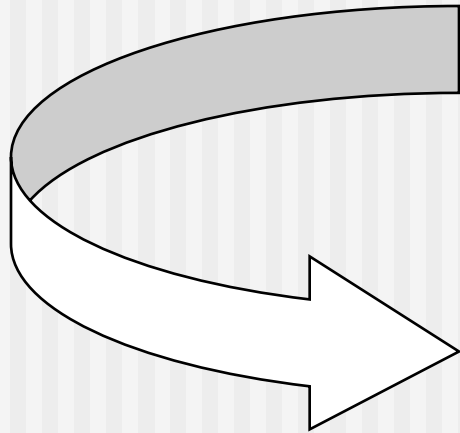


What we know about Evolution:

- **Different** species were alive in the past then are alive now
- Living things are **related**
- Living organisms are **descended** from species that lived in the past
- Living organisms have a **common ancestor**

How does EVOLUTION occur?



How do species
change over time?

Natural Selection

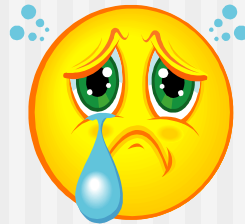
Natural Selection

- **Overproduction** of babies
- Genetic **Variation**
- Struggle to **Survive**
- Successful **Reproduction**
- Changing **Environment**

Natural Selection

1. Overproduction

- Lots of babies!
(overproduction)
- More babies are born than will survive



Natural Selection

1. Overproduction



- Why do you think organisms have so many babies?
- The more offspring something has, the more likely it is that some of them will survive!



Natural Selection

2. Genetic Variation

- **Individuals** within a species are **different** from each other



Natural Selection

2. Genetic Variation

- Individuals within a species are different from each other



Natural Selection

2. Genetic Variation

■ Genetic Traits



Eye Color
Hair Color



Acquired Traits



Hair Length



Natural Selection

2. Genetic Variation

- Which type of trait can be inherited from your parents?

Genetic Traits

Natural Selection

2. Genetic Variation

- If you dye your hair red and get a perm, are these genetic or an acquired traits?



Acquired Traits

Natural Selection

2. Genetic Variation

- Some combinations of genetic traits increase the chance that an individual will survive and reproduce: these traits can become ADAPTATIONS!
- Some combinations of genetic traits decrease the chance that an individual will survive and reproduce
- Many genetic traits neither increase or decrease the chance of survival

Natural Selection

3. Struggle to Survive

- There is not enough **food, water, space etc.** for all individuals to survive
- Some individuals are **killed** by other organisms
- Only some individuals **survive** to become **adults**

Natural Selection

3. Struggle to Survive

- Organisms that DO make it have **genetic traits** that **help** them survive in their environment
- These traits give them **an “edge”** over other members of their species.
- Individuals that survive to become adults might have the opportunity to **reproduce** and pass on their **genes!**

Natural Selection

4. Successful Reproduction

- The individuals that have most **helpful genetic traits** will survive and **reproduce!**
- They pass these **genetic traits** on to their offspring!
- Individuals with fewer helpful (**or harmful**) genetic traits will die early or will **produce fewer offspring**

Natural Selection

5. Changing Environment

- Habitats do not always **stay the same**
- **Helpful** traits in one habitat might be **harmful** in a new habitat – or they **might not matter!**
- Can you think of an example?
 1. Pick a species
 2. How are members of the species different?
 3. How might those difference matter?
 4. What if the environment changed?

Practice Example: Giraffes

