

Name _____

Period _____

Student Activity: Dichotomous Key

Question	Identify/Go to
1a.	
1b.	
2a.	
2b.	
3a.	
3b.	
4a.	
4b.	
5a.	
5b.	
6a.	
6b.	
7a.	
7b.	
8a.	

8b.	
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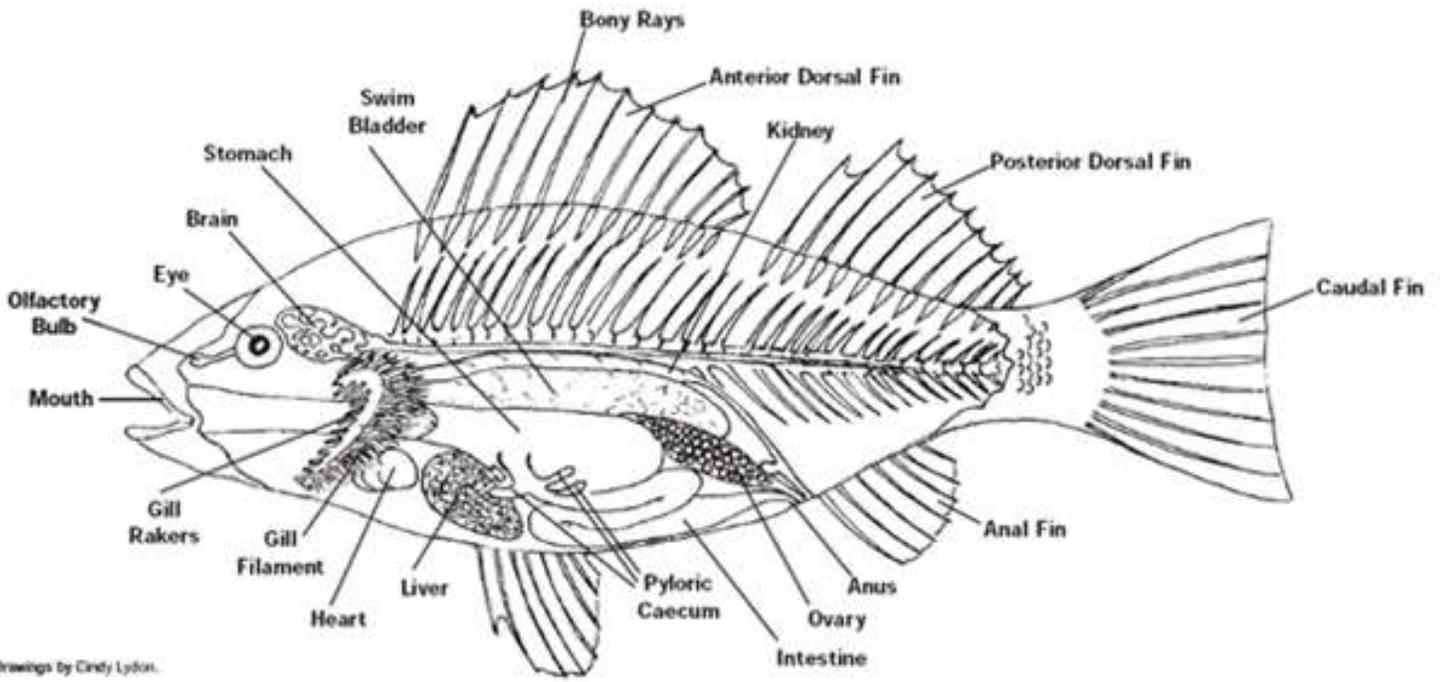
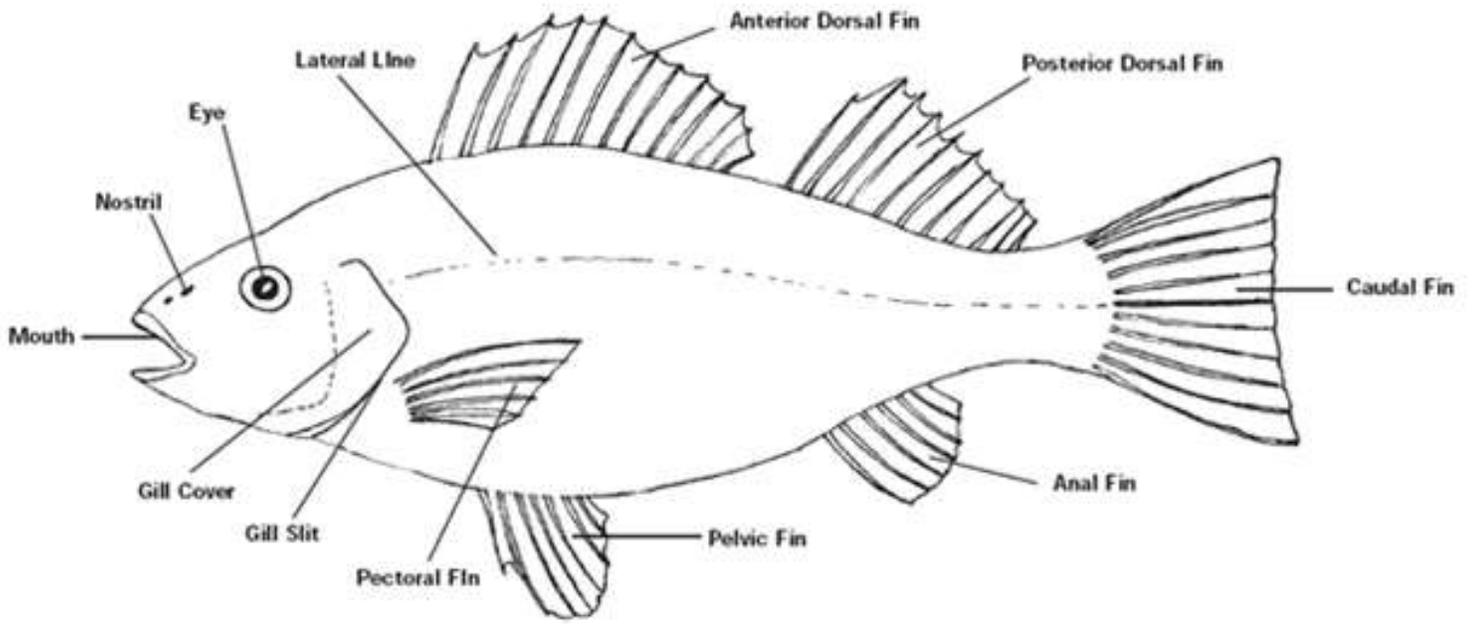
Name _____

