

Luck of the Draw

Genetics Card Game (June, 2011 version)

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Main Deck (Blue): Trait Cards

Bonus Deck (Yellow): Genetic Engineering Cards

Die

HOW TO PLAY:

The Main Deck is shuffled.

The cards of the Bonus Deck are displayed, face-up, on the table. There are multiple copies of each type of card.

The dealer deals five trait cards from the main deck to each player. After looking at his or her hand, each player can discard up to three cards, which are kept in a stack in front of the player. (There should be enough cards to accommodate ten players but, if in doubt, allow only two discards per person.) The dealer then deals fresh cards so that each player is holding five trait cards.

Next, each player throws the die and multiplies by ten to see how many points he or she can spend on bonus cards, and picks out the bonus cards he or she wishes. The player need not spend all bonus points.

When all players have chosen their bonus cards, each person lays out the cards from his or her hand, and the cards from his or her discard pile. Each player explains why he or she rejected each of the discarded traits. The player explains why he or she chose his or her bonus cards, which traits are being modified by the bonus cards (if relevant), and how the various traits will work together.

At this point, the hand can be concluded in any of several ways, including:

- Each player talks about whether he or she would be comfortable raising a child with these traits, and why.
- Each player talks about whether an individual with these traits would make a good / bad / indifferent avatar in a simulation game.

- The players can vote on which individual has the best collection of traits.
- Tell the players they are the owners of a company marketing embryos. They need to determine which embryos to market and which to hold back, knowing that they have made an investment in each of these embryos. How much would they disclose about these embryos? (By the way, selling body parts – including embryos -- is illegal in the U.S.)

If there is time, play more than one round.

Next, talk about the following:

1. In some deals, you might get mostly physical traits, and not many personality or talent traits. In other deals, you might get only personality or talent cards.

- Do the things you know about seem more important than the things you don't know about? How do they shape your view of the person?
- Were there traits you would have kept, if you had known what your second deal would bring?
- If we can test for only some genetic conditions, do these conditions become “too important” in relation to the rest of the person?
- Are some traits so bad that they outweigh all the good traits?
- Are some traits so good that they outweigh all the bad traits?

2. Genetic testing makes it possible to know some of a baby's traits before birth. Should we allow this? Which traits should be tested for?

- Should genetic testing be allowed for all traits, good or bad?
- Should genetic testing be allowed only for harmful traits?
 - How harmful must they be?
 - Who decides?
- Should people be able to end their pregnancies based on test results?
 - Should this be allowed only for some traits and not for others?
 - Who decides?

3. Genetic engineering may make it possible in the future to change a person's traits. Should we allow this?

- If so, what traits should we be able to change?
 - Should we only repair damage?
 - What do we define as “damage?”
 - Should we allow changes that make good traits even better?

- Some traits would have to be changed very early in pregnancy, and changing them might cause other problems. Should this be allowed?
- Should we allow changes that are passed on to future generations?
 - If so, why?
 - If not, why not?

3. Think about the fairness of this game. Some players get good traits to start with, and then maybe get a high roll of the die and even better traits. Some players get not-so-good traits, and then maybe get a low roll of the die and can't change the traits.

- Do you think the rules should be changed to give everyone a more even chance?
- If so, how would you change the rules?
- In the real world, some people get lucky in the traits they are born with, and some are unlucky. The amount of money a family can spend on education and health care can change what happens to the lucky and the unlucky people.
 - Should people be able to buy as many changes as they can afford?
 - Should the inventors be able to charge as much as they want?
 - Should this technology only be used to help the people who are worst off?
 - How would you make it work?

FINALLY:

Remind all players that:

- (a) The traits on the blue cards are a mix of real genetic conditions (*e.g.*, cystic fibrosis, eye color) and conditions with at best minimal genetic contribution (*e.g.*, computer skills.)
- (b) The environment in which a person lives can make a huge difference in that person's health, personality and skills. A person's genetic potential is only the springboard. A bright mind can be poisoned by lead or damaged by an accident. A person with a genetic risk for diabetes may never develop it if she eats a healthy diet and gets regular exercise.
- (c) We have not figured out how to safely alter a person's genes. Only a couple of genetic conditions can be modified by adding a working gene to the person's cells, and even if successful, the added genes don't completely cure the person.

GREAT RESOURCES FOR FURTHER STUDY

Online Mendelian Inheritance in Man (OMIM)

<<http://www.ncbi.nlm.nih.gov/omim>>

A compendium of genetic conditions in humans, combining clinical and molecular reports. Narratives are updated regularly; the most recent information appears last under each entry.

Image Archive on the American Eugenics Movement

<<http://www.eugenicsarchive.org/eugenics/>>

This website, produced by Cold Springs Harbor Laboratories, explores the systematic use of pseudo-science for social engineering in the first part of the 20th century. Topics include forced sterilization and the Buck v. Bell case, the influence of U.S. geneticists on Nazi eugenics policies, and commentary by Dr. Kay Redfield Jamison on her professional and personal experience with bipolar disorder.

Dolan DNA Learning Center

<<http://www.dnalc.org/>>

Another Cold Springs Harbor product, this interactive website featuring interviews, animations, games and rich resources for teachers. Topics include molecular genetic biology, laboratory techniques, history of the human genome project, ethical & social issues in genetic medicine.

National Human Genome Research Institute (NIH)

<<http://www.genome.gov/Issues/>>

Issues in Genetics

This site provides foundational information and outlines unresolved legal, social and ethical issues in human genetics.

GATTACA (1997) Written & directed by Andrew Niccol, this film starring Ethan Hawke, Uma Thurman and Jude Law is set in a future in which the world is divided between people who have been genetically improved, and people who have not. W. French Anderson, a lauded (and troubled) geneticist, served as the technical advisor.