

## **Class 12th Science**

**Date - 05.01.2026**

### **English**

Journey to the End of the Earth – Key Points

- The lesson is written by Tishani Doshi.
- It describes the author's journey to Antarctica, the coldest and most isolated continent on Earth.
- Antarctica is called the "end of the world" because it is far away from human civilization.
- The author travels as part of a Students on Ice expedition to learn about climate change.
- Antarctica is free from human population, making it a perfect place to study Earth's past.
- The continent helps scientists understand how life evolved and how continents were formed.
- Antarctica once had a warmer climate and supported vegetation and animals.
- The author explains Gondwana land, a supercontinent that existed about 650 million years ago.
- Human activities have disturbed the natural balance of the Earth.
- Climate change has led to global warming, melting glaciers, and rising sea levels.
- Antarctica plays a crucial role in maintaining the Earth's climate balance.
- The author feels a sense of humility and responsibility towards nature.
- The lesson highlights the need to protect the environment for future generations.
- Even small human actions can have long-term impacts on the planet.
- The journey makes the author realize that Earth is a shared and fragile home.

Quiz <https://forms.gle/Zyf66mh9oMLBM5nZ9>

### **Subject - Physics**

Current Electricity – Class 12 Physics

Brief Content Summary

Electric Current (I): Rate of flow of electric charge through a conductor.

Electric Potential Difference (V): Work done per unit charge in moving a charge between two points.

Ohm's Law: At constant temperature, current through a conductor is directly proportional to potential difference.

Resistance (R): Opposition offered by a conductor to the flow of current.

Factors Affecting Resistance: Length, area of cross-section, nature of material, temperature.

Resistivity ( $\rho$ ): Material property independent of size and shape.

Temperature Dependence of Resistance: Resistance of metals increases with temperature.

Electrical Energy: Energy consumed by an electrical device.

Electric Power: Rate of consumption of electrical energy.

Combination of Resistors:

Series: Same current flows.

Parallel: Same potential difference across each resistor.

Kirchhoff's Laws:

Junction Rule: Sum of currents at a junction is zero.

Loop Rule: Algebraic sum of potential differences in a closed loop is zero.

Wheatstone Bridge: Arrangement to find unknown resistance.

Meter Bridge: Practical form of Wheatstone bridge.

Potentiometer: Used to compare EMFs and measure potential difference accurately.

Important Formulas

Electric Current

Ohm's Law

Resistance

Temperature Dependence

Combination of Resistors

Series:

Parallel:

Electric Power

Electrical Energy

Kirchhoff's Laws

Junction rule:

Loop rule:

Wheatstone Bridge (Balanced)

Potentiometer

Symbols Used

= current

= potential difference

= resistance

= resistivity

= length

= area

= power

= energy

Instructions -Students you have to use the following link to start the quiz. After completion of quiz you will get the certificate of participation and grade marks .you have to save it for further assessment in future .

Link of quiz- <https://www.proprofs.com/quiz-school/ugc/story.php?title=ndu1nj5mwl4fx>

### **Subject- Biology**

Learning Work -Chapter Molecular basis of inheritance

Molecular Basis of Inheritance – Brief Notes

#### **1. Genetic Material**

DNA (Deoxyribonucleic Acid) is the genetic material in most organisms.

RNA acts as genetic material in some viruses.

#### **2. Structure of DNA**

Proposed by Watson and Crick (1953).

DNA is a double-stranded helix.

Each strand is made of nucleotides.

Nucleotide = Sugar + Phosphate + Nitrogen base.

Bases:

Purines: Adenine (A), Guanine (G)

Pyrimidines: Thymine (T), Cytosine (C)

Base pairing:

A = T (2 hydrogen bonds)

G ≡ C (3 hydrogen bonds)

### 3. DNA Packaging

DNA is wrapped around histone proteins to form nucleosomes.

Nucleosomes coil to form chromatin.

Chromatin condenses into chromosomes during cell division.

### 4. RNA

Single-stranded.

Contains ribose sugar and uracil (U) instead of thymine.

Types:

mRNA – carries message

tRNA – transfers amino acids

rRNA – forms ribosomes

### 5. Replication of DNA

DNA replicates by semi-conservative method.

Each new DNA has one old strand + one new strand.

Enzymes involved:

Helicase – unwinds DNA

DNA polymerase – synthesizes new strand

Ligase – joins fragments

### 6. Transcription

Formation of RNA from DNA.

Occurs in the nucleus.

Only one DNA strand acts as template.

### 7. Genetic Code

Sequence of three nucleotides = codon.

Genetic code is:

Triplet

Universal

Degenerate

Start codon: AUG

Stop codons: UAA, UAG, UGA

### 8. Translation

Process of protein synthesis.

Occurs on ribosomes.

mRNA codons are read and amino acids are joined to form protein.

### 9. Gene Expression

Flow of genetic information: DNA → RNA → Protein

Known as Central Dogma (Francis Crick).

### 10. Mutations

Sudden change in DNA sequence.

Can be:

Point mutation

Frameshift mutation

May cause genetic disorders.

11. Human Genome Project (HGP)

Aim: To sequence entire human DNA.

Completed in 2003.

Revealed ~3 billion base pairs.

12. DNA Fingerprinting

Technique to identify individuals.

Based on VNTRs.

Used in:

Forensic science

Paternity testing

Quiz -[https://www.proprofs.com/quiz-](https://www.proprofs.com/quiz-school/ugc/story.php?title=ndu1ntu0ngicok&token=cHJlZXRpYmlzaG5vaTE5ODVAZ21haWwuY29t)

[school/ugc/story.php?title=ndu1ntu0ngicok&token=cHJlZXRpYmlzaG5vaTE5ODVAZ21haWwuY29t](https://www.proprofs.com/quiz-school/ugc/story.php?title=ndu1ntu0ngicok&token=cHJlZXRpYmlzaG5vaTE5ODVAZ21haWwuY29t)

### **Subject- Chemistry**

12th chemistry

Instructions

1. Solve all the questions on sheets.

2. Write answers according to marks mention above the question .

Questions

1. Benzaldehyde can be obtained from benzal chloride. Write reactions for obtaining benzal chloride and then benzaldehyde from it. (2)

2. Oxidation of ketones involves carbon-carbon bond cleavage. Name the products formed on oxidation of 2, 5-dimethyl hexane-3-one. (2)

3. Alkenes (  $C=C$  ) and carbonyl compounds (  $C=O$  ) contain a pi bond, but alkenes show electrophilic addition reactions, whereas carbonyl compounds show nucleophilic addition reactions. Explain. (3)

4. Carboxylic acids contain the carbonyl group but do not show the nucleophilic addition reaction like aldehydes or ketones. Why? (3)