Period _____

CLASSIFICATION KEY FOR FISHES OF UTAH LAKE

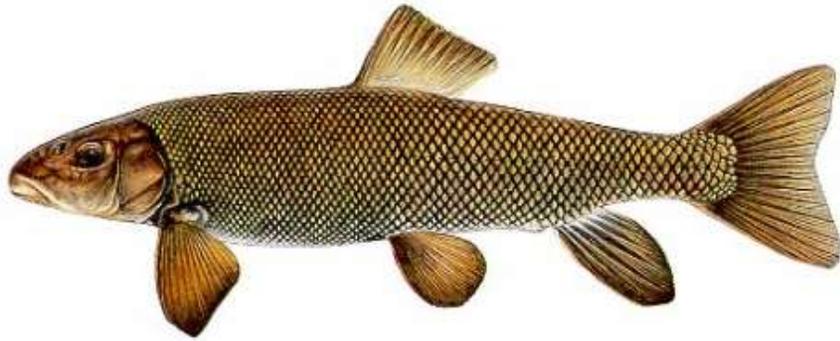
Examine the fish cards looking closely at observable traits. Develop a dichotomous key according to the characteristics you observe.

Question	Go To
2a.	

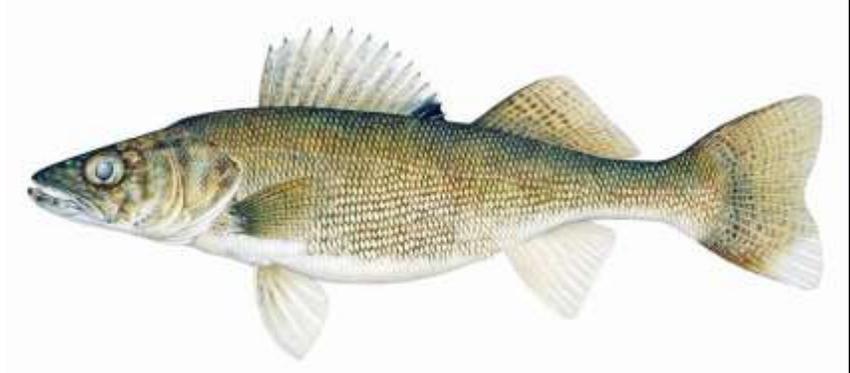


Drawings by Cindy Lydon.

