Shuffling the Deck—The Card Game of Life

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This simple card game illustrates the basic principles of Mendelian genetics including the concepts of heredity, independent assortment, and variation.

Preparation

You will need one deck of cards (sorted by number) per 8 students.
Hint: Select decks with different designs or colors patterns for ease of sorting later.

The Rules

Each number represents a genetic trait.
Each color represents an allele; Red is dominant, black is recessive.
There are two phenotypes

- Red & red = homozygous dominant condition (dominant trait expressed)
- Black & black = homozygous recessive condition (recessive trait expressed)
- Red & black = heterozygous condition (dominant trait expressed)

Jokers/Aces can be introduced to represent mutations that occur and are passed along.

Assign characteristics to each number.

Example:

Dominant Trait	Recessive Trait	Playing Card
Roll Tongue	Non-Roller	2
Free Ear Lobes	Attached Ear Lobes	3
Dimples	No Dimples	4

Divide students into teams with two players each.

Deal the cards.

Give each student three pairs of cards (Each pair = two homologous chromosomes). Each member of the pair will represent an allele on the homologous chromosome. Example:
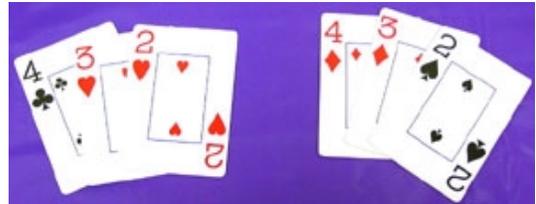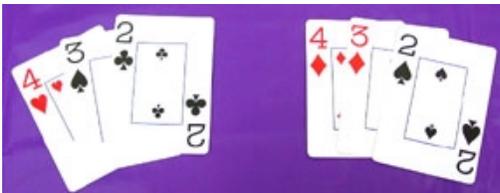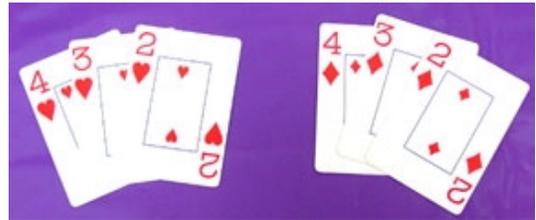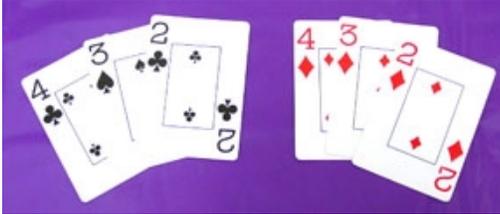
Student 1	2♥	2♣
	3♦	3♥
	4♠	4♣
Student 2	2♠	2♦
	3♣	3♠
	4♥	4♦

Play the Card Game of Life

1. Student 1 leads one card from each pair to put into the **"Genetic Pot."**
2. Student 2 plays a card of equal value, regardless of suit, against the cards that were lead by Student 1.
3. Students record what was played into the **"Genetic Pot."**
4. Determine traits of offspring.

Examples of Possible Combinations:

5. Switch partners with others that have the same numbers. Student #1 can use the "Genetic Pot, and Student #2 can use the unselected traits. Point out that sexual reproduction aids in variation.