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**UNIT:** Prenatal Development**LESSON:** Birth Defects, Genetics, and Heredity**TIME:** 1 day

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**COMPETENCIES:**

1. Analyze the influence and effects of genetics and heredity. (Options 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, and 14)
2. Identify various types and causes of birth defects and their characteristics. (Options 2, 3, 4, 5, 6, 7, 8, 9, 11, and 12)
3. Specify the components of a healthy lifestyle, currently and during pregnancy, that minimize the potential of birth defects. (Options 2, 3, 7, 11, 12, and 13)
4. Discuss medical intervention techniques available during prenatal development that can prevent birth defects. (Options 2, 3, 8, and 11)
5. Analyze the effects of various birth defects on cognitive, social, emotional, and physical development. (Options 2, 3, 5, 6, 9, 11, and 14)
6. Discuss the effect of environmental concerns on birth defects. (Options 2, 7, 12, and 13)

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**OVERVIEW/SUMMARY:** No two human beings have ever been exactly alike. Every human being is unique. This uniqueness is first established by the combination of the parents' genes.

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**INTRODUCTION:****GO FOR THE GOLD:** Have students complete the activity "GO FOR THE GOLD!"

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**LESSON OPTIONS/SUPPLIES:****OPTION 1**

**BOOK:** I Have a Sister and My Sister Is Deaf, Sesame Street Sign Language Fun With Linda Bore, ISBN #0-394-84212-X, Illustrator, Tom Cooke, Sesame Street Sign Language. ABC. The Cow That Went Oink, Bernard Most, IISBN # 0-15-220195-5.

**TEACHER NOTE:** Due to the nature of this topic, we have included two levels of difficulty in this lesson plan. Those options that are more detailed and advanced will be noted as such. Be sure to review your scope and sequence before planning which lesson to use.

**OPTION 2--Competencies 1, 2, 3, 4, 5, and 6**

**INTRODUCTION TO HEREDITY:** Let students use the booklets Birth Defects: The Tragedy and the Hope, March of Dimes, 1975 and 1986, to complete the worksheet "Introduction to Heredity."

**OPTION 3 (Basic)--Competencies 1, 2, 3, 4, 5, and 6**

**DISCUSSION:** Have students complete the "GENETICS/HEREDITY LISTENING GUIDE" as the teacher presents "Genetics/Heredity Discussion." It is suggested that you make a transparency of the key and cover all the questions. As the question is answered, slide the paper down to reveal the answer. Review all the questions.

**OPTION 4 (Advanced)--Competencies 1 and 2**

**HEREDITY WORKSHEET:** Have the following resources available for student use: March of Dimes information sheets, Genetics Counseling Booklet, Birth Defects booklet, and information in classroom text. Have the students complete the "Heredity Worksheet." Correct the worksheet in class and have students correct their wrong answers so they can study correct information for the test.

**OPTION 5 (Basic)--Competencies 1, 2, and 5**

**BIRTH DEFECTS DISCUSSION:** Discuss birth defects with the class. Have the class complete the "BIRTH DEFECTS CHART."

**OPTION 6 (Advanced)--Competencies 1, 2, and 5**

**GENETIC DISORDERS:** Divide the class into small groups. Assign each group a birth defect to read about and present to the class. Provide each group with the necessary information for its presentation. There are many resources available from March of Dimes and hospital education centers. As each birth defect is presented, have the students take notes on the chart "Genetic Disorders."

**OPTION 7--Competencies 1, 2, 3, and 6**

**HEREDITY OR ENVIRONMENT:** Have students complete the worksheet.

**OPTION 8--Competencies 1, 2, and 4**

**GUEST SPEAKER:** Invite a genetics specialist to come to class and talk about genetics, its role in birth defects, and procedures available to diagnose genetic problems and disorders.

**OPTION 9--Competencies 1, 2, and 5**

**GUEST SPEAKERS:** Invite parents of children with birth defects to talk to the class and answer questions from the students. Have them discuss the impact on the family from a child with a birth defect.

**OPTION 10--Competencies will vary according to the video seen in class**

**VIDEO:** Review the information "Complications of Pregnancy," then watch one of the following videos: "Cocaine's Children," "Fetal Alcohol Syndrome," "Genetics and Heredity," or "The One of Us," available through March of Dimes.

**OPTION 11--Competencies 1, 2, 3, 4, 5, and 6**

**THE FAMILY PROFILE:** Using the program "Ready, Set, Grow," have the students complete "The Family Profile." They will be expected to complete answers about their eye color, hair, ears, nose, skin, chin, and height. After determining the appropriate information, have them evaluate the predictions given by the computer program about their future children. Run a copy of the profiles, if possible. Have paired students draw a picture of their future child, as predicted by the program.

**OPTION 12--Competencies 1, 2, 3, and 6**

**RISK AWARENESS:** As students enter the class, give them a slip of paper with a birth defect listed on it (see teacher information, "Birth Defects"). Have students use the program "Ready, Set, Grow" to complete a profile. They can print their results and report their risk awareness to the class. They can then do additional research to find out more about each hereditary or environmental complication.

**OPTION 13--Competencies 1, 3, and 6**

**PLAYING IT SAFE IN PREGNANCY:** Use the program "Ready, Set, Grow" to review concepts dealing with how to promote healthy pregnancies and life. Items that can be reviewed are Toxins to Avoid, Drugs and Food to Avoid, and Other Things to Avoid.

**OPTION 14--Competencies 1 and 5**

**VIDEO:** If you did not use the video NATURE AND NUTURE in the Nurturing/Bonding lesson, you may wish to use it in this lesson.

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**RESOURCES:**

"Nature and Nurture," #ST 1135  
Films for the Humanities and Sciences  
P.O. Box 2053, Princeton, NJ 08543-2053  
800-257-5126 OR 609-275-1400  
FAX 609-275-3767  
52 minutes, \$89.95

Purple March of Dimes Book--Birth Defects

Children the Early Years. Chapter 3--Pregnancy

**VIDEO:** Alcohol and Pregnancy: FAS and FAE AIMS Media 1-800-367-2467, \$295

**READY, SET, GROW!**

Atlantis Software Company  
4 Buckingham Court  
Houston, TX 77024  
(713) 973-7810  
Macintosh Software  
Cost: \$41

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