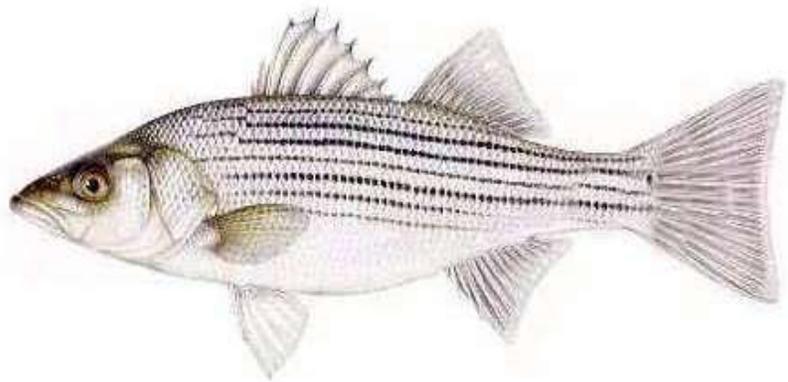
JUNE SUCKER



WALLEYE



WHITE BASS



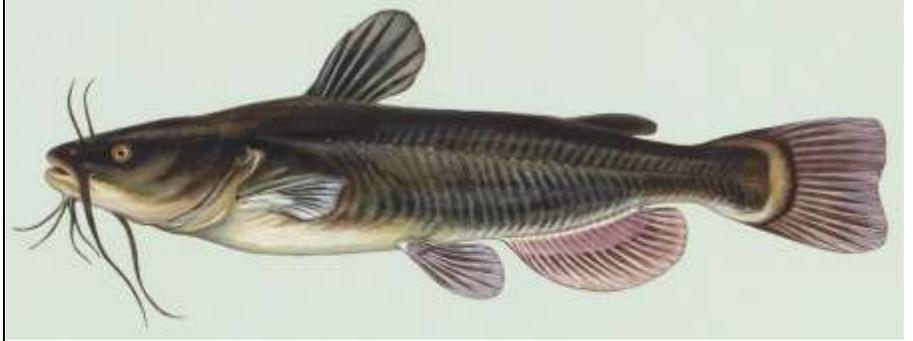
CARP



UTAH SUCKER



CHANNEL CATFISH

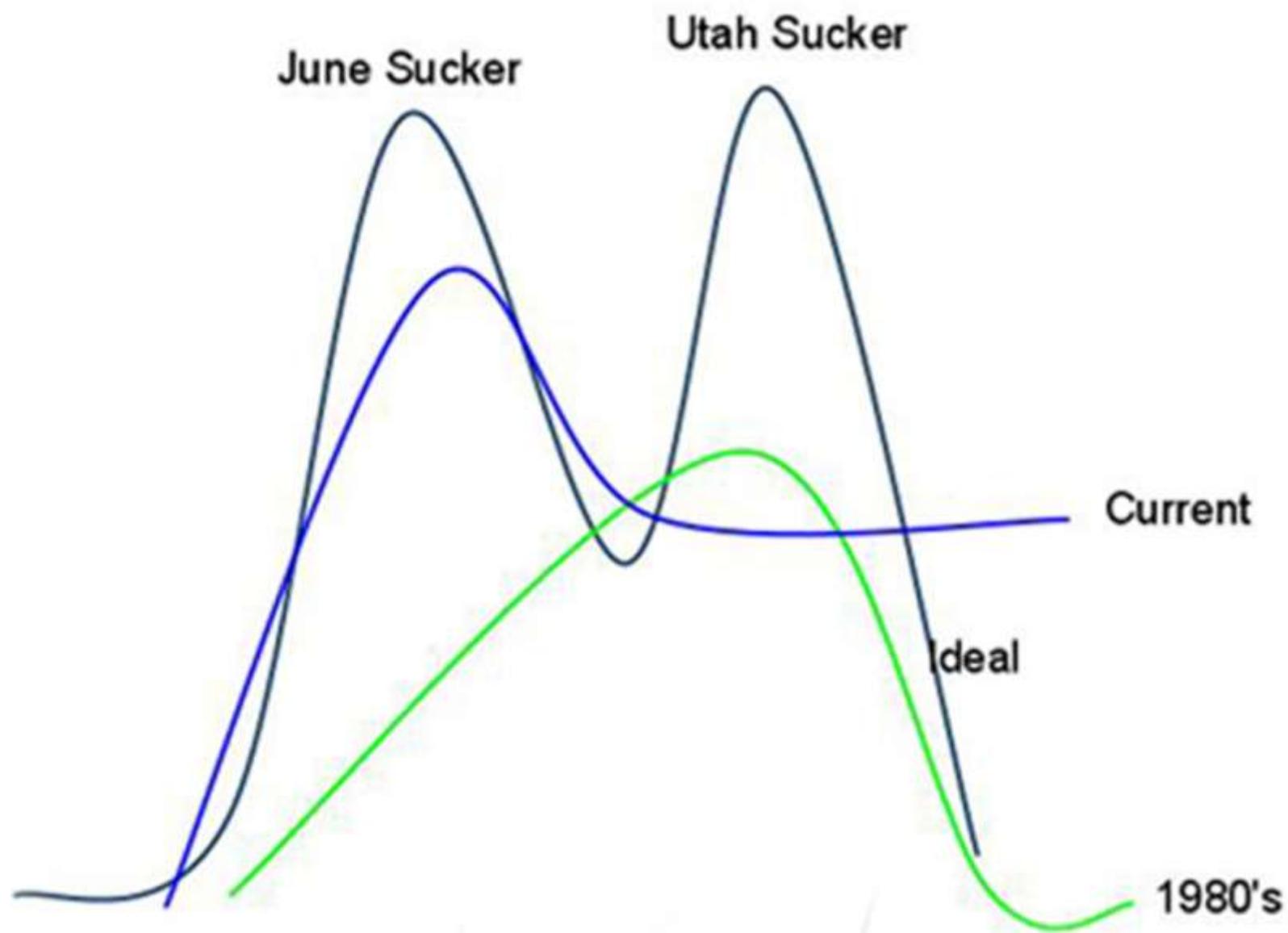


BLACK BULLHEAD

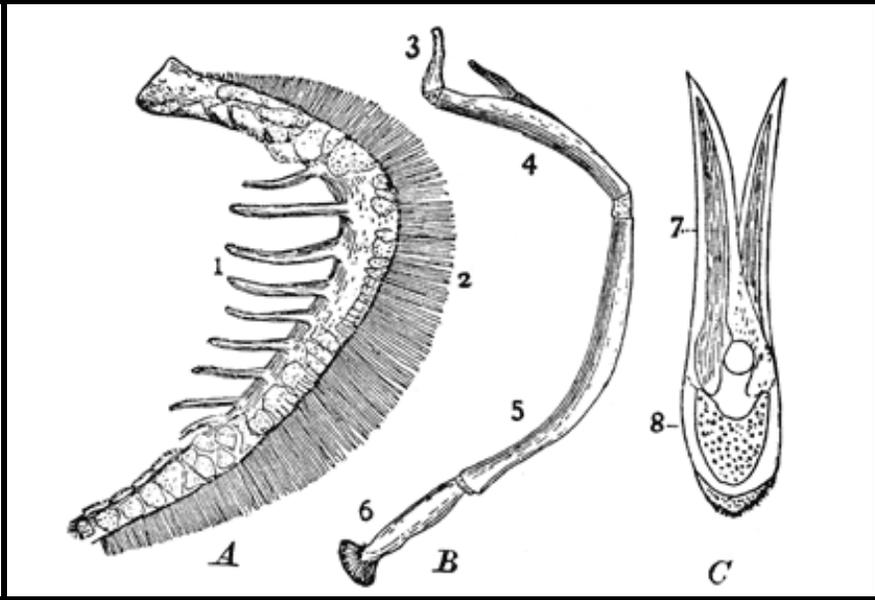
