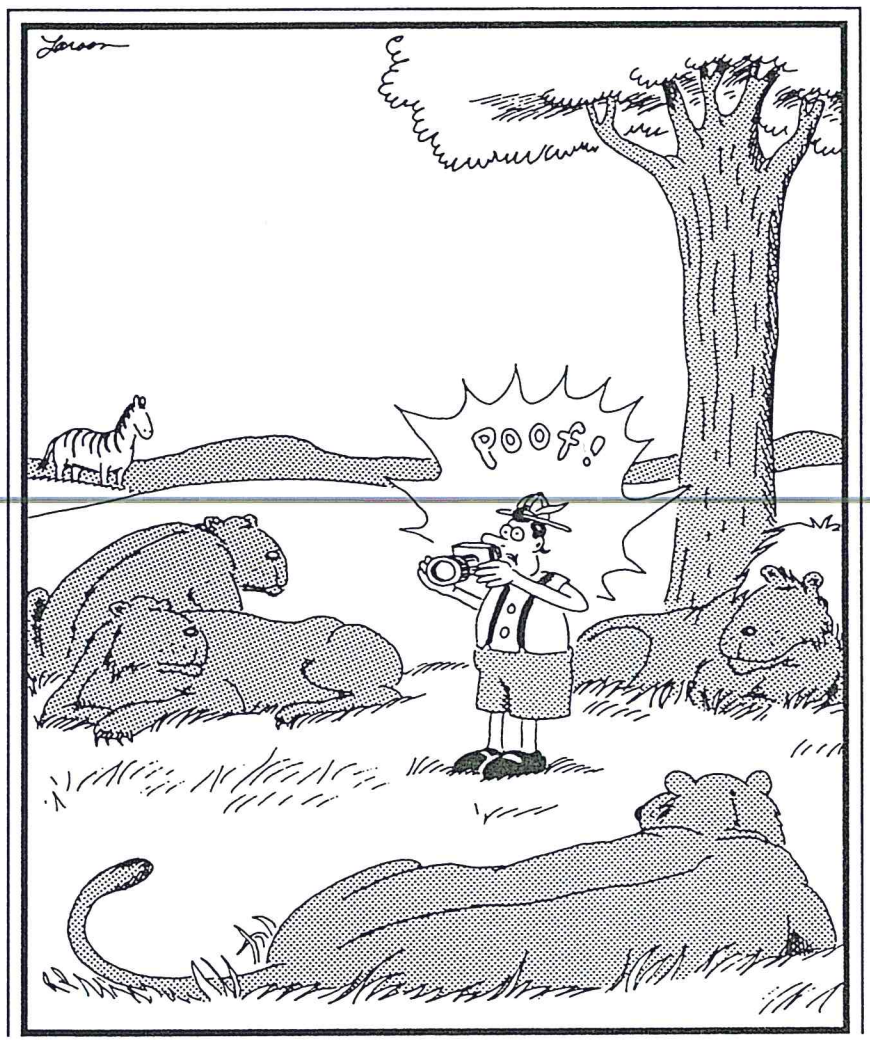
biology
MRL

chapters thirty, etc - Intro to Animalia



While vacationing in Africa, Pinocchio has his longtime wish to be a real boy suddenly and unexpectedly granted.

Kingdom Animalia

A STUDY of the FIFTH & SIXTH DAYS of CREATION

biology
MILLER & LEVINE

"Then God said, "I give you ... fruit with seed in it ... and to ... all the creatures that move along the ground — everything that has the breath of life in it - I give every green plant for food." And it was so.

WHAT, EXACTLY, has THE BREATH OF LIFE WITHIN IT?

➤ Research specific Biblical references to ANIMALS and fill in the table below

	specific animal	reference		specific animal	reference
1.	flea	I Samuel 24:14; 26:20	11.		
2.			12.		
3.			13.		
4.			14.		
5.			15.		
6.			16.		
7.			17.		
8.			18.		
9.			19.		
10.			20		

Once completed, take a look at the next page (Biblical Questionnaire) and select an animal with which you are familiar and plays a decipherable role in Scripture.

