Name: Date:

Reptile, Bird and Mammal Reading WS

Marine Reptiles:

1) ____% of the 40,000 species of vertebrates are reptiles but very _____ live in salt water.
2) What marine reptiles are found off of our coast?
3) Reptiles are (circle one in each pair):

   a. coldblooded warmblooded

   b. water-breathing air-breathing

   c. furry scaly

4) How do reptiles reproduce?
5) What protects the turtles internal organs?
6) What parts of the body are attached to the shell?
7) What is a scute?
8) What is the plastron?
9) Can a sea turtle pull its neck into its shell completely?
10) What type of swimmers are sea turtles?
11) How do some sea turtles breath similarly to fish?
12) What can some turtles do through their anal opening?

Birds of the Sea and Shore

13) What did birds likely evolve from?
14) What can most birds do?
15) What do all birds have?
16) Where does the oil used in preening come from?
17) What do birds do once a year? When?
18) How are bird bones different from yours?
19) Do birds have teeth?
20) What two senses are acute in birds?
21) How do birds get rid of excess salt?
22) What is the average body temperature for a bird?
23) How many chambers are in a bird's heart?
24) Is bird reproduction internal or external?
25) How do birds of the Northern Hemisphere migrate?
26) What happens to many of the puffin eggs?
27) Can puffins fly?

Color the pictures!

Name: Date:

Reptile, Bird and Mammal Reading WS

Marine Mammals

28) True/False: Mammals started in the water, moved to land and came back to the water as whales, dolphins, etc.

29) Mammals are: (circle on in each pair)

a. Warm blooded cold-blooded

b. Vertebrate invertebrate

c. Hairy scaly

30) What produces milk in mammals?

31) What propels a whale?

32) What 2 functions does blubber serve?

33) What is the blowhole?

34) How long can a whale stay down?

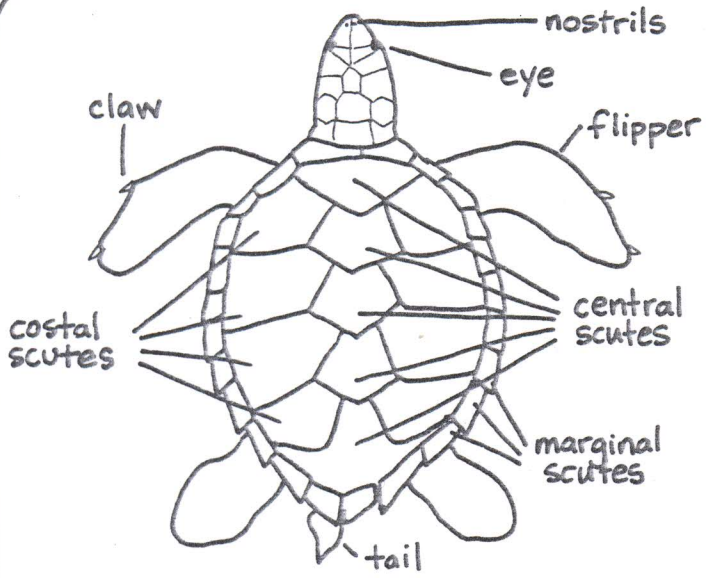
35) How do they stay under longer if they want to dive deep?

36) What is the difference between toothed and baleen whales?

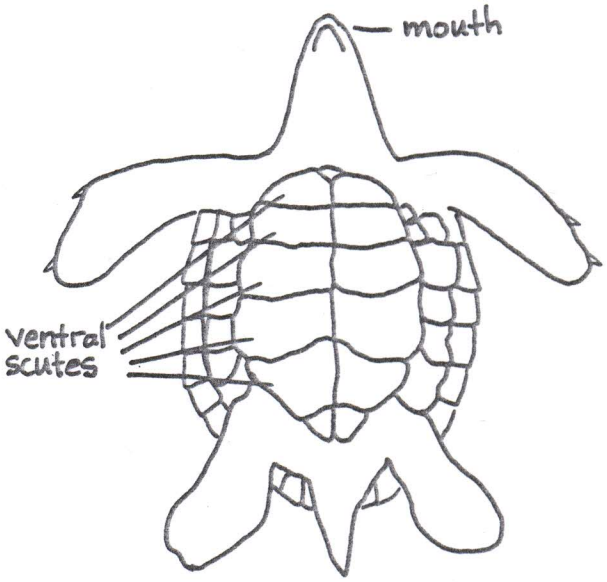
37) What is echolocation?

