



## Northern Cardinal



Everyone recognizes the northern cardinal (*Cardinalis cardinalis*). The male is unmistakable with his fire-engine red feathers and pointed crest, black face mask, black bib, and bright pink bill. The female also has a crest, but she is mostly brown with hints of red in her crest, chest, back, and tail.

Cardinals favor open shrubby habitats like overgrown meadows with brambles for cover. They feed on seeds, fruits, and insects, but readily visit backyard bird feeders for suet and sunflower seeds.



Their beaks have some special features that make cracking seeds easier; the edges of the **lower mandible** (the lower beak) fit into special grooves in the **upper mandible** (upper beak). This allows the cardinal to use its tongue to maneuver seeds into the groove to slice open the seed coat when they close their beaks.

Cardinals are songbirds, members of the group called **passerines** or perching birds. As such, they have three toes that point forward and one that points backward to allow them to grasp and perch on branches. They have a highly developed voice box (syrinx) which allows them to sing beautiful and complex songs. Look for them on high branch in spring and summer belting out their piercing “*what cheer, what cheer, what cheer*” or “*birdie, birdie, birdie*” territorial calls.

Both the male and female cardinal sing intricate songs. In the bird world this is very unique as it’s usually just the males that are so vocal. Sometime the female even sings while sitting on her nest, a strategy for getting her mate to bring her food. During courtship, they sing similar phrases and even duets! In addition to their songs, cardinals are known to have at least 16 different calls, the most common being a metallic “*chink*”. Calls are used while chasing intruders away from staked out territory and to warn others a predator is near. Have you ever seen a male northern cardinal attacking his own reflection in windows and mirrors, often making the noise at his image? He believes he is being threatened by another male and can get seriously injured hurling himself at the phantom bird. Listen to cardinal songs and calls [here](#).



Cardinals have elaborate courtship rituals. The birds begin pair bonding in late winter and have some unique mating behaviors. There’s the song-dance display where the male stands erect, raises one wing and flips up its crest. When the cardinal suddenly raises his crest, it makes the bird appear more robust and hence more desirable to the opposite sex. Other familiar birds that use crests for communicating to mates or adversaries include the tufted titmouse, the blue jay and the pileated woodpecker.

Another common courtship display is the song-flight where the male fluffs his breast feathers, raises his crest, sings, and descends towards the female with short, rapid strokes. They also do a song followed by counter song routine or sing in unison in a duet. One of the most endearing rituals is courtship feeding. The male cardinal offers food to his female, beak to beak; an action we call the **kiss**.

When they finally begin nesting, both the male and female visit nest sites together, but it’s the female who builds the nest. She crushes twigs with her beak then bends the twigs around her body to round them. Then she pushes them into a cup shape with her feet, a building project that can take nine days. Cardinals lay 2 to 5 eggs and may have 2 clutches per season.





## Additional Resources

- All about northern cardinals
- Cardinal courtship
- Video about bird crests
- Make a kids' cardinal mobile

### Learn More with These Picture Books!

Facts About Cardinals, Lisa Stratton

Cardinals, Lisa Armstanz

C is for Cardinal, Stan Tekiela

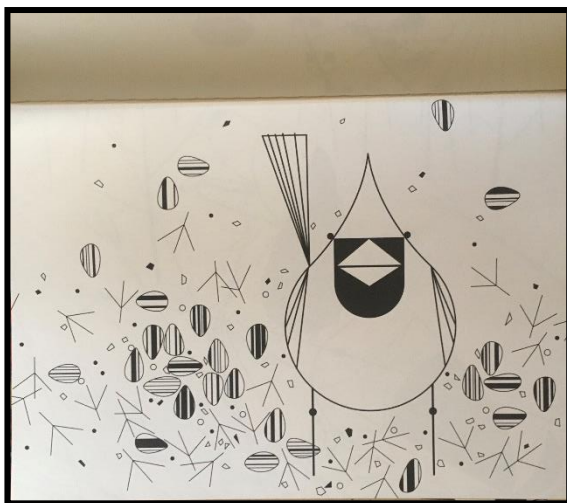
Birds, Nests and Eggs, Mel Boring - This book has many birds and includes a take-along guide.

