

Goals:

- Familiarize students with the current state of gene editing
- Discuss the ethical implications of the ability to identify and create “designer babies”

Introductory Activity:

- Scientists have developed new technologies for genetic screening. Parents can find out some genetic information about the fetus while it’s in the womb, or about an embryo before it’s even implanted, if the parents are using IVF. And they can choose not to have the baby – to abort the fetus, or not implant the embryo (in IVF) if they get bad news. (from NYU lesson plan)
 - The connection between genes and traits is not straightforward or 100% predictive, but let’s assume for the sake of this exercise that we can choose and predict
- Baby buffet - students build their ideal offspring by selecting 6 traits from the following list
 - Pick gender and 2 traits from each column: health, personality/intelligence, physical traits
 - Print out 8 copies of the lists so that students can circle their desired traits

Male/female

Physical Traits	Health	Personality/intelligence
<ul style="list-style-type: none"> ● Blue eyes ● Blonde hair ● Brown eyes ● Red hair ● Tall ● Short 	<ul style="list-style-type: none"> ● Low risk of diabetes ● High risk of asthma ● High lung capacity ● Nut allergy ● Low risk of depression ● High risk of addiction 	<ul style="list-style-type: none"> ● Analytical skill ● Excellent writer ● Introvert ● Extrovert ● Artistic ● Musical ● Athletic

- Everyone goes around and shares what traits they chose
 - Why did you choose the traits you did? Did everyone choose similar traits?
- What would the world look like if you could choose the traits in your child like this?
 - Is it a better or worse world? Why?
 - If it’s a worse world, is it unethical to continue with the research that would develop this technology?
 - If it’s a better world, are we obligated to continue developing gene editing technology

Discussion:

- If you had the opportunity to “build” your child like you just did, would you do it?
- Can perfection be harmful even though the word typically has a good connotation?
 - Would you want to make your baby as perfect as possible?
- Consider the possibility of identifying and safely eliminating mutant genes that cause rare diseases. Is this different from building a designer baby? How?

- And the case of couples using preimplantation genetic diagnosis (PGD) when they know they carry genes from specific inherited diseases so that they can identify embryos that don't have those genes
- How would this affect attitudes towards people with disabilities?
- How does the responsibility of a parent for the child change if they "chose" some of their child's character traits?
 - If one of the traits backfires, would it be the parent's "fault"?
- Is gene editing "unnatural"? If so, what ethical implications does using that term have? (often it can have a negative connotation and if they say this, try to get the students to discuss *why* unnatural is bad)
- How might the introduction of designer babies express or reinforce pre-existing social conditions in the world? (If, for example, those who can afford designer babies can make "more perfect" and healthier children)
- "Our ability to love one another with all our imperfections and foibles outweighs any notion of 'improving' our children through genetics." -R Alta Charo, law professor and bioethicist (from Guardian article)
 - What do you think about this quote? How would genetic improvement affect the notion that people love their children "unconditionally"?