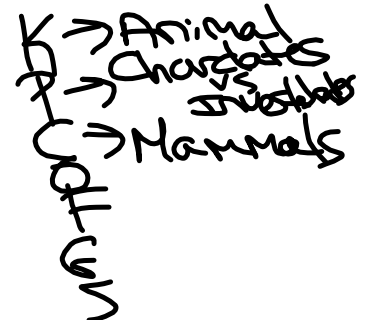


Marine Mammals



I. What is a mammal?

- a) Examples include → whales, dolphins, sea otter, seals, tigers, lion, bear, humans, cats, dogs, monkeys,
- b) Characteristics

- ① Have a backbone
- ② Heterotrophic (most are carnivorous)
- ③ Warm-blooded
 - Homeothermic → maintain a stable body temp.
 - Endothermic → body temp is regulated by your insides
- ④ Have hair/fur
- ⑤ Have lungs (breathe air)
- ⑥ Viviparous (live births w/ umbilical cords)
- ⑦ Have mammary glands (produce milk)
- ⑧ Young are altricial → require parental care
- ⑨ Complex nervous systems

II. Marine Mammals

a) What are examples of marine mammals?

Whales, dolphins, manatee,
Sea lion, seals, walrus, otter
porpoise

b) Two major groups

Pinnipeds + Cetaceans
(seals, sea lions, walrus) "fin-footed" (Whales & dolphins)

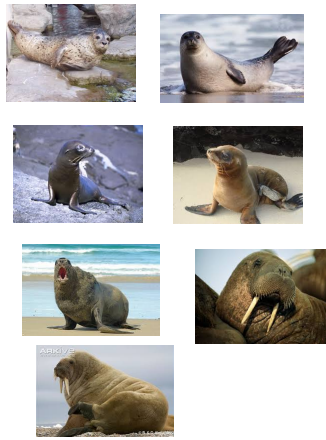
III. Pinnipeds

a) "fin-footed"

b) Includes seals, sea lions, walrus, sea otter

c) Families

1. True Seals = hind flippers do not move
2. Sea Lions & Fur Seals (Eloponland) → hind flippers rotate
3. Walrus moves like a bear



d) How can you tell?

Seal	Sea Lion	Walrus
Seal has fur patch the back	No fur	Has tusks
hind flippers permanently oriented backwards	hind flippers can rotate forwards	
can't sit up on land just flip on belly	can sit up on land → gallop	
NO EAR FLAPS	HAVE EAR FLAPS	

e) Diet

→ fish, squid, octopus, invertebrates
* Walrus → shellfish

f) Predators

→ Killer whales, sharks
* #1 killer is intestinal parasites

g) Mating practices

Harem mating
→ one male owns/controls a territory of many females
Large, belligerent males usually win

Males uses necks tend to hang out
group in small groups to plot how to sneak in to the territory

h) Reproductive Cycles (harem mating)
- gestation
- v. long
- baby is born (altricial)
- mom will nurse the calf
- first 3 weeks of life are spent in the water
- weak long feeding

IV. Cetaceans

ex. Blue, orca, humpback, sperm, beluga, narwhal, dolphin


2) Def → "great mammals"



3) All are whales

4) Two families
 Toothed Whales = Odontoceti
 Baleen Whales = Mysticeti

K → Animal
 P → Chordata
 C → Mammals
 O → Carnivores
 F → Cetaceans

d) Defining characteristics

- 1) Very large
- 2) Blowholes
- 3) Flukes 
- 4) Smooth skin 1/5 size
- 5) Blubber
- 6) Social
- 7) Intelligent

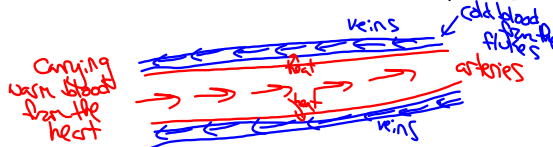
Odontoceti	Mysticeti
Have teeth (one sharp)	Baleen (straw-like keratin)
	
smaller (killer whale 65 ft)	larger (blue whale 110 ft)
fish-like aggressive	Plankton
one blowhole	two blowholes
≈ 65 species	≈ 5 species

f) Flukes (Tail)



- ↳ has no bone; it's just connective tissue
- ↳ up/down motion
- ↳ controlled by muscles in the body (caudal peduncle)
- ↳ fluke tip - fluke tip = 1/5 of whale size
- ↳ NO BLUBBER!!

↳ COUNTER-CURRENT HEAT EXCHANGE



g) Swimming

- ↳ most whales swim at cruising speed (5-10 mph)
- ↳ some can achieve 40 mph in bursts
- ↳ muscles in body + peduncle control swimming

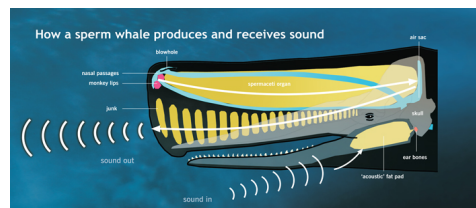
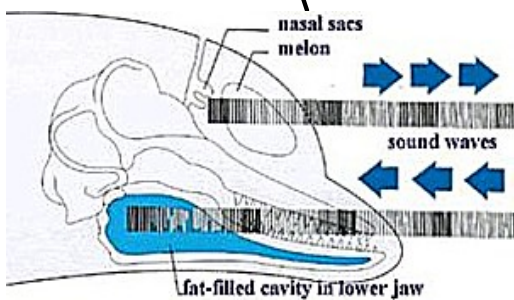
h) Diving Adaptations

- ① Bigger lungs
- ② Blubber (insulates heart)
- ③ Blowholes on top of the head
- ④ Blowhole is naturally closed
- ⑤ More blood (↑ hemoglobin)
- ⑥ More myoglobin
- ⑦ Heartbeat slows + blood only travels to vital organs

i) Echolocation

- ① Def → using sound (echoes) to "see" (create an image of your surroundings)

② Major structures Dolphin vs Sperm Whale



- i. Air sacs → produce sound ← i. monkey's muzzle
- ii. Melon → focuses sound ← ii. spermaceti organ
- iii. Lower jaw → receives the sound ← iii. lower jaw

j) Behaviors

- ① Spy-hopping
- ② Lob-tailing
- ③ Pec-stopping
- ④ Breaching
- * ⑤ Singing
- * ⑥ Sexual Intercourse