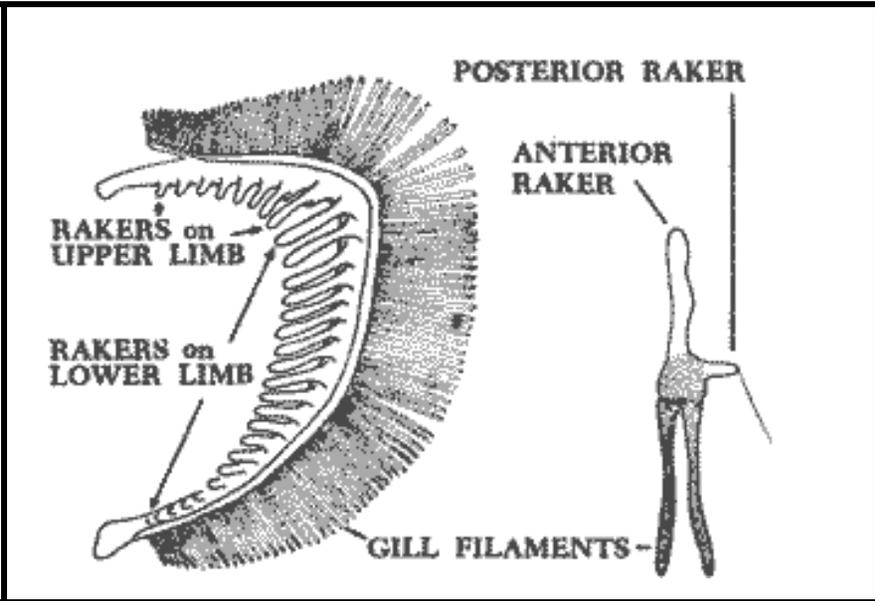
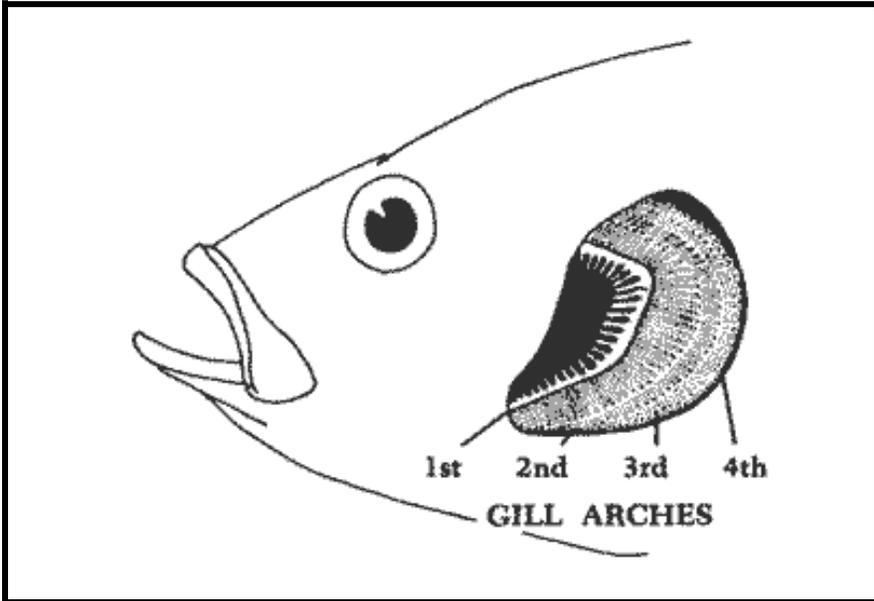


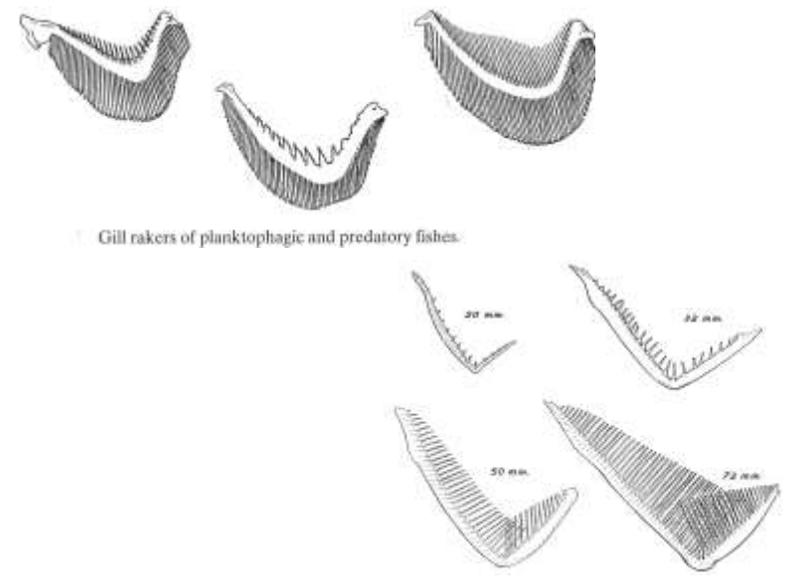
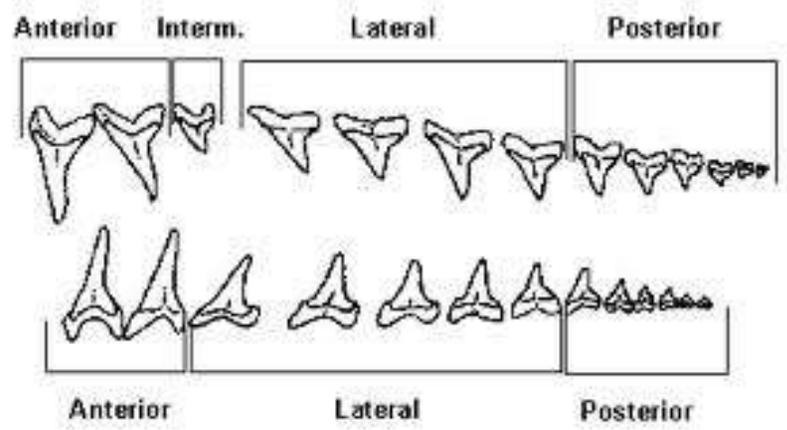
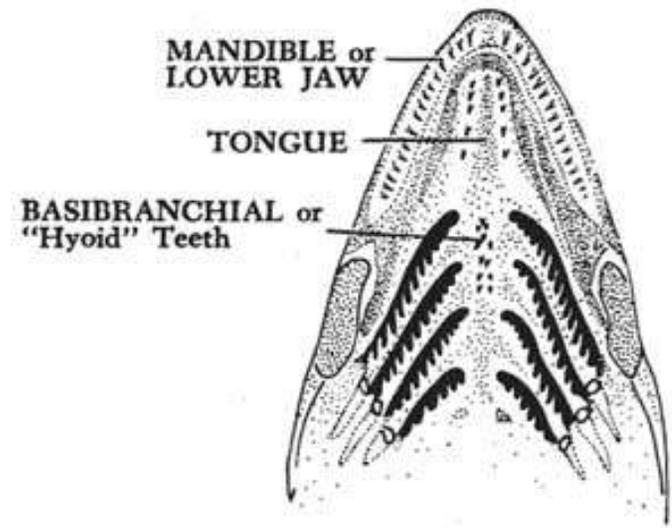
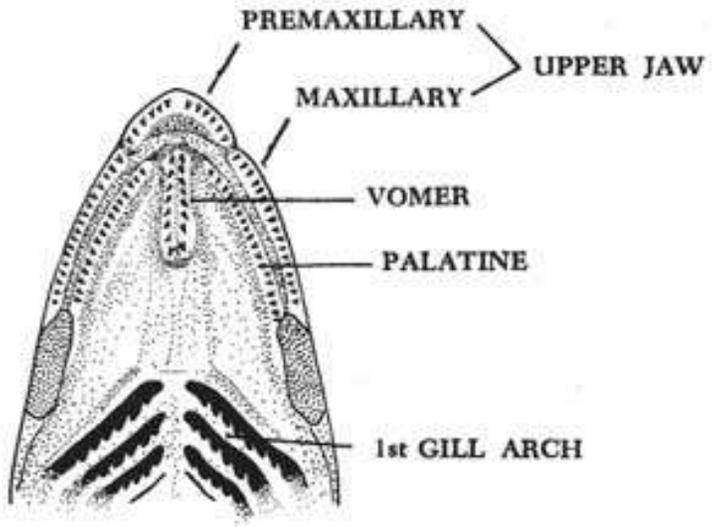
RAINBOW TROUT











