



# genetic enhancement

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## Table of Contents

Introduction .....	2
<i>Zoe Marsh</i>	
Biotechnology: A Social Norm .....	3
<i>Anna Jensen</i>	
Contribution .....	4
<i>Meghan Smith</i>	
DNA Art .....	5
<i>Anna Jensen</i>	
The Science Behind Genetic Enhancement .....	6
<i>Zoe Marsh</i>	
Enhancement in Eugenics .....	7
<i>Anna Jensen</i>	
Nature of Humanity .....	8
<i>Meghan Smith</i>	
Money Issue .....	9
<i>Meghan Smith</i>	
The Price of Enhancement .....	10
<i>Jullian Gloster</i>	
Designer Babies .....	11
<i>Jullian Gloster</i>	
The Morals of Genetic Enhancement .....	12
<i>Zoe Marsh</i>	



## Welcome to a World of Genetic Enhancement

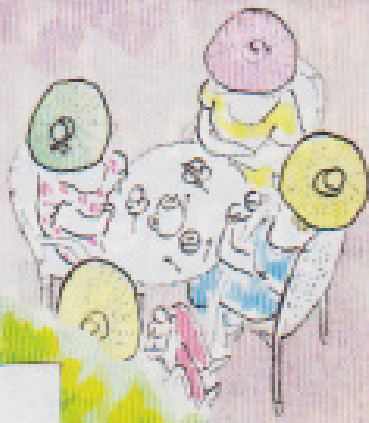
What color hair will you give your child? What color eyes? Will you make them smarter? Faster? Taller? Naturally, you want to give your child all the advantages that you possibly could. Welcome to a world where you can.

It's all in the genes. If we can map the genetic code of our gametes we can preview the genotype of our children, which becomes information on their phenotype. Though it may seem far fetched, the first step has already been taken. It is now possible to choose the sex of our children by choosing embryos that have the desired sex genes for your child. It is possible that the same process could work with any other trait.

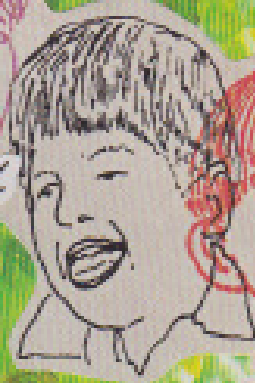
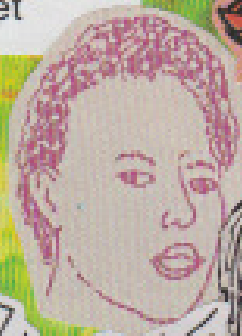
The technology is both praised and scolded. While it opens many doors for the future, it also raises questions about the technology's morality. Is it fair for the parents to make such heavy decisions? Where do we draw the line? These questions are not so easily answered. It requires us to look at both sides, consider the long term effects, and weigh the rights of the parents along with the future of the child. However, before addressing any of these questions, we must first ask ourselves, "is genetic enhancement just?"