Color the pictures on all three sheets!

15 Marine Reptiles



dorsal view – carapace



ventral view- plastron

Fourteen percent of the 40,000 known species of vertebrates are reptiles, but very few reptiles live in salt water. Along our coast, the only marine reptiles are the American crocodile and five species of sea turtle. Sea snakes are also marine reptiles, but there are none in the Atlantic.

Reptiles are cold-blooded, air-breathing animals covered with scales. Cold-blooded means the animal derives its body heat from outside sources. By moving to cooler or warmer environments, a reptile is able to alter its body temperature. All reptiles reproduce by internal fertilization. Female sea turtles and crocodiles lay eggs on land, and their young hatch out looking like miniature adults.

The most unique feature of turtles is their lightweight, streamlined shell, which forms an armored enclosure for the vital organs. A turtle's ribs and backbone are firmly attached to the inside of the shell. The upper part of the shell (the carapace) is covered with horny plates called scutes and is connected to the bottom of the shell (the plastron). Sea turtles have heavy necks that cannot be completely pulled into the shell. Their legs are modified into muscular paddle-like flippers for fast (up to 35 mph) and agile swimming.

Sea turtles have lungs and must come to the surface to breathe air, but they have adaptations that allow them to remain submerged for long periods of time. Some sea turtles bring in water through their nostrils and mouth. The lining of the turtle's pharynx acts like a gill and extracts oxygen from the water as it goes down the throat. Other species can take water into their anal opening, where tissues absorb oxygen.

16 Birds of Sea and Shore

Birds are warm-blooded vertebrates. Fossil evidence indicates that birds have evolved from reptiles; their anatomy and embryology are similar. Most birds can fly, and all have feathers, which form a durable, light-weight, insulating covering. Generally, a bird's plumage is waterproof. While preening, birds rub their beaks, feet, and feathers with oil from a gland near their tail. The oil helps waterproof the feathers and keeps the beak and feet lubricated. Nearly all birds completely molt once a year, usually after nesting.

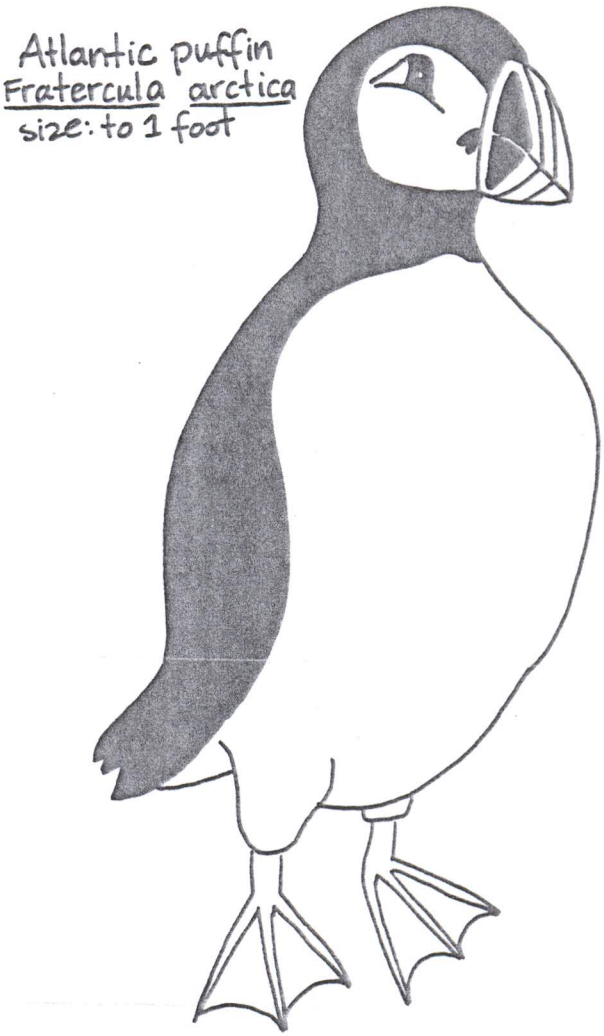
Skeletons of vertebrates, birds included, protect the internal organs and provide anchorage for the muscles. Bird bones are light-weight, yet strong, and air-filled. Many are fused together, resulting in a rigid skeleton necessary for flight. Birds have light beaks and jaws, but no teeth.

