

MADE WITH LOVE ❤️



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MOBILE APP - ISHITA KHURANA



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COCKROACH → Kingdom: Animalia Phylum: Arthropoda Class: Insecta.

Black, Yellow, Green → Tropical
→ Insecta, Arthropoda

SIZE 1/4 inches to 3 inches (0.6-7.6 cm)

> Have Long Antenna; ^(3 Pairs) Legs & Flat extensions of the upper body wall that conceals head.



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HABIT & HABITAT:-

Nocturnal
omnivores

Damp Region.

MORPHOLOGY - * Adult → periplaneta Americana
→ 34-53 mm long.

wings extend beyond the tip of abdomen in males.

	Embryonic.	Adult.
(1) head →	6	1
(2) thorax →	3	3
(3) abdomen →	11	10
Total segments	20	14

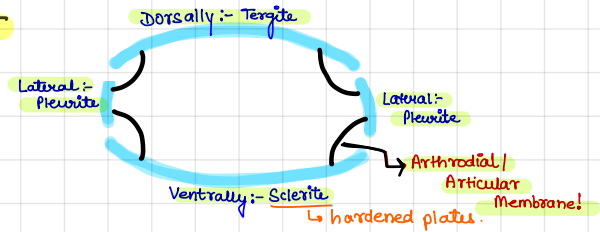
* Segmented Body

Coverd by exoskeleton. (Cutin).
(Brown colour).

* Entire body covered with Hard

chitinous Exoskeleton:-

brown in colour; through which → the entire body is covered.



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NOTE:-

Head connected with thorax by a short extn of prothorax known as Neck



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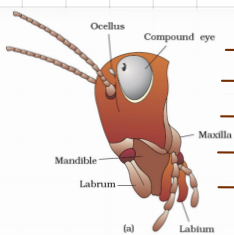
Right angle to longitudinal body axis.

Head → Δgular in shape.

formed by the fusion of six-segments.
great mobility due to flexible neck!

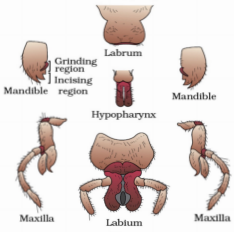
→ head capsule bear:- Pair of compound eyes.

• Antenna posses sensory receptors help in monitoring the environment.



Mouth parts → [Biting & chewing]

- LABRUM → Upper Lip
- LABIUM → Lower Lip
- HYPOPHARYNX → Tongue → median flexible lobe.
- MANDIBLE
- MAXILLA



THORAX

- PROTHORAX (1 pair)
- Mesothorax: Mesothoracic / Forewings / wings. Tegmina
- opaque, dark, leathery cover hindwings at rest
- Metathorax: hindwings (1 pair)
- Transparent / membranous
- Meant for flight

Abdomen

	♂	♀
SEGMENTS	10	10
• Filamentous str. ← ANAL Cerci	(+nt)	(+nt)
Anal Style	(+nt)	(-nt)

9th Males,
9th & 10th Terga dorsally bound the:-
Genital pouch or the chamber
↳ which lies at the hind end of abdomen.
\$
ventrally → by the 9th terga:-
it contains:-
① Dorsal Anus;
② Ventral male genital pore;
③ Gonapophyses!

9th Females,
7th sternum
↳ Boat shaped*
↳ 7th + 8th + 9th sterna

FORMS

Brood or Genital Pouch!
whose anterior part contains:-
① Female Gonopore;
② Spermathecal pores;
③ Colateral Glands.



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- long, sensory thread like
- segmented
- arise from Membranous socket
- help in monitoring environment.

