

Survey of Bio.

Wk 14

Thrupp
Survey
Pg. 1

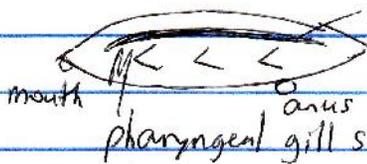
WED, 2009-12-02, 8-9:20 AM

Phylum Nematoda - roundworms in sm. intestine as a parasite - grow & steal food.

Tapeworms are up to 65 feet long. They can grow in your intestines. Animal Planet video of a man who defecated part of a tapeworm & tried to pull it out but it crawled back in the rectum part of

Ch. 17 4 characteristics of Phylum Chordata:

- ① Rigid notochord
- ② dorsal, hollow nerve chord
- ③ pharyngeal slits
- ④ post-anal tail.



Chordata - worm that doesn't bend

Human Baby (foetus)

Chordata: Subphylum invertebrata: lancelets & tunicates 

: Subphylum vertebrata: examples: mammals, birds, reptiles, amphibians, cartilaginous fish, bony fish. not a jellyfish

Birds evolved shortly after reptiles.

Agnathans lacked jaws: example: lamprey. lacking jaws is the Chordata phylum, vertebrate subphylum. Agnathan = class. key characteristic

Chondrichthyes (have a complete skeleton made of cartilage fish of cartilage): sharks, skates, & rays

Coral is in phylum **Cnidaria** **Osteichthyes** (have a bony operculum)

Cnidaria

Osteichthyes

Osteo or osteo = bone

trout & salmon



bony operculum

covers the gills

WED, 2009-12-02 8-9:20 AM: Terrestrial (land)

vertebrates are collectively called **tetrapods** meaning "4 legs"

☺ The real reason for the evolution of land animals:

☺ fish went on land to get the baseball

Lobe-finned fish had lungs & fins with muscles. They evolved into amphibians by swimming onto land and mutating.

Lobe-finned fish → **early amphibian**

Class Amphibia: key characteristic: **Moist skin with many glands**

→ need water to reproduce | Snakes, turtles, lizards, crocodiles = **Class Reptilia**

Adaptations: **Scales** to prevent dehydration

lungs for breathing, the amniotic egg | ☺ Reptiles are **ectotherms**

Class Aves: diagnostic characteristic

is **feathers**, (evolved scales)

get heat like ectoderm from air = outer skin

→ think aviation (for flight), or aviary (big bird cage).

Marker: 8:45AM: Video of a bird singing - copying the songs of the birds around him **Lyre bird**

☺ Birds have honeycombed bones (lighter), reduced organs, & a warm, constant body temperature (endothermy)

Class Mammalia: 2 key characteristics:

hair and mammary glands - to feed babies milk (endoderm layer)

Three classes: **monotremes** (lay eggs - only mammals that lay eggs) duck-billed platypus is a monotreme, **marsupials***, **eutherians***

Marsupials ☐ Most mammals are nurtured inside the mother by an organ called a placenta. * Small baby crawls out of vagina to the mother's pouch to grow more. * Eutherians are also called placental mammals - they are born more developed.

☺ Female horse + male donkey = mule (female) **STERILE**

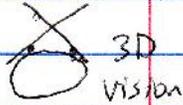
64 chromosomes

62 ch

63 ch

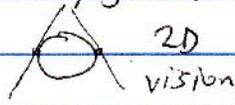
WED, 2009-12-02, 8-9:20 AM

- ① reasons species may not mate: chemical, behavioral, physical, etc
- ② Humans are primates. Early primates ate insects & lived in trees
- ③ We have limber ~~thigh~~ joints. Not so much for shoulders



humans

(can't see behind)



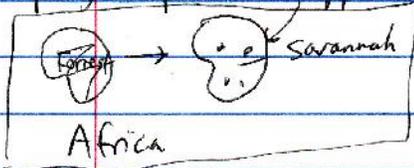
deer (can see behind)

④ Anthropoids include monkeys.

⑤ Apes = closest relatives to humans. Humans & apes came from a common ancestor
Orangutans → Chimpanzees → Humans
→ 5-7M years ago (undiscovered)

Homo habilis → Homo erectus → Homo sapiens

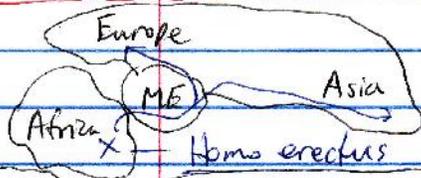
⑥ Upright posture appeared before an enlarged brain during evolution.



Lucy (hoaxed transitory relic)
Homo habilis = "handy-man"

Had a larger brain, probably made stone tools from ~~the~~ fossil evidence

Homo erectus (erect = walking) came after Homo habilis,



moved to the Middle East, Asia, and Europe first, 1.8 million years ago
The oldest known post-Homo erectus

⑦ the oldest Homo sapiens fossils are more than 300K years old & are found in Africa
are from ~150,000 years ago

(fossils) 2 hypotheses: "multiregional hypothesis" and the "Out of Africa" hypothesis

↳ Homo erectus spread from Africa into other continents ~2 million years ago.

