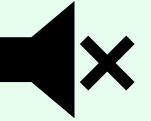


# Title: Competition and Adaptation    17/11/2020

Do-now:

Answer these Q on your whiteboards.



1. What causes genetic variation?
2. Complete the Punnet Square:

**Genetic mutations**

	<b>N</b>	<b>n</b>
<b>n</b>	<b>Nn</b>	<b>nn</b>
<b>n</b>	<b>Nn</b>	<b>nn</b>

If narrow eyebrows are **recessive (n)** what is the probability of the offspring having narrow eyebrows?

**50%**

Lesson Title

Competition and Adaptation

17/11/2020

Learning Intent

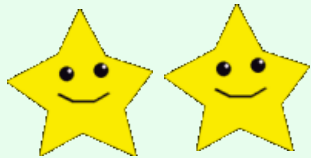
What is the role of competition and adaptation in evolution?

Success Criteria



Identify a range of adaptations for animals and plants

3



Explain how the adaptation aids the organism's survival

4



Explain how long term environmental change results in evolution or extinction

5-6

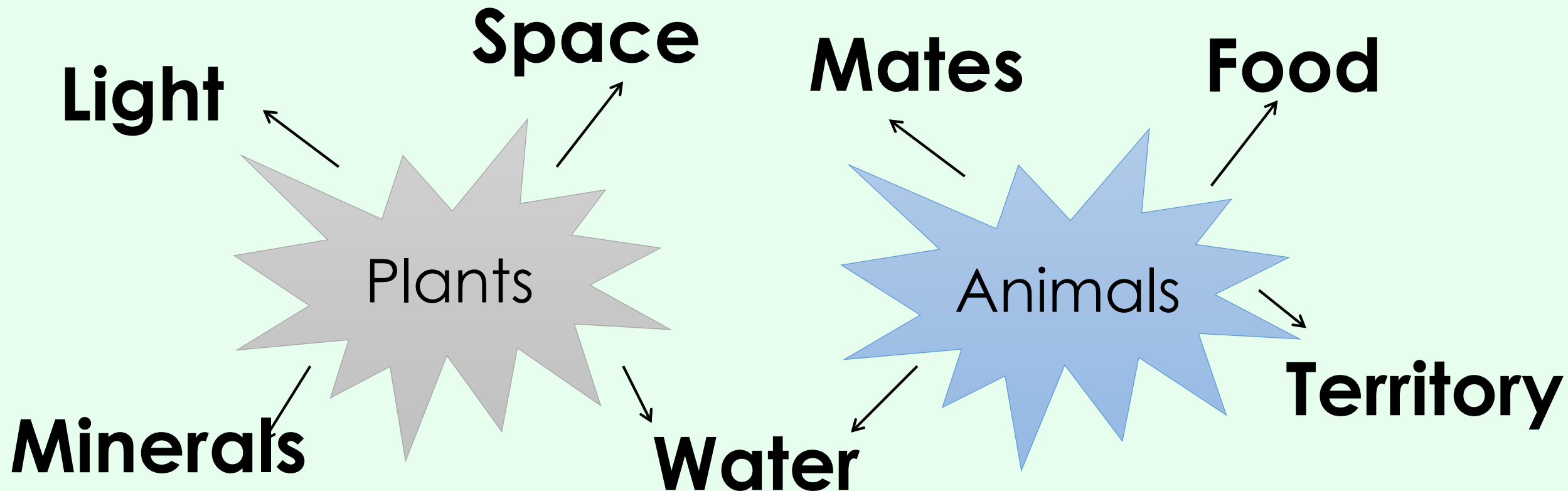
L1: Give examples of resources that organisms compete for.

Thinking time



Plants and **animals** have adapted so they can **survive** in their habitats.

In your books, draw two mind maps of things plants and animals **compete** for.



**Extension:** Can you think of factors that **humans** compete for?

L1: Give examples of resources that organisms compete for.

