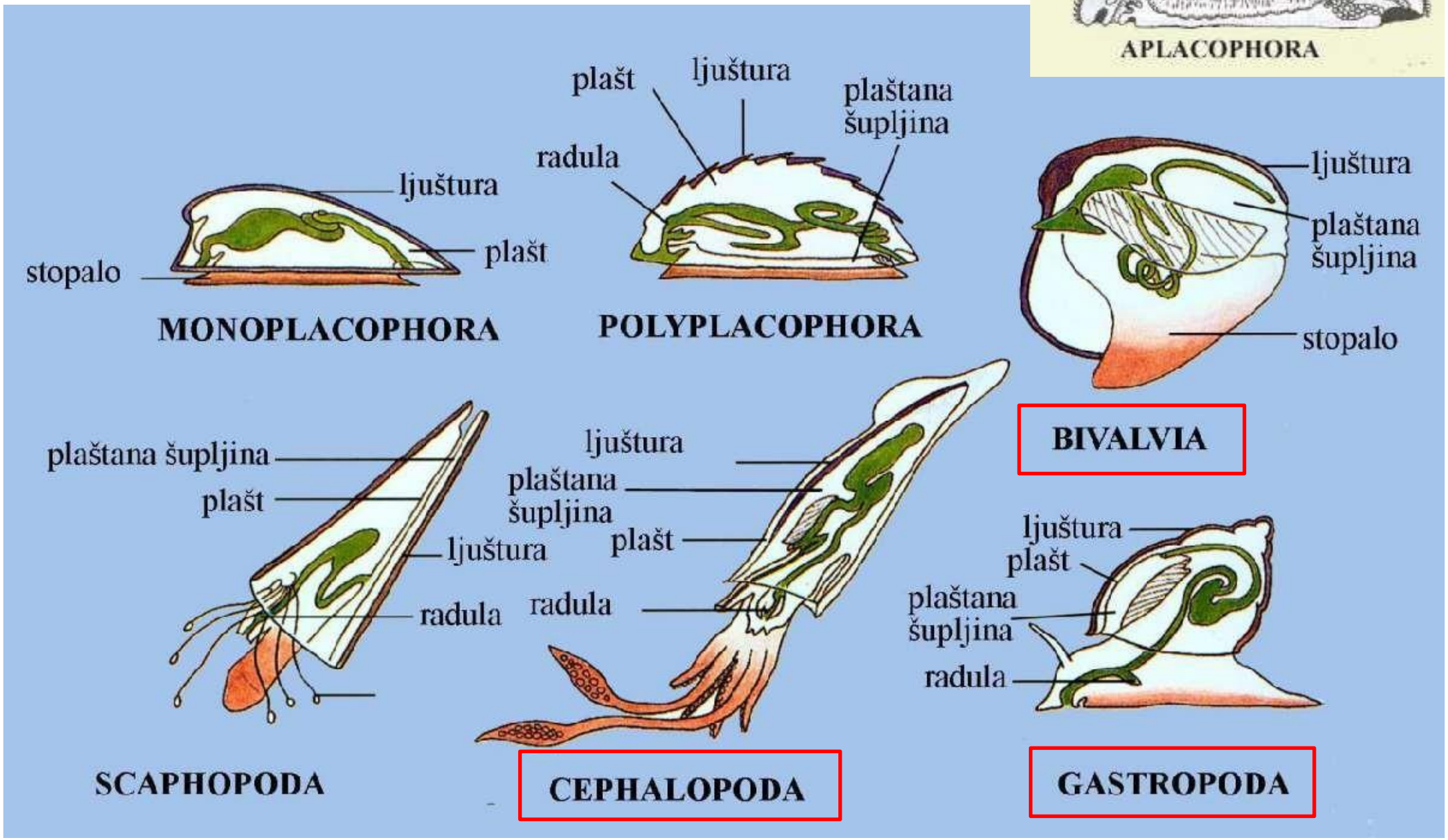
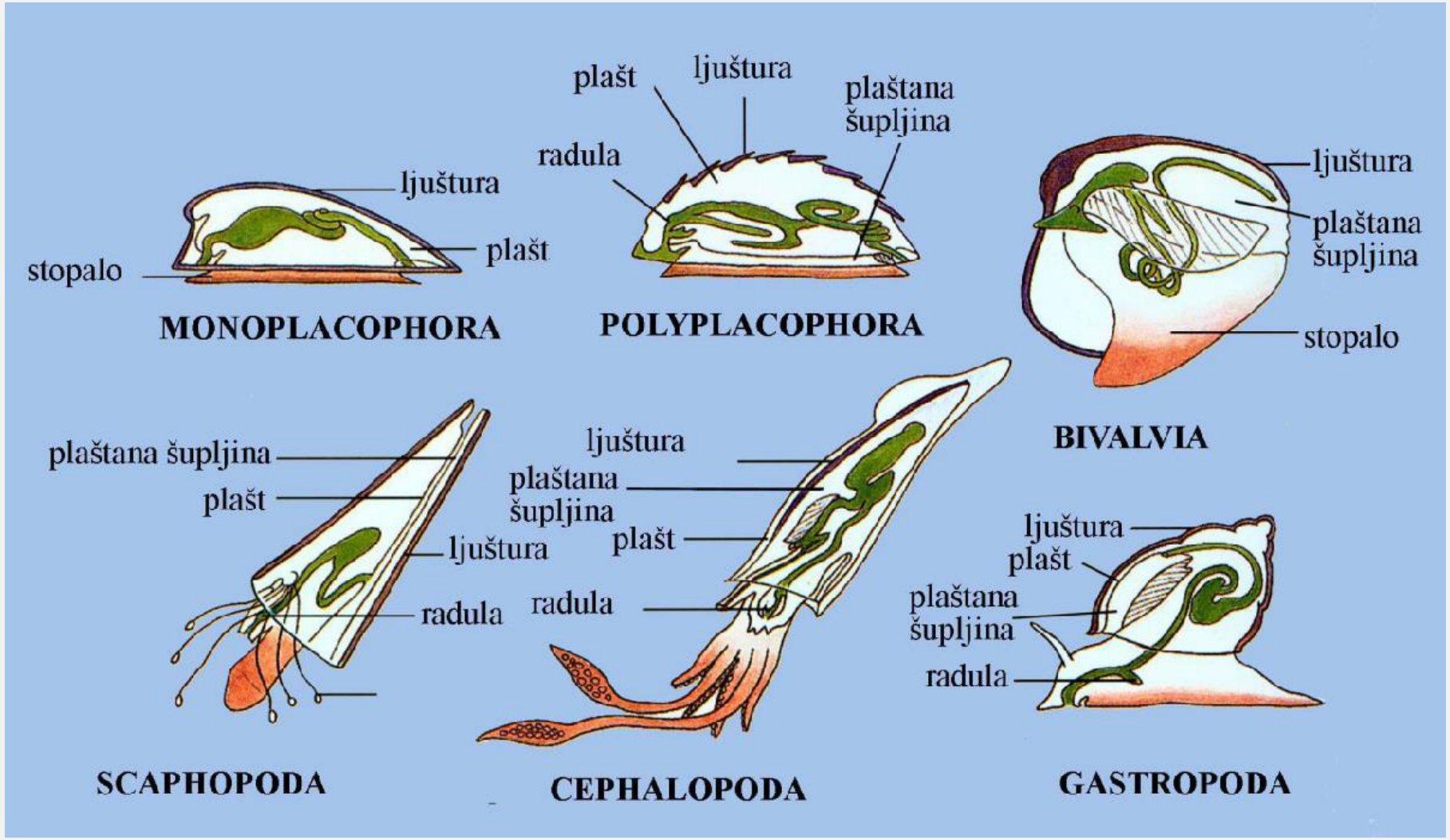


MOLLUSCA (MEKUŠCI)

MOLLUSCA


APLACOPHORA
ljuštura
stopalo
plašt
MONOPLACOPHORA
plašt
ljuštura
plaštana šupljina
radula
POLYPLACOPHORA
ljuštura
plaštana šupljina
stopalo
BIVALVIA
plaštana šupljina
plašt
ljuštura
radula
SCAPHOPODA
ljuštura
plaštana šupljina
plašt
radula
CEPHALOPODA
ljuštura
plašt
plaštana šupljina
radula
GASTROPODA

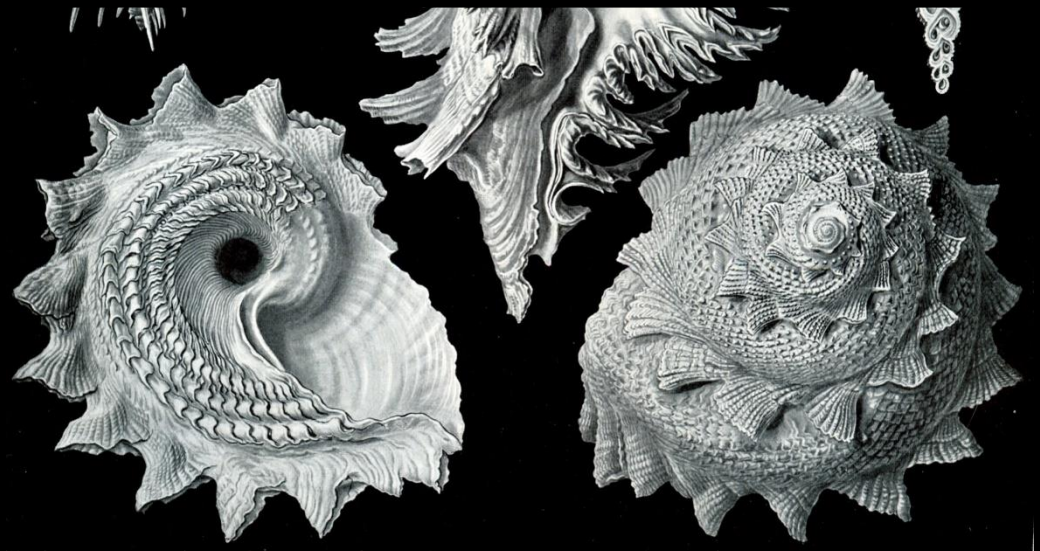
Osnovni plan građe tijela Mollusca



- Bilateria
- Protostomia
- nekolutićavi **coelomata**
  - **shizocelni coelomata** – celomske šupljine nastaju kao **pukotine** u mezodermalnom tkivu



GASTROPODA (PUŽEVI)