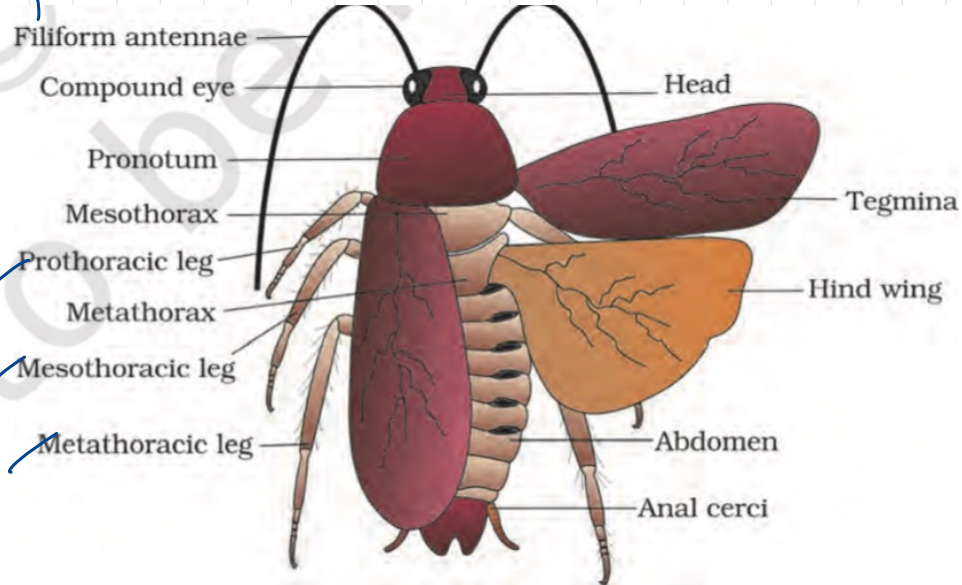


Figure 7.14 External features of cockroach

- 3 pairs legs.
- ↓
- 1 pair of walking legs on each thoracic segment.

- Fore] 6-8 Hepatic caecae → Blind tubules.
- Mid] 100-150 Malpighian tubules.
- Hind]
- yellow, thread like.

MIDGUT → Peritrophic Membrane

↓

Temporary.

around food to protect midgut.



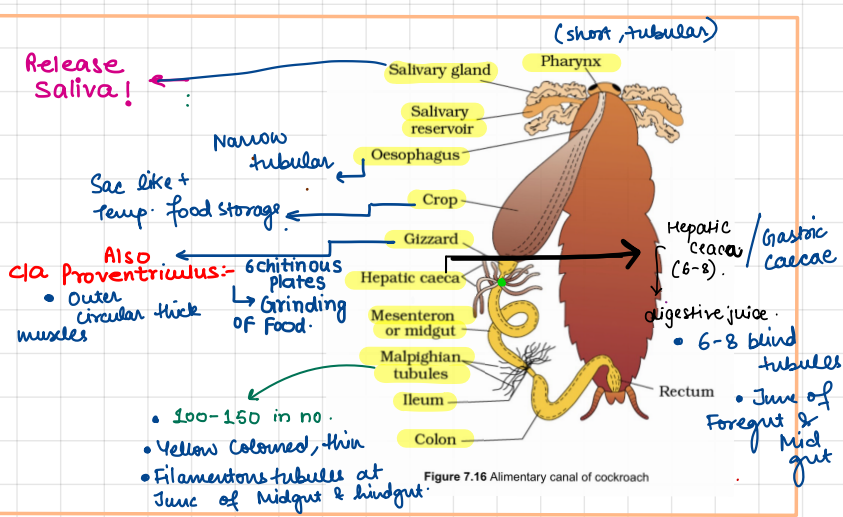
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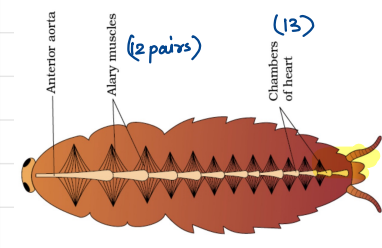
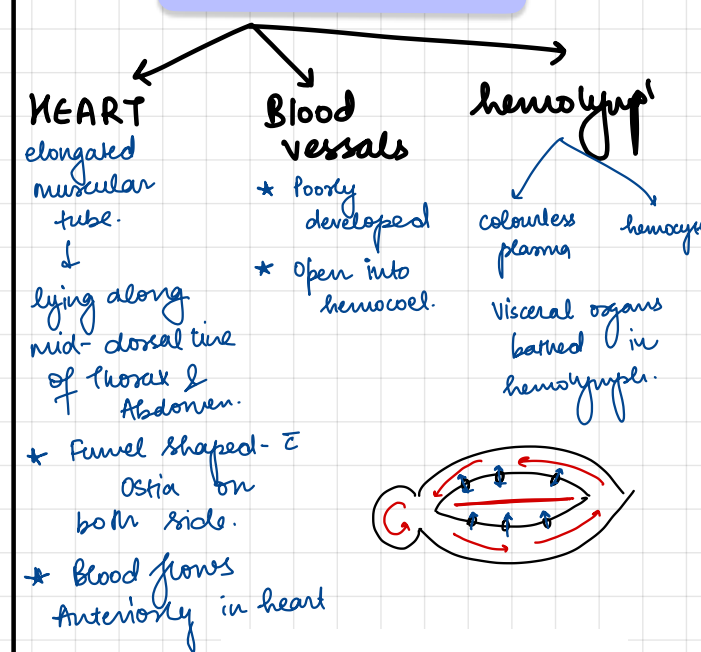
Digestive system

Anatomy: Foregut, midgut, hindgut.



