

SCIENCE – CLASS 10 (TELANGANA SSC)

✿ □ Physics + □ Biology Notes

✿ □ PHYSICS

✦✦ 1. REFLECTION OF LIGHT

Light reflects from smooth surfaces

Laws of reflection:

Angle of incidence = Angle of reflection

Incident ray, reflected ray, normal lie in same plane

✦ Key Point: Plane mirror forms virtual and erect image.

✦✦ 2. REFRACTION OF LIGHT

Bending of light when it passes from one medium to another

Refractive index = speed of light in vacuum / speed in medium

✦ Snell's Law:

$$n_1 \sin i = n_2 \sin r$$

✦✦ 3. HUMAN EYE AND COLOURFUL WORLD

Eye parts: cornea, iris, pupil, retina

Defects: myopia, hypermetropia

Dispersion of light causes rainbow

✦ Key Point: Retina forms image, brain interprets it.

✦✦ 4. ELECTRICITY

Current (I) = Q / t

Ohm's Law: $V = IR$

Resistance depends on length, area, material

✦ Key Point: More resistance → less current

✦✦ 5. MAGNETIC EFFECTS OF ELECTRIC CURRENT

Magnetic field around current carrying wire

Fleming's left-hand rule

Electric motor principle

✦ Key Point: Electric current produces magnetic field.

✦✦ 6. SOURCES OF ENERGY

Renewable: solar, wind, hydro

Non-renewable: coal, petroleum

✦ Key Point: Renewable energy is eco-friendly.

□ BIOLOGY

✦✦ 1. LIFE PROCESSES

Nutrition, respiration, transport, excretion

Photosynthesis in plants

✦ **Formula (Photosynthesis):**
 $6\text{CO}_2 + 6\text{H}_2\text{O} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$

✦✦ 2. CONTROL AND COORDINATION

Nervous system (brain, spinal cord)

Hormones (endocrine system)

✦ **Key Point:** Nervous system gives quick response.

✦✦ 3. REPRODUCTION

Asexual reproduction: binary fission

Sexual reproduction: male + female gametes

✦ **Key Point:** DNA is responsible for heredity.

✦✦ 4. HEREDITY AND EVOLUTION

Traits passed from parents to offspring

Mendel's laws of inheritance

✦ **Key Point:** Genes control characteristics.

✦✦ 5. OUR ENVIRONMENT

Food chains and food webs

Ecosystem balance

✦ **Key Point:** Energy flows in one direction.

✦✦ 6. NATURAL RESOURCES

Air, water, soil conservation

Sustainable development

✦ **Key Point:** Save resources for future generations.

EXAM TIPS

Learn all formulas in Physics

Practice diagrams in Biology

Revise definitions daily

Write answers in steps