BIBLE ANIMAL QUESTIONNAIRE

Selected Animal: Common name:
Scientific name:

Scriptural reference:

Contextual use of animal:

Propose a possible reason for inclusion in scripture:

Could another animal have been used in its place? Why or Why not?

NATURAL HISTORY / STATISTICS

WEIGHT:

LENGTH:

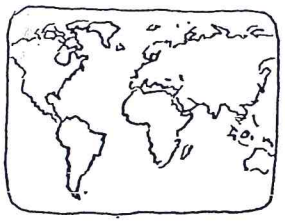
GESTATION / INCUBATION PERIOD:

NUMBER of YOUNG / EGGS:

TYPICAL DIET:

HABITAT(S):

LOCATION:



shade in habitat(s)

DRAWING

animal:

biology
ch. 26

WHAT exactly IS AN ANIMAL? and COMPARISON of the MAJOR ANIMAL PHYLA

When asked to define the term animal, a concise definition is not easily summoned, however, a list of characteristics (none of which, incidentally, is unique to animals) taken as a whole distinguish animals from members of other kingdoms.

1. Animals are m_____ & e_____.
2. Animals are h_____ (consumers · cannot make their own food).
3. Animals typically r_____ s_____ (use of g_____).
4. Animal cells lack a c_____ w_____.
5. Animals are m_____ during some stage of their life.
6. Animals are typically able to make rapid r_____ to external s_____. (often the result of nervous tissue, contractile tissue or both).

In Summary, a simple definition would be:

SURVIVAL is the bottom line common to all LIVING THINGS ...

... what must all animals do? ...

7 essentials

a. F_____ · obtain E

① herbivores:
② carnivores:
③ omnivores:
④ parasites:
⑤ filter feeders:
⑥ decomposers:

b. R_____ · obtain O_2

① aquatic (in H_2O) ② water/moist soil (through skin) ③ terrestrial (air/respiratory system)

c. I_____ T_____ · distribute materials / E throughout body

* little or none (some aquatic) ——→ complex circulatory systems

d. E_____ • elimination of t_____ wastes

⊛ diffusion (some aquatic) ⟶ complex excretory systems

e. R_____ • gathering, interpreting, & acting on external stimuli
(ORGANISMIC)

✓ examples of stimuli: a. finding f_____. b. avoiding p_____

c. i_____ members of same species

Animals employ complex reactions to deal with the aforementioned stimuli by detecting changes in factors such as l_____, s_____, t_____ and p_____...

f. M_____ • motility

⊛ few are s_____ (fixed/immobile) ⟶ complex musculo-skeletal interactions produce complex motions.

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g. R_____ • survival of the species

2 types ① asexual (budding/fragmentation...)

② sexual (employs use of gametes: ♂ sperm ♀ egg(s))

diversity: internal vs. external **fertilization** (dog vs. frog)

direct vs. indirect **development** (bird vs. metamorphic arthropods)

eggs vs. live young

(the CREATIONIST model vs. the EVOLUTIONIST model. ≠ simply "tomāto" vs. "tomăto"

* take a look at any (for they have undergone many revisions and seen many forms) evolutionary phylogenetic tree. (phylogeny - literally means 'origin & development of a taxonomic group)

What is it saying?

Do we believe this?

Why study it, then?

Trends in Animals as one "moves up" the Phylogenetic Tree

1. Increase in C_____ O_____ and S _____.
   * the levels of organization become higher as animals become more complex in form.

   cells to t_____ → o_____ → s_____

2. The P_____ & type of body S_____.

   3 TYPES

   a. a_____ · w/o symmetry

   b. r_____ · any plane through a central axis divides organism into roughly equal portions; "pizza cutter symmetry"
      ▸ biradial (specialized radial symmetry) · creature possesses body parts which allow only 2 longitudinal planes, ⊥ to one another.

   c. b_____ · plane through central axis divides organism into 2 mirror-imaged halves