New learning

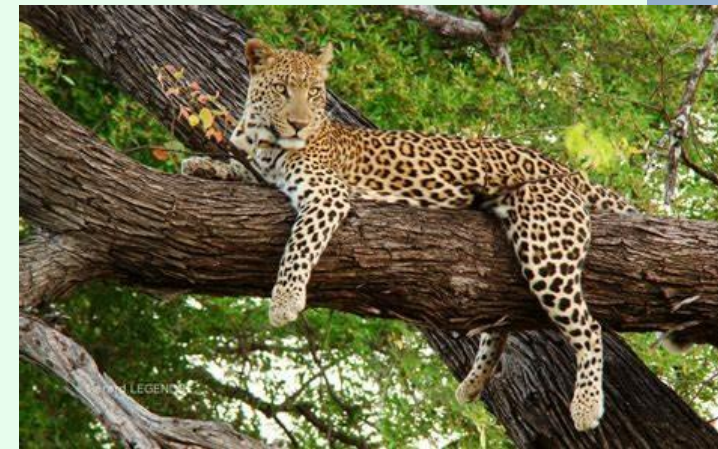


Within a species  
**Intraspecific**



**Competition**

Between species  
**Interspecific**





What are these finches competing for?

Why are their adaptations important?

Small ground finch  
*Geospiza fuliginosa*



**Habitat:** Ground  
**Food:** mainly small sized seeds, but also buds, flowers leaves, occasional insect.

Cactus ground finch  
*Geospiza conirostris*



**Habitat:** Ground  
**Food:** cactus.

Woodpecker finch  
*Camarhynchus pallidus*



**Habitat:** Trees  
**Food:** mainly grubs and insects.  
**Details:** uses tools like cactus needles to prize out grubs.

Medium ground finch  
*Geospiza fortis*



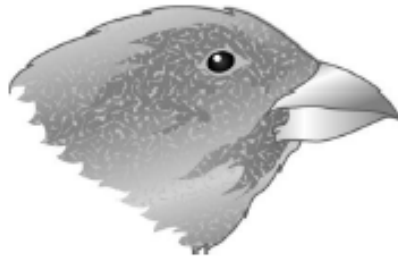
**Habitat:** Ground  
**Food:** mainly medium sized seeds, but also buds, flowers, leaves, occasional insect.

Vegetarian tree finch  
*Platyspiza crassirostris*

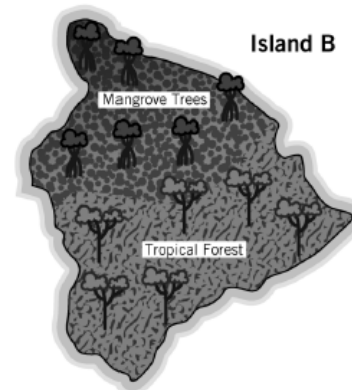
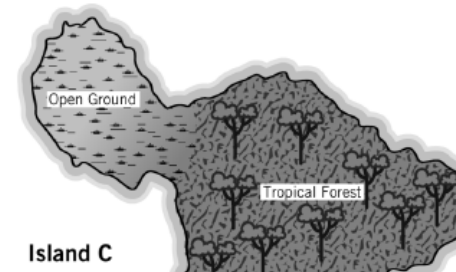
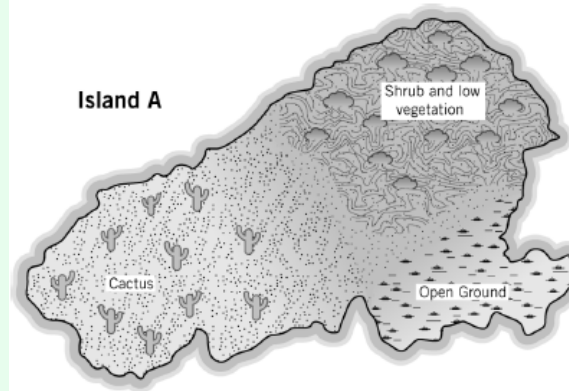


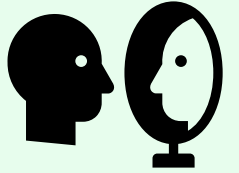
**Habitat:** Trees  
**Food:** seeds, buds, flowers leaves, occasional caterpillars.

Mangrove finch  
*Camarhynchus heliobates*



**Habitat:** Trees  
**Food:** mainly medium sized insects, larvae and spider, and some vegetable materials from mangroves.