Gastropoda - raznolikost




Cepaea nemoralis
(prugasti živičnjak)


Helix pomatia
(puž vinogradnjak)

Podrazred: Pulmonata - plućnjaci


Lymnaea stagnalis
(obični barnjak)


Arion sp. (prpolj)





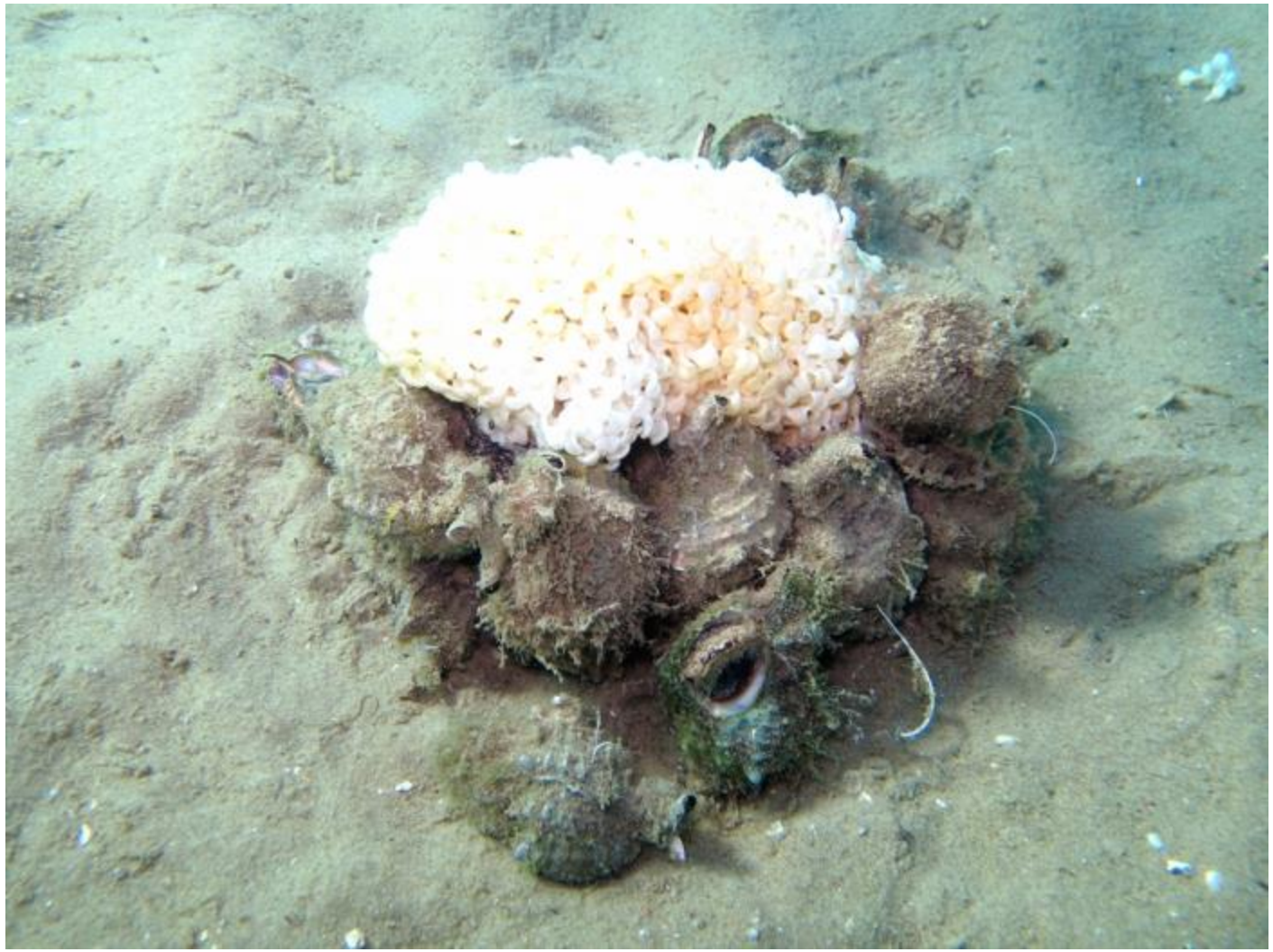
Podrazred: Prosobranchia - prednjoškržnjaci





Murex trunculus

(kvrgavi volak)



- nakupina jajašaca - izgledom podsjeća na spužvu svijetlo žute boje
- za vrijeme mrijesta na jednom mjestu se može naći i više desetaka ženki puževa koji prilikom parenja formiraju loptastu nakupinu organizama
- u prosjeku oko 100 kapsula, a u svakoj je oko 700 jajašaca

Vasconcelos i sur. (2004)



Aplysia depilans (morski zekan)

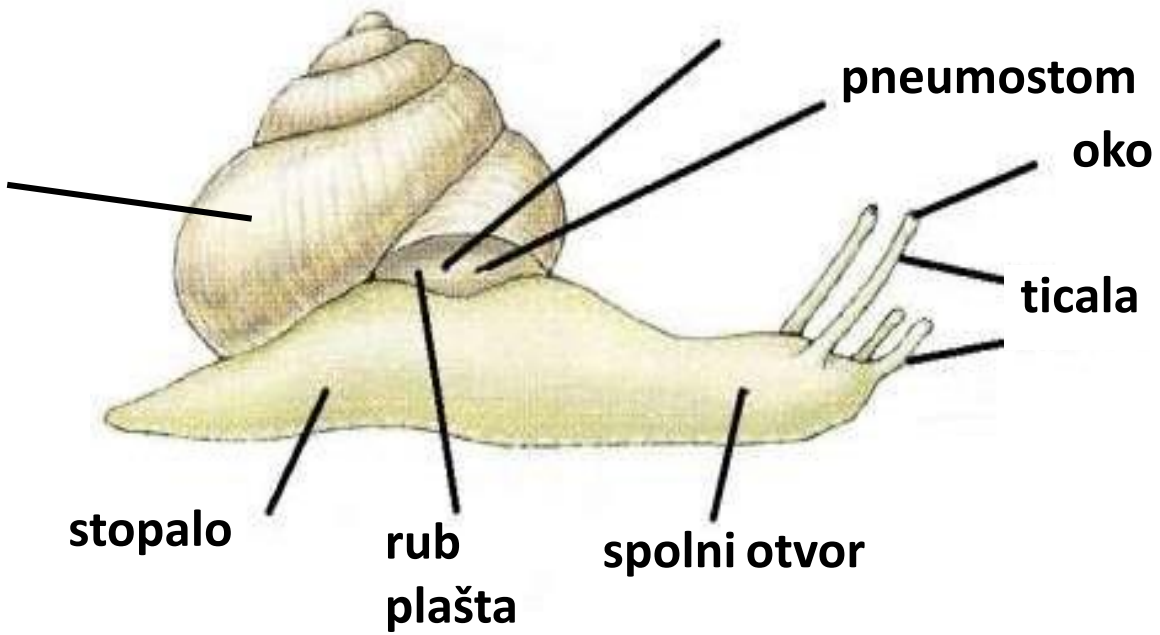
Tethys fimbria (plosnoglavac resati)