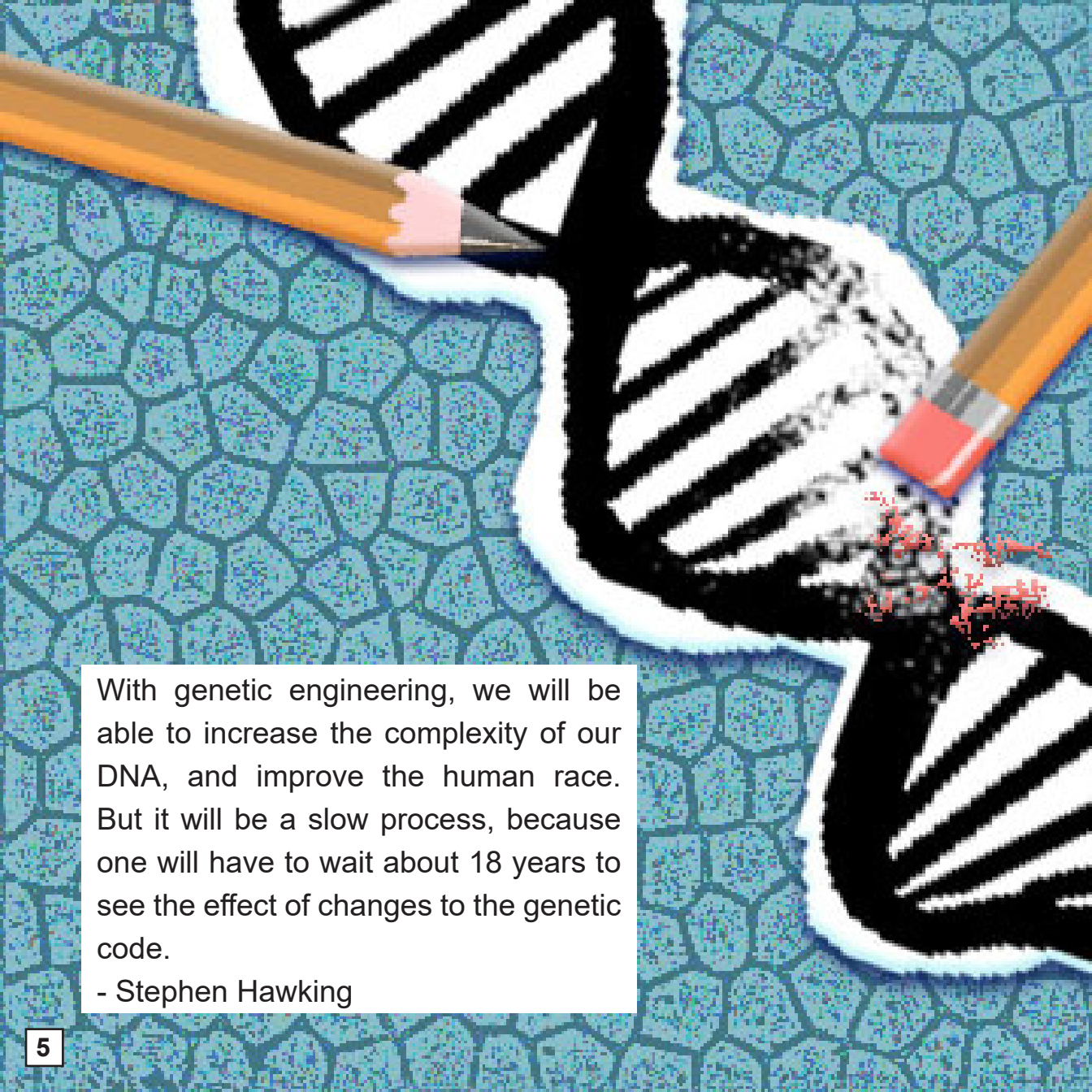
## Biotechnology: A Social Norm

The year is 2108, biotechnology has become a social norm, where almost everyone is biologically enhanced. Basketball players are taller, soldiers are stronger, and scientists are smart enough to take over the world. One young woman, Margaret, is one of the few without an enhancement. It had been a tradition in her family for years: to not partake in the enhancement fad. She wasn't going to give in now. When her job revolves around dealing with enhanced soldiers, this can be a bad thing. As Margaret quickly learned, people without enhancements are looked down upon, and quickly seen as incapable of everything. This lack of inclusion doesn't help the fact that Margaret is a total feminist. At least she knows that no one else's opinion of her doesn't matter and her friends don't care either.



contrition  
consummate intellect  
infatuated with the norm  
indifferent to regret





With genetic engineering, we will be able to increase the complexity of our DNA, and improve the human race. But it will be a slow process, because one will have to wait about 18 years to see the effect of changes to the genetic code.

- Stephen Hawking

## The Science Behind Genetic Enhancement

Modifying our DNA is no longer something of science fiction. It is now possible to edit our genetic sequence in both somatic cells and germline cells. In both types of cells this process happens through vectors. A vector is system of transporting genes, which comes in the form of either a plasmid or virus. To modify a genetic sequence, a desired section of DNA is copy and pasted into a vector. It is then put into cells where the vector will insert the desired section of DNA into the nucleus of the cell. This DNA will be used to create new proteins, which will also could create new traits, through the cells natural process of central dogma.

This technology is classified under two categories - gene therapy and gene doping. Though the science is the same, the users of this technology change the purpose, and therefore the title. The name gene therapy is used when it is used for medical purposes, such as treating a disease. On the contrary, it is called gene doping when it is used for athletic reasons. The purpose often changes the moral of each situation, so should we limit the uses of genetic enhancement technology?

