

GRIP 2020 BIOLOGY ACTIVITY

Grade 10 --Solve the jumbled genes.



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OVERVIEW

A lot of us must have had this question in our lives, “Why do I resemble my parents or even my grandparents?”. Well, let us try to answer that question to some extent through this document.

WHAT IS INHERITANCE?

If we talk about the concept of inheritance in biology, the very first thought that strikes us is the passing on of characteristics from one generation of living beings to the other. Factually, it is the passing on of traits or certain characteristics from the parents to the offspring through either sexual or asexual .

INHERITANCE IN ASEQUAL REPRODUCTION

Talking about them passing on of traits in asexual reproduction, the offspring attains the same characteristics as of the parent organism because of the involvement of only one parent, hence resulting in no variations in the offsprings (clones).

INHERITANCE IN SEXUAL REPRODUCTION

Since there is involvement of two organisms in sexual reproduction, the offspring so produced attains certain characteristics from the mother, certain from the father or none from the both. Here, there is a greater chance of variation. Let us perform an activity to trace out the traits passed on to me by my family !

HYPOTHESIS

I (the derived class) have attained / inherited certain characteristics passed on from my grandparents (the basic class) and further from my parents (the intermediate class).

PROCEDURE

1. For the first step, let us trace out a broad family tree starting from my grandparents.
2. I have fished out some pictures and we'll try to make a family tree with my grandparents, my parents and me.

MATERNAL
GRANDPARENTS



PATERNAL
GRANDPARENTS



PARENTS



ME



KEY:-

1. MGF- Maternal Grandfather
2. MGM - Maternal grandmother
3. PGF - Paternal grandfather
4. PGM - Paternal grandmother
5. M - Mother
6. F - Father
7. B - Brother (younger)
8. S - Sister (younger)

DATA

Characteristic	MGF	MGM	PGF	PGM	M	F	B	S	Me
Prominent nose	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Blood group					B+	O+	O+	O+	B+
Eye colour	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown
Diseases (if any)	--	--	Diabetes			Diabetes			Bronchitis
Hair colour	Black	Black	Black	Black	Black	Black	Black	Black	Black

RESULTS

- I have derived certain traits such as facial features, eye colour which have consistently passed on.
- Certain characteristics such as Blood group differ between me and my siblings.
- Diseases I have such as Bronchitis haven't been passed onto me by any of my grandparents and parents.

CONCLUSION

1. Children inherit certain traits from the mother and certain from the father.

Mother	Father
Dominant hand	Eye colour
Sleeping position	Height
Hair colour and hair texture	Dimples
Migraines	Teeth structure
Temper	Heart and mental disorders

SCIENCE BEHIND INHERITED TRAITS

Inherited traits are passed on from the parent to the offspring, following the rules of Mendelian genetics. However, most traits are not specifically determined by genes, rather they are influenced by both genes and the environment. Traits are passed from one generation to the other by the transmission of DNA.

In sexual reproduction, the genetic material of two parents is combined and passed on to one individual. Although the offspring receives a combination of genetic material from two parents, certain genes from each will dominate the expression of uncommon traits.