ACTIVITY ZONE

ACTIVITY 1 (NCERT Pg 143)

Objective

To study the basic concept of inherited traits.

Time 5 minutes



Procedure

- 1. Observe the ears of all the students in your class.
- **2.** Count the number of students having free or attached earlobes.
- **3.** The lists of students having free or attached earlobes are 64 and 36, respectively out of 100 students.
- 4. Understand the basic concept between the variation among the humans having free or attached earlobes.

Check Yourself

1. What will be the ratio of free and attached earlobes if 64 and 36 are the students out of 100?

Ans 16:9

- **2.** What is inheritance?
- **Ans** The process by which genetic traits are passed from one generation to the next is called inheritance.
- 3. What is an inherited trait?
- **Ans** It is a particular genetically determined characteristic that is transmitted from parent to offspring.
- **4.** Who all contribute to the inherited traits of a child?
- **Ans** Both mother and father.

5. The variation in the morphology of the earlobes is an....... **Ans** Inherited trait.

ACTIVITY 2 (NCERT Pg 144)

Objective

To show that F_2 -generation has a 1:2:1 ratio of TT: Tt and tt traits.

Procedure

Perform a monohybrid cross between pure homozygous tall and dwarf plants.



Observation

 $\rm F_1$ -progeny has all tall plants and $\rm F_2$ has three tall plants and one dwarf plant.

Conclusion

- (i) F_1 has a 100% dominant ratio. All the plants are 100% tall but heterozygous.
- (ii) F_2 has dominant recessive ratio of 1:2:1 and phenotypic ratio of 3:1.

Check Yourself

- **1.** Which kind of cross do you think is shown in the figure? **Ans** Monohybrid cross.
- **2.** Which character did Mendel take in his monohybrid cross? **Ans** Stem height.
- **3.** Identify the dominant and recessive traits from the figure.
- Ans Tall-dominant; Dwarf-recessive.
- **4.** What is the genotypic and phenotypic ratio so, obtained in the F_2 -generation of tall and dwarf plant, respectively?
- Ans Genotypic ratio 1:2:1, Phenotypic ratio 3:1
- **5.** What would you call the offspring produced in F_1 -generation?
- Ans Hybrid or Heterozygous.