CLASSIFICATION KEY FOR BIRDS OF UTAH LAKE

Questions	Identify/Go to
1a. Feathers on entire bird are one solid color	Go to 2
1b. Feathers on entire bird have more than one color	Go to 3
2a. Bird has long black legs and yellow feet	<i>Snowy Egret</i>
2b. Bird has large orange pouch-like beak	<i>Pelican</i>
3a. Birds head is one color	Go to 4
3b. Birds head is more than one color	Go to 5
4a. Bird has a predator beak for ripping meat	Go to 6
4b. Bird has green head with a white neck ring	<i>Mallard Duck</i>
5a. Bird has binocular predator vision (both eyes facing front)	Go to 6
5b. Bird has horizontal field of vision to help locate approaching predators (eyes located on the side)	Go to 8
6a. Bird is 30 – 40 inches tall	<i>Bald Eagle</i>
6b. Bird is 18 – 25 inches tall	<i>Red-tailed Hawk</i>
7a. Black bars and spots on legs	<i>Peregrine Falcon</i>
7b. Bird has heart shaped face	<i>Barn Owl</i>
8a. Bird larger than 35 inches	Go to 9
8b. Bird smaller than 20 inches	Go to 10
9a. Bird stands one leg and breast feathers simulate weeds for camouflage while hunting	<i>Great Blue Heron</i>
9b. Migratory bird has conspicuous white patch on cheek	<i>Canada Goose</i>
10a. Bird has black and white stripes	Go to 11
10b. Bird has metallic blue green coloring on top of head and a seed eating beak	<i>Tree Swallow</i>
11a. Bird has black bands across head and chest	<i>Killdeer</i>
11b. Bird has long thin upturned bill	<i>American Avocet</i>

Record the pathway as you take each bird through the classification key. Then list the identified bird:

Bird #	Identification pathway	Identified as
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		

CLASSIFICATION KEY FOR BIRDS OF UTAH LAKE

Name _____

Period _____

Examine the fish cards looking closely at observable traits. Develop a dichotomous key according to the characteristics you observe.

Question	/Go To
2a.	