   (* most common & complex)

   complexity

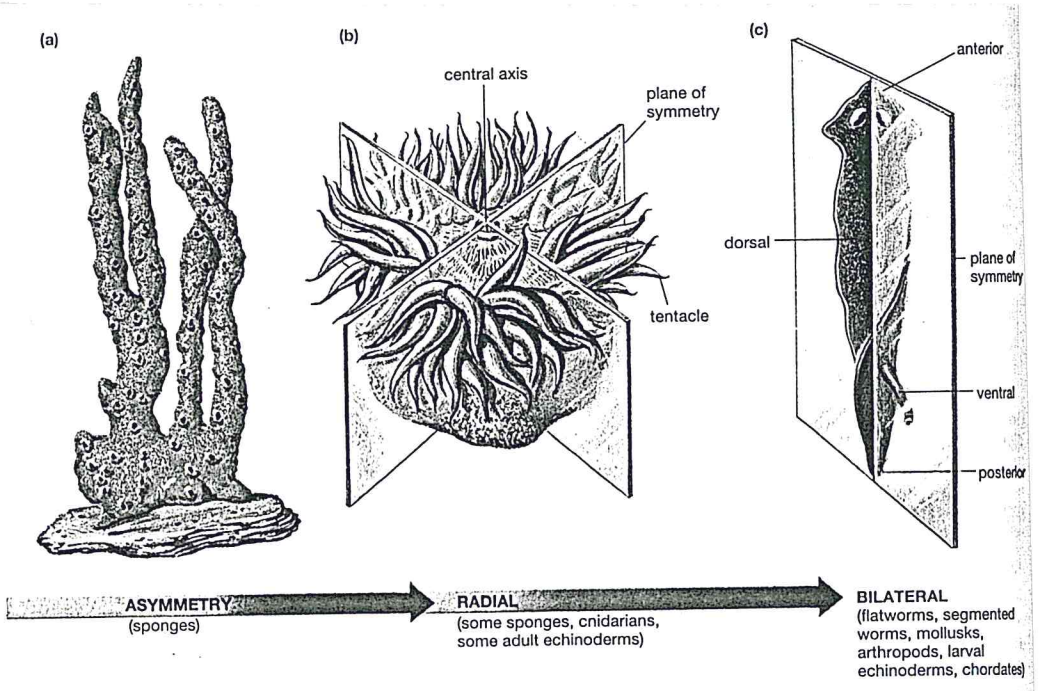
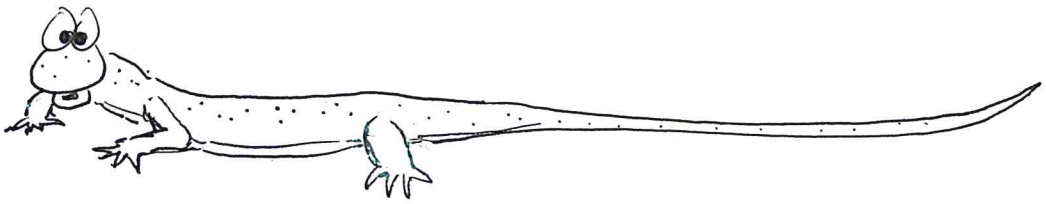


Figure 22-2 Trends in body symmetry and cephalization
(a) Sponges, the simplest animals, lack a head; most are asymmetrical. *(b)* The bodies of some sponges, cnidarians (anemones, hydra), and some adult echinoderms (sea urchins, sea stars) are radially symmetrical. Any plane that passes through the central axis divides the body into mirror-image halves. Animals in these groups lack a well-defined head. *(c)* Nearly all the more complex animals show bilateral symmetry. The body can be split into two mirror-image halves only along a particular plane that runs down the midline. Animals with bilateral symmetry have an anterior head end, a posterior tail end, a dorsal upper surface, and a ventral underside.

3. The degree of c_____.
"kephale" gr.: "head"

* literally meaning 'the degree to which major s_____ structures and f_____ mechanisms are concentrated on the anterior end.



4. The presence and type of b____ c_____.

* Is there a cavity between the digestive tube (gut) and outer wall?