### Recap of natural selection

In a **large** population of a species there is always **variation** in characteristics. Organisms **compete** with each other for resources. Some of the individuals have characteristics which are better **adapted** to their environment. These individuals are **more** likely to survive. They will breed and pass their **genes** onto the next generation. This is **natural** selection.

#### KEY WORDS:

VARIATION	NATURAL	LARGE	COMPETE
ADAPTED	MORE	GENES	

Pick a question and answer it.

1. Why do animals compete with each other?
2. Name 4 things that plants compete for.
3. Name 4 things that animals compete for.

End



# L1/2: Identify and explain the importance of adaptations

On your whiteboard, write a way this is adapted to its habitat.

Large **claws** and teeth – enable it to eat seals

**White fur** so its enable camouflage from prey

**Slightly webbed feet**, enable it to swim long distances



**Large paws** to spread its mass over ice

Thick layer of **blubber and fur** to insulate it from cold water/wind

**Small ears** to reduce heat loss

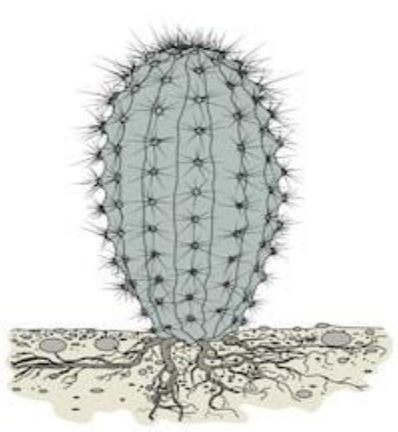




# L1/2: Identify and explain the importance of adaptations

Task:  
Identify key structures on the organism, explain why the adaptation is important (at least 2 animals and 2 plants).

Organism	Adaptation (structure aiding survival)	Why is this structure important?
Aye aye		
Cactus		



Extensive shallow roots near the soil surface  
**absorb water from rainfall**

Silvery colour to reflect sunlight, **reduce water loss**

Many spikes **to deter predators and reflect sunlight**

No leaves **to reduce water loss**

Thick waxy stem that **can expand and store water**

Sugary sap on the rim,  
**to attract prey.**

Slippery ledge and walls  
– **prey fall into the pitcher.**

Releases digestive juices, **to digest insects**

Cells that can survive with high levels of salt, **able to live by the sea**

Tall root system **to anchor and lift above tide**





Able to change colour **to suit surroundings – prevent detection**  
 Long projectile sticky tongue **to catch prey**  
 Slow movement **to prevent it from scaring prey**



Finely tuned hearing and eyesight **to detect prey beneath thick layer of snow.**  
 Fur colour matches the tundra all year round, **avoid detection**



**Hump to store fats for when food is in limited supply**

Large padded feet **to spread out the mass over a larger area**  
 Large eyelashes **to prevent sand damaging eyes**



Large muscular head **to break through thick snow**  
 Thick fur and fat layers **to act as insulation**  
 Short/small ears – **reduce heat loss**

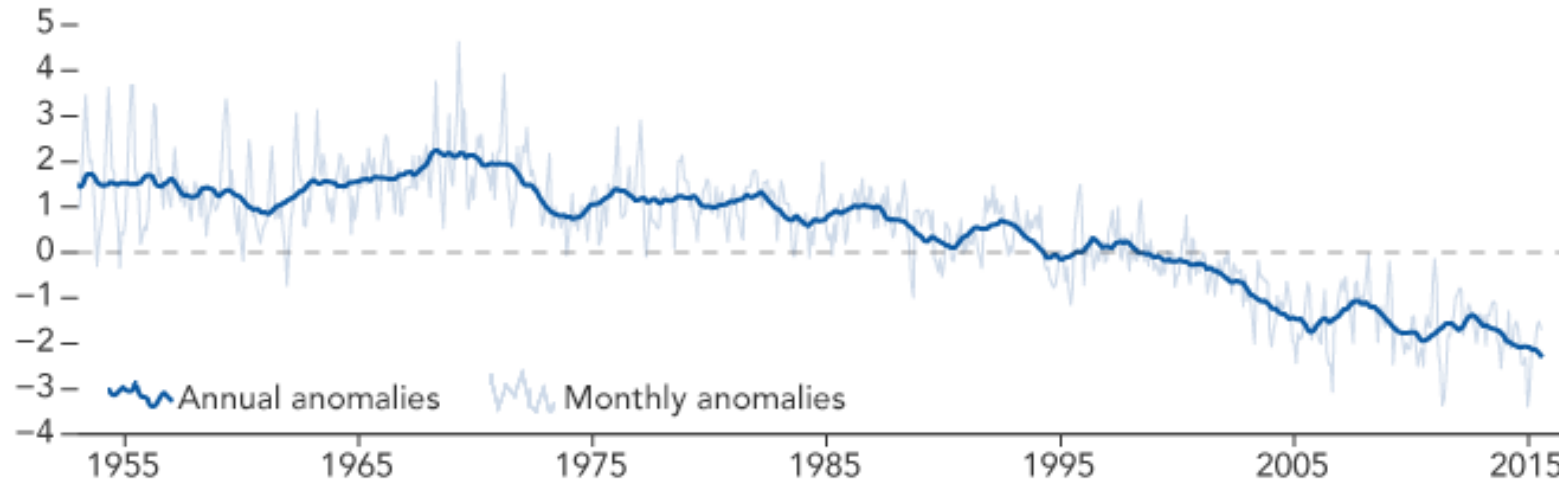
Long tail **to allow stabilisation when jumping between branches**

