



Choosing the sex of babies: Ethical debate

This activity is designed to get students thinking about the moral and ethical implications of sex selection. The resources will encourage students to form their own opinion and share it with the rest of the class.

Key stage: 4

Curriculum links: KS4 Science - 4a) 4b)
KS4 Citizenship - 2a) 2c) 3a)
KS4 English - En1 3a) 3b) 3c) 3e)

Time scale: 50 minutes – 1 hour 20 minutes

Learning objectives

To understand that:

- Due to new developments in science, it is now possible for parents to select for a boy or a girl baby
- Sex selection can be achieved in one of three ways: sperm sorting; pre-implantation genetic diagnosis; and termination

To develop skills in:

- Considering other people's experiences, thinking about, expressing, explaining and critically evaluating views that are not their own

Materials needed

Provided in this document:

- Story cards (one set for each group, cut out and laminated)
- 'Agree' and 'Disagree' cards (one set for each group, cut out and laminated)
- Information sheet (one for each group)
- Question cards (one set for each group, cut out and laminated)

Not provided in this document:

- Large sheet of paper/card for each group
- Marker pens

Useful links in the Centre of the Cell website

- One cell made you
- Ethics section: Pre-implantation Genetic Diagnosis
- Patient's Journey: IVF



Useful links in other websites

http://www.bbc.co.uk/health/fertility/weeklyonlinedebates_one.shtml

http://news.bbc.co.uk/1/hi/uk_politics/5172602.stm

<http://news.bbc.co.uk/1/hi/health/3263151.stm>

Running the activity

Introduction (5 -10 minutes)

Introduce the idea that parents could select the sex of their baby before he or she is born. This has caused a lot of debate amongst scientists, religious people, doctors, politicians, and the general public. Today the class is going to imagine they are policy makers. What decision would they make on this subject?

Story Cards (10 - 20 minutes)

Split the class into groups of four or five. Each group is provided with:

- A set of Story Cards,
- An 'Agree' and 'Disagree' card
- An Information Sheet
- A large sheet of card/paper and some marker pens

In their groups, students take it in turns to read out one of the story cards. As a group they then have to decide whether they agree or disagree with what that person would like to do, and file each Story Card under 'Agree or 'Disagree'. They may find the Information Sheet useful. Encourage the students to listen to each others' opinions before making a decision. If they cannot come to a consensus it may be useful for them to put the card in a third 'undecided' pile.

Students can then make a record of their decisions on the card/paper.

Questions Cards (10-20 minutes)

Each group then receives a set of Question Cards. Again, students should take it in turns to read out one of the questions and then discuss their opinions.

Students can then make a record of their opinions and discussion on the card/paper.



Reporting decision to class (15-20 minutes)

Ask that each group to provide their answer to the question 'Do you think it is right for parents to choose whether their baby will be a boy or a girl before the baby is born?'

Each group should present their opinion, along with their reasons, to the rest of the class.

Conclusion (10 minutes)

Students to think about their class's opinions. If they were policy makers could they come to a consensus? What would their decision be?



Centre of the Cell

Tom and Laura

Tom and Laura are desperate for their next child to be a boy. They already have three girls and they lost their son Michael in an accident when he was three. Although they know that they could never replace Michael, they want to use IVF treatment to make sure their next child is a boy.



Centre of the Cell

Aleesha

Aleesha is single and wants to have a baby using a sperm donor. As her baby would not have a father, and therefore would not have a male role model, she wants to use sperm sorting to make sure her baby is a girl.



Centre of the Cell



Centre of the Cell

Nasir and Fatima

Nasir and Fatima have a two-year-old son with Duchenne Muscular Dystrophy (DMD). Boys with DMD develop weak muscles, and most die before they reach the age of 30. This disease is inherited and caused by a gene on the Y chromosome. This means that usually only boys can get it. Nasir and Fatima want to use sperm sorting to make sure their next child is a girl.



Centre of the Cell

John and Mandy

John and Mandy are a married couple having problems getting pregnant. After many tests at the hospital, they discovered that Mandy cannot conceive naturally and so they are receiving IVF treatment. John and Mandy would like to screen their embryos before they are implanted to make sure they have a boy.



Centre of the Cell



Centre of the Cell

Agree

Disagree



Centre of the Cell

Choosing a baby's sex

In the UK it is illegal for parents to choose the sex of their baby unless it is for medical reasons.

How does sex selection work?

Currently there are three ways in which parents can select if their baby is a boy or a girl before they are born.

1) Sperm sorting

Sperm sorting involves separating sperm depending on whether they have an X chromosome (which would produce a female embryo) or a Y chromosome (which would produce a male embryo). Sperm sorting takes place before fertilisation but some doctors are concerned that could cause health problems for the baby. Sperm can be sorted in two ways: by weight (sperm with X chromosomes weigh more than those with Y chromosomes), or by using a fluorescent dye which binds to DNA so that the sperm can be separated by using a laser.

2) Pre-implantation genetic diagnosis (PGD)

When a couple have a baby using in vitro fertilisation (IVF), eggs taken from the woman's ovaries and sperm taken from the man are placed in a petri dish and incubated overnight. The sperm fertilise the eggs to create embryos. The healthiest two embryos are selected and transferred to the woman's uterus.

Using pre-implantation genetic diagnosis (PGD) to select for sex involves taking a cell from the 2 day old embryo before it is transferred into the woman, and looking at its DNA to see if it is a boy or a girl. This way, only embryos that are the desired sex are implanted.

3) Termination

It is possible that a couple who wish to choose the sex of their baby could get pregnant naturally, and then have a termination (abortion) if the baby is the 'wrong' sex.



Centre of the Cell

Do you think we should change the law to allow parents to choose whether they have a boy or a girl baby?

Imagine if your mum and dad had had the choice about whether you were a boy or a girl. How do you feel about that?

If you have a brother or a sister do you wish they were the opposite sex? If your Mum or Dad had another baby would you ask them to have a boy or a girl if you could?

If you have a baby – would you like to have a boy or a girl?