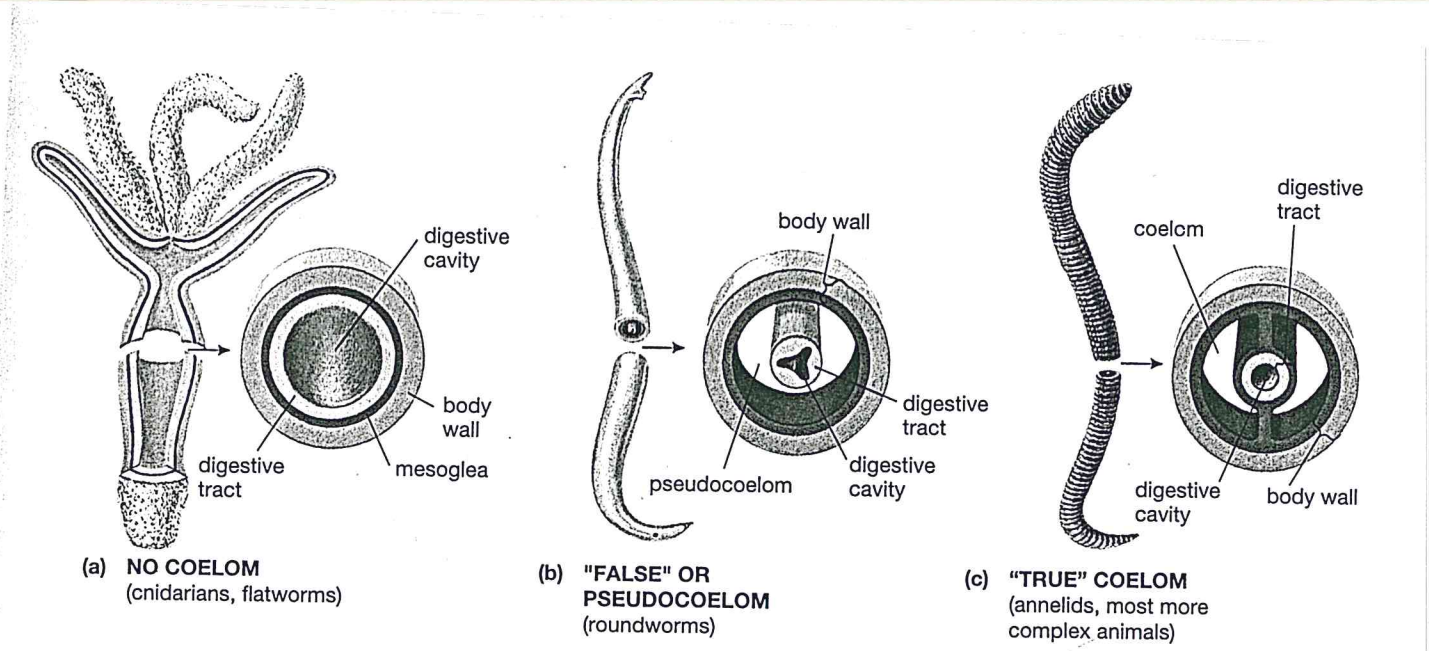


Figure 22-3 Trends in body cavities
(a) Cnidarians and flatworms have no cavity between the body wall and digestive tract. *(b)* Roundworms have a fluid-filled cavity, called a pseudocoelom, between the body wall and digestive tract. The pseudocoelom is partially, but not completely, lined with tissue derived from the embryo's mesoderm germ layer. *(c)* Annelids and other complex animals have a true coelom, a fluid-filled cavity between the body wall and the digestive tract that is completely lined with tissue derived from mesoderm.

5. The presence of S _____.

* Is the body divided up into r_____, similar body parts?

a. allows for increase in body s_____

b. allows for increase in specialization ("ease" of embryological development using small genetic changes)

6. Increase in complexity of i_____ s_____.

OFTEN a focus in BIO

* a. digestive

b.

c.

d.

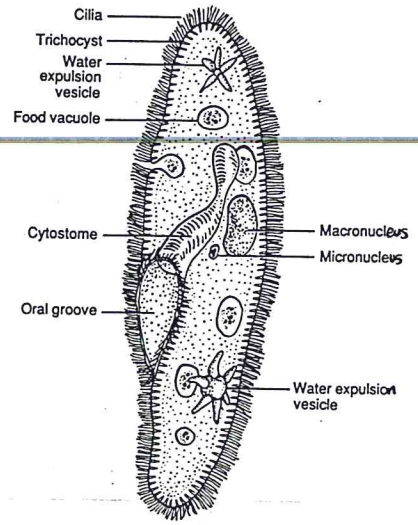


Figure 3.10 ***Paramecium.*** Ciliates in this genus are common in freshwater habitats.