Podrazred: Opisthobranchia - stražnjoškržnjaci

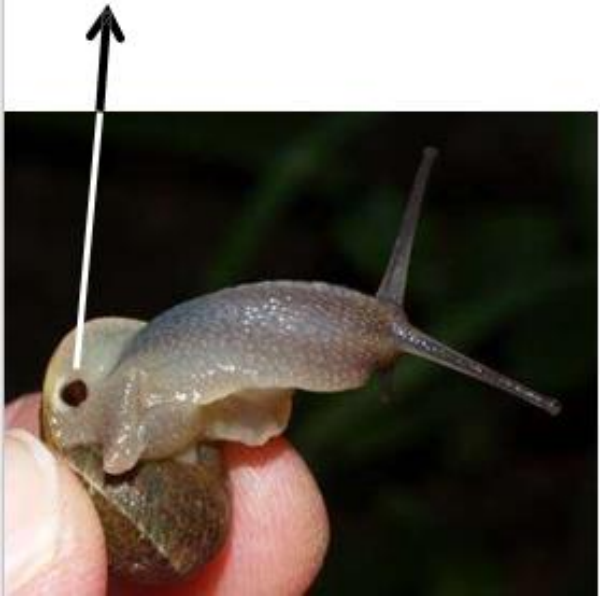
GASTROPODA

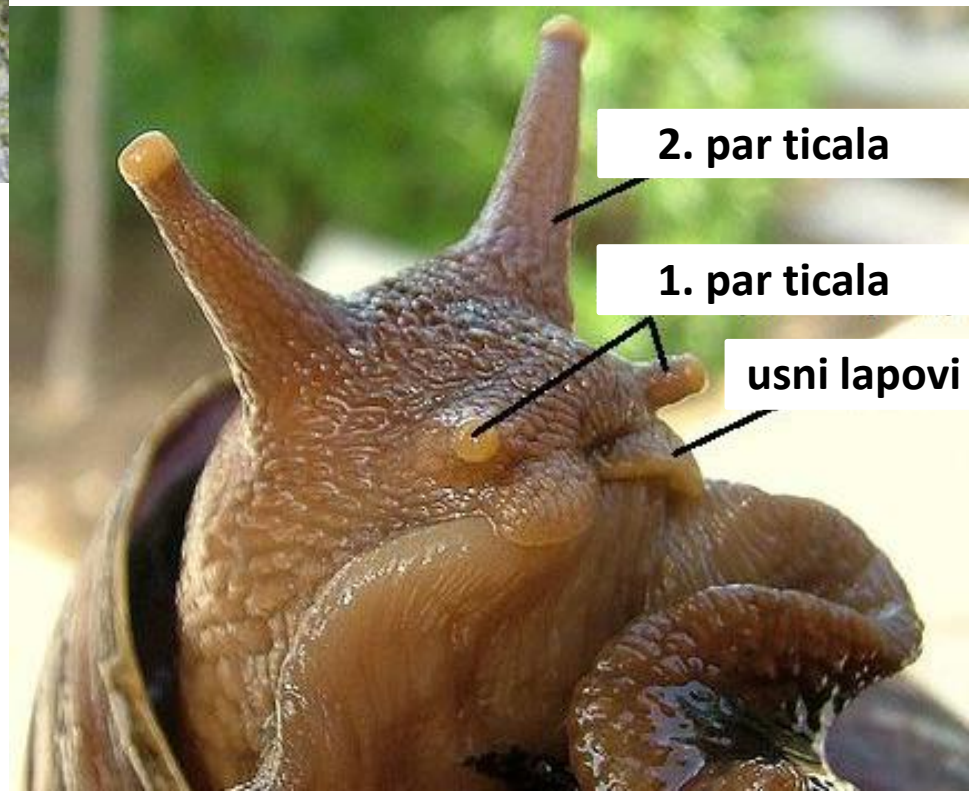
Vanjski izgled





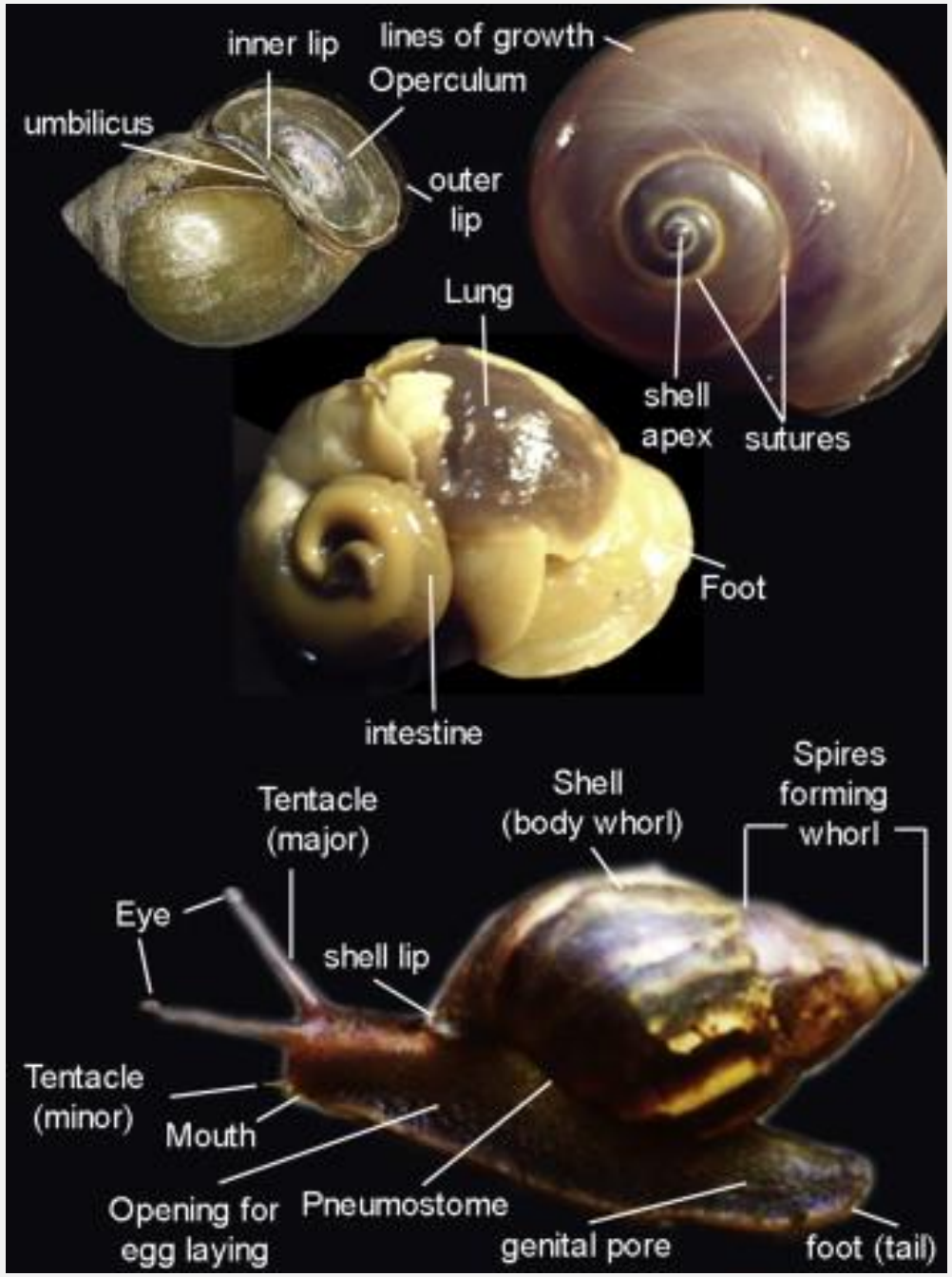
pneumostom = ulazak zraka u plaštanu šupljinu





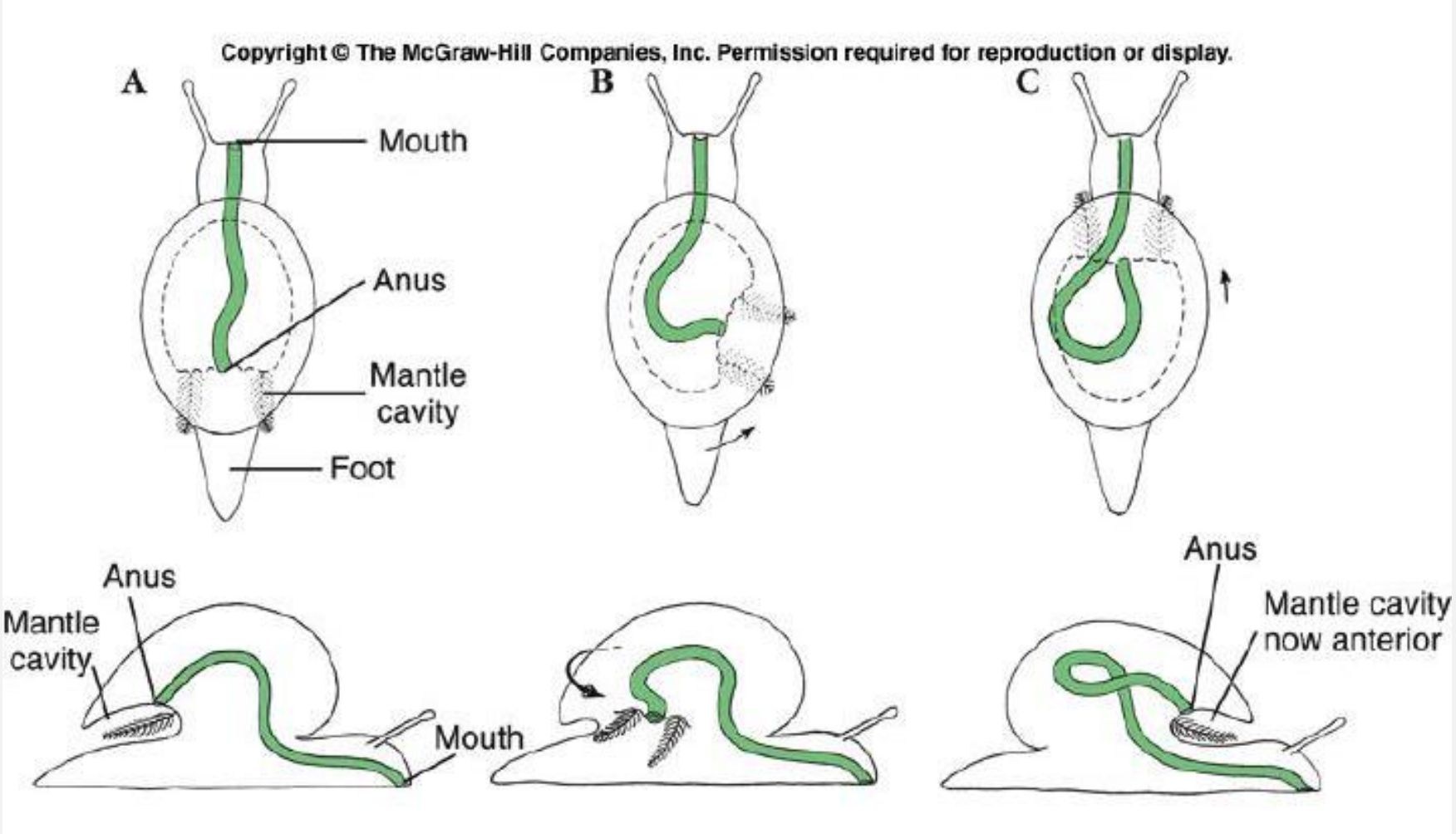
Razred: Gastropoda (puževi)

- glava
  - osjetila – ticala
- stopalo
- utrobna vreća
  - prekrivena plaštom – izlučuje ljušturu
  - zakretanje (torzija)



Razred: Gastropoda (puževi)

- zakretanje (torzija)



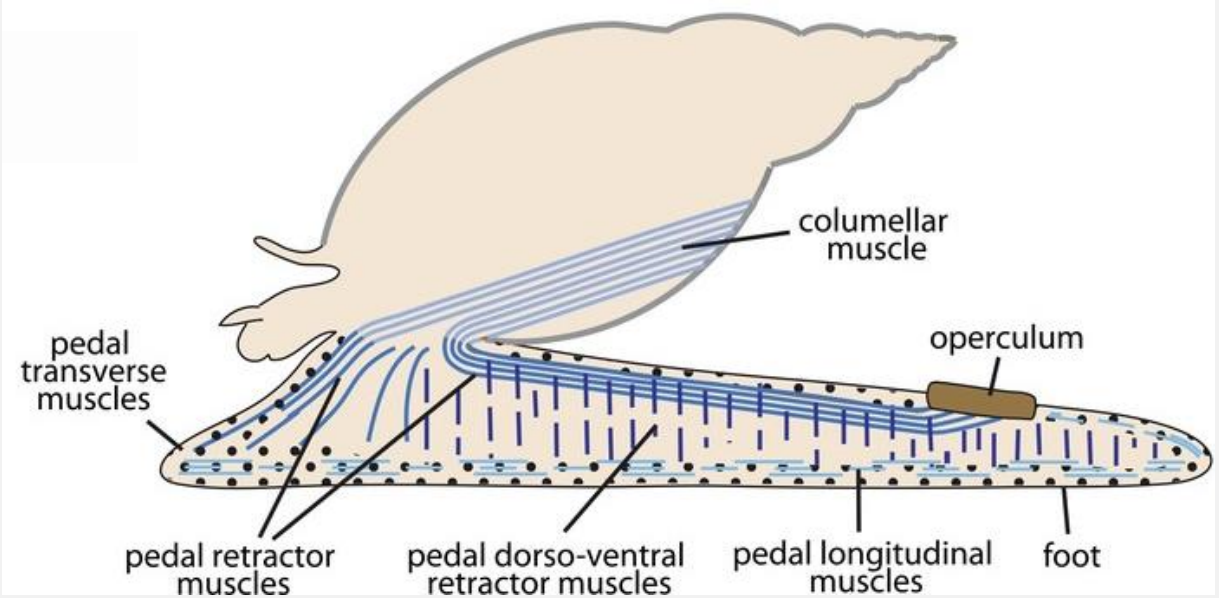
Razred: Gastropoda (puževi)

