



Chapter 8

Variations
create
diversity and
help survival.

Heredity

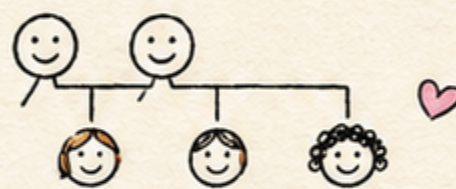


Variation • Inheritance • Mendel • Genetics • Sex Determination

1. Accumulation of Variation
During Reproduction



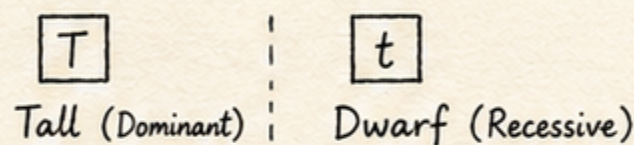
2. Inherited Traits



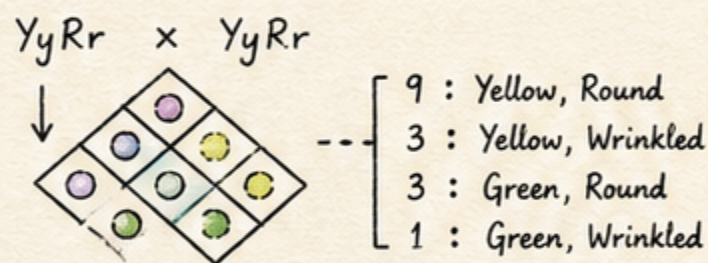
3. Mendel's Experiments



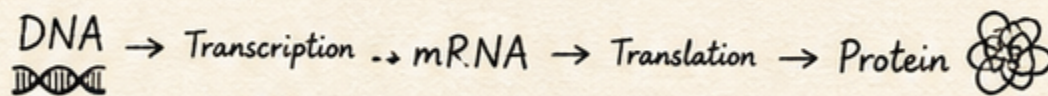
4. Dominant & Recessive Traits



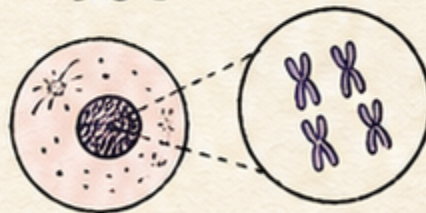
5. Independent Inheritance



6. Gene Expression

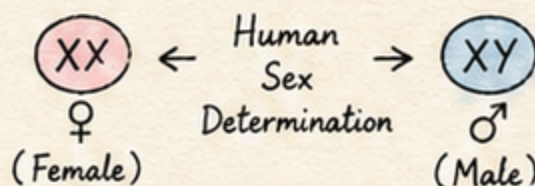


7. Chromosomes



Chromosomes carry
genes responsible
for traits.

8. Sex Determination



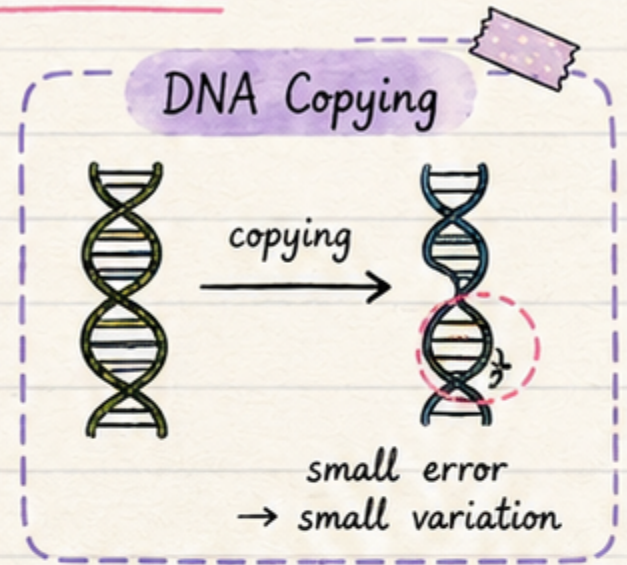
Remember: Heredity is the passing of traits
from parents to offspring. ♥



Accumulation of Variation During Reproduction

Variation During Reproduction

- Reproductive processes produce individuals similar but subtly different.
- Asexual** reproduction produces very little variation.
- Small variations** arise due to inaccuracies in **DNA copying**.
- Sexual** reproduction produces greater **diversity**.
- Inheritance** provides common body design and subtle changes.
- Second generation gets **inherited** + **newly created** differences.
- Not all **variations** survive equally in environment.
- Heat-resistant** bacteria **survive** better during heat wave.
- Environmental selection** forms basis of **evolution**.