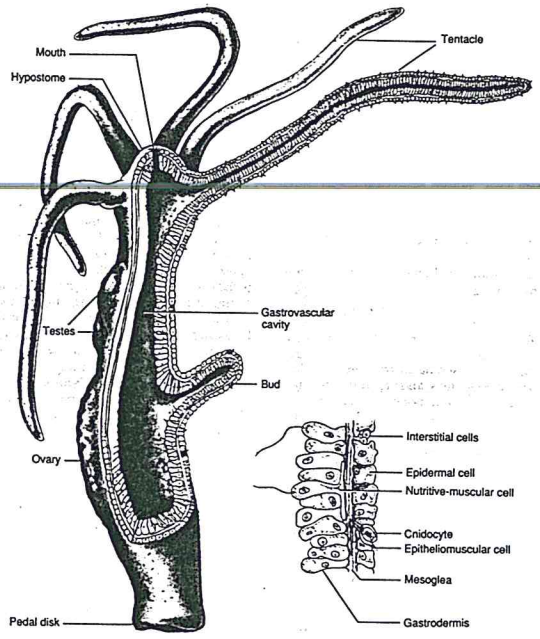


Figure 5.2 **Anatomy of *Hydra* sp.** (a) *Hydra* can capture prey with its tentacles, which are then inserted into the mouth. Digestion occurs in the gastrovascular cavity. (b) The illustration of a microscopic view of *Hydra* shows the three tissue layers of the body wall as well as several specialized cells in the layers.

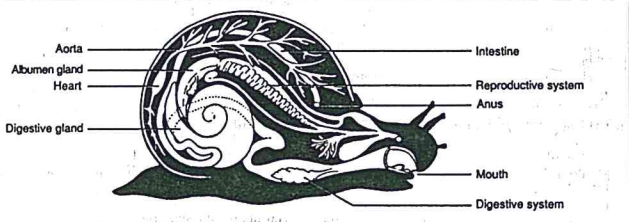


Figure 8.11 **General anatomy of a sinistral snail (*Helix* sp.).**

◂ comparative digestive systems

a. Protozoan (paramecium · unicellular)

b. Cnidarian (hydra · ✳ ← actual size)

c. Molluscan · Gastropod (snail)

Kingdom Animalia

WILDLIFE cards

Card Information : All elements must be included to receive full credit.

Front Cover

1. Name (of animal)
   Scientific Name (Genus & species)

   ie. DUCK
   Chuckius eckartius

2. Student name
   date completed
   organism type/group
   (INVERTEBRATES, FISH, BIRDS, REPTILES AMPHIBIANS, MAMMALS, etc)

   ie. ~~mr.~~ eckart
   april 1, 2000
   BIRDS

3. Photo or Picture of Animal
   (may be a photo, hand drawing, or magazine cutout; if drawn, be sure to include appropriate habitat / environmental background)

   ie.

4. Key Features : select most 2-3 important and unique aspects to highlight and introduce reader to animal. (Use facts slightly less unusual or trivial than in section 6's "Did You know?")

5. Where in the World?

   ie. (see actual WILDLIFE card)

   a. Show small shaded map (see class notes)
      - shade in appropriate geographic areas where your animal can be found

   b. Describe the area(s) you have shaded in with a one sentence description using appropriate terms (ie countries / continent names / habitat types)

Card Information — continued

Inside:

(6.) * Lifecycle: most vital information; keep in mind, although all the information is necessary to include on the inside of your card — the layout of the INSIDE (LIFECYCLE) is up to you - be creative & use your space wisely.

a. HABITAT

1 PP

1. Photo or drawing with caption of habitat
2. A good sized paragraph description of the environment in which your animal lives (be specific)

b. BREEDING

1 PP

How does your animal reproduce? As appropriately as possible describe how your animal continues the species. Most males differ greatly from females to the eye — you may wish to feature a picture of a typical male and female to contrast their appearances... what is borne? Are eggs laid? How many young? AND SO ON

c. FOOD & HUNTING / FEEDING · explore a few of the following questions

1 PP

What does it eat? How does it find its food? How much does it consume? How often does it have to hunt/feed?