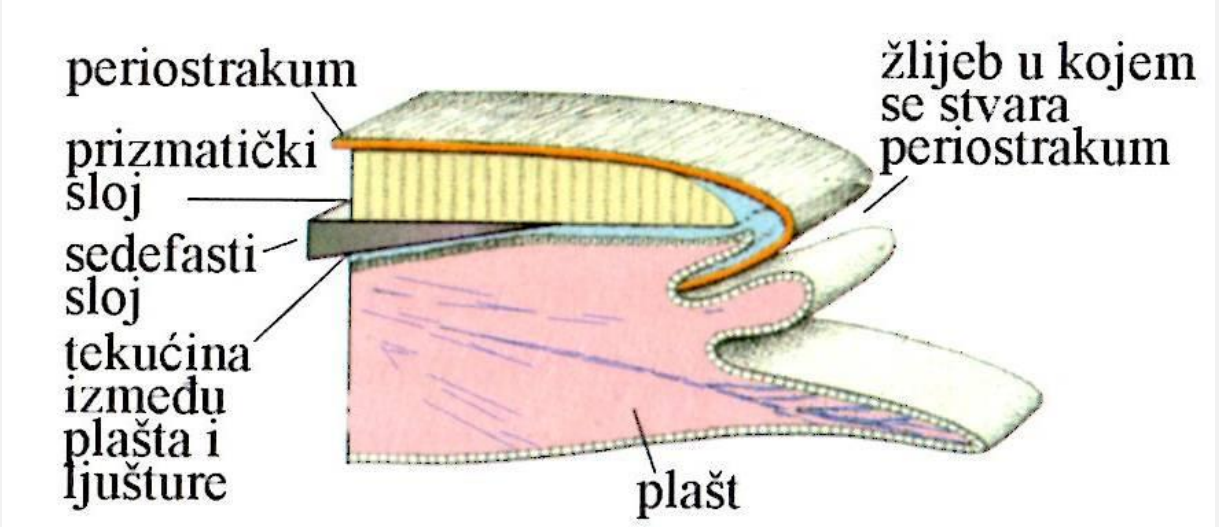
- kućica
  - vrh (apex)
  - ušće (otvor/apertura)
    - vanjski i unutarnji rub ušća
    - bazalno produljenje ušća – sifonalna cijev
  - kolumela/vreteno – središnji potporanj kućice
    - zavoji → povećavaju prema ušću
      - vrh kućice – najstariji i najmanji
      - posljednji zavoj – najmlađi i najveći



Razred: Gastropoda (puževi)

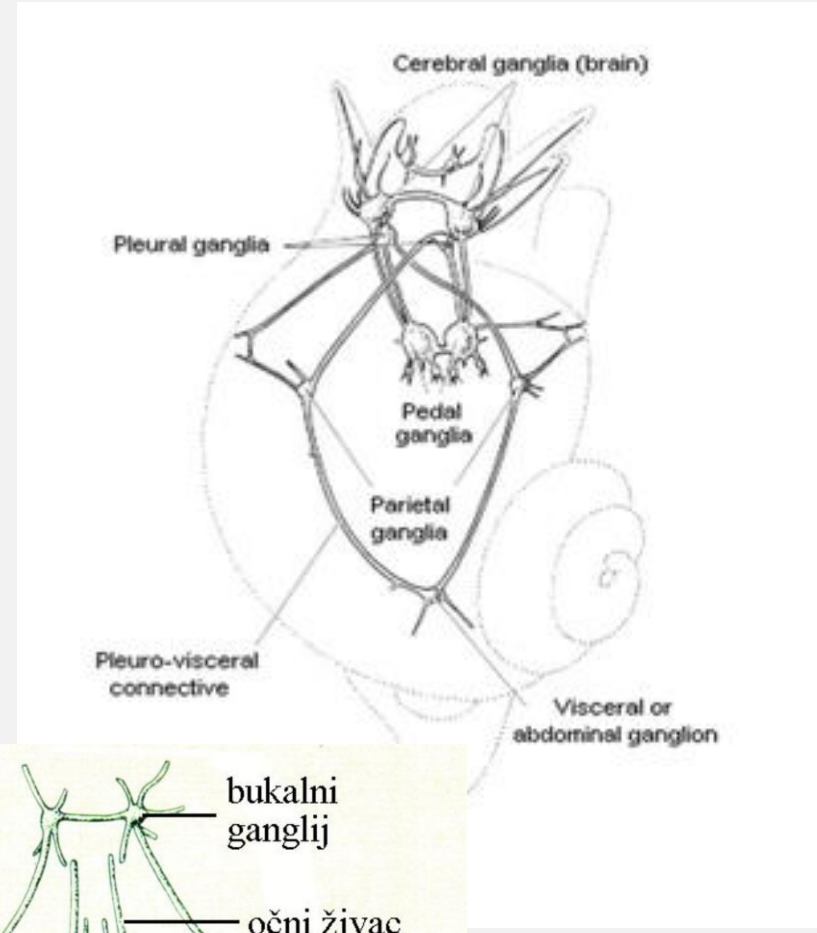
- stijenka tijela
  - epiderma
    - trepetljikava + žljezdane stanice
  - plašt
    - obavija unutarnje organe
    - plaštana šupljina
  - mišićni sloj
    - mišićni snopovi + hidrostatski sloj
    - kolumelarni mišić

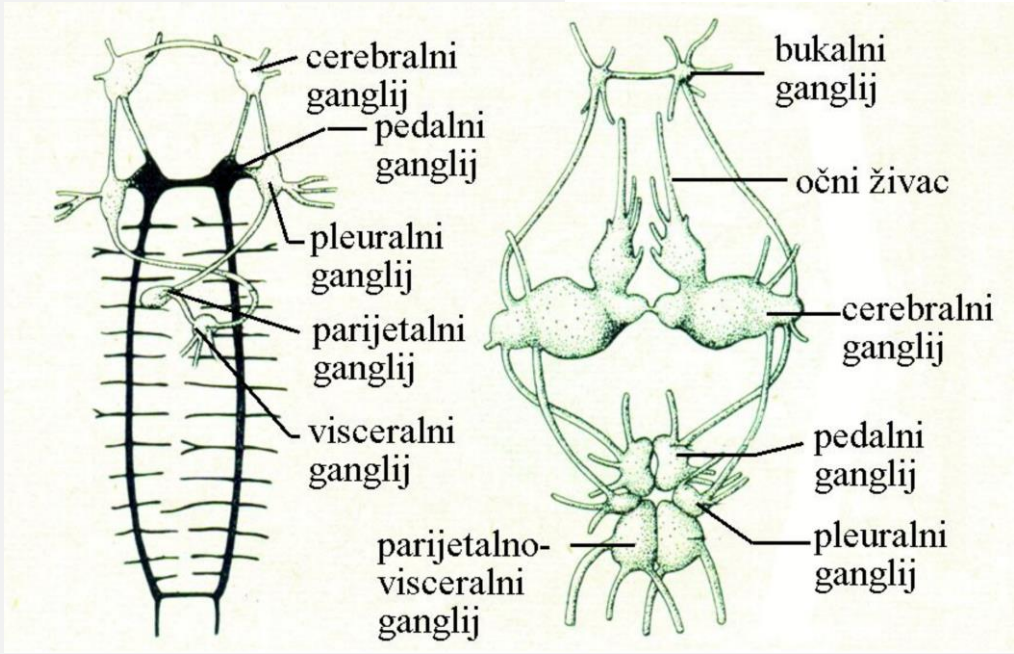




Razred: Gastropoda (puževi)

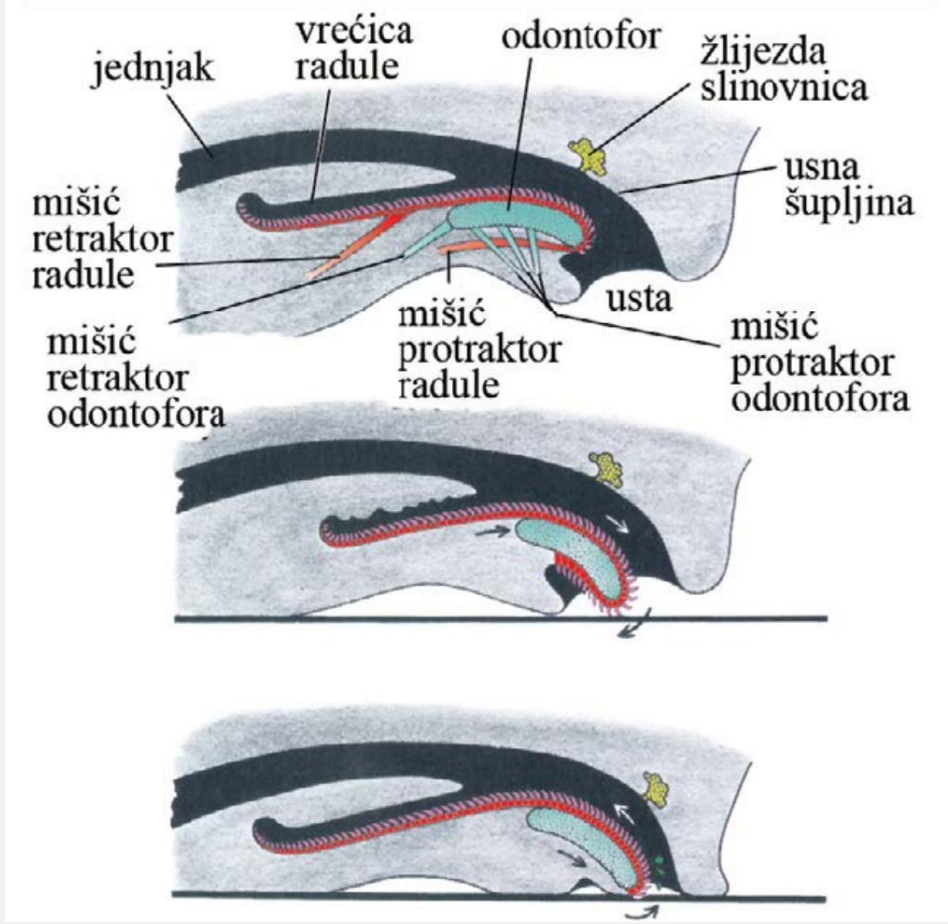
- živčani sustav
  - asimetričan
  - 5 para ganglija
- osjetila
  - mehanička i kemijska osjetila
  - osfradije – vodeni puževi
  - oči
  - statocisti

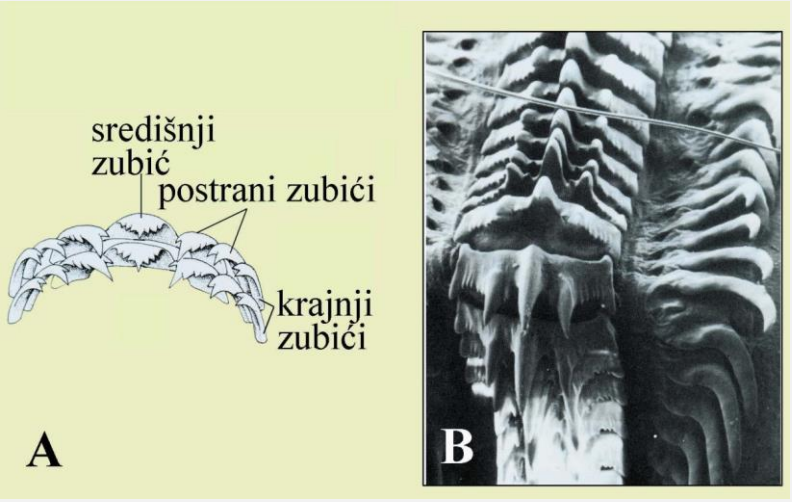




Razred: Gastropoda (puževi)

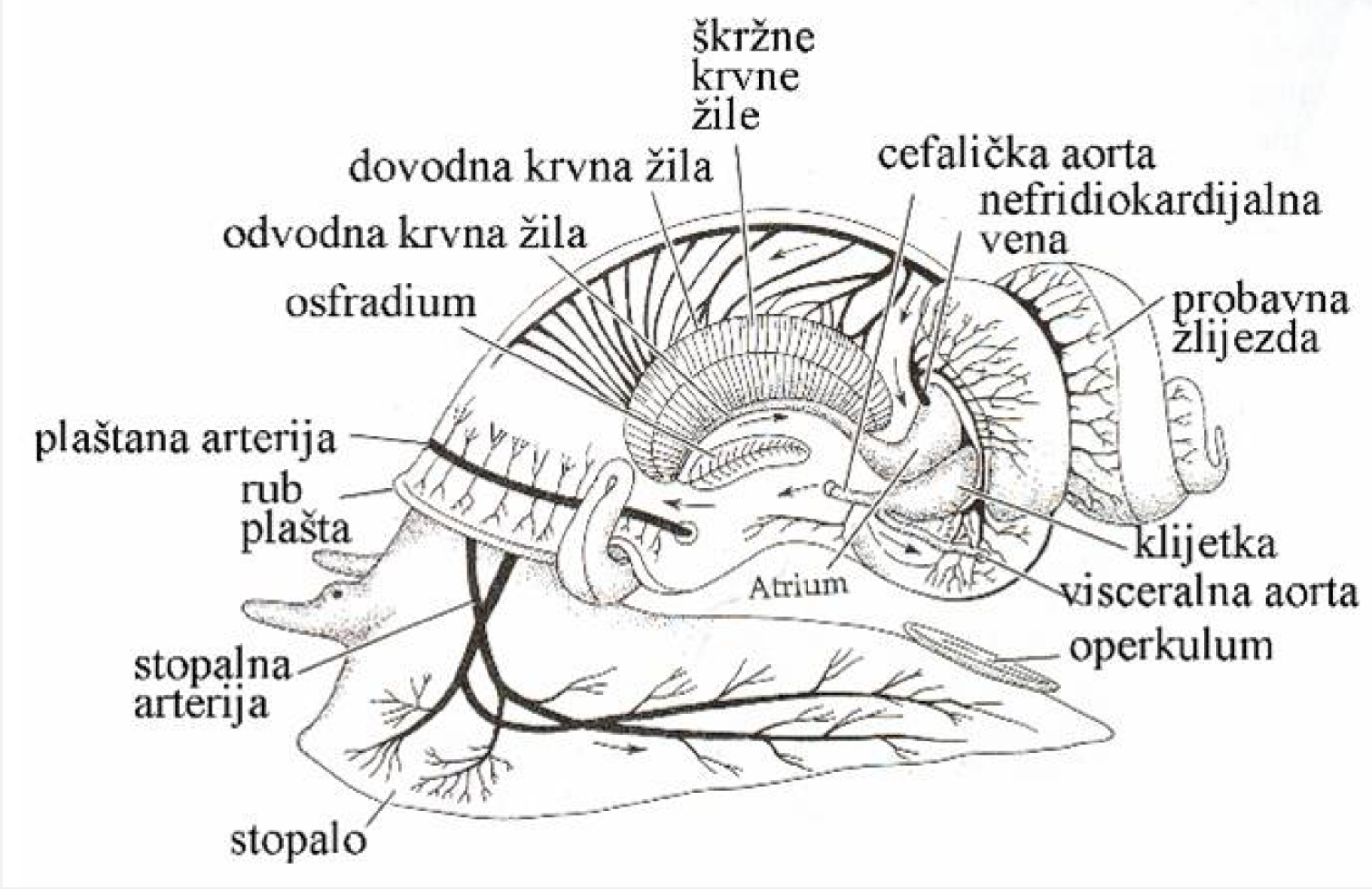
- probavni sustav
  - usta + usni lapovi
  - ždrijelo
    - **odontofor → trenica/radula**
  - jednjak
  - želudac
  - crijevo
  - crijevni otvor





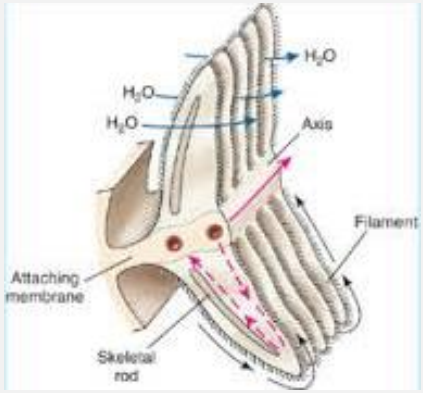
Razred: Gastropoda (puževi)

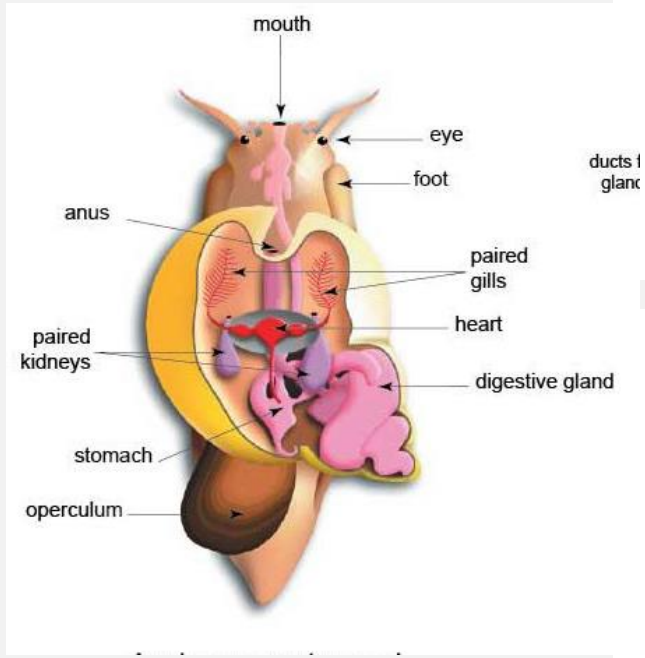
- optjecajni sustav
  - **hemolimfa**
  - otvoren - **hemocel**
  - srce
    - jedna/dvije pretklijetke
    - jedna klijetka
    - osrčje (perikard)/ perikardijalna šupljina (**celom**)

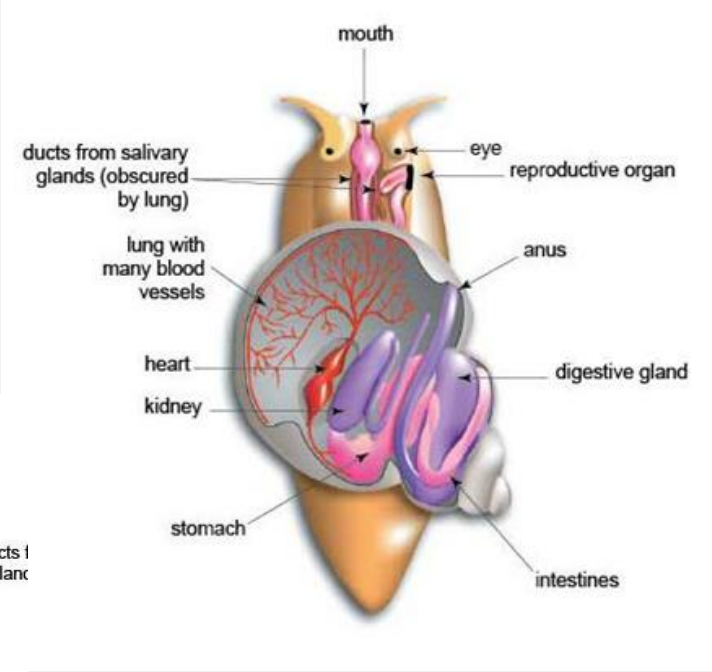


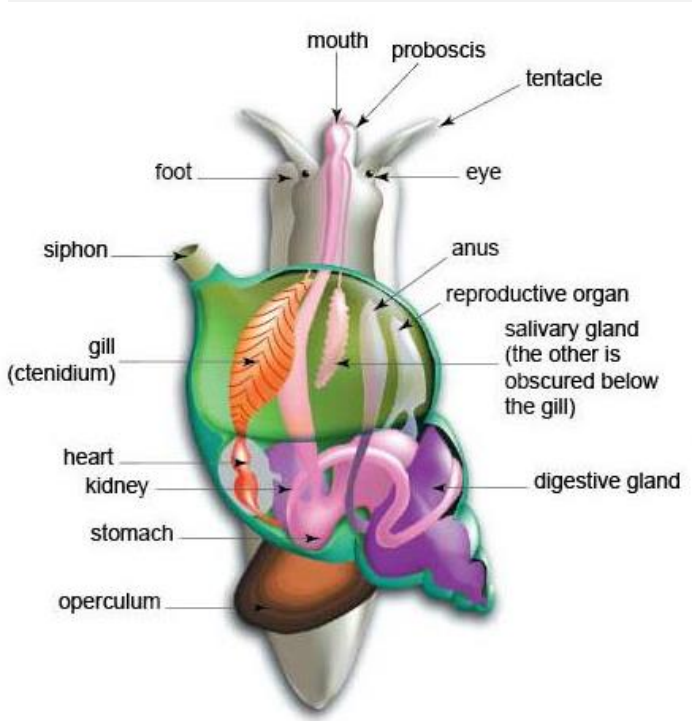
Razred: Gastropoda (puževi)