Modifies fingers **to pull out grubs from within tress**

Finely tuned hearing **to detect prey within trees**



**Arctic Ice Extent Anomaly**  
(Number of standard deviations from 1981-2010 baseline)



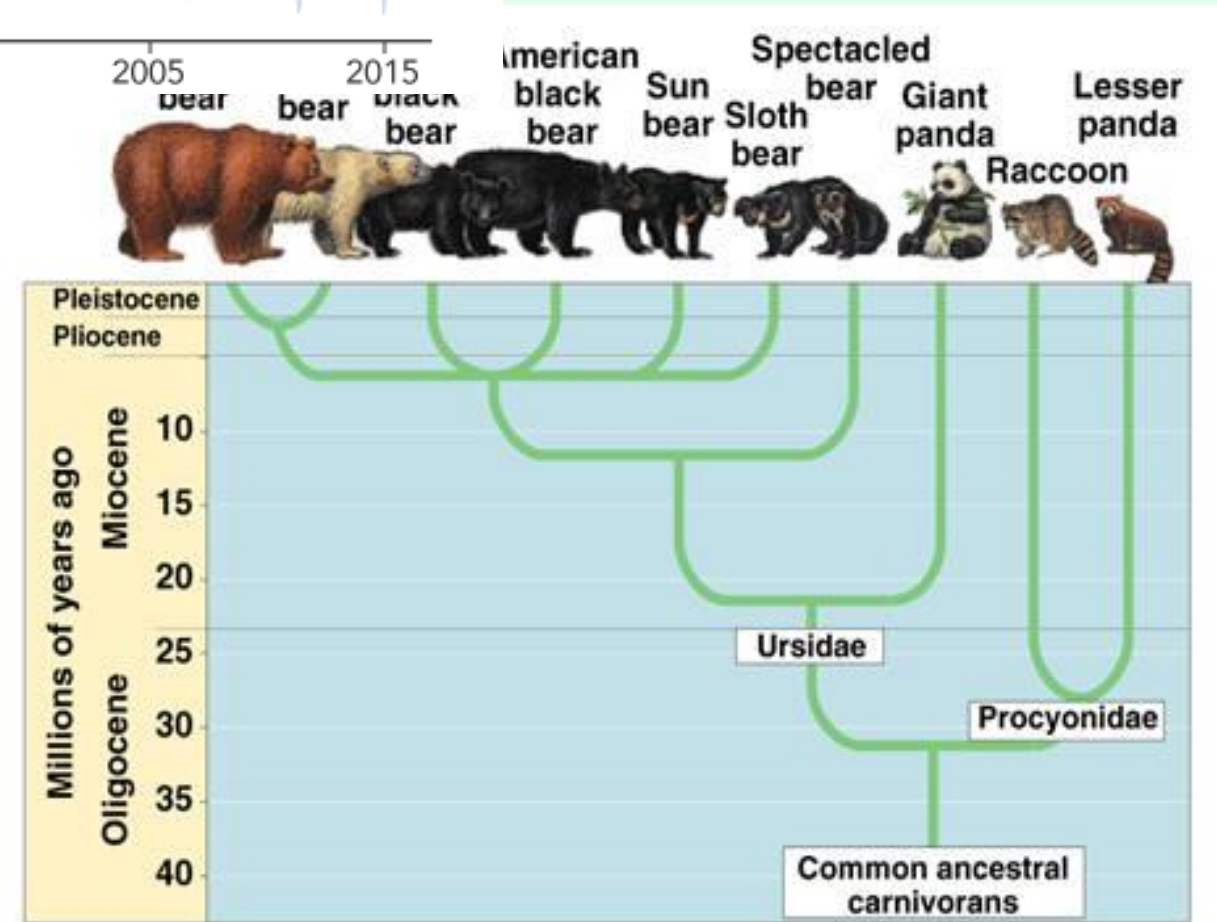
ars was

bears then?

**Variation** (mutations) → **Survival**  
→ **Reproduction**.

Over millions of years =  
**Evolution**

... So all we need is the polar  
bears to turn black again ... not  
so simple ...





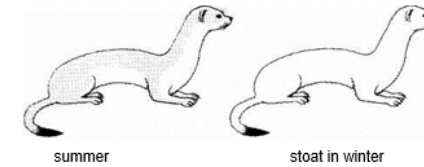
# L1/2: Identify and explain the importance of adaptations

Task:  
Complete the exam questions.

Stick into your books.



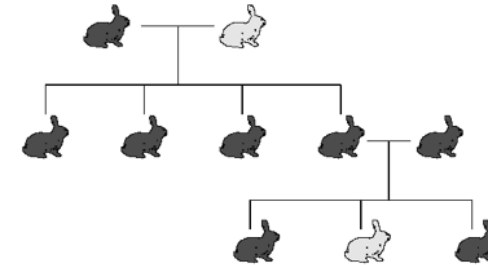
Q1. (a) The drawings below show a stoat in summer and in winter.



In winter the ground is often covered by snow or frost. During this part of the year a stoat's fur is white. Suggest **two** ways its white coat helps a stoat to survive in the winter.

.....  
.....  
..... 2 marks

(b) The diagram shows the family tree for a family of rabbits.



Use words from the list below to complete the sentences.

adapt    cytoplasm    genes    grow    inherit  
letters    membrane    mutate    nuclei

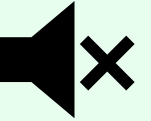
Rabbits have the same fur colour all year round. Young rabbits  
..... fur colour from their parents. Information about fur colour  
is passed on from one generation to the next in the form of ..... In  
the ..... of an egg and sperm. 3 marks

# Title: Preserving Biodiversity

17/11/2020

Do-now:

Answer these Q on your whiteboards.



1. Name the male and female sex cells. **Sperm and egg**
2. What is the function of the mitochondria?

**Release energy during respiration**

3. Explain what happens during natural selection.

**Organisms with the advantageous genes are more able to survive and reproduce and pass on their genes.**

Lesson Title

**Preserving Biodiversity**

17/11/2020

Learning Intent

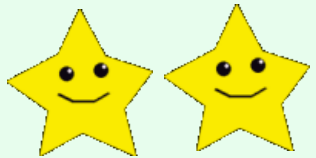
Why is biodiversity essential for life on Earth?