Although birds have a minimal sense of taste and smell, their hearing and sight (even color vision) are acute. A nictitating membrane, acting as a third eyelid, cleanses and protects the eyeball. Birds inhale air through the nares (nostril openings) on their beak. Excess salt that seashore birds take in through drinking and eating accumulates in glands near their nostrils and oozes out of the nares. Aquatic birds generally do not have salivary glands. Birds have a high body temperature (100°–112° F), high metabolism, and a strong four-chambered heart that maintains a rapid heart rate.

After male and female birds mate, the eggs in the female pass to the oviduct, where they are fertilized and then covered with albumen ("white") and a calcium shell. Females lay fertilized eggs, usually one a day, and incubate them (with or without the father's help) until they hatch.

Most birds in the northern hemisphere migrate south (of their breeding range) in the winter and return north to breed in the summertime.

The Atlantic puffins (*Fratercula arctica*) breed from Greenland to the Maine coast, but in the winter they may go as far south as Massachusetts. These birds are chunky and short-necked, and have a triangular bill that is



covered with a colorful sheath during breeding season. Populations of puffins have declined near populated areas. Their tame, curious nature made them easy prey for hunters, who shot them for food. Puffins nest in colonies on offshore islands. They lay eggs in burrows, but rats, cats, and dogs eat many of these eggs. Puffins have disappeared from islands where these predators are present.

Puffins swim underwater with their wings, pursuing fish, mollusks, and other sea creatures for food. On land they walk upright easily. Although they don't look it, puffins are perfectly capable of flying.