↳ this is supported

↳ we evolved separately on separate continents simultaneously.

THU, 2009-12-03, 12:30-1:50 PM

Flatworms → roundworms → segmented worms
Platyhelminthes Nematoda Annelida
Sponges = only asymmetric phylum Polychaetes, leeches

Phylum Arthropoda are completely covered by exoskeletons (as opposed to our endoskeletons). More species of Arthropoda than any other phylum. Includes 1) ~~arth~~ Arachnids (spiders, scorpions, ticks, and mites), 2) Crustaceans such as crabs, lobsters, crayfish, shrimps, & barnacles, 3) Millipedes (2 legs per segment) & centipedes (1 leg per segment), 4) Insecta are the most diverse class of Phylum Arthropoda. Phylum Echinodermata:

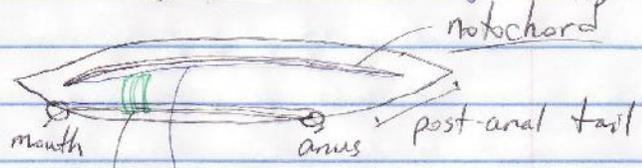
starfish, sand dollars, sea urchins, and sea cucumbers.

Related to phylum Chordata due to embryonic development.

Have water vascular system for gas/water exchange rigid diagnostic characteristic!

Phylum Chordata:

- 1) a dorsal, hollow nerve cord
- 2) a notochord (could become bone)
- 3) pharyngeal slits
- 4) post-anal tail



pharyngeal slits
gill slits
lancelets & tunicates.

Invertebrate subphyla

Vertebrate subphyla = these classes: Agnatha, etc.

Agnatha: Lacked jaws

Chondrichthyes: complete skeleton made of cartilage

Osteichthyes: bony fish have a bony operculum over gills

Amphibia: first vertebrates on land, ex: trout & salmon descended (evolved) from lobe-finned fish

THU, 2009-12-03, 12:30-1:50 PM:

Class Amphibia: Moist skin w/ many glands. key (frogs)

Class Reptilia: scales to prevent dehydration, lungs for breathing, amniotic eggs (crocodiles)

Class Aves: key characteristic is feathers. The Lyre bird with

Class Mammalia: hair AND mammary glands (2 key characteristics) Richard Attenborough (sp?)
kangaroo vs

1) Monotremes: mammals that lay eggs. walabies = small

2) Marsupials: pouched animals: baby is kangaroo

born young & has to crawl to the pouch to grow from the mother's milk

3) Eutherians: placental animals: baby is developed longer & can often walk at birth (i.e. zebras).

Why some species don't mate: genetic, behavioral, physical, chemical & immune reasons

The evolution of Primates: evolved from insect-eating mammals

① The distinguishing characteristics of primates were shaped by the demands of living in trees.

Primates have limber shoulder joints, eyes in front of face, & we take care of our children

chimps are closest to humans.

We did not evolve from chimps - we have an unknown common ancestor, 5-7 million years ago. Upright posture appeared first

Homo habilis = had a bigger brain, probably made stone tools

The brain grows after birth so we have to take care of our children for a long time "handy man"

Homo erectus: The man that walked a lot

THU, 2009-12-03, 12:30-1:50 PM

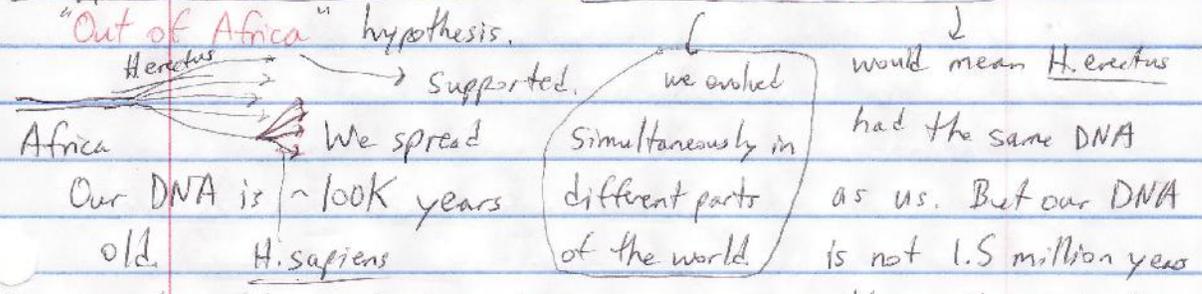
Homo erectus is the first species to extend humanity beyond Africa. Then Homo neanderthalus came after.

Homo sapiens can understand complex speech & can communicate well.

"I didn't say he stole it." can mean many different things.

Fossil records can't tell us everything. The oldest fossils we have of Homo sapiens are ~150,000 years old.

2 hypotheses on our evolution: "multiregional hypothesis" & "Out of Africa" hypothesis.



- 3 major steps of our development:
 - 1) nomads, hunter-gatherers
 - 2) development of agriculture
 - 3) industrial revolution

The rate of extinction in the 20th century was 50 times greater than in the previous 100,000 years (on average per century).

Porifera, Cnidarians, Platyhelminthes, Annelida, Arthropoda, Mollusca, Echinodermata, Chordata

END