Success Criteria



Give examples of why biodiversity is important

3



Describe how biodiversity can be maintained

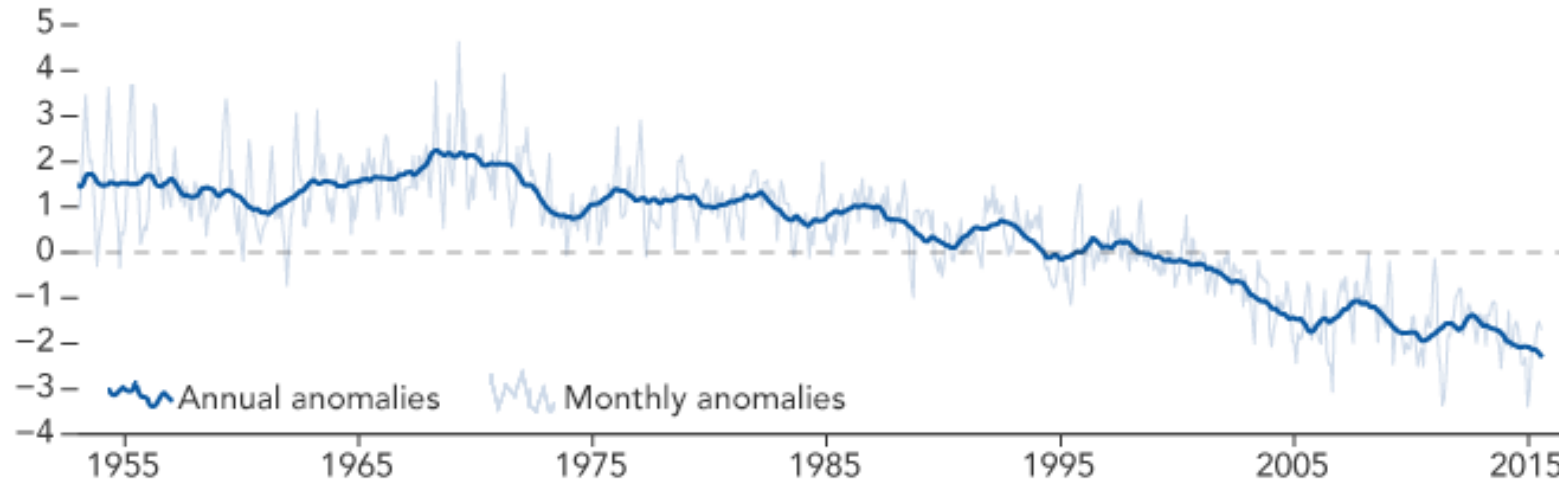
4



Evaluate some of the advantages and disadvantages of conservation strategies

5-6

Arctic Ice Extent Anomaly  
(Number of standard deviations from 1981-2010 baseline)



