



# Heredity

- Various factors that can help to find similarities and dissimilarities between two individuals are called characteristics.
- The process by which these characteristics pass down from parents to babies is called inheritance or heredity.
- **Gregor John Mendel** was the first scientist to study the inheritance of different characteristics in a pea plant.
- He selected some characteristics which come in pairs, e.g. the seed is either rough or smooth, either yellow or green, height of plant is either tall or short, etc.
- Out of these two traits, one trait that appeared in the first generation was called as **dominant trait**.
- The trait which did not affect the appearance of plant is called **recessive trait**.

## Character and Trait

- The distinctive qualities that make up an individual are called characters.
- A trait on the other hand, is a feature of individual which is inherent. e.g. in plants the colour of flower is a character. The traits for this character can be red, purple, pink etc., as the colour of flower may be. Similarly character is a feature of organism, e.g. height of a person while trait while tall or short height of a person.

*Some other examples of character and trait of human are as follows*

Character	Trait
1. Colour of eyes	Black, brown, green, blue
2. Colour of skin	Fair, dark, wheatish
3. Colour of hair	Black, brown
4. Shape of tongue	Straight, rolled

## Twins

These are two different individuals born to a same mother at a same time. They may or may not look alike.

## Clones

These are exactly same individuals with no difference in their characteristics externally and internally.

Clones	Twins
Derive from a single parent.	Derive from two parents.
They look exact like their parents.	They do not look exactly like their parents.



# Practice Exercise

1. Who first studied the concept of heredity?  
(a) Thomas (b) Mendel  
(c) Ganesh (d) Dr. Prakash
2. Which plant was selected by Gregor to study different traits?  
(a) Wheat crop (b) Rose plant  
(c) Snapdragon (d) Pea plant
3. Which traits are expressed in first generation?  
(a) Dominant (b) Recessive  
(c) Both (a) and (b) (d) None of these
4. The hair of Rama's father are brown and her mother's hair are black. Black hair colour is dominant over brown colour. Rama is most likely to have  
(a) grey hair (b) black hair  
(c) brown hair (d) red hair
5. Yellow seed colour in pea plant is ..... trait.  
(a) useless (b) recessive  
(c) dominant (d) intermediate
6. .... plant height of pea is a dominant character.  
(a) Tall (b) Short  
(c) Dwarf (d) None of these
7. Rani's hair are curly just like her Nani. This characteristic is likely to come from her  
(a) father  
(b) mother  
(c) Both (a) and (b)  
(d) None of the above
8. Which of the following cannot pass from parents to babies?  
(a) Height  
(b) Skin colour  
(c) Dimples on cheek  
(d) Viral diseases
9. The characteristics that can pass to babies is/are  
(a) Sharp nose (b) Colour of nose  
(c) Voice (d) All of these
10. Which of the following statement is incorrect?  
(a) Your height cannot be inherited from your grandparents  
(b) Dimple on cheeks can appear in babies, if mother possesses it.  
(c) Long hair can run in families  
(d) Disease like typhoid do not pass to babies
11. Clone is derived from ..... parents.  
(a) 1 (b) 2 (c) 3 (d) 4
12. How many parents are involved in producing twins?  
(a) 1 (b) 2 (c) 3 (d) 4
13. Twins are  
(a) born to a same mother  
(b) born at same time  
(c) Both (a) and (b)  
(d) None of the above
14. .... look exact like their parents.  
(a) Clones (b) Twins  
(c) Elephants (d) Tigers
15. Twins look .....  
(a) similar (b) dissimilar  
(c) Both (a) and (b) (d) None of these

# Answers

[illegible]