► For something interesting to include: try to find (or draw) a small picture of your animal feeding on its typical diet...

d. BEHAVIOR

1 PP

Select behavioral traits which are typical of your animal... Is it social? Is it territorial? How does it spend its time when it is NOT hunting / feeding? You may wish to highlight one or more fascinating habits...

e. CONSERVATION

1 short P

Try to summarize the stability of the overall population on the planet... Are they plentiful? Stable and growing? Are they on the decline? Endangered? Is conservation an active process? (If conservation efforts are presently (or historically) being done, mention any details you can find) If they are in danger, cite why and propose a possible solution...

f. DID YOU KNOW?

2-3 sentences

Share 2-3 odd / trivial pieces of detailed information about your organism. (This will have to be researched more carefully).

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g. Include another drawing or photo of animal <u>with an appropriate caption</u>.

Back:

(7.) Self drawn portrait of animal (<u>MUST</u> be self drawn)

- label at least 3 parts of the animal and share one interesting fact next to the label.

(8.) CREATURE COMPARISON.

1 short P

Choose another related or unrelated animal with which to compare; Choose an aspect to contrast or compare (color, size, shape / function, etc) Draw or show pictures if appropriate.

(9.) VITAL STATISTICS: include - WEIGHT, LENGTH, GESTATION PERIOD, # of YOUNG / EGGS, TYPICAL DIET, LIFESPAN

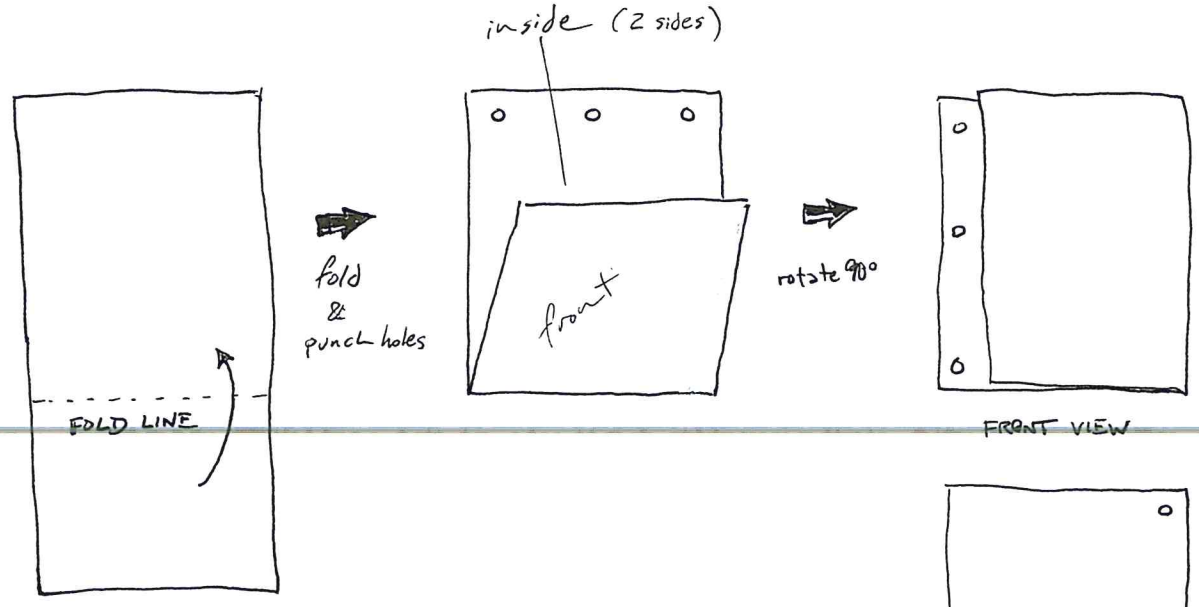
OPTIONAL (10.) RELATED SPECIES: Choose an animal relative of your animal; discuss it and its taxonomy

* three * (other relatives / contrasts between them)

Kingdom Animalia

WILDLIFE cards

Card orientation: Follow folding and information directions below.



Card Information & design layout