Prodigy Educlasses

Class 10 Crash course notes

Subject: Biology

Suggestions and Important Questions



CBSE Class 10 Biology –

Suggestion Sheet – Most Important Q + A

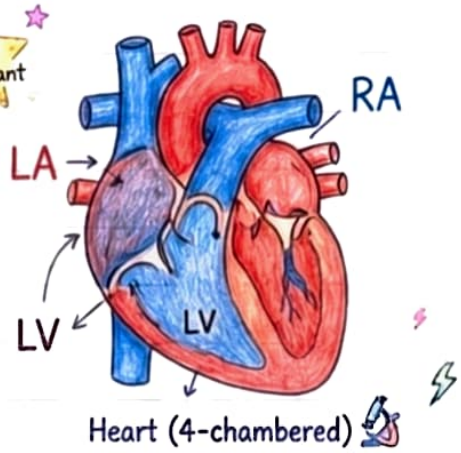
Prodigy Educlasses – Class 10 Crash Course

1. Life Processes

Very Important

Q: Why is heart 4-chambered?
A: To prevent mixing of oxygenated and deoxygenated blood.
Q: What is transpiration pull?
A: Pull due to water loss from stomata.
Q: Function of nephron?
A: Filtration, reabsorption, secretion.

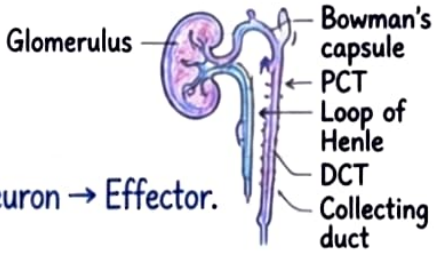
Very Important

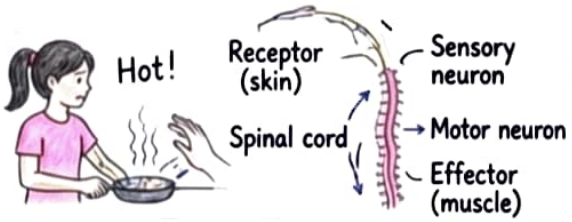


Heart (4-chambered)

2. Control and Coordination

Q: What is reflex arc?
A: Receptor → Sensory neuron → Spinal cord → Motor neuron → Effector.





Q: Auxin vs Gibberellin?
A: Auxin → growth
Gibberellin → stem elongation



3. How do Organisms Reproduce?

Q: Why is DNA copying important?
A: For continuity and variation.



Q: Placenta function?
A: Nutrition, O_2, waste removal for foetus.



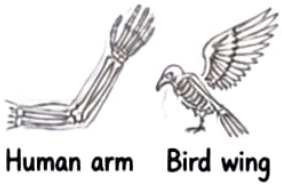
4. Heredity and Evolution

Q: Mendel 3:1 ratio?
A: Monohybrid cross, dominant : recessive.

	R	r
R	RR	Rr
	Rr	rr

3:1

Phenotypic ratio 3:1



Q: What are homologous organs?
A: Smole origin different function, e.g. human arm, bird wing.

5. Our Environment

Q: Why is ozone depletion harmful?
A: UV rays cause skin cancer.



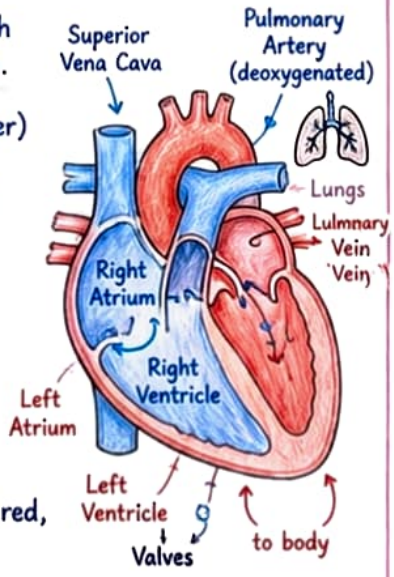
Q: 10% law?
A: Only 10% energy passes to next trophic level.



1. Life Processes — 5-marker

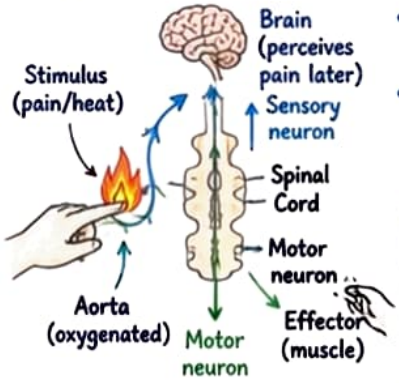
Q. Describe human heart with double circulation diagram.