### Extensions

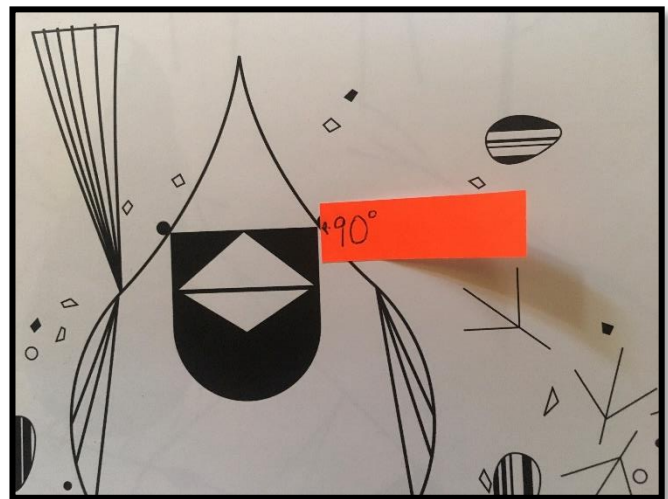
#### Art and Mathematic Connection

Charley Harper's work is celebrated through various collections. One is the Charley Harper Coloring Book where his serigraph of the cardinal is a favorite.

A way to partner this serigraph with a math activity is for students to measure angles that are incorporated in the artwork with a protractor. To identify the specific angles, a color-coded key can be used or students can place stickies on the angle (pictured below).



*Charley Harper's famous cardinal*



*Be creative with your angle labels!*



### Another Word for Crest is a Coat of Arms

Many birds are famous for the crests of feathers on top of their heads that they use to show off for potential mates, to intimidate an enemy, or to blend into their environment. The photos to the right are just a few examples of New Jersey native birds that have crests.

But birds aren't the only ones who like to show off...

A "crest" or coat of arms is a design that was developed in the 12<sup>th</sup> century to represent a certain individual or the family's lineage. These were displayed on capes, shields, or on the helmet to identify friends vs. foes and to show off how powerful each person or group was. Some universities, businesses, historic landmarks and even sports teams still use these crests. Each crest has colors, pictures, and shapes that all have special meaning.

For example:



Northern cardinal



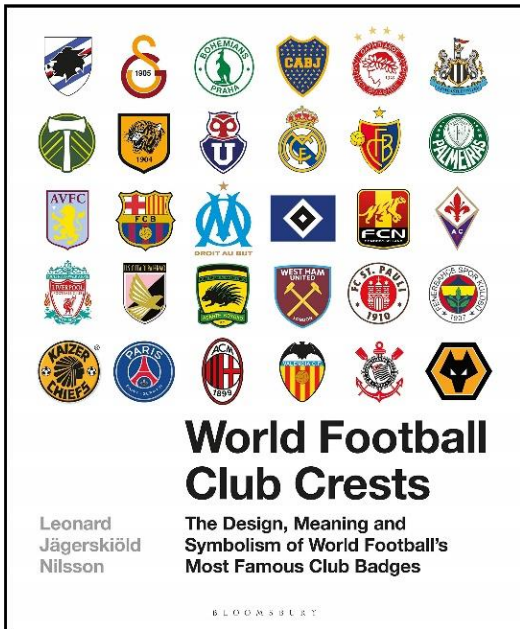
Blue jay



Pileated woodpecker



Tufted titmouse



Courtesy of Leonard Jägerskiöld Nilsson

The World Football Club demonstrates an assortment of colorful crests!



The official crest of the United Kingdom has colors, icons, and slogans that represent the political history of the monarchy.



Courtesy of SodaCan on Wikipedia.com

**Activity 1:** Can you design a coat of arms for the cardinal? What about other New Jersey native birds?

**Activity 2:** What would your family's coat of arms look like? What would your individual crest look like?

Do your best to be creative and represent the colors of nature and the personalities of the people around you!

Bird photos courtesy of Dick Daniels at carolinabirds.org





**Test your knowledge!**  
**Northern Cardinal**



Q. Do male and female northern cardinals both look alike? If not, what's the difference?

Q. What do cardinals eat? Will they come to a backyard bird feeder?

Q. What special feature about their beaks help them crack open seeds?

Q. Cardinals are member of the group of birds called passerines. What does that mean?

Q. What feature about their toes allow them to perch?

Q. Cardinals are also called songbirds because they have highly developed voice boxes that allow them to sing complex songs. What is their voice box called?

Q. Do both male and females sing? Why is this unusual?

Q. Cardinals have up to 16 different calls. What's the most common one?

Q. Why do male cardinals attack their own reflections in windows and mirrors?

Q. Cardinals have elaborate courtship rituals. What is happening when they "kiss"?

Q. Here are some other birds that communicate with crests. Can you name them?

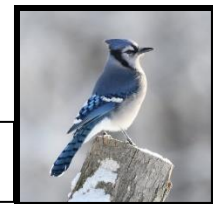


**A.**



**B.**

**C.**





## Test your knowledge!

### Northern Cardinal Answer Key



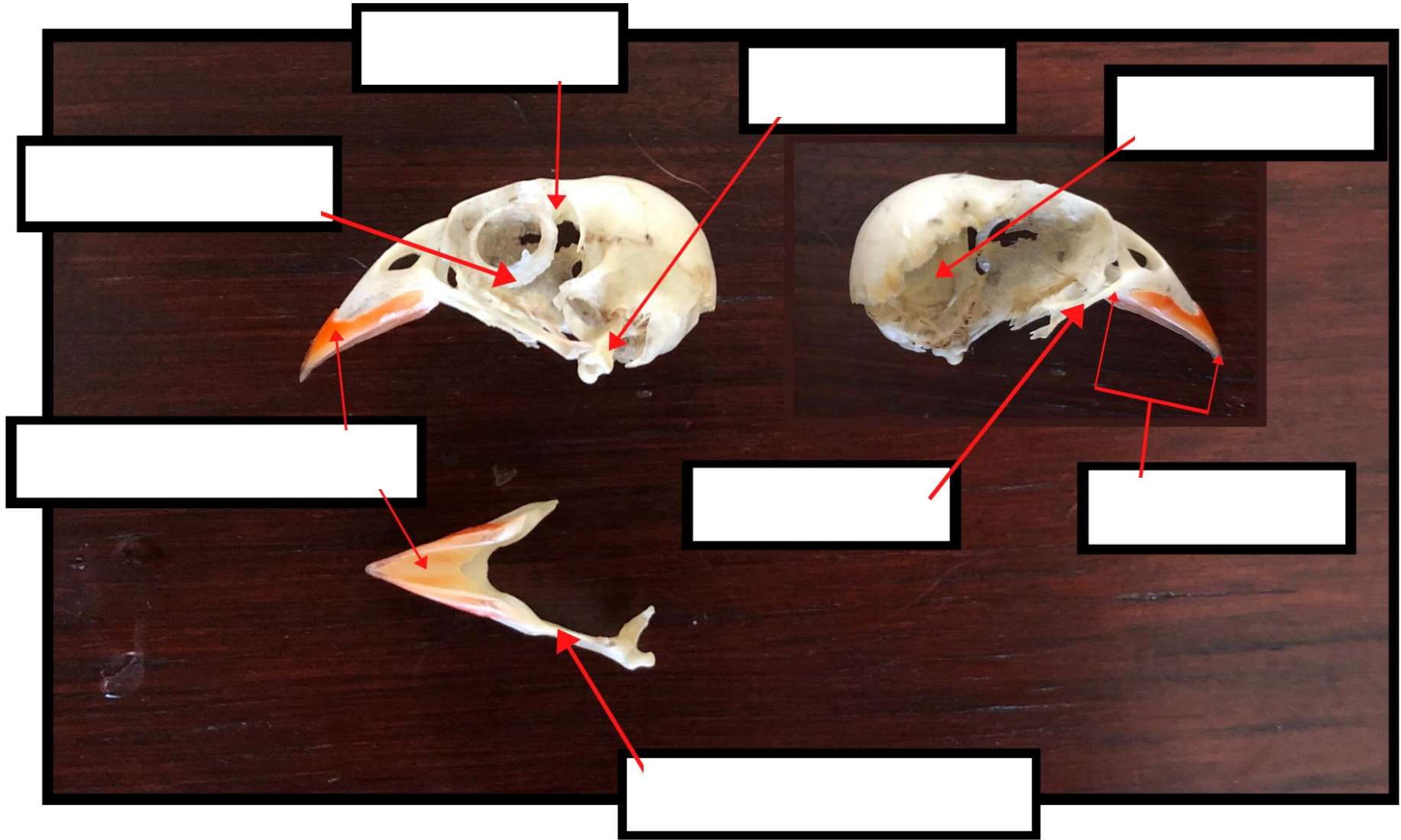
- Q. Do male and female northern cardinals both look alike? If not, what's the difference?  
A. No, male cardinals have bright red feathers all over while females are mostly brown with some red on their crests, chests, backs and tails.