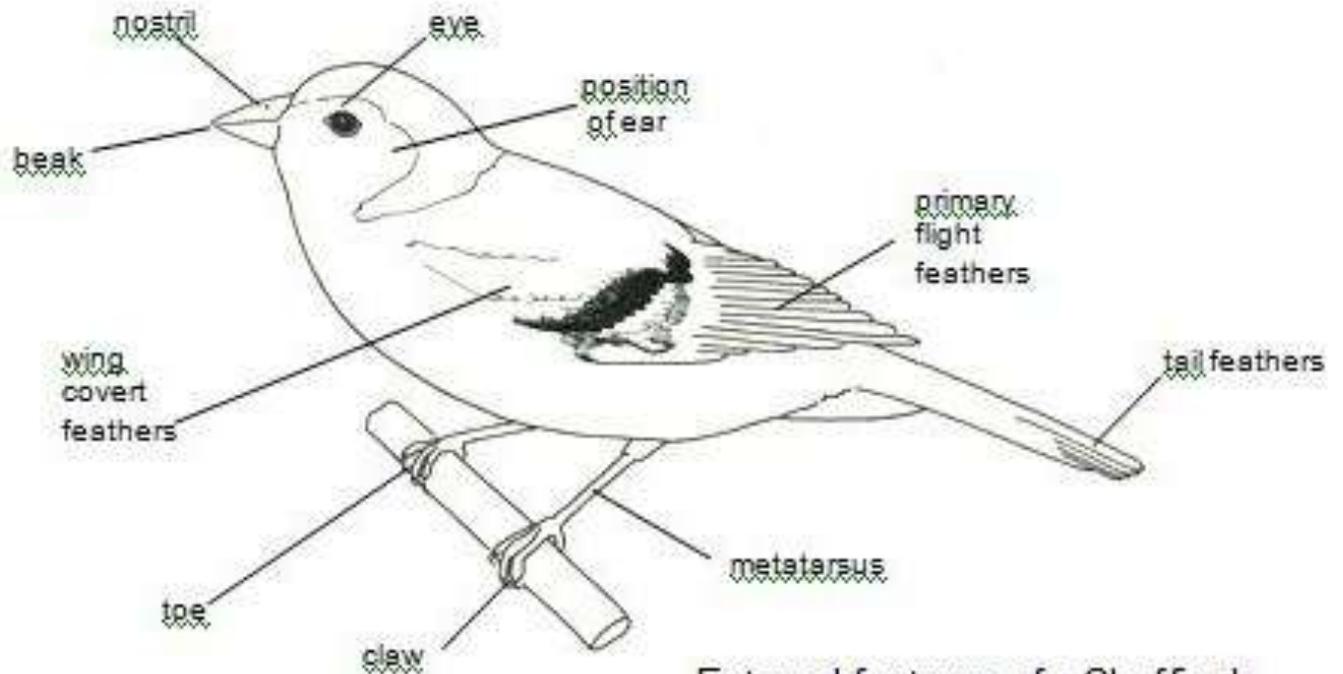
CLASSIFICATION KEY FOR BIRDS OF UTAH LAKE

Student Activity: Dichotomous Key

Question	Identify/Go to
1a.	
1b.	
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3a.	
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4b.	
5a.	
5b.	
6a.	
6b.	
7a.	
7b.	
8a.	
8b.	

BIRD ADAPTATIONS

Birds - structure and function



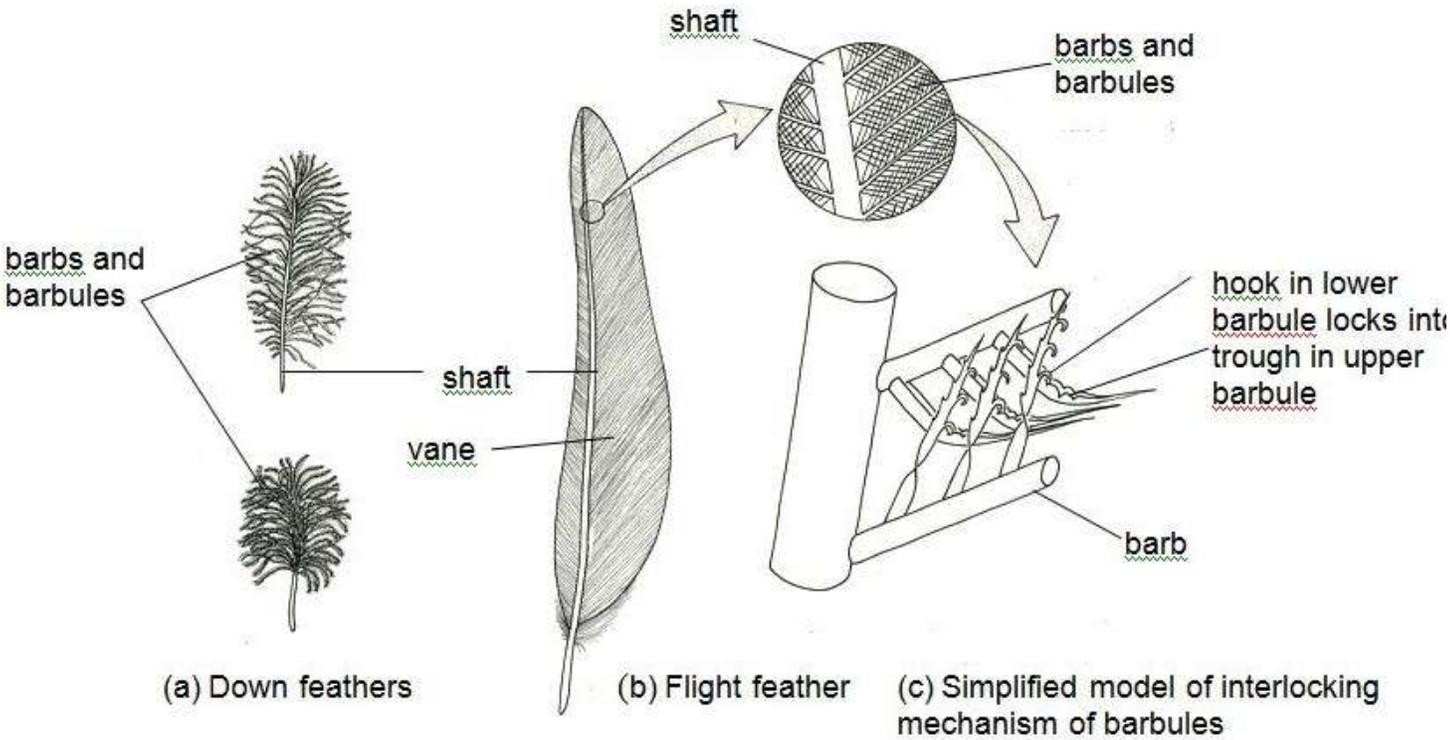
External features of a Chaffinch

Birds are vertebrates - they have a vertebral column and a skull. They are 'warm blooded'; that means they maintain their body temperature at a constant level and above that of their surroundings. Their chief distinguishing characteristics are that they have feathers and their forelimbs are modified to form wings.

