

Bat Faces of Mexico

EXPLORATION QUESTIONS

“Why do the faces of bats look so different?”

MATERIALS

- Crayons, colored pencils, or markers
- Copies of the different sugar skull bat masks for students
- Scissors
- Small hole punch and elastic string **OR**
- Large popsicle sticks and scotch tape

OVERVIEW

Bats come in different shapes, sizes, and colors. Thinking about the types of food they eat, how they find that food, and the habitats where they live can explain many of these differences. Students will get to explore the facial features of four bat species found in Mexico including Vampire bat, Mexican Long-tongued bat, Ghost-faced bat, and the California Leaf-nosed bat.

VOCABULARY

Echolocation, insectivore, nectarivore, pollination, tragus

GROUP SIZE

any

AGE

5 – 10 (okay, really any age)

BAT MASK ARTIST

All these amazing bat masks were created by the talented **Kalee Paxton**. Thank you Kalee for sharing your gift with us and for your service through the AmeriCorps Program!

Background

Background Information

Worldwide, there are more than 1,400 species of bats and about 140 of those species live in Mexico. They come in all shapes and sizes, from the tiny, bumblebee bat that weighs less than a penny to the big, Malayan flying fox that can have a wingspan of up to six feet. Bats can be white, brown, black, gray, red, or even spotted or striped! The faces of bats tell a story about their different lifestyles and diets.

Insectivores

Worldwide 70% of all bats are insectivores – they feed on insects. Insect-eating bats often have short muzzles and strong jaws. They also have sharp teeth for grinding and chomping tough insect bodies. Because they use echolocation to locate their prey, they often have small eyes and large ears.

Echolocation

Echolocation is a remarkable navigation system that most bat species have developed to help them detect obstacles in flight, find their way to their homes, and hunt down their main target – delicious insects! Contrary to popular belief, bats are not blind. They actually have good eyesight (similar to that of humans), and some bats use their eyes to find food. But, for bats that eat insects, eyesight doesn't help much when flying through the forest at night. Instead, they use echolocation, emitting very high-pitched, ultrasonic squeaks through their mouths or noses that bounce off obstacles in their path. Bats make these calls as they fly around, and they listen for the returning echoes. Bats use the reflected sounds to identify what an object is, how big it is, and what direction it is moving.

Ears

The ears of insect-eating bats are specially adapted to gather sound waves. The ears are large with a broad, scoop-like form that sticks out well above the head to allow better hearing. Bats also have a special structure in their ear called a tragus. This small, sword-shaped piece of skin is located in front of the ear canal. The tragus plays an important role in directing sounds into the ear for prey location and navigation. Because the tragus tends to be obvious in bats, it can be an important feature in identifying bats to species.

Nectarivores

Of the 30% of bats who don't eat insects some are nectarivores – they feed on nectar. Nectarivores use their keen senses of sight and smell to find nectar of cacti and agaves in southwestern deserts. Bats that feed on nectar usually have long, slender snouts that fit perfectly into flowers. They also have a grooved lower lip and a rough, scaly tongue to catch nectar. The teeth of nectar-feeding bats are often small because they are not used much for chewing due to the bats' liquid diet.



Pollination

Nectar-feeding bats throughout the world are critical pollinators. Drawn to pale, night-blooming flowers, these bats bury their furry faces in flowers to lap up the tasty nectar. When they pull their faces out, they are covered with pollen that they carry to the next flower they visit. Through this process, known as pollination, plants are able to produce full-bodied fruit and viable seeds. While many people know that birds and bees are important pollinators, few know that bats are too. In fact, around the world, over 500 plant species rely, at least partially, on bats to pollinate their flowers, including some plants of great economic and ecological value such as wild bananas, cloves, carob, balsa wood, and agave.

Day of the Dead

El Día de los Muertos, or “Day of the Dead,” is a Mexican holiday that is celebrated across Latin America and in parts of the United States where families remember their loved ones who have passed away