READING MATERIAL

Read About the Reproduction of Living Things

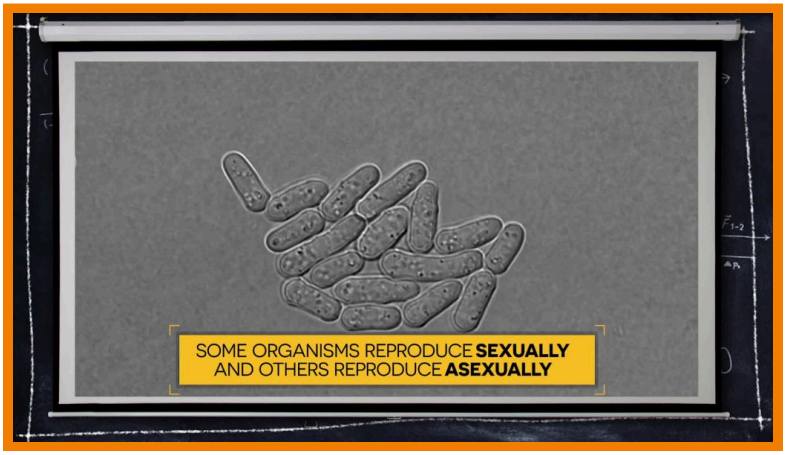
WHAT IS THE REPRODUCTION OF LIVING THINGS?

Reproduction occurs when an organism (living thing) makes a copy of DNA and produces an offspring. All living things on Earth are a process of reproduction.

To better understand the reproduction of living things...

LET'S BREAK IT DOWN!

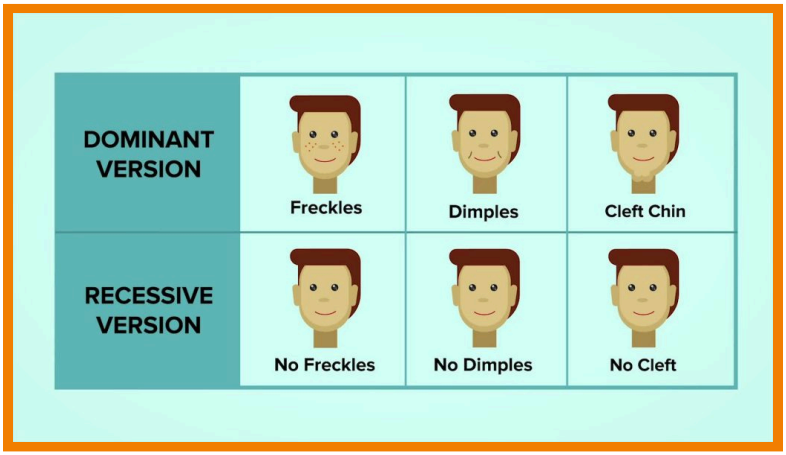
There are two types of reproduction.



The two main types of reproduction are asexual reproduction and sexual reproduction. In asexual reproduction, an organism passes a copy of all of its DNA to its offspring, creating a genetically identical individual. In sexual reproduction, two parents each contribute a copy of half of their DNA. Those copies are recombined in the offspring to create a genetically unique individual.

Different versions of genes affect the traits that are produced.

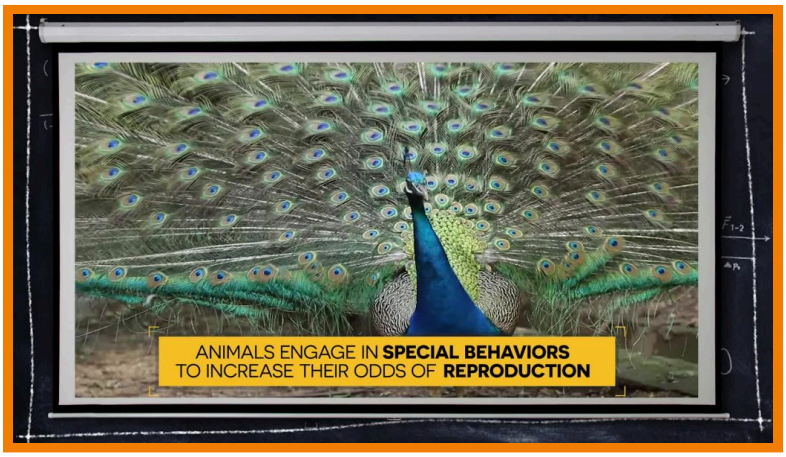
Genes are sections of DNA that control our traits, like our eye color or height. Genes often have different versions, which are called alleles. Alleles can be dominant (need only one copy of that version to produce a trait) or recessive (need two copies to produce a trait).



The probability of showing traits can be predicted.

In sexual reproduction, half of an offspring's DNA comes from one parent, and half comes from the other parent. If you know what versions of a gene the parents have for a certain trait, such as curly hair, you can predict the odds of the version of the trait their offspring will have. For instance, if both parents give a dominant allele of a gene to their offspring, the offspring has a 100% chance of showing the dominant form of the trait for that gene.

Living things go to great lengths to increase their chances of reproducing.



The ultimate goal of reproduction is to pass genes on to offspring, so living things work hard to increase their chances! Some living things use behavioral strategies, which are actions they choose to perform. A frog croaking a mating call, a bird building a nest, and a pufferfish making a pattern in the sand are all examples of behavioral strategies. Structural strategies are features an organism has, such as the colorful petals of a flower, the pouch of a kangaroo, or the light-weight seeds of a dandelion.

Scientists called geneticists study genes.

Geneticists are scientists who study many different aspects of genes. Some geneticists study how genes are passed down, or inherited, from parents to offspring. Others research how different versions of genes produce traits and why different versions might be dominant or recessive.

REPRODUCTION OF LIVING THINGS VOCABULARY

Asexual reproduction When a parent organism produces offspring with identical genetic information.

Sexual reproduction When two parents combine their genetic information to make an offspring.

Chromosome A coiled-up section of DNA.

Fertilization	The combination of two specialized sex cells.
Gene	A section of DNA containing instructions for making a specific protein.
Allele	A version of a gene.

REPRODUCTION OF LIVING THINGS DISCUSSION QUESTIONS

What is the difference between sexual and asexual reproduction?

In sexual reproduction, genes from two parents are recombined in their offspring. Asexual reproduction requires only one parent; the parent and offspring share identical genetic information.

What information can a Punnett square give us about an offspring's traits?

A Punnett square can find the probability of an offspring expressing its parents' traits.

What might be some advantages of sexual and asexual reproduction?

(Answers may vary.) Asexual reproduction can be much faster because only one parent is needed. Recombining genes in sexual reproduction can create genetic variation.

What is the difference between a dominant allele and a recessive allele?

A dominant allele needs only one copy to produce a trait, whereas a recessive allele needs two of the same copies.

Why do living things go to great lengths to increase their chances of reproduction?

Reproduction passes genes down from parent to offspring, ensuring the offspring's survival.

What are some examples of adaptations that animals have for improving their chances of reproduction and offspring survival?

Some examples are male weaver birds building amazing nests, a male bullfrog making deep croaks, a male pufferfish making patterns in the sand, a female octopus guarding her eggs, a kangaroo protecting her young by keeping them in her pouch, and penguin mothers hunting for days for food for their young.