

## KNOWLEDGE ORGANISER

**BIG IDEA:** Genes

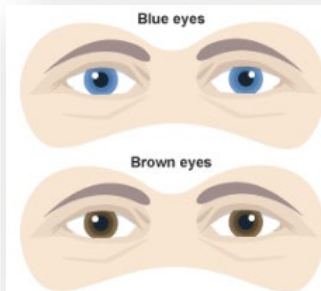
**TOPIC:** Variation

Key Word	Definition
species	A group of living things that have more in common with each other than with other groups
Variation	The differences within and between species
continuous variation	Where all the differences between living things can have any numerical value
categorical variation	Where differences between living things can only be grouped into categories.
inherited variation	Differences that you inherited from parents such as eye colour blood group
environmental variation	Difference that are caused by an individuals environment such as scars or favourite football team
adaptation	Special features to help a living thing survive in its habitat.
extinction	When no more of a species exists.

There is variation between individuals of the same species. Some variation is inherited, some is caused by the environment, and some is a combination.



Inherited variation  
**Eye colour**



Environmental variation  
**Sun tan**



Variation caused by both  
(genes and the environment)

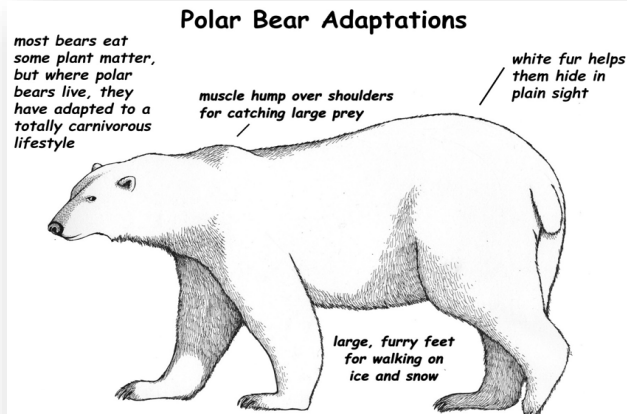
**Height**  
(identical twins but  
different heights!)



Variation between individuals is important for the survival of a species, helping it to avoid extinction in an always changing environment.

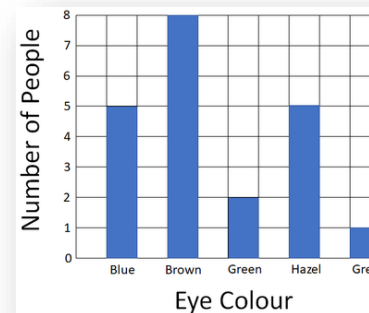
This means that living things will naturally show variation (they will be different to each other).

Some of these differences will help the living thing survive better, for example, an animal growing a thicker coat in winter will help it stay alive.



Continuous variation and discontinuous variation data can be shown using different types of graph.

We usually use a bar chart for discontinuous variation data:



We usually use a line graph for continuous variation data:

