

Bio 112 Handout for Animals 1

This handout contains:

- Today's iClicker Questions
- Instructions for joining the Bio-Majors' e-mail list.
- Handouts for today's lecture

iClicker Question #16A - before lecture

Which of the following systems are present in animals but not in plants?

- A. circulatory
- B. gas exchange
- C. excretory
- D. none of the above
- E. all of the above

iClicker Question #16B - after lecture

Which of the following systems do animals have as a necessary consequence of eating other creatures (as opposed to making their own food like plants do)?

- (A) digestive system
- (B) excretory system
- (C) nervous system
- (D) all of the above
- (E) none of the above

Beaming in your answers

1. Figure out your answer and select the appropriate letter (A-E).
2. Turn on your iClicker by pressing the "ON/OFF" button; the blue "POWER" light should come on. If the red "LOW BATTERY" light comes on, you should replace your batteries soon.
3. Transmit your answer

Join the Biology majors' e-mail list!

You will automatically receive info about:













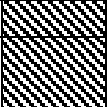

















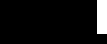

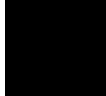
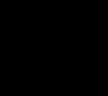



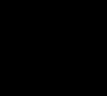
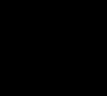
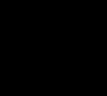


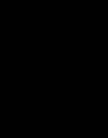
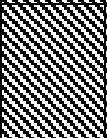


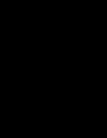
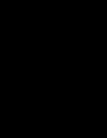
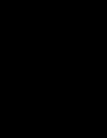

- job offerings at UMass and elsewhere
- advising info
- much, much more.
- course updates & scheduling
- seminars


How do I join?


- 1) Access your e-mail account on any computer just as you would to send an e-mail to a friend.
- 2) Set up a blank e-mail to this address: bio-majors-subscribe@mail.bio.umb.edu
- 3) There is no need to add a subject or message.
- 4) Send the e-mail message.
- 5) You should receive an e-mail message soon that asks you to confirm your subscription.
- 6) Simply reply to that message (to confirm subscription) and you will be set up as a subscriber.


Bio 112: Animal Lecture Outline

This is the material that will be covered in lectures Animals 2-5.

Organism	Sponge	Jellyfish	Planarian	nematode	Squid	tobacco hornworm moth	Earthworm	Starfish	trout	Rotifers
phylum										
habitat										
body plan										
structural support										
motion										
eating										
digestive system										
respiratory system										
excretory system										
circulatory system										
nervous system										
reproduction										
life cycle										
selected other members of phylum										
interaction of selected other members with humans										

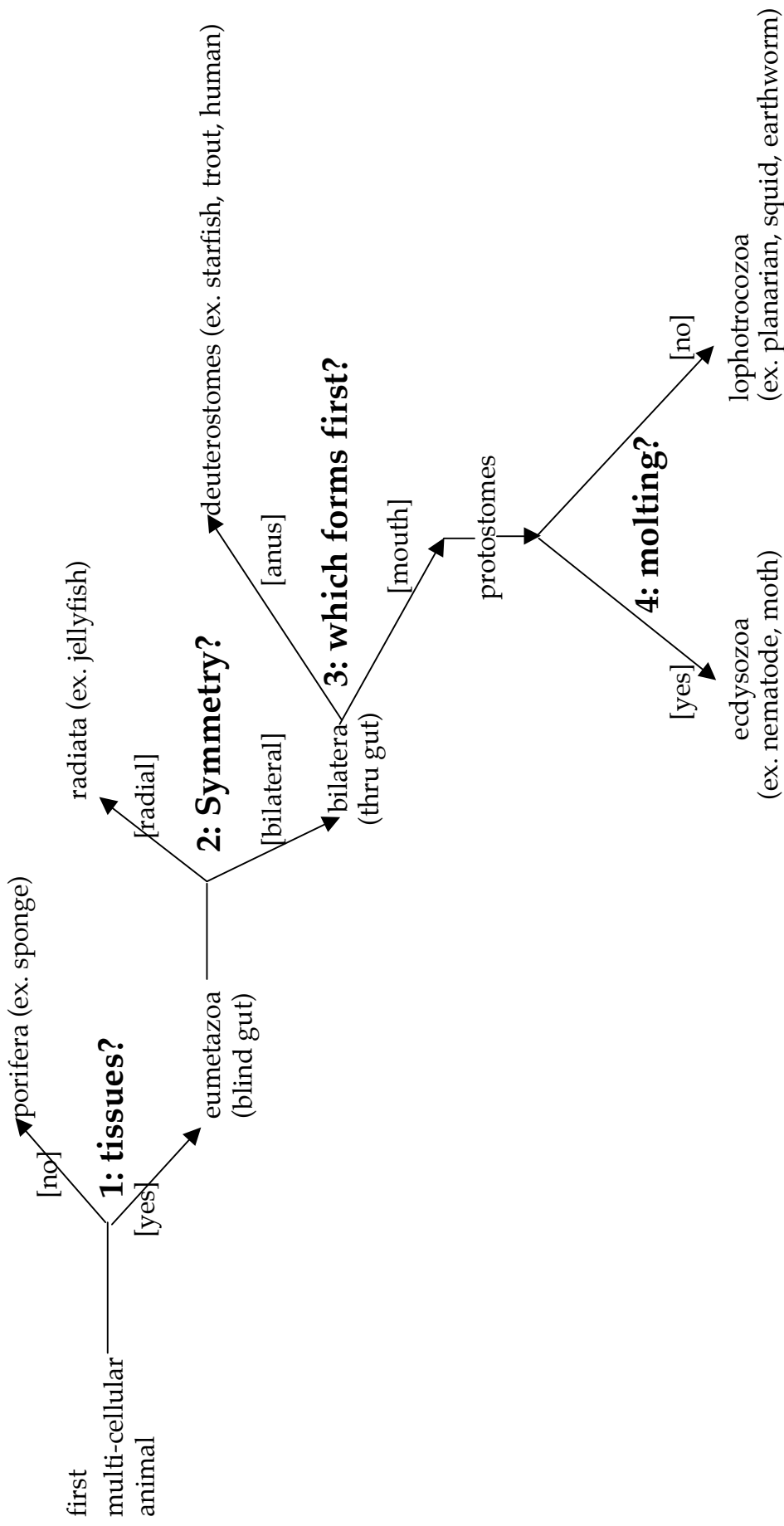
 = you **need** to know this for the exam; I **will** cover it in lecture.

 = you **need** to know this for the exam; I **will not** cover it in lecture.
(you should get it from reading, lab or the Aquarium field trip)

 = you **do not need** to know this; I **will not** cover it in lecture.

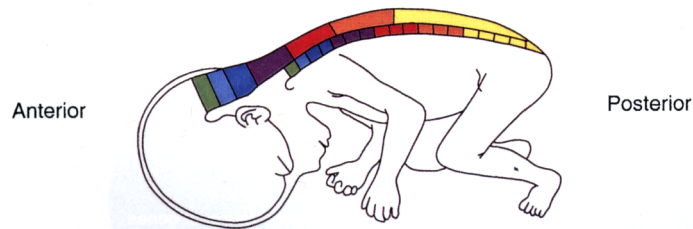
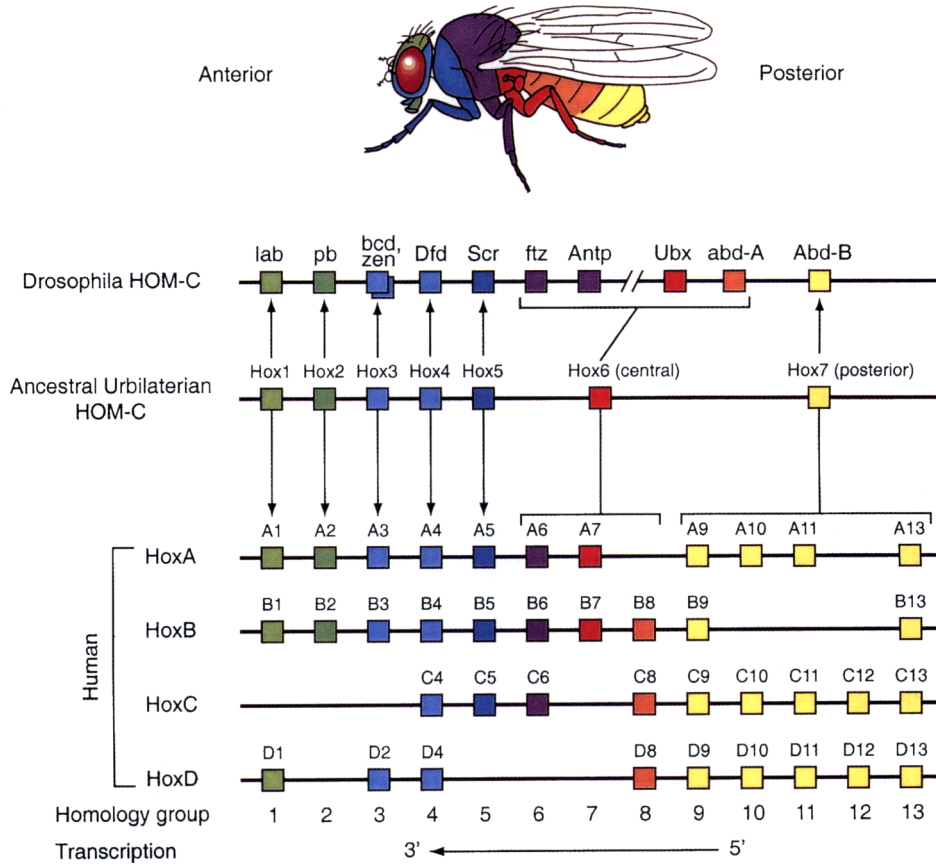
Animal Phylogeny: Major groups

- virtually all groups were present by the end of the Cambrian period (~500Ma).
- organized by increasing “features”, fossil evidence, and molecular phylogeny.



Bio 112 "HOX" genes in animal development

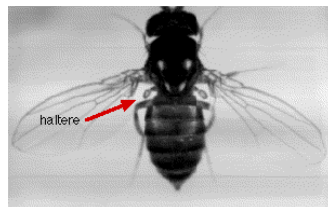
- The "HOX" (short for homeobox) genes are a set of genes that control important parts of development in most, if not all animals.
- Many animal body plans consist of segments; in different segments different sets of HOX genes are expressed.
- Mutations in HOX genes lead to inherited errors of development due to improper segmentation.



Dragonfly (ancestral form) Normal *Drosophila*



(4 wings)



(2 wings; 2 halteres)

Ubx-mutant *Drosophila*



(4 wings - duplicated segment)

Animals 1 - 4