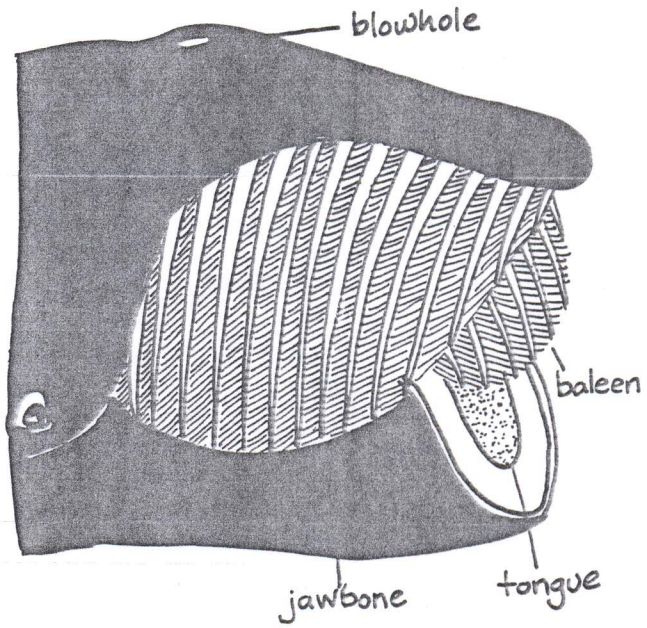
17 Marine Mammals

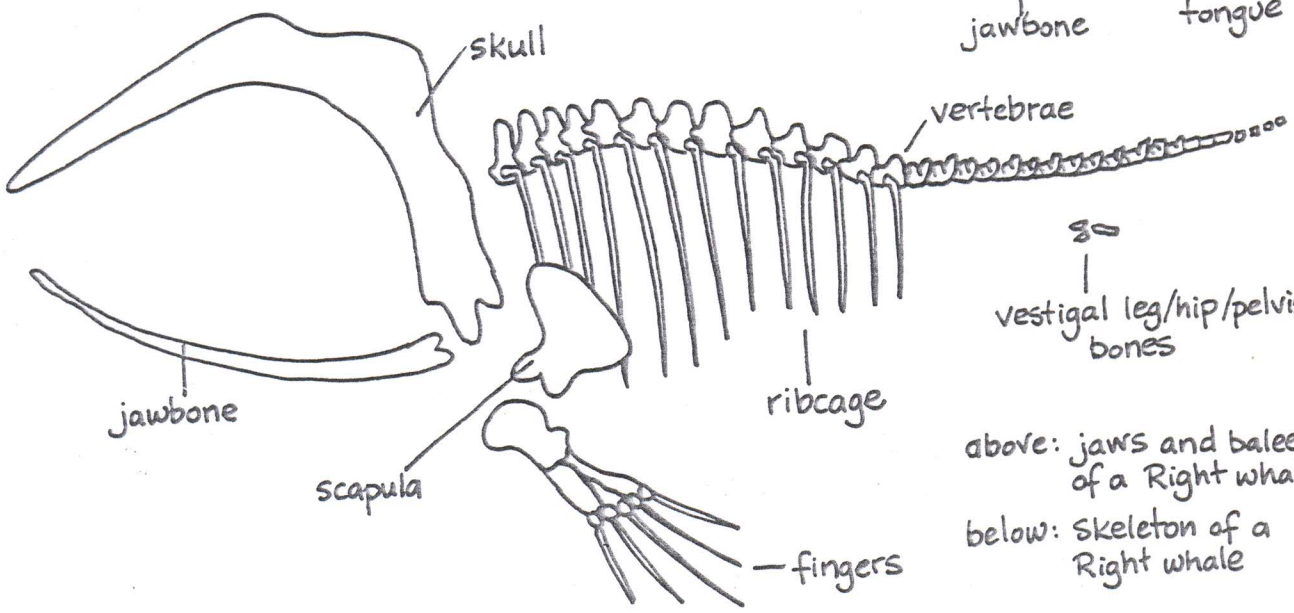
About 350 million years ago, some amphibious creatures left the sea for the land. Over millions of years of gradual adaptations, one group of these creatures evolved into mammals. Some mammals returned to the sea to live; they are the marine mammals of today: the whales, seals, and manatees. Mammals are warm-blooded vertebrate animals that have hair and breathe air. Young mammals develop within their mother (except for the platypus, which lays eggs) and after birth, the mother cares for and feeds them. Mammals have mammary glands that produce milk.

Whales (the Cetaceans) have adaptations enabling them to survive cold temperatures, to dive to great depths, and generally, to make survival easier in the water. They are streamlined (the male's penis and female's mammary glands are tucked inside the body) and swim using up and down movements of their horizontal tail flukes for propulsion. Their paddle-like flippers are used for steering and stabilization. Layers of blubber under the skin insulate the whale, and store energy. The whale's nose (its blowhole) is located on top of its head so it is exposed as soon as the whale surfaces for air. After it exhales old air and takes a breath, the whale pinches its nostrils closed and dives down, coming up for air again two to ten minutes later. While diving to great depths, whales conserve oxygen by cutting off oxygen flow to non-essential areas and slowing down their bodily processes.

The two major types of whales are the toothed and the baleen. Toothed whales feed on large prey; baleen whales strain planktonic food out of the water.

By beaming sound waves through the water, whales can navigate through a sonar-like process called echolocation. They are able to make noise and communicate by forcing air through their closed nasal passages.





above: jaws and baleen of a Right whale

below: skeleton of a Right whale