The feathers consist of a shaft with rows of fine filaments (*barbs*) on each side. The barbs themselves have finer filaments (*barbules*) branching from them. In the down feathers, the barbs and barbules are loose and fluffy. They trap an insulating layer of air close to the body and so reduce heat losses.

The barbs and barbules of the flight and covert (or contour) feathers are organised in a regular way forming a smooth, water resistant cover. The barbules overlap so that the hooks on one set of barbules engage with grooves on the other set rather like 'Velcro'. If the feathers get damaged in flight, they can be restored to shape by preening.

BIRD ADAPTATIONS

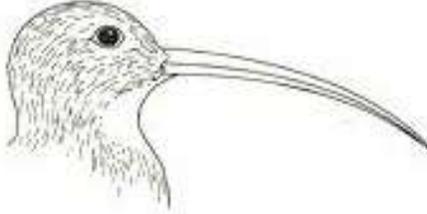


Feather structure

BIRD ADAPTATIONS

Birds - Structure and function 3

Adaptations of beaks and feet



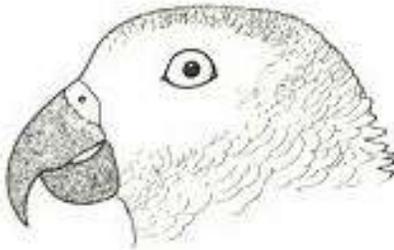
CURLEW

Long, narrow beak probes into mud and sand on the shore and in estuaries to reach burrowing worms and molluscs. Characteristic of most waders, e.g. sandpipers and redshanks



BUZZARD

Powerful, sharp, hooked beak tears flesh from small birds and mammals. This type of beak is characteristic of most birds of prey, including hawks, falcons, eagles and owls

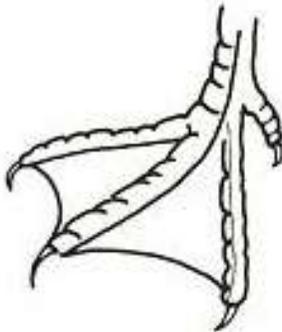


AFRICAN GREY PARROT

Hook-like upper mandible assists in climbing. Sturdy, short beak enables seeds to be gripped and cracked open

The shape and size of a bird's feet and beak are usually adapted to its method of feeding and locomotion.

The drawings are not to scale



HERRING GULL

Hind toe very small. The web between the three front toes provides an expanded surface for swimming and walking on soft surfaces. Characteristic of other gulls, sea birds, ducks, and geese



LITTLE OWL

Three toes directed forward and one back, but they can be bent to meet. They are powerful with sharp, curved talons for catching, holding and killing prey. Characteristic of many predatory birds such as falcons and hawks.

BIRD ADAPTATIONS



Generalist



Insect catching



Grain eating



Coniferous-seed eating



Nectar feeding



Fruit eating



Chiseling



Dip netting



Surface skimming



Scything



Probing



Filter feeding



Aerial fishing



Pursuit fishing



Scavenging



Raptorial

BIRD CARDS

1.

Description - 16-20" (41-51 cm). A large, long-legged shorebird with a slender, upturned bill. Upperparts and wings patterned in black and white; under-parts white. Head and neck rust-colored in summer, white in winter.

Habitat - Freshwater marshes and shallow marshy lakes; breeds locally in salt or brackish marshes. Many move to the coasts in winter.

Nesting - 4 olive-buff eggs, spotted with brown and black, in a shallow depression sparsely lined with grass on a beach or mudflat. Often nests in loose colonies.

2.

Description - 9-11" (23-28 cm). Our largest "ringed" plover. Brown above and white below, with 2 black bands across breast, long legs, and relatively long tail. In flight, shows rusty upper tail coverts and rump.

Habitat - Open country generally: plowed fields, golf courses, and short-grass prairies.

Nesting - 4 pale buff eggs, spotted with blackish brown, in a shallow depression lined with grass on bare ground.

Range - Breeds from Alaska east across continent to Newfoundland and southward. Winters north to British Columbia, Utah, Ohio Valley, and Massachusetts. Also in South America.

3.

Description - 35-45" (89-114 cm). Brownish body with black head, long black neck, conspicuous white cheek patch. The smaller Brant has a shorter neck and lacks white cheek patch. The Cackling Goose is smaller, darker, shorter-billed, and found mainly in the West.

Habitat - Lakes, bays, rivers, and marshes. Often feeds in open grasslands and stubble fields.

Nesting - 4-8 whitish eggs in a large mass of grass and moss lined with down; usually on the ground near water or on a muskrat lodge, but sometimes in a tree in an abandoned Osprey or Bald Eagle nest.

Range - Breeds from Alaska east to Baffin Island and south to California, Illinois, and Massachusetts. Winters south to northern Mexico and Gulf Coast. Widespread as a semi-domesticated bird in city parks and on reservoirs.

4.

Description - 18-27" (46-69 cm). Male has a green head, white neck ring, chestnut breast, and grayish body; inner feathers of wing (speculum) are metallic purplish blue, bordered in front and back with white. Female mottled brown with white tail and purplish-blue speculum; mottled orange and brown bill. Form in Southwest ("Mexican Duck") similar to typical female Mallard but darker; speculum blue; bill of male yellow-green; bill of female dusky orange; no white in tail.

Habitat - From ponds, lakes, and marshes to small river bends, bays, and even ditches and city ponds.

Nesting - 8-10 light olive-green eggs in a down-lined nest often placed some distance from water, occasionally even in a tree.

