

Topic 1 - Biological Diversity and Survival

What does the term **biological diversity** refer to?

What are the main **components** of biological diversity?

Explain the difference between **structural and behavioral adaptations** with examples of each.

Explain why it is important to preserve the species of the **Pacific Yew Tree**.



What is the value of **variation**?

Describe how biological diversity is **measured** within a specific area (ecosystem).

Topic 2 - Habitat and Lifestyle

Explain what is included in an organism's **niche**.

Illustrate **resource partitioning** in the spruce tree illustration and briefly explain what warbler populations would be affected directly, if lightning hit the top part of the tree. (p. 18)



Why is there **little diversity and large populations** in Northern Canada and **high diversity with small populations** in Central and South America?

Explain the difference between the **type of niche** specialists and generalists have.

Specialists _____

Generalists _____

Give an example of each type of **symbiotic relationship**.

Commensalism _____

Mutualism _____

Parasitism _____

Interspecies competition _____

Explain how different species can survive in each of the **extreme environment** samples below.

Ocean Floor

High Arctic

Desert

Topic 3 - Passing It On

Briefly describe the difference reproductive processes that can occur asexually.

Binary Fission

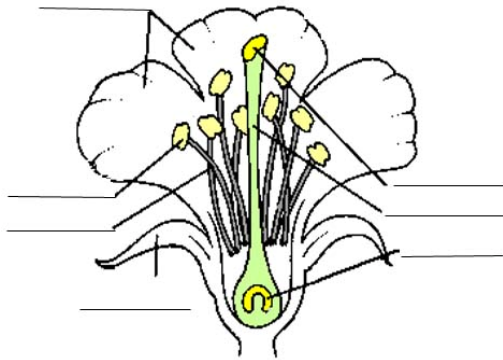
Asexual Spore Production

Cuttings

Budding

In what other ways can **asexual reproduction** occur?

Explain the process of **sexual reproduction** in plants and label the **parts of the flower**.



Explain the process of **sexual reproduction** in animals.

Explain the process of **conjugation** in bacteria.

Topic 4 - Wearing Your Genes

Explain the difference between the 2 different kinds of inherited variation.

Give 2 examples of **dominant traits** and 2 examples of **recessive traits**.


Certain characteristics are **non-inherited** and depend on factors other than genetics. Explain how these characteristics can be identified in a particular population of organisms living in the same environment.

Explain what **mutations** are and what can cause them.

Topic 5 - When Plans Change

Outline how **DNA** was discovered.

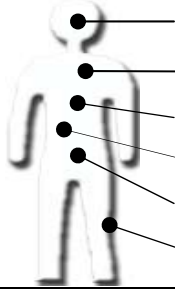
Illustrate the **chemical structure of DNA** that was modeled by James Watson and Francis Crick.



What is the **genetic code**?

What enables **DNA** to have so many variations with only 4 chemicals?

Different human cells (**somatic cells**) have different life spans – fill in the table.

	Brain cells	_____
	Red blood cells	_____
	Stomach lining cells	_____
	Liver cells	_____
	Intestine lining cells	_____
	Skin cells	_____

Explain the detailed process this illustration demonstrates



Some organisms can reproduce sexually and asexually. Explain the advantages and disadvantages of each process.

	Advantages	Disadvantages
Asexual Reproduction	_____	_____
	_____	_____
Sexual Reproduction	_____	_____
	_____	_____

Explain how **biotechnology** can increase or decrease variation.

Describe some of the **positive effects** of biotechnology.

Describe some of the **negative consequences** of biotechnology.

Illustrate a **Punnitt Square** (outlines possibilities in offspring)

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Identify the **Classification system** used by biologists to identify specific organisms.

K_____

P_____

C_____

O_____

F_____

G_____

S_____

How did Carolus Linnaeus determine a **naming system** that would enable scientists around the world identify specific organisms?

Topic 6 - The Best Selection

Explain the drawbacks of the process of **Artificial Selection**.

Explain what occurs during the process of each type of **artificial selection technique** below.

cloning _____

artificial insemination _____

in vitro fertilization _____

genetic engineering _____

Identify the purpose for the **selective breeding** of the following ...