ars was

Thinking time

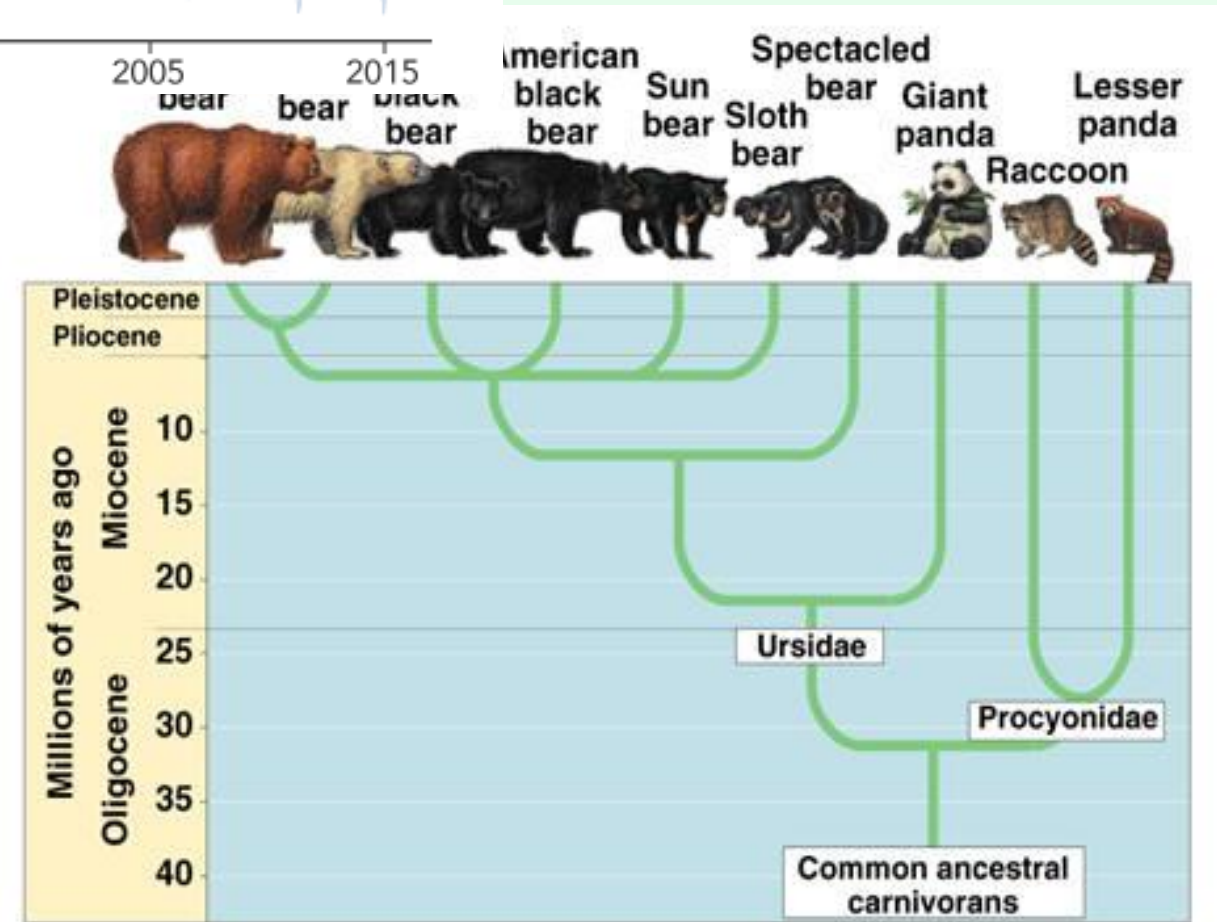


bears then?

**Variation** (mutations) → **Survival**  
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Over millions of years =  
**Evolution**

... So all we need is the polar  
bears to turn black again ... not  
so simple ...





L1: Give ways that biodiversity is important

Thinking time

Biodiversity: Variation of biological organisms



Why is biodiversity important?







**Products and goods  
(manufacturing)**



**Recycling nutrients/soil  
formation**



## **Why is biodiversity important?**

**Pollination**

**Recreational and  
cultural value**



