BIOETHICS SCENARIOS

New biomedical technologies have brought about new ways to improve the lives and health of many people. With these new innovations also come new questions of how they should be properly used. Such things as stem cell research, artificial fertilization, transgenics, and gene manipulation to enhance characteristics or eradicate diseases have caused many researcher, government leaders, and ordinary people to think hard about what life is and what it means.

Below are a few examples of situations with possible ethical implications. These situations are adapted from the *Designing Babies* curriculum by Nancy Lapotin, Maggie Raczek, and Sue Ann Jones Dobbyn. You can use these to stimulate discussion among your students about what they would do and why if they were presented with these dilemmas. You and your students can also discuss examples from the news, such as cloning, human euthanasia, and stem cell research.

Down syndrome

Tracy is 11 weeks pregnant with her third child. She and her husband have two healthy children and are looking forward to another. She was not planning to have the amniocentesis procedure to test for fetal health problems because it carried with it the possibility of miscarriage. When her doctor told her about a new and safer testing method, a simple blood test and special sonogram, she gladly agreed. The test results showed that the fetus has a high chance of having Down syndrome. An extra 21st chromosome in the fetus results in Down syndrome, although the severity of the disorder cannot be determined by pre-natal testing. The severity of the disorder may range from no mental deficit to sever mental retardation. They show a greater incidence of hearing defects and congenital heart failure and have a life expectancy of 50+ years. They are also known to be affectionate, happy people with the potential for a fulfilling life. The doctor has brought up the possibility of aborting the fetus. Should Tracy abort the fetus?

Athletic enhancement

The year is 2025. Mary has worked hard her whole life to bring her family up out of poverty, but she still struggles. She has one child and is planning a second when she is given a unique opportunity to participate in a program allowing her to enhance her unborn son. Scientists can alter the gene that makes HGH (human growth hormone), significantly increasing the height of the child with low probability of side effects. Combined with a good chance of inheriting Mary's athletic ability, the child could become a professional athlete. Should Mary enhance her child?

Achondroplasia

Allen and Elaine have been happily married for several years and recently found that they are expecting a child. Elaine has achondroplasia, an autosomal dominant genetic disorder that causes dwarfism. Because the disorder is dominant any child of theirs has a fifty percent chance of being a dwarf. Elaine has decided to do genetic testing to determine whether the fetus has the gene for achondroplasia. This decision has infuriated many of Allen and Elaine's achondroplagic friends who value their unique culture. Elaine cares very much about her friends' opinion. What should Allen and Elaine do if the gene tests show that the fetus is carrying the gene for achondroplasia?

Huntington's Disease

Janice and James have one child already, and they are planning on having another baby. Janice's father, Moe, is 45 years old and was just diagnosed with Huntington's Disease, a genetic disorder that doesn't show up until later in life (35-50 years old). A person with the disorder has no symptoms until the onset of the disease, which starts out with clumsiness and motor skill decline, and progresses to full neurologic decline and death. There is no cure for this disease and it is autosomal dominant. This means that if one of your parents has the disease you will have a 50% chance of having it also. Janice and James's doctor has just informed them of 2 different types of tests that are available to determine whether a person is carrying the gene for Huntington's. The first test could be performed to tell if Janice or her son, Maurice, have the gene. The second test could be performed to tell whether or not an embryo that was formed by *in vitro* fertilization (IVF) has the gene. The prospective parents can then decide on which embryos to have implanted in the mother's uterus. It is assumed that they would choose an embryo that was free of the Huntington's gene. This procedure is very expensive, and there is an increased risk of miscarriage compared to a natural conception. What should Janice and James do?

Gender selection

Marina and Jason have three daughters. They only want to have four children and they would really like to have a son. They love all their daughters; they just really want to have a son also. Until recently, these desires would have to be left to chance. Physicians now have available a technique called PGD (Pre-Implantation Diagnosis). This allows physicians to screen embryos for a wide range of diseases, as well as for gender. The future parents can then decide which embryos they want to implant and which ones they don't want implanted into the mother's uterus. Any leftover embryos will be destroyed if they are not healthy or given to infertile couples so they can be implanted and hopefully brought to term. What should Marina and Jason do?

IQ enhancement

Greg smoked a lot of marijuana in high school and consequently has a very low sperm count. Julie and Greg will have to use artificial insemination if they want a child. Since a sperm donation will have to be placed in Julie anyway whether it comes from Greg or not, they are considering another option. They can afford to pay for sperm from the Mensa sperm bank. (Currently no such sperm bank exists, but sperm donors may identify themselves as Mensa members.) Mensa is an organization made up of people with IQs in the top 2% of the population. While the Mensa sperm donor increases the chances of having a child with a high IQ, it will not be Greg's biological child. Which sperm should they choose?