Western Red Spring Wheat _____

Canadian Western Durum _____

Canola _____

What did Charles Darwin observe on the Galapagos Islands?

Darwin explained his **theory of natural selection**, which could be summed up in four statements:

Topic 7 - The Sixth Extinction

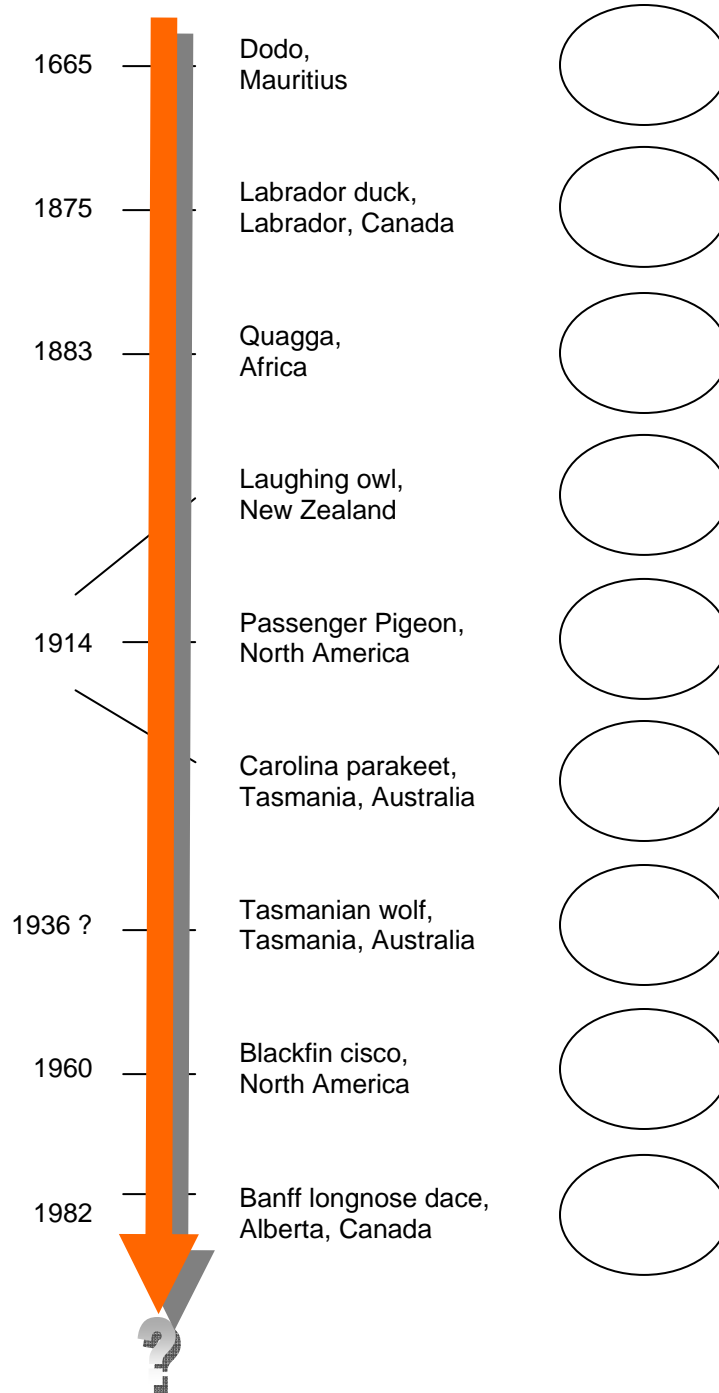
Identify different ways that **natural extinction** can occur and give examples of species lost as a result.

How does **overspecialization** cause extinction?

Explain the difference between **extinction** and **extirpation**.

What human activities can have an impact on species populations?

Illustrate Some Recent Species Extinctions



What is the most recent species that has become extinct?

What caused it to become extinct?

Topic 8 - Pains and Gains

How do **zoos** preserve biodiversity?

What are some organizations doing to **preserve plant species** and avoid species extinction?

Explain the difference between **ex-situ** and **in-situ conservation programs** to preserve biological diversity around the world. (Give examples)

What **strategies** are used to preserve biological diversity in Canada?