**Medication**



**Agriculture/food  
sources**

**Storing CO<sub>2</sub>.**

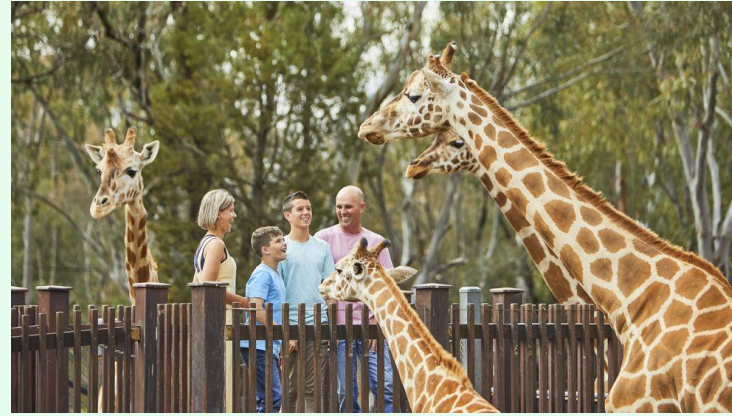


**Filtering of rainwater**

**Better able to respond  
to change/natural  
disasters**

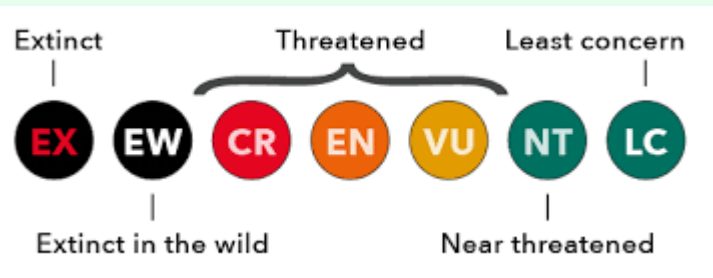






**Zoo**

**Seed banks**



**Legal protection**



**National Parks**



**Eco tourism**

## L2/L3: Describe and evaluate different conservation strategies

**Practice with aid**

Pair Whisper



### Task:

1. Read through each type of conservation strategy.
2. Summarise **advantages** and **disadvantages** of each one.

### Challenge:

There is a new Zoo opening in the area. Do you agree or disagree with this, explain why.