- 4 chambers – 2 Atria (upper) & 2 Ventricles (lower)
- Valves prevent backflow of blood (Tricuspid, Bicuspid, Semilunar)
- Double circulation:
  - Pulmonary circulation: Heart ⇄ Lungs
  - Systemic circulation: Heart ⇄ Body
- Oxygenated blood – bright red, O_2 rich
- Deoxygenated blood – dark red, CO_2 rich



2. Control and Coordination — 5-marker

Q. Explain reflex arc with diagram + role of brain vs spinal cord + hormones:



- Reflex arc – sudden, involuntary response
- Pathway: Receptor → Sensory neuron → Spinal cord → Motor neuron → Effector

Brain vs Spinal Cord

Brain : thinking, voluntary actions, memory, perception

Spinal Cord : reflex actions, quick response, conducts signals

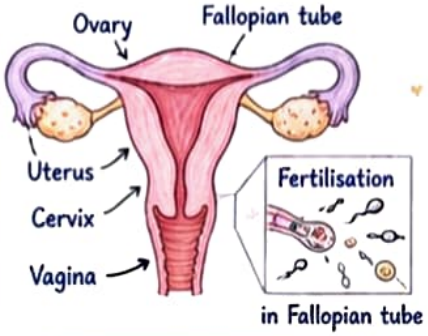
Hormones:

Adrenaline — Emergency hormone – 'fight or flight', ↑ heart rate, ↑ BP, energy

Insulin	Glucagon
↓ blood sugar, by β-cells	↑ blood sugar, by α-cells

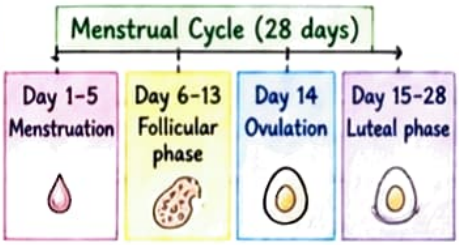
3. Reproduction — 5-marker

Q. Female reproductive system diagram, fertilisation, placenta, menstrual cycle 28 days, contraception methods.



- Fertilisation – fusion of sperm & ovum → zygote
- Placenta – connects embryo to uterus, exchanges O_2, nutrients, waste





Contraception methods:

- Barrier – condom, diaphragm
- Chemical – oral pills
- Surgical – vasectomy (M), tubectomy (F)
- Natural – safe period

4. Heredity — 5-marker

Q. Mendel monohybrid 3:1 and dihybrid 9:3:3:1 with Punnett square, sex determination XX XY, dominant recessive.

Monohybrid cross (3:1)

Tall (TT) × dwarf (tt)

	T	t
T	T	t
t	Tt	tt

Phenotypic ratio:

3 Tall : 1 dwarf



Dihybrid cross (9:3:3:1)

Round Yellow (RRYY) × wrinkled green (rryy)

	RY	Ry	rY	ry
RY	RRYY	RRYy	RrYY	RrYy
Ry	RRYy	RRyy	RrYy	Rryy
rY	RrYY	RrYy	rrYY	rrYy
ry	RrYy	Rryy	rrYy	rryy

Phenotypic ratio = 9:3:3:1

Dominant – expresses in both homo & hetero (e.g., T)

Recessive – expresses only in homozygous (e.g., t)

Sex determination

XX (Female) × XY (Male)

	X	Y
X	XX	XY



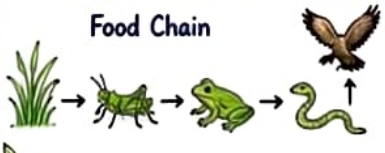


50% XX : 50% XY

5. Environment — 5-marker

Q. Food chain, food web, trophic levels, energy flow 10% law, ozone depletion CFCs, waste management biodegradable vs non-biodegradable.

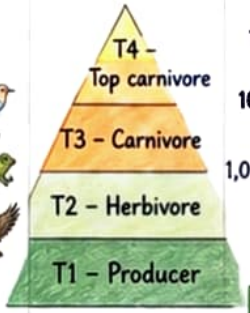
Food Chain



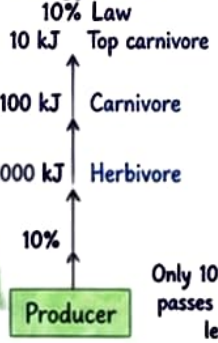
Food Web



Trophic Levels



Energy Flow – 10% Law



Only 10% energy passes to next level

Ozone depletion



CFCs → Cl radicals destroy O_3



Waste Management

Biodegradable	Non-biodegradable
	
broken down by microbes	persists long, harmful