SNAIL EVOLUTION GAME

BACKGROUND INFORMATION

A huge tidal wave has washed away a small population of colourful land snails, and they have ended up on a small island. There are only white and black rocks on the island but there is also enough food for the snails. Unfortunately, the island is also inhabited by a bird species that feeds on snails. The birds can spot the snails only by using their sight.

During each generation, some snails are washed away by tidal waves (by **chance**). The birds feed on snails that are the easiest to spot on the rocks (**natural selection**). Those who survive, can reproduce and produce viable offspring (**fitness**). After many generations, it is possible to see a change in the average colour of the snails (**microevolution** and **speciation**).

Image: H. Zell, CC-BY-SA 3.0

QUESTIONS BEFORE THE GAME

- What kind of snails might survive on the white rocks? What about black ones?
- What kinds of changes might happen after many generations?
- Explain the **bolded** concepts.

EQUIPMENT

- Snail cards (48 pc.)
- Black and white cardboard (A4 or A3)
- Two players

INSTRUCTIONS

Before game:

- Choose either a black or a white board.
- Take all snail cards and shuffle them. Place them next to the board (blank side up). This is the snail card deck.
- Player 1: Waves and birds
- Player 2: Snails

1. Player 2: Choose 24 cards from the snail card deck.
2. Player 1: Some snails are washed away. Remove ¼ of the cards. Keep the blank side up.
3. Player 2: Place the remaining snail cards on the board (image side up).
4. Player 1: The predator (bird) takes 1/3 of the remaining snails, based on their colour (the most visible ones).
5. Player 2: The remaining snails are able to reproduce. A snail breeds with the nearest snail (these snails are hermaphrodites!). A pair of snails produce four offspring in the following way:
   - A Two offspring with the same colour than their parents.
   - B Two offspring whose colour is the average of their parents.
   - C Remove the parent snails and place the offspring on the board. Place the parent cards in the snail card deck (image side facing down).

Repeat the process (2–5) at least two times.

QUESTIONS AFTER THE GAME

- What kind of snails became extinct on the black or white rocks? What is the reason for this?
- Do you know any real life examples of natural selection?
- What is the effect of chance on evolution?