## Enhancement in Eugenics

Some people looking to get genetic enhancements are looking to perfect their genes in some way or another. This implies that superior and inferior genes exist, that there are perfect genes. The idea that there is a set of perfect genes relates to the pseudoscience of eugenics. Eugenics was a popular theory that arose in the early 20th century and was the belief that there were good and bad genes. This led to the discrimination of certain groups of people based on race, physical features, etc. This is commonly known as the science behind the Nazi party. Their ideals of the perfect nordic race with blue eyes and blond hair did not, however, start in Germany. Many extreme ideals originated in the United States, when selected breeding and forced sterilization were culturally normal and acceptable.





nature of humanity

race: life's lottery  
professing superiority  
afraid; ignorant

RENÉE



SERVE NOTE  
3269 A

**80%**  
Confident

# MONEY

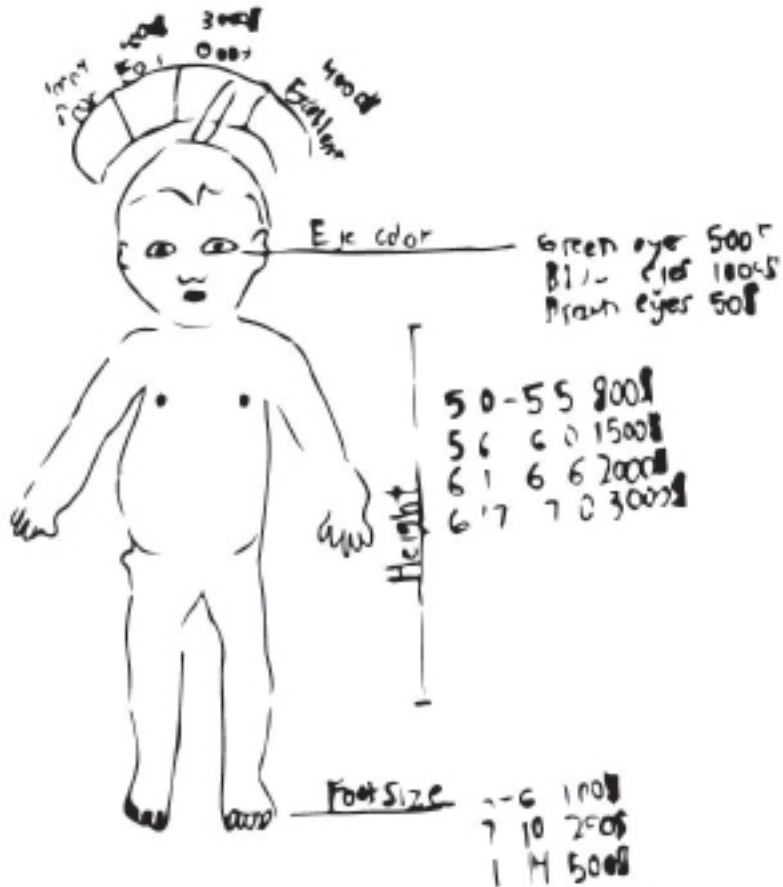
## Issue



## The Price of Enhancement

You have no control of what you're born into. That is the natural lottery. All parents want their children to have a bright future, but no one turns out perfectly. That's where enhancements come into play. If you want your child to be a basketball player, you could genetically enhance them to be tall so they have a better chance of succeeding. This process is very expensive, therefore underprivileged families could not afford this. This means the only people who would have access to enhancements are the rich. The advantaged would become more advantaged, leaving the less advantaged behind. What would happen if we lived in a world where half of the population was perfect and the other half were born through the natural lottery? That would only further separate the rich and the poor. If one person can't genetically enhance their child, nobody should be permitted to.

Intelligence  
Meter



## **The Morals of Genetic Enhancement**

Is genetic enhancement just?

One side of the argument is a strong no. Technology such as genetic enhancement encourages the drive to mastery of the human condition. The need for mastery is synonymous with the need to control, however we should not need to control everything in our lives. We should be able to accept the circumstances that come upon us, even if they do not always match up to what we were hoping for. When this happens to us, it teaches us humility, a virtue of humanity. The drive to mastery is a negative mindset, it doesn't allow us to appreciate giftedness of life.

The opposing side of the argument is one that believes genetic enhancement should be pursued. In the past and present, by mastering and understanding the nature around us, we have progressed and created new technologies that have improved our quality of life. Similarly, if we are to use genetic enhancement technologies, we will reap greater benefits. The use of enhancement technologies is fair because they serve as a direct solution to achieving desired goals.

## **Glossary**

Eugenics: the study of or belief in the possibility of improving the qualities of the human species

Forced sterilization: the process of permanently ending someone's ability to reproduce without their consent

Gamete: a mature sexual reproductive cell (sperm or egg)

Genotype: the genetic sequence that codes for proteins

Germline cells: cells in the earliest form of development

Humility: a modest view of one's own importance

Natural lottery: privileges that are gained by chance

Phenotype: the genetic code that codes for your physical traits

Plasmid: a ring of double-stranded DNA

Pseudoscience: a collection of beliefs or practices mistakenly regarded as being based on scientific method

Somatic cells: mature cells in the body



# Genetic Enhancement

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