner's pregnancy?
- What part will you play in your child's birth? What part would you like to play?
- What do you think being a "good father" means?
- How will having a child change your life?

Fathers:

- What part did you play in the birth(s) of your child (children)? What were your feelings about this experience?
- What are the three biggest challenges you face as a father?
- What do you think a "good father" is?
- How has having a child changed your life?
- What advice would you give a new father?

Write a brief report indicating what you were trying to find out, describe your sample and how you interviewed the fathers and soon-to-be fathers, and then summarize similarities and differences between the two pairs of men. Relate what you learn to material on fathers' participation in childbirth from the text.