

# Heredity and Evolution

## Quick Study Guide

# HOW TO USE THIS GUIDE

HIGHLIGHTED TEXT SHOWS IMPORTANT POINTS

★ MARKS HIGH-FOCUS TOPICS

📄 INDICATES EXAM TIPS

⚠️ SHOWS COMMON ERRORS

💡 GIVES QUICK TIPS

## MENDEL'S LAWS

Mnemonic: "MATKA GAME"

- M Main traits separate
  - A Alleles pair up
  - T Tall vs Short
  - K Kisi ko dominant
  - A Always pure breed
- G Genes separate
  - A Allele pairs
  - M Mummy Papa traits
  - E Expression rules

### Remember As:

- Like Family Traits:
- Tall Papa + Short Mummy
- Brown Eyes + Blue Eyes
- Fair + Dark complexion

### Laws Summary:

- TEEN PATT
- \*T\*: Traits separate
  - \*A\*: Equal sharing
  - \*E\*: Expression rules
  - \*N\*: No mixing
  - \*P\*: Pure breeds
  - \*A\*: Alleles pair
  - \*T\*: Transfer to kids
  - \*T\*: Two by two
  - \*I\*: Independent assort

## INHERITANCE PATTERNS

Mnemonic: "FAMILY PHOTO"

- F Features transfer
  - A Alleles pair up
  - M Mendel's rules
  - I Inheritance path
  - L Linked genes
  - Y Yearly traits
- P Punnett square
  - H Heredity shows
  - O Offspring types
  - T Trait mixing
  - O Observe ratios

### Quick Math:

- RATIO KING
- Monohybrid (3:1)
  - Like: 3 Tall : 1 short
  - Dihybrid (9:3:3:1)
  - Like card game points

### Common Errors:

- Wrong ratios
- Missing alleles
- Incorrect crosses
- Forgetting dominance

## EVOLUTION BASICS

Mnemonic: "DARWIN BABA"

- D Development over time
  - A Adaptation happens
  - R Random changes
  - W Winners survive
  - I Important traits
  - N Natural selection
- B Better survival
  - A Adaptation wins
  - B Best features stay
  - A All compete

### Remember As:

#### PUBG GAME

- \*P\*: Player survives
- \*U\*: Use resources
- \*B\*: Best wins
- \*G\*: Get stronger
- \*G\*: Good traits stay
- \*A\*: Adapt to win
- \*M\*: More offspring
- \*E\*: Environment matters

## HUMAN EVOLUTION

Mnemonic: "FAMILY TREE"

- F First ancestors
  - A Ape-like features
  - M Modern humans
  - I Important changes
  - L Life changes
  - Y Years pass
- T Time periods
  - R Related species
  - E Evolution steps
  - E Earlier forms

### Timeline Order:

#### DANCE PARTY

- \*D\*: Dryopithecus
- \*A\*: Australopithecus
- \*N\*: Neanderthals
- \*C\*: Change in brain
- \*E\*: Evolved more
- \*P\*: present humans
- \*A\*: Advanced brain
- \*R\*: reasoning power
- \*T\*: Tool making
- \*Y\*: Years of change

## EVIDENCE OF EVOLUTION

Mnemonic: "PROOF BOSS"

- P Patterns similar
  - R Related species
  - O Organs same
  - O Origin common
  - F Fossils show
- B Bones match
  - O Organs develop
  - S Similar design
  - S Species related

### Examples As:

#### HOMO BHAI

- \*H\*: Homologous organs
- \*O\*: Origin same
- \*M\*: Modified use
- \*O\*: Obvious relation
- \*B\*: Bones structure
- \*H\*: Hidden proof
- \*A\*: Analogous organs
- \*I\*: Important evidence

## SPECIATION

Mnemonic: "NAYA GAME"

- N New species
  - A Adapt different
  - Y Years pass
  - A Apart living
- G Geographic isolation
  - A Adapt separately
  - M Mate different
  - E Evolution happens

### Process As:

#### ALAG ALAG

- \*A\*: Apart living
- \*L\*: Long time
- \*A\*: Adapt different
- \*G\*: Genes change
- \*A\*: Area different
- \*L\*: Life changes
- \*A\*: Adapt more
- \*G\*: Group splits



## GENETICS BASICS

Mnemonic: "DNA STORY"

D	Double helix	S	Straight chain
N	Nucleus main	T	Transfer info
A	Alleles pair	O	Offspring gets
		R	Replicate exact
		Y	Your genes

### Process As:

#### GENE GAME

- \*G\*: Genes carry traits
- \*E\*: Express features
- \*N\*: New combination
- \*E\*: Equal sharing
- \*G\*: Gametes pure
- \*A\*: Alleles pair
- \*M\*: Mix in kids
- \*E\*: Express later

## QUICK REVISION CHECKLIST

### Before Exam:

- ✓ Mendel's laws
- ✓ Inheritance patterns
- ✓ Evolution concepts
- ✓ Human evolution
- ✓ Evidence types
- ✓ Genetic basics
- ✓ Practical examples

### Scoring Tips:

1. Draw clear diagrams
2. Show crossings properly
3. Give examples
4. Write proper ratios
5. Include evidence types

100%

### HIGH FOCUS AREAS

1. Mendel's Laws (5 marks)
2. Inheritance (5 marks)
3. Genetic Basics (5 marks)
4. Evolution (4 marks)
5. Human Evolution (4 marks)