Asexual Reproduction



Sugarcane field
(less variation)

Sexual Reproduction



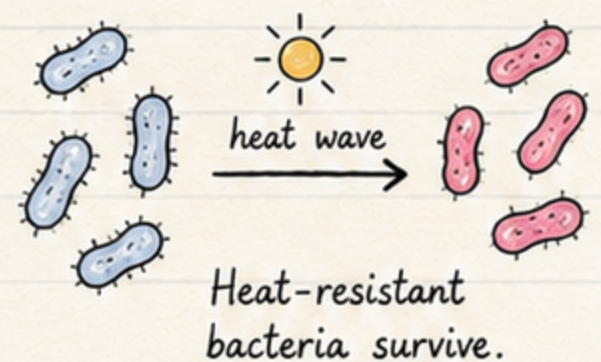
Humans & animals
(more variation)

Variation helps species survive changing conditions. ♥

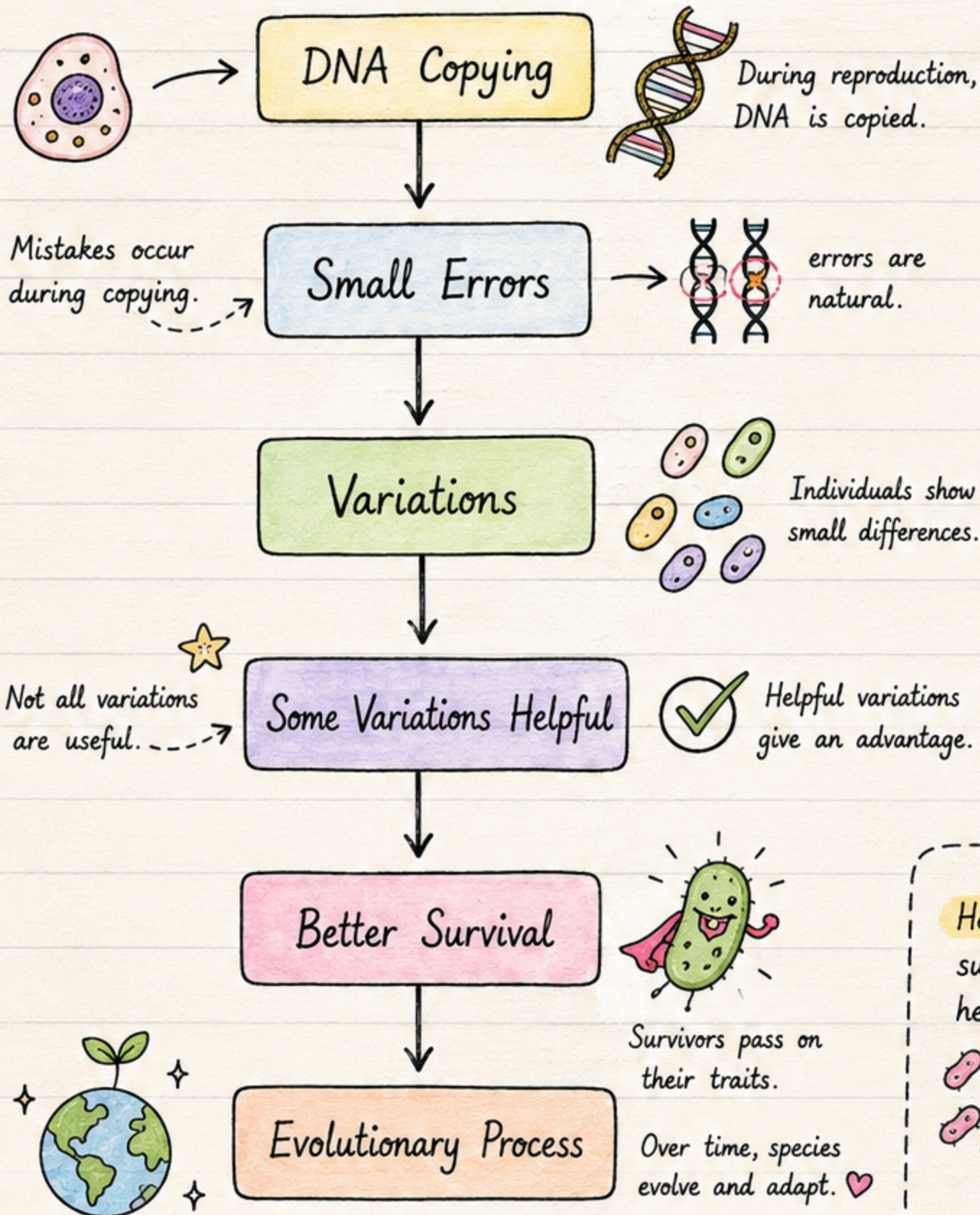
Quick Revision ☆

Asexual → less variation

Sexual → more diversity



Variation and Survival

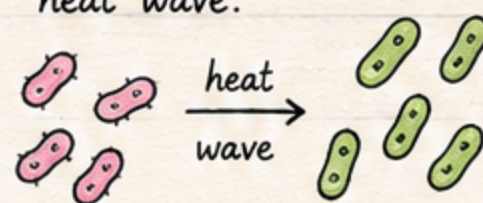


Key Points

- Different individuals get different advantages.
- Useful variations increase survival chances.
- Environment selects suitable variants.

Example

Heat-resistant bacteria survive during heat wave.



Survivors multiply and pass on the trait.

Comparison

Asexual Reproduction

- Less variation
- Minor DNA changes
- Similar offspring

Sexual Reproduction

- More diversity
- New combinations
- Distinct offspring

Revision Corner

Selection by environment
=
Basis of evolution

