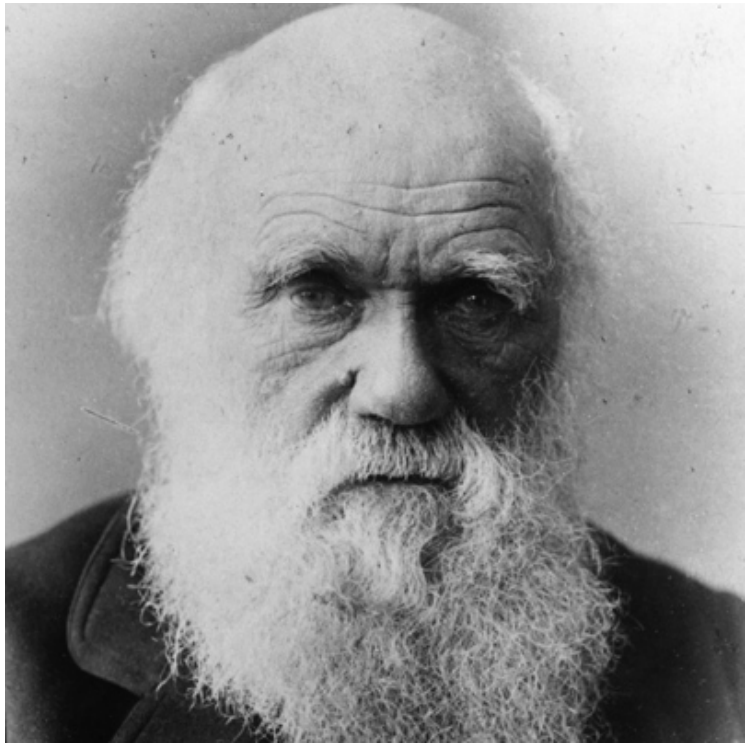
Survivor: A Game of Traits and Natural Selection

2018-2019 VINSE/VSVS Rural

IA. Introduction

- Why is Charles Darwin so important?
- Concluded that organisms changed over time to better survive in their specific environments.
- "I have called this principle, by which each slight variation, if useful, is preserved, by the term Natural Selection." - Charles Darwin, *On the Origin of Species*

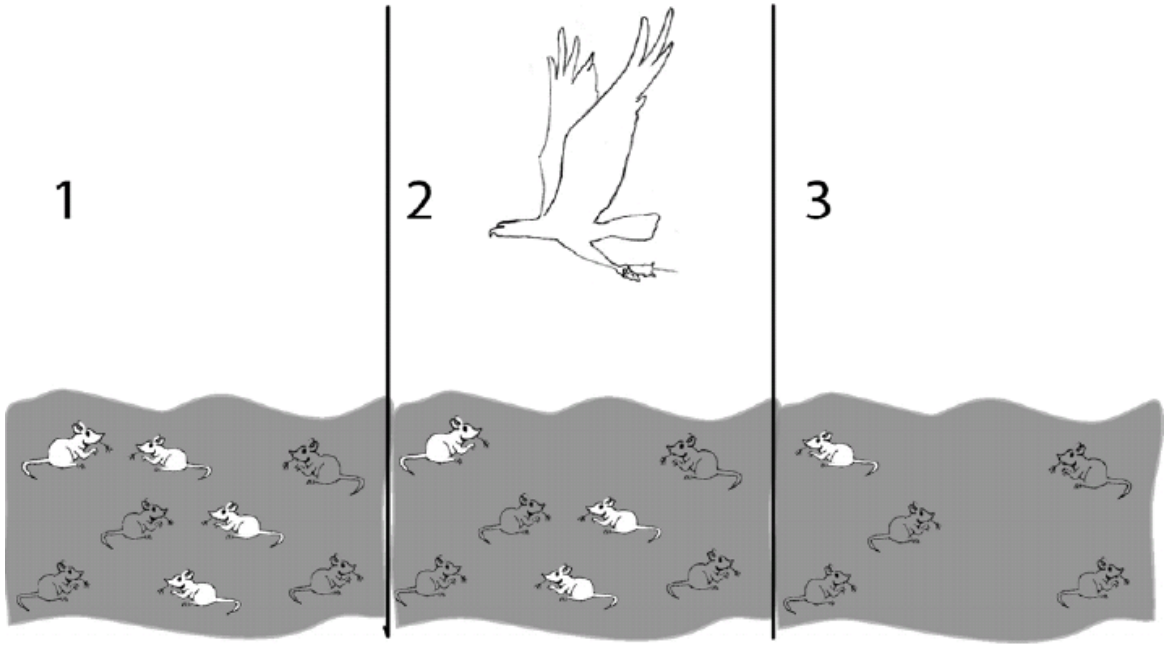


IB. Traits

- Traits are the physical characteristics you have
  - Differ between people
  - Influenced by your genes and environment
- Traits naturally have different forms, called variations, caused by differing genes