- dišni sustav
  - vodeni
    - ktenidije (peraste škrge)
    - površina kože
  - kopneni
    - pneumostom → plaštana šupljina → **prokrvljeni plašt**



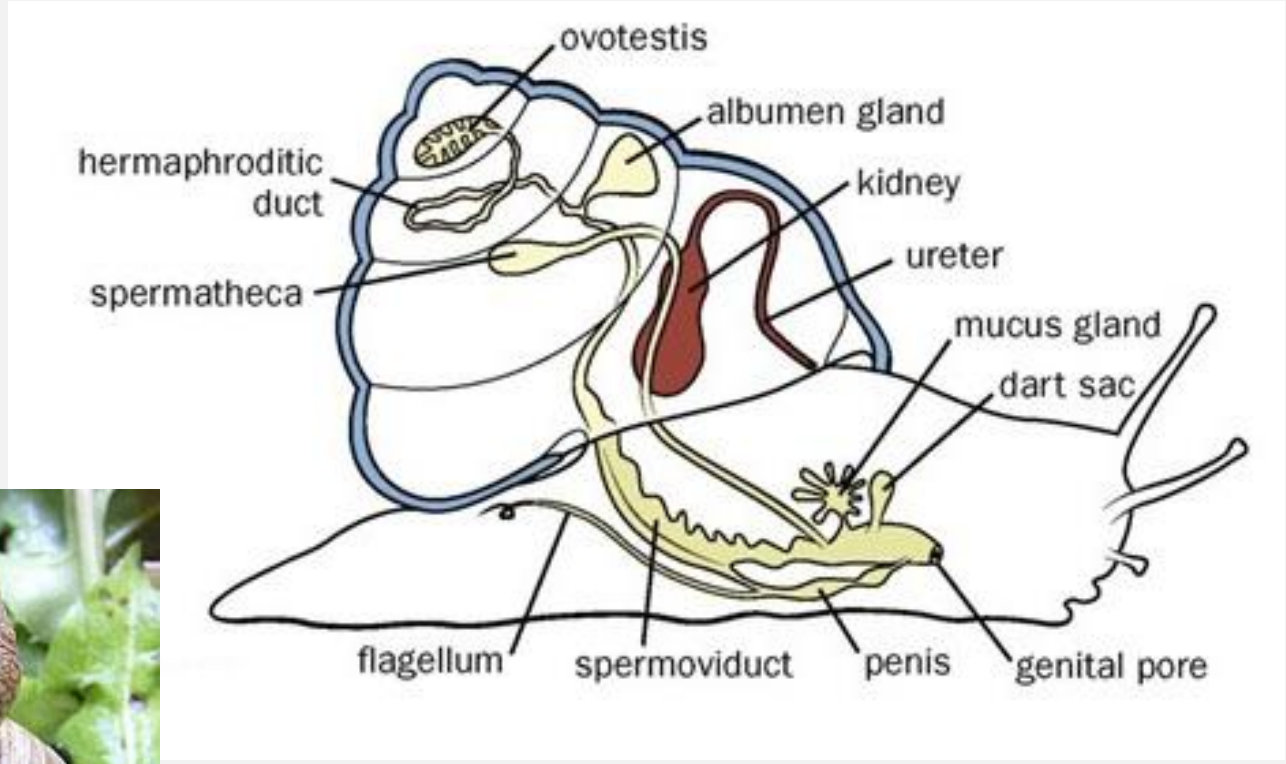






Razred: Gastropoda (puževi)

- spolni sustav
  - razdvojena spola
    - prednjoškržnjaci
  - dvospolci
    - stražnjoškržnjaci
    - plućnjaci

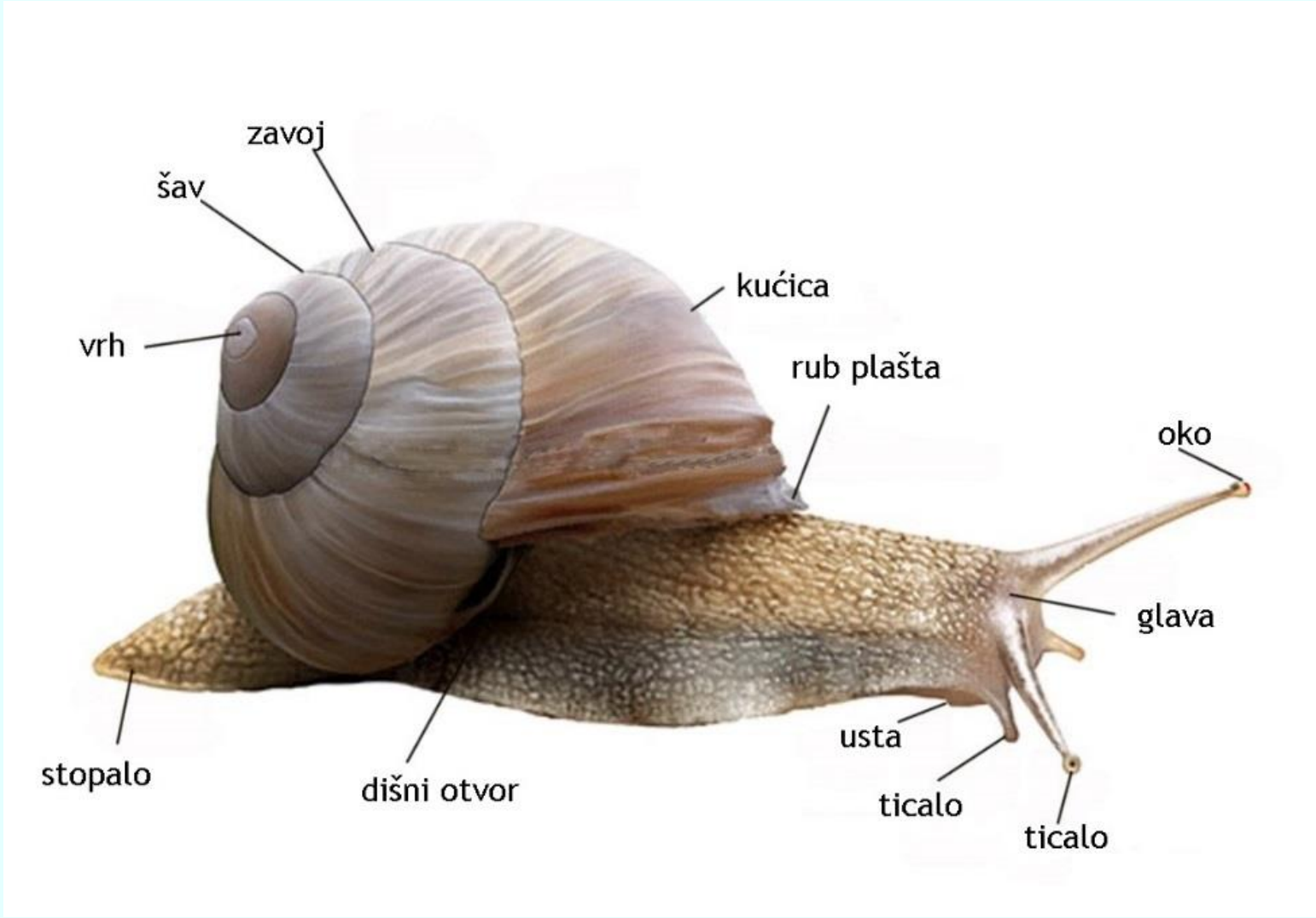




Razred: Gastropoda (puževi)

- vanjski izgled – puž vinogradnjak (*Helix pomatia*):
  - **KUĆICA**
    - **VRH KUĆICE (APEX)**
  - **STOPALO**
  - **USTA**
  - **USNI LAPOVI**
  - **PREDNJA TICALA**
  - **STRAŽNJA TICALA**
    - **OČI**
  - **RUB PLAŠTA**
  - **DIŠNI OTVOR (PNEUMOSTOM)**
  - **SPOLNI OTVOR**