A ring of 100-150 yellow coloured malpighian Tubules.
↓
Present at the junction of Midgut & hindgut

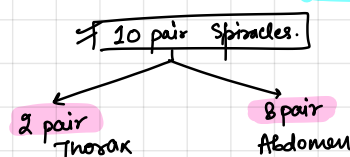
Blood-vascular system



Respiratory system

consist of a network of trachea
→ open into
10 pair of spiracles.
↓
Opens on lateral side of body.

opening of spiracles <
is regulated by the sphincters.
↓
Exchange of gases
↓
takes place in Tracheoles



Excretory system

By Malpighian Tubules!

Uricotelic (Lined by glandular ciliated)
Fat body, nephrocytes & urecose glands
Nitrogen waste → Uric Acid.

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Nervous system

3 Ganglia: Thorax
6 Ganglia: Abdomen.

Sensory organ
Antenna-eyes.
Anal. Cerci
lab. polp.
Maxi. polp.

Head

Bit of N.S

Ventral part of Body
Most part

eye → Dorsal compound → 2000 Hexagonal (ommatidia) in eye
↓
form mosaic (4+P)
→ monocular.



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Brain is represented by :- Supra oesophageal Ganglion.

supply nerves to Antennae & Compound eyes.

Cockroaches → Dioecious
\$ both sexes have well developed reproductive systems.

Head has very less nervous system. [organs of head]

Live for 7 days after cutting of head.



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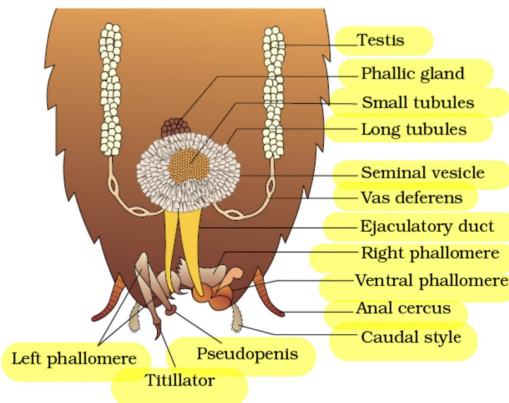
Male reproductive system



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Consist of :-

- 1) A pair of Testis (in the 4th-6th abdominal segments)
- 2) Vas deferens.
- 3) Ejaculatory duct
- 4) Seminal vesicle.

Opens into male gonopore Situated ventral to anus.

• Mushroom shaped gland is present in the 6th-7th abdominal segments which functions → as an accessory reproductive gland.
c/a Phallic Gland!

• External genitalia ⇒ are represented by Male gonopophysis or Phallomere

[chitinous asymmetrical structures surrounding the male gonopore]

Left [Largest]
Right
Ventral

• SPERMS are stored in seminal vesicles
\$ are glued together in the form of bundles c/a SPERMATOPHORES!
\$ discharged during copulation.

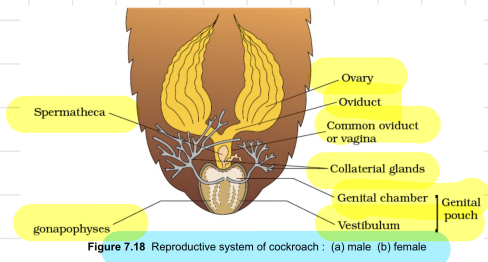


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Female reproductive system



Consist of:-

- 1) 2 large ovaries [2nd-6th abdominal segments]
- 2) Oviducts.
- 3) Vagina.
- 4) Genital chamber.
- 5) Spermathecal.

Each ovary is formed by group of 8 ovarian tubules or ovarioles, containing a chain of developing ova.

Sperms are transferred through spermatophores.

Pair of spermatheca is present in the 6th segment which opens into the genital chamber.



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Fertilisation & development

INTERNAL

Fertilised eggs → encased in capsules called ootheca.

are dropped or glued to a suitable surface, usually → in a crack or crevice of high relative humidity near a food source.

On an avg., Females produce 9-10 ootheca each containing 14-16 eggs.

is a dark reddish to blackish brownish capsule, about (8mm) long! 3/8"

Development → of americana is Paurometabolous.

↳ mns. development through nymphal stage.

Nymphs → look very much like adults.

grows by moulting about 13 times to reach the adult form.

• Next to last Nymphal stage → has wing pads but only adult cockroaches have wings.



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