- Q. What do cardinals eat? Will they come to a backyard bird feeder?  
A. Seeds, fruits, and insects. Yes, they will come for suet and sunflower seeds.
- Q. What special feature about their beaks help them crack open seeds?  
A. The edges of the lower mandible (the lower beak) fit into special grooves in the upper mandible (upper beak). This allows the cardinal to use its tongue to maneuver seeds into the groove to slice open the seed coat when they close their beaks.
- Q. Cardinals are member of the group of birds called passerines. What does that mean?  
A. They can perch.
- Q. What feature about their toes allow them to perch?  
A. They have three toes that face forward and one that faces backward, to allow them to grasp and perch on branches.
- Q. Cardinals are also called songbirds because they have highly developed voice boxes that allow them to sing complex songs. What is their voice box called?  
A. Syrinx.
- Q. Do both male and females sing? Why is this unusual?  
A. Yes, both sing. In the bird world it almost always the males who do the singing.
- Q. Cardinals have up to 16 different calls. What's the most common one?  
A. A metallic *Chink*.
- Q. Why do male cardinals attack their own reflections in windows and mirrors?  
A. They believe they are being threatened by another male and can get seriously injured hurling themselves at the phantom bird.
- Q. Cardinals have elaborate courtship rituals. What is happening when they "kiss"?  
A. The male cardinal offers food to his female, beak to beak.
- Q. Here are some other birds that communicate with crests. Can you name them?  
A. Tufted titmouse    B. Pileated woodpecker    C. Blue jay