Range - Breeds from Alaska and Quebec south to southern California, Virginia, Texas, and northern Mexico. Winters throughout United States and south to Central America and West Indies. Also in Eurasia.

BIRD CARDS

5.

Description - 39-52" (99-132 cm). W. 5'10" (1.8 m). A common large, mainly grayish heron with a pale or yellowish bill. Often mistaken for a Sandhill Crane, but flies with its neck folded, not extended like that of a crane. In southern Florida, an all-white form, "Great White Heron," differs from Great Egret in being larger, with greenish-yellow rather than black legs.

Habitat - Lakes, ponds, rivers, and marshes.

Nesting - 3-7 pale greenish-blue eggs placed on a shallow platform of sticks lined with finer material, usually in a tree but sometimes on the ground or concealed in a reed bed. Nests in colonies.

Range - Breeds locally from coastal Alaska, south-central Canada, and Nova Scotia south to Mexico and West Indies. Winters as far north as southern Alaska, central United States, and southern New England. Also in Galapagos Islands.

6.

Description - 55-70" (1.4-1.8 m). W. 8' (2.4 m). A huge white bird with a long flat bill and black wing tips. In breeding season, has short yellowish crest on back of head and horny plate on upper mandible. Young birds dusker than adults.

Habitat - Shallow lakes and coastal lagoons.

Nesting - 1-6 whitish eggs on a low mound of earth and debris on a marshy island; occasionally on rocky islands in desert lakes. Nests in colonies.

Range - Breeds from British Columbia and Mackenzie south to northern California, Utah, and Manitoba; also along Texas Gulf Coast. Winters from central California, Gulf Coast, and Florida south to Panama.

7.

Description - 35-45" (89-114 cm). Brownish body with black head, long black neck, conspicuous white cheek patch. The smaller Brant has a shorter neck and lacks white cheek patch. The Cackling Goose is smaller, darker, shorter-billed, and found mainly in the West.

Habitat - Lakes, bays, rivers, and marshes. Often feeds in open grasslands and stubble fields.

Nesting - 4-8 whitish eggs in a large mass of grass and moss lined with down; usually on the ground near water or on a muskrat lodge, but sometimes in a tree in an abandoned Osprey or Bald Eagle nest.

Range - Breeds from Alaska east to Baffin Island and south to California, Illinois, and Massachusetts. Winters south to northern Mexico and Gulf Coast. Widespread as a semi-domesticated bird in city parks and on reservoirs.

8.

Description - 18-25" (46-64 cm). W. 4' (1.2 m). A large stocky hawk. Typical light-phase birds have whitish breast and rust-colored tail. Young birds duller, more streaked, lacking rust-colored tail of adult; they are distinguished from Red-shouldered and Swainson's hawks by their stocky build, broader, more rounded wings, and white chest. This species quite variable in color, especially in West, where blackish individuals occur; these usually retain rusty tail.

Habitat - Deciduous forests and open country of various kinds, including tundra, plains, and farmlands.

Nesting - 2 or 3 white eggs, spotted with brown, in a bulky nest of sticks lined with shreds of bark and bits of fresh green vegetation, placed in a tall tree or on a rock ledge.

Range Breeds throughout North America, from Alaska east to Nova Scotia and southward. Winters across United States north to southern British Columbia and Maritime Provinces.

BIRD CARDS

9.

Description - 20-27" (51-69 cm). W. 3'2" (97 cm). A small, delicate white heron with a slender black bill, black legs, and yellow feet. In breeding season, it has long lacy plumes on its head, neck, and back. Immature bird similar to adult, but lacks plumes and has yellow stripe up back of leg. Adult Cattle Egret has pale bill, legs, and feet; immature has dark bill, legs, and feet. Much larger Great Egret has yellow bill and black legs and feet. Similar to immature of less common Little Blue Heron, but that species has a stouter, bluish-gray bill, greenish-yellow legs and feet, no yellow skin between eyes and base of bill.

Habitat - Marshes, ponds, swamps, and mudflats.

Nesting - 3-5 pale blue-green eggs placed on a platform of sticks in a bush or reedbed or on the ground. Nests in colonies, often with other species of herons.

Range - Breeds locally from Oregon and California east to New England, mainly along coasts but also at scattered localities inland. Winters regularly from California, Arizona, and Virginia south to West Indies and South America. Also resident in tropical America.

Birds:

1. American Avocet
2. Kill Deer
3. Canada goose
4. Mallard Duck
5. Great Blue Heron
6. American White Pelican
7. Bald Eagle
8. Red Railed Hawk
9. Snowy Egret

MASTER BIRD CLASSIFICATION CARDS



1.

16 - 20



9 - 11 inches

2.



39 - 52 inches

3.



55 - 70 inches

4.



18 - 27 inches

5.



17 - 18

6.

MASTER BIRD CLASSIFICATION CARDS



35 - 45 inches

7.



9.



19 - 25 inches



15 - 21 inches

10.



20 - 27 inches

8.



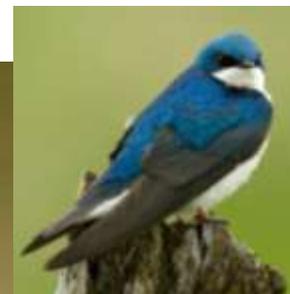
30 - 40 inches

11.



5 - 6 inches

12.



BIRD CLASSIFICATION CARDS



16 – 20 inches

1.



9 – 11 inches

2.



39 – 52 inches

3.



55 - 70 inches

4.



18 - 27 inches

5.



17 - 18 inches

6.

BIRD CLASSIFICATION CARDS



35 - 45 inches

7.



20 - 27 inches

8.



18 - 25 inches

9.



15 - 21 inches

10.



30 - 40 inches

11.



5 - 6 inches

12.

BIRD CLASSIFICATION CARDS