IC. Natural Selection

- Some organisms have traits that allow them to better survive in their environment. The organisms that manage to survive then reproduce, passing on the genes for their advantageous traits to their offspring.
- If a gene leads to a trait that gives a significant enough advantage to the organism, then the organisms with that gene will eventually out-populate those without the gene
- This is why people describe the theory of natural selection as “the survival of the fittest”.



II. Create a Creature

Turning this…

into this

Note: Structured Fun

- Students are not allowed to create custom creatures
- VSVS members are to ensure that all creatures fit one of the eight descriptions
- Example: Creature 1

Trait	My Creature's Variation
Leg Length	Long
Wings	Wings
Foot Shape	Webbed
Tail Length	Short
Arm Length	Long
Antenna Shape	Knob
Antenna Length	Long
Beak Shape	Trumpet
"Hand" Shape	Claw
Ear Shape	Elephant
Skin Color	Blue
Eye Color	Green

III. Natural Selection in Action

- Organisms with advantageous traits are more likely to survive and pass on those traits to their offspring
- Peppered Moths
  - These trees used to be white, giving the white moths camouflage from predators
  - Pollution has blackened trees, giving an advantage to the darker moths

IV. Survivor Game

- All teams start with no chips.
- Scenarios will be read **in order** by VSVS members
  - Students will receive a green chip when their creature successfully reproduces, and a red chip when it does not.
  - At the end of the game, those with more red chips than green chips have gone extinct, while those with more green chips than red chips will live on.

Creature 1
score= -1
Leg - Long
Wings
Foot - Webbed
Tail - Short
Arm - Long
Antenna - Knob
Antenna - Long
Beak - Trumpet
Hand - Claw
Ear - Elephant
Skin - Blue
Eye - Green

Creature 4
Score = -1
Leg - Long
Wings
Foot - Webbed
Tail - Short
Arm - Short
Antenna - Star
Antenna - Long
Beak - Crusher
Hand - Paw
Ear - Mouse
Skin - Blue
Eye - Red

Creature 5
Score = -7
Leg - Long
No wings
Foot - Webbed
Tail - Short
Arm - Short
Antenna - Knob
Antenna - Long
Beak - Trumpet
Hand - Claw
Ear - Mouse
Skin - Purple
Eye - Red

Creature 7
Score = -1
Leg - Long
No wings
Foot - Talon
Tail - Short
Arm - Long
Antenna - Knob
Antenna - Short
Beak - Trumpet
Hand- Claw
Ear - Mouse
Skin - Purple
Eye - Red and green

Creature 2
Score = 3
Leg - Short
No wings
Foot - Talon
Tail - Long
Arm - Long
Antenna - Star
Antenna - Long
Beak - Crusher
Hand - Paw
Ear - Elephant
Skin - Red
Eye - Red

Creature 3
Score = 9
Leg - Short
Wings
Foot - Talon
Tail - Short
Arm - Long
Antenna - Star
Antenna - Short
Beak - Crusher
Hand - Claw
Ear - Elephant
Skin - Red
Eye - Red and green

Creature 6
Score = 7
Leg - Short
Wings
Foot - Talon
Tail - Short
Arm - Long
Antenna - Star
Antenna - Long
Beak - Crusher
Hand - Paw
Ear - Mouse
Skin - Purple
Eye - Green

Creature 8
Score = 22
Short
Wings
Talon
Long
Long
Star
Long
Crusher
Claw
Elephant
Purple
Green

Analysis

- Pass out Handout 1 to groups and tell them that:
  - all creatures with negative scores (and therefore extinct) are on the 1st row
  - all creatures with positive scores (and therefore alive and thriving) are on the 2nd row.
- Tell students to look at the pictures AND their tally sheet and ask which traits were the most advantageous to survival?

IV. Review Concepts

- Ask students which creature they think will survive in the future
  - It should be those that have faired the best in the past
- Who was Charles Darwin, and what did he contribute to our understanding of nature?
- What are traits?
- What does this have to do with natural selection and evolution?
- Clean up
  - Make sure that all of the creature pieces are back in the boxes
  - There are eight creatures in total