# Can you label this cardinal skull?



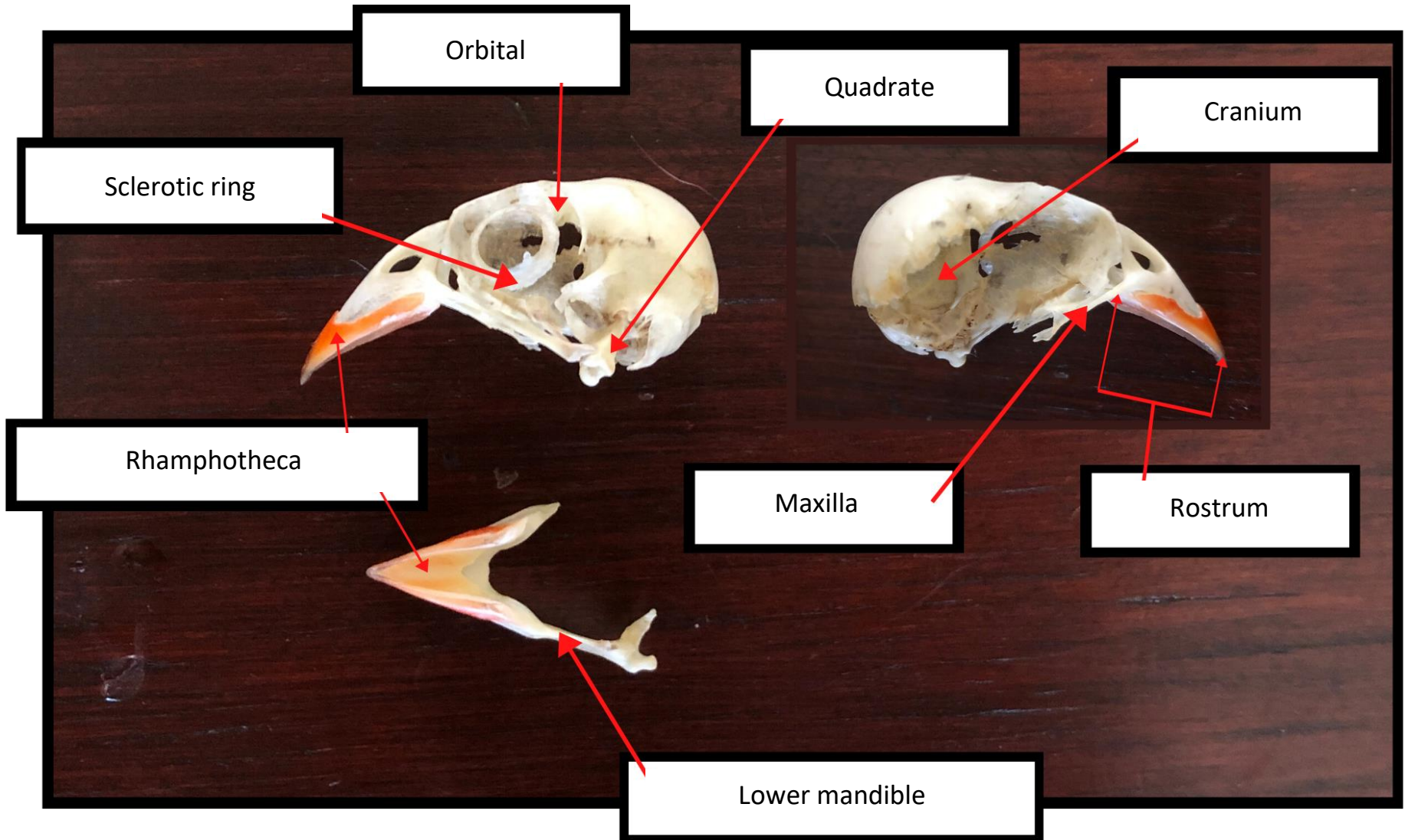
Check out the Cardinal Skull Tour video and follow along!



# Can you label this cardinal skull?



## Answer Key

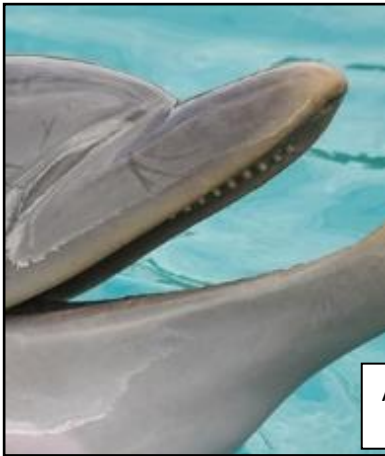




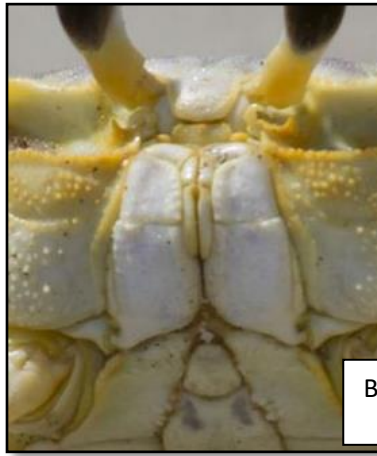
**You don't have to be a bird to have a *rostrum*!**