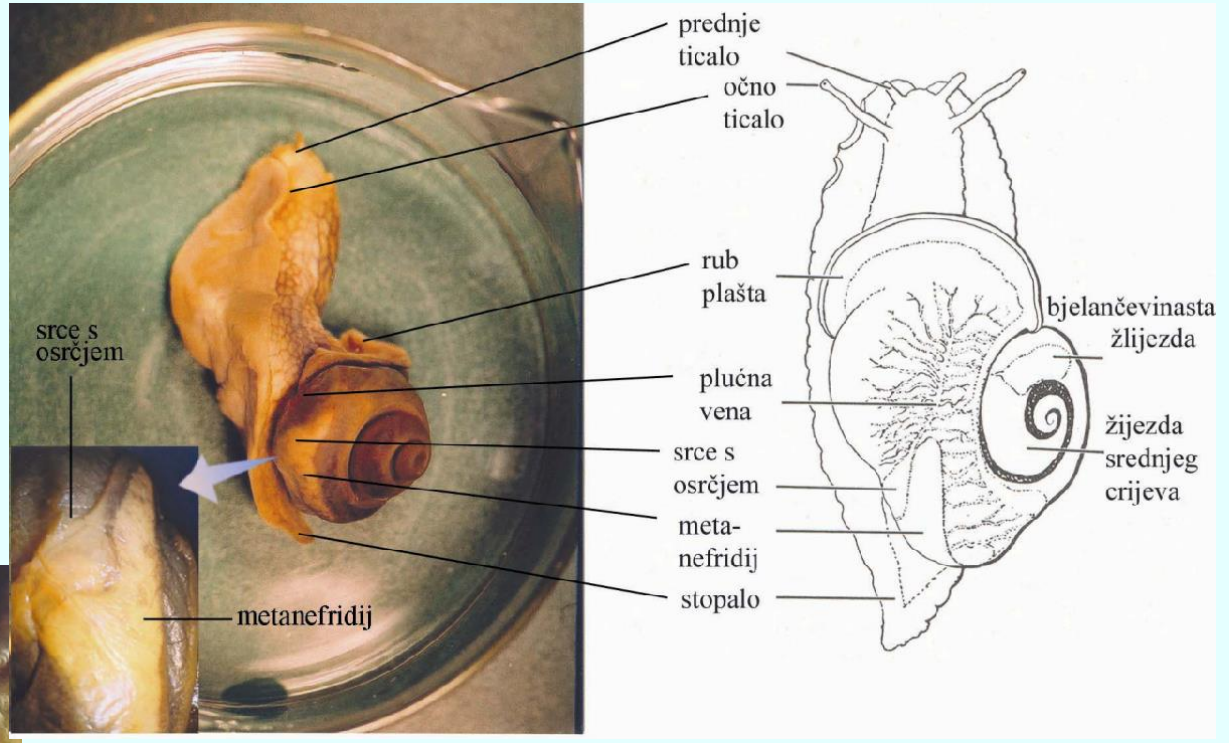
- detorzija – plaštana šupljina smještena s desne strane tijela

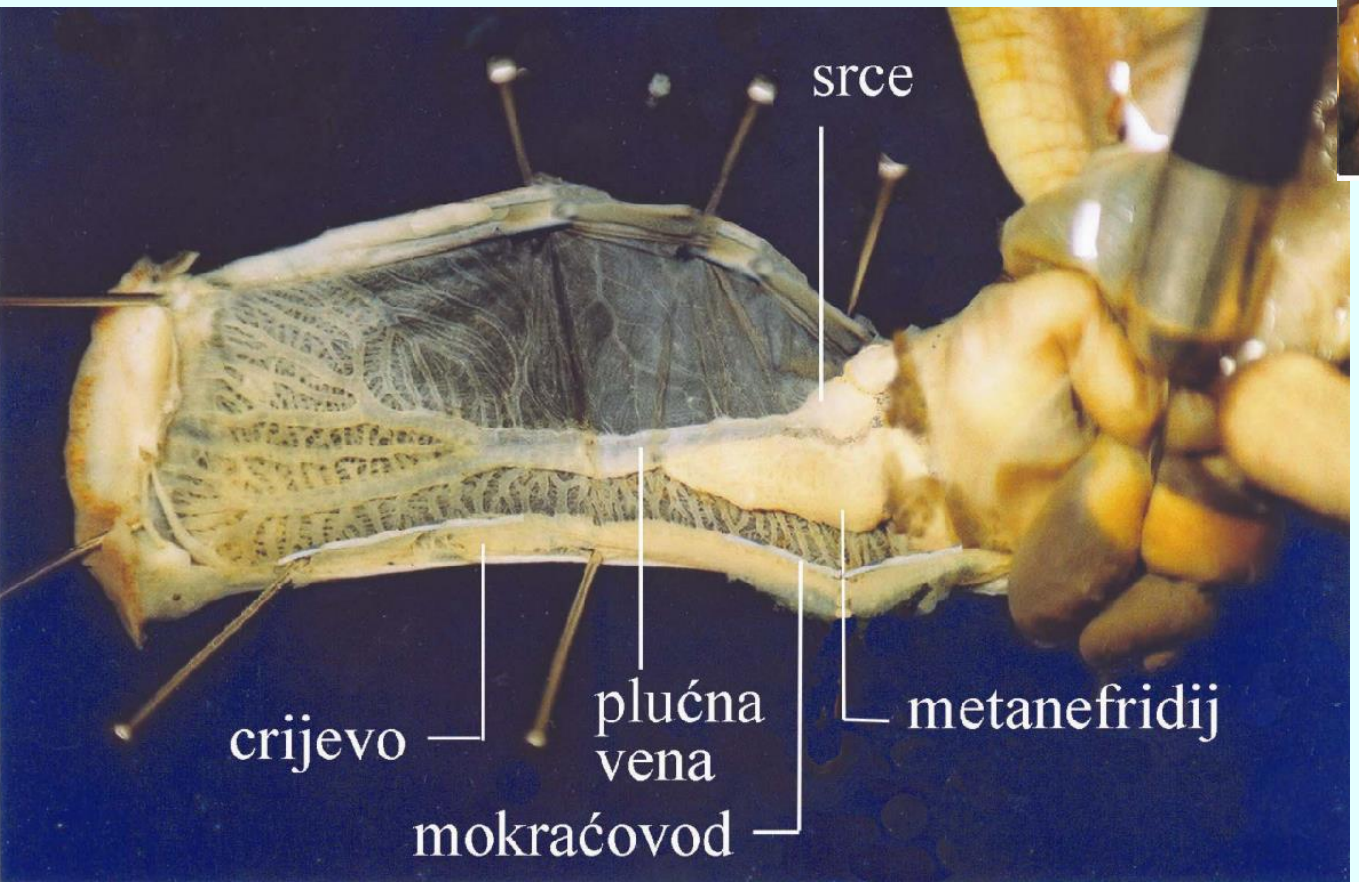


Podrazred: Pulmonata

***Helix pomatia* (puž vinogradnjak)**

- **organi plaštane šupljine**





Razred: GASTROPODA – puževi



***H. pomatia* – organi plaštane šupljine:**

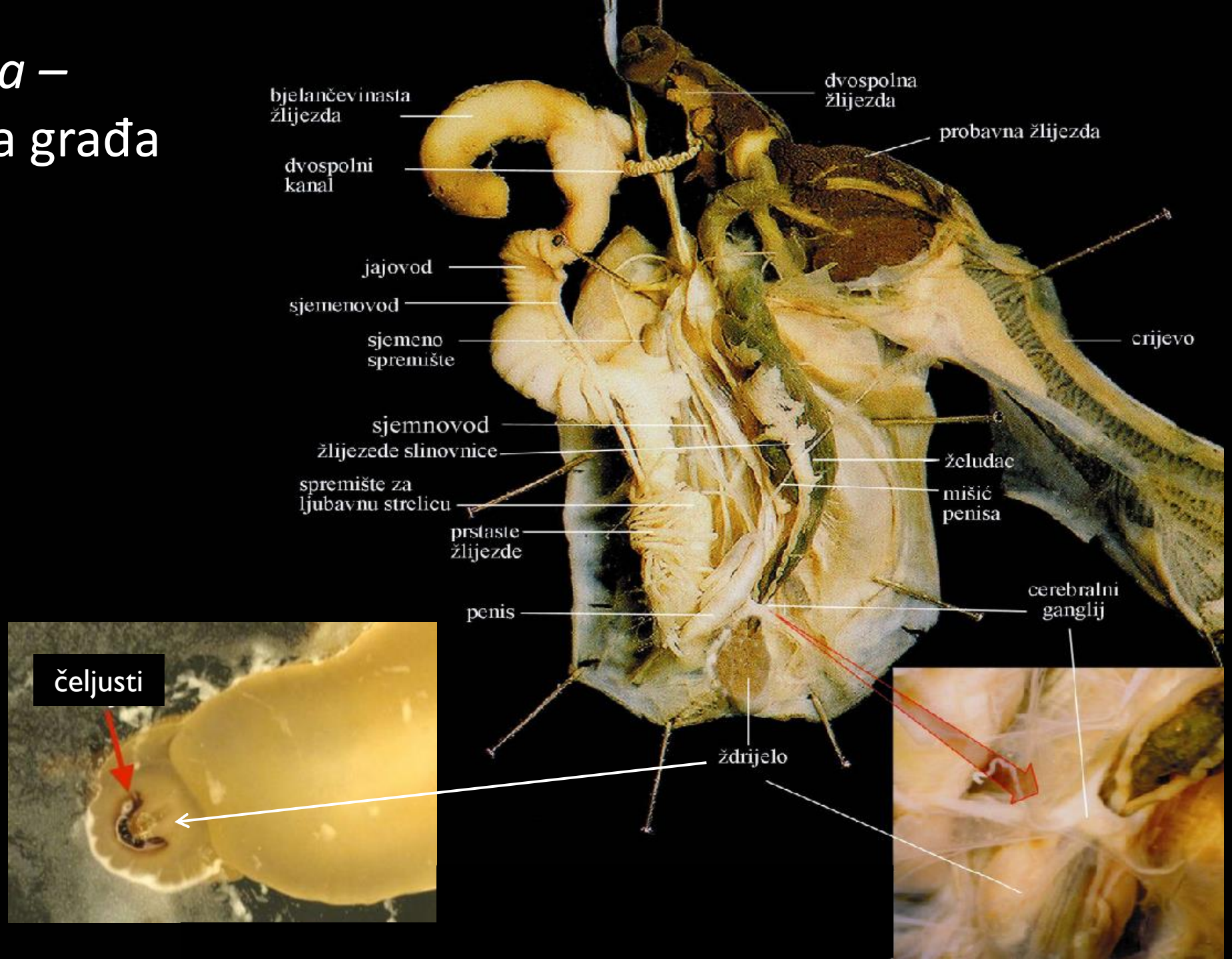
- **PROKRVLJENI PLAŠT**
- **PLUĆNA VENA**
- **OGRANCI PLUĆNE VENE**
- **SRCE: PRETKLIJETKA (1)**
  KLIJETKA (1)
- **OSRČJE (PERIKARD)**



