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**Class: TTO 4y**

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This essay/article is written on behalf of Mr. Ruifrok for the unit Cell Biology and Reproduction. The global context chosen for this essay is *Identities and relationships* because this essay about designer babies addresses the questions: *Who am I, and who are we?* What is ethically, and morally responsible, and what are our responsibilities as humans?

**Designer babies**

Designing and changing a baby when it still is an embryo, might be possible in the near future. Having a baby with two persons from the same gender, deciding if you want a boy or girl and having a baby with three parents is already possible I some countries. This has led to heated discussions and debates all over the world and there still are a lot of different opinions. What is going to happen when we soon can choose how our babies look, what their personalities will be like, how smart they are etc.? The possibility of genetic manipulation in embryos with developing genetic technologies has challenged our idea of what is ethically correct and incorrect.

In the past, we were left to nature if it was about the genetics of humans and babies, but this has already changed and will keep changing rapidly. The genetic manipulation of embryos is not allowed and completely possible yet, but scientists are well on their way of developing these techniques and make them available and safe to use. This is a very. Some might say, why not? If we can make sure that our children will most likely not get any genetic inherited diseases, and they will become smart with nice personalities, why would we prohibit this? But this is not a commonly shared vision. Most people and critics argue that the diversity of our humanity will disappear, the difference between higher and lower class will become even bigger and it will have dangerous and ethically unacceptable consequences. For example, in countries like China and India, this technology would most likely be abused to create much more boys than girls. So this future technique is a controversial topic, with probably more opponents than proponents.

Scientists have not been able to make all of these technologies completely possible, yet. There still is a long way to go before something like designing you own baby will be possible, but there already are genetically modified embryos. The technology to fertilize egg cells in a test tube, outside the mother’s body, is called IVF (InVitro Fertilization), which allows doctors to screen and test the embryos. That is done with a technique called PGD (Pre-Implantation Genetic Diagnosis). It is a bit more complicated to change the genes of an embryo, but it can be for example done with the CRISPR technology, which is the most precise way to replace specific parts of the DNA. For example in order to prevent certain diseases, they could replace the “ill” gene, with “healthy” one. This only is possible in theory yet, but it has already been successfully tested on rats and monkeys. These three technologies together are a huge start on making designer babies, but it is not completely possible yet.

So if the time comes where we would be able to design our own babies, what would be the consequences? There are a lot of positive effects that this could have on society. Many genetic inherited diseases could be prevented before the child is born, such diseases could be banned for any later generations. Furthermore, society could become a lot more intelligent and positive. Like this, there are many more benefits, but can they outweigh the negative? Firstly, the selecting of the embryo might not work correctly and, when denying a embryo based on a possible heart disease, we must remember that a life is thrown away, based on a chance. And secondly, the society will change a lot. Companies might select their employees based on their genetic health and there may become major inequalities between the “normal” babies and the “designer” babies. So there is a lot of good, as well as bad to say about this topic.

Concluding, designer babies probably are something that becomes possible in the near future, and where we have got to deal with in an ethical way. This might seem simple at first, but there are a lot of both positive and negative consequences that this complicated technology could have. In addition, not everyone will come to the same conclusion, as it is an incredible difficult scenario and we have never experienced something like this before. And even though this could have some great effects, as it now there would be many negative and immoral consequences, so there first have to be made clear rules and restrictions too safely put this in practice.

**Sources**

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**Rubric**

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| **Learning objectives** | **First level** **(1-2)** | **Second level** **(3-4)** | **Third level** **(5-6)** | **Fourth level** **(7-8)** | **Score** |
| 1. **Explain the ways in which science is applied and used to address a specific problem or issue**
 | Outline | Summarize | Describe | Explain |  |
| 1. **Discuss and evaluate the various implications of using science and its application to solve a specific problem or issue**
 | Outline | Describe | Discuss | Discuss and evaluate |  |
| 1. **Apply scientific language effectively**
 | Apply with limited success | Sometimes | Usually apply | * Consistently
* clearly and precisely
 |  |
| 1. **Document the work of others and sources of information used**
 | With limited success | Sometimes | Usually | Completely |  |

* **Level 1-2**
	+ **Outline:** Give a brief account
* **Level 3-4**
	+ **Summarize:** Abstract a general theme or major point(s)
* **Level 5-6**
	+ **Describe:** Give a detailed account or picture of a situation, event, pattern or process
	+ **Discuss**: Offer a considered and balanced review that includes a range of arguments, factors or hypotheses. Opinions or conclusions should be presented clearly and supported by appropriate evidence
* **Level 7-8**
	+ **Explain:** Give a detailed account, include causes and reasons
	+ **Evaluate**: Make an appraisal by weighing up the strengths and limitations