A *rostrum* (Latin for “beak”) is the term for the part of an animal that extends out from the face and contains any parts like teeth, nasal cavities, piercing mouthparts, etc.! **Can you identify these animals that have evolved their own type of rostrum? Check out the answer key for more information about each species!**



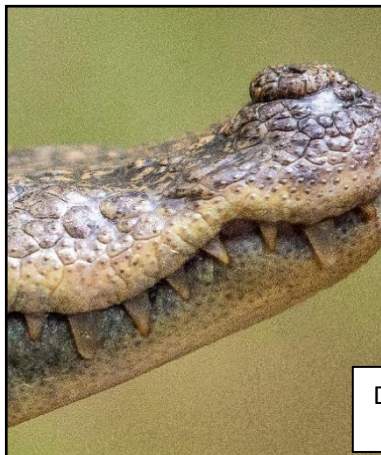
A.



B.



C.



D.



E.



F.



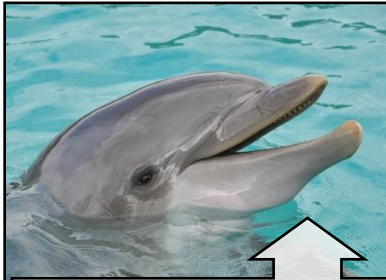




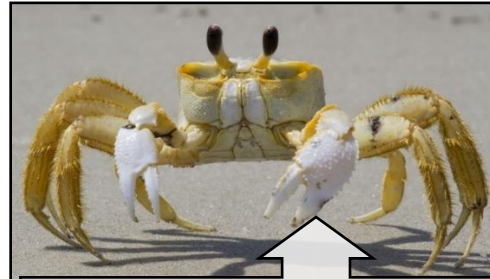
## You don't have to be a bird to have a *rostrum*!



### Answer Key



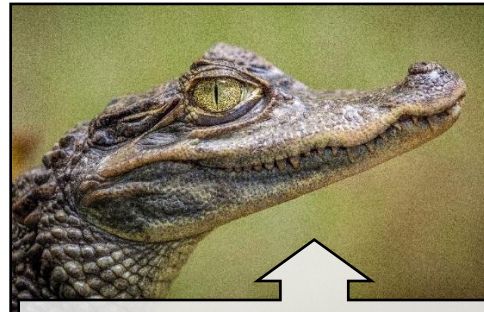
A. Dolphin! Like many other cetaceans (whales, porpoises, etc.), dolphins evolved a medium to long rostrum that has teeth but no nostrils; they instead breathe through a blowhole on top of their heads.



B. Crab! Crabs are invertebrates, so they have a hard-outer shell called an exoskeleton; their rostrum is almost flat against their face, but usually has a hinge so they can flex and open it to eat.



C. Cicada! Depending on the species, some young and adult cicadas use a rostrum that evolved to include a piercing/sucking mouthpart to drink the sap from the roots of certain plants.



D. Crocodile! Crocodiles are predatory reptiles that live mostly in rivers, so they evolved rostrums that have sharp teeth for tearing meat and nostrils that can poke out of the water while the crocodile swims.



E. Swordfish! Their descriptive name comes from the long and deadly sharp rostrum that these fish evolved to help them catch prey; they slash fish with their "sword" to make them easier to catch and eat.



F. Shrimp! Like other crustaceans (crabs, lobsters, etc.), they have an exoskeleton with a medium to long serrated rostrum that is used to attack, defend, and keep balance while swimming.