- **METANEFRIDIJ**
- **MOKRAĆOVOD**
- **(NEFRIDIOPOR)**
- **CRIJEVO**
- **(CRIJEVNI OTVOR)**
- **RUB PLAŠTA**

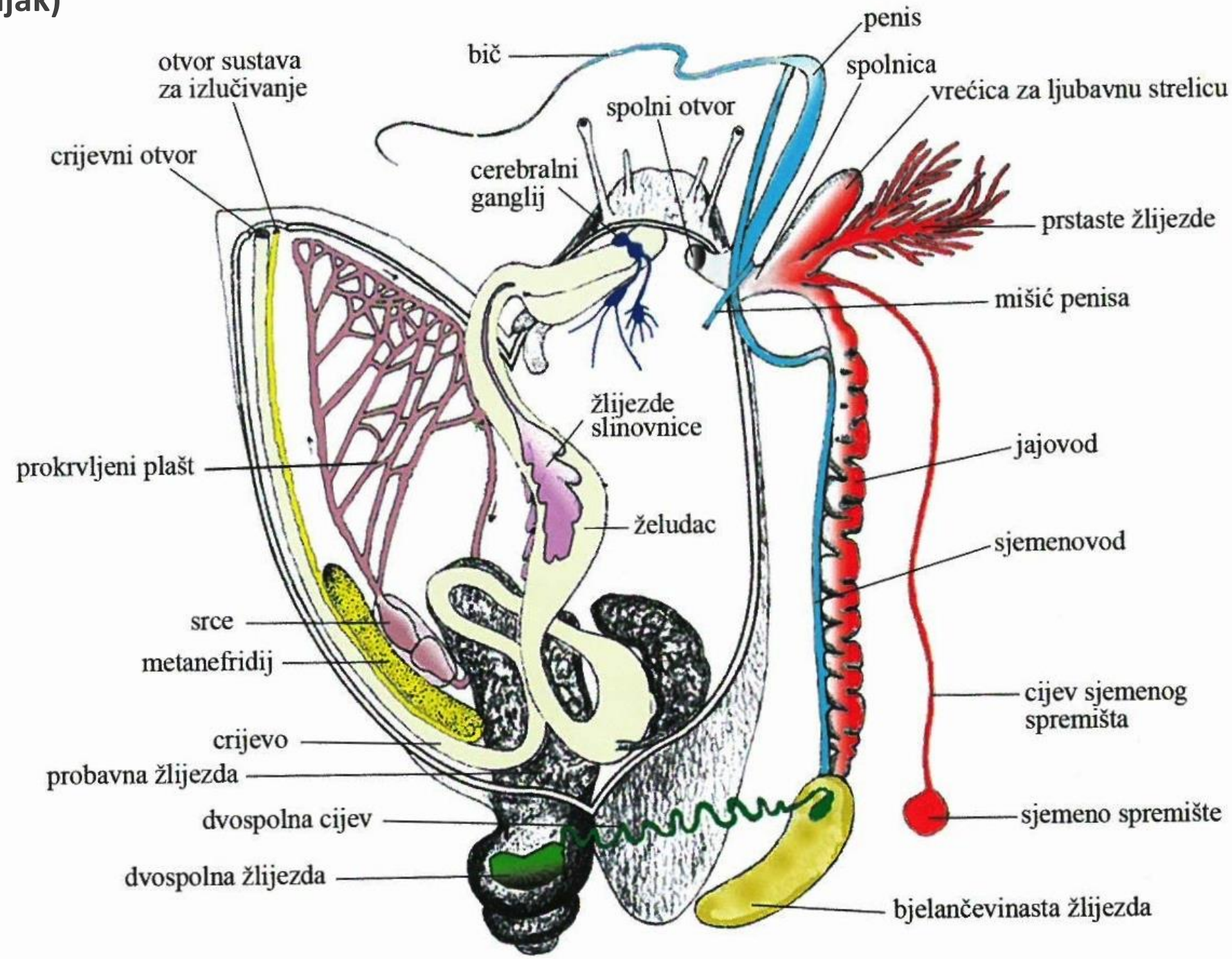


H. pomatia – unutrašnja građa



Helix pomatia (puž vinogradnjak)

- unutrašnja građa



Razred: GASTROPODA – puževi

H. pomatia – unutrašnja građa:

spolni sustav:

- DVOSPOLNA ŽLIJEZDA (OVOTESTIS)
- DVOSPOLNI KANAL
- BJELANČEVINASTA ŽLIJEZDA
- SJEMENOVOD
- PENIS
- BIČ (FLAGELLUM)
- MIŠIĆ RETRAKTOR PENISA
- JAJOVOD
- SJEMENO SPREMIŠTE
- CIJEV SJEMENOG SPREMIŠTA
- SPOLNICA (VAGINA)
- PRSTASTE ŽLIJEZDE
- SPREMIŠTE ZA LJUBAVNU STRELICU

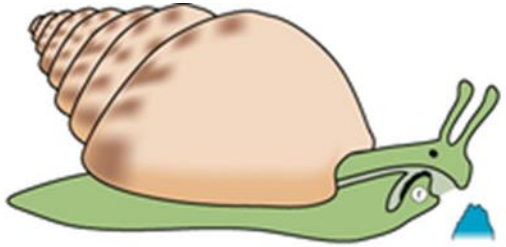
probavni sustav:

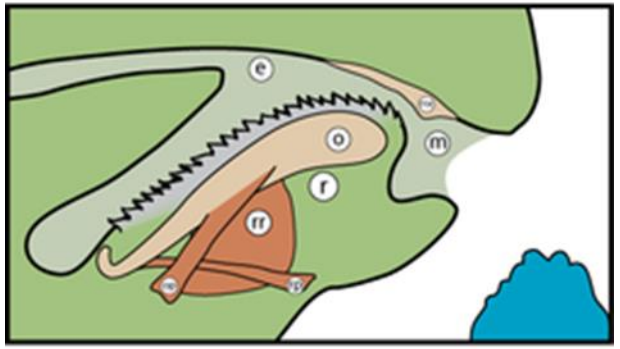
- HITINSKE ČELJUSTI
- ŽDRIJELO S RADULOM
- JEDNJAK
- SLINSKE ŽLIJEZDE
- ŽELUDAC
- CRIJEVO
- PROBAVNA ŽLIJEZDA (HEPATOPANKREAS)

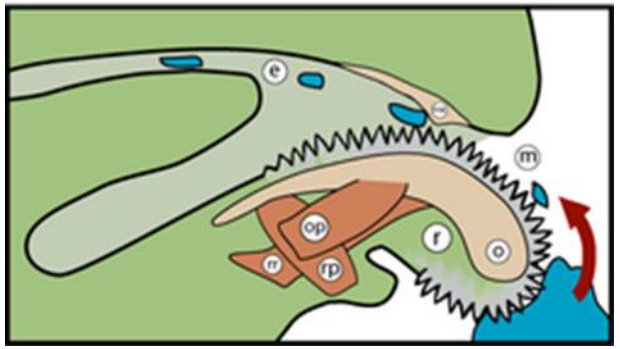
živčani sustav:

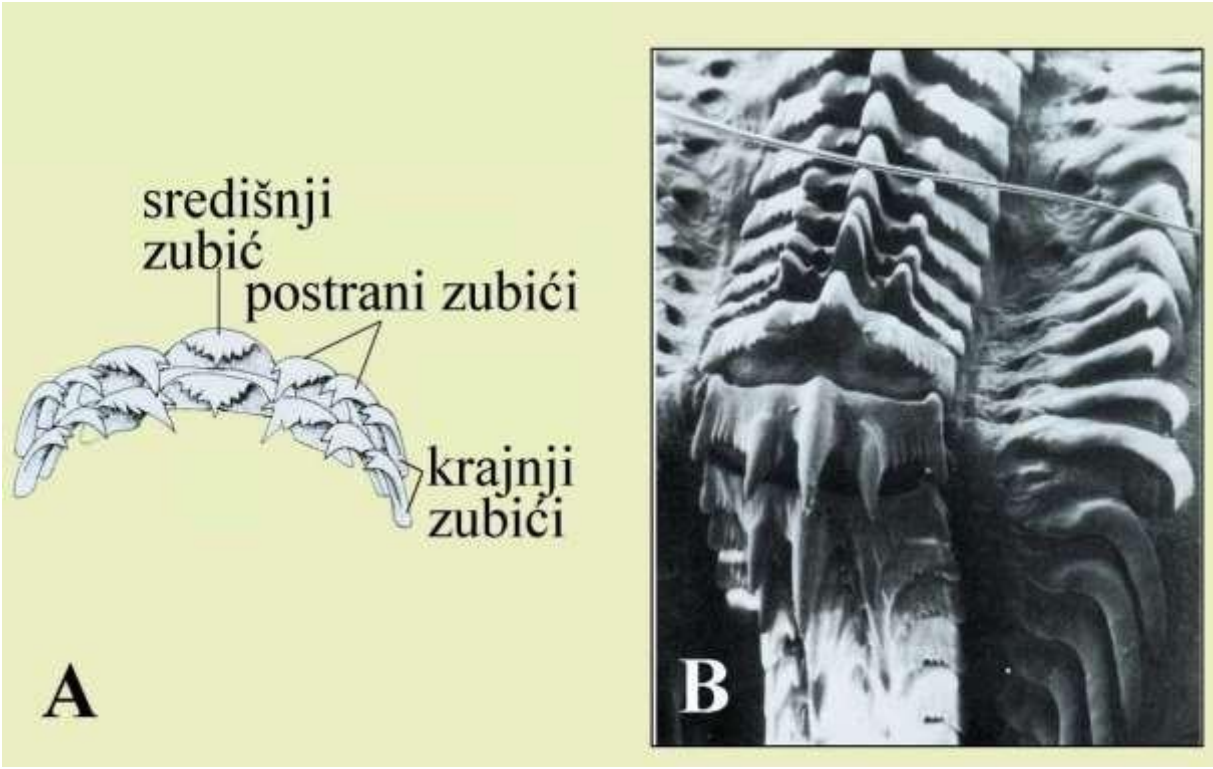
- CEREBRALNI GANGLIJ

***H. pomatia* –**
građa radule



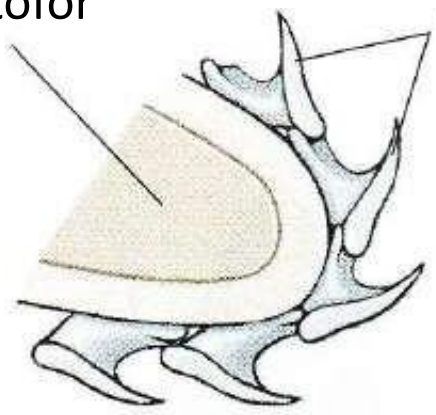






odontofor

hitinski zubići radule



https://www.youtube.com/watch?v=cEMK3VN8pW8

Podrazred: Pulmonata (plućnjaci)

***Helix pomatia* (puž vinogradnjak)**

- https://www.youtube.com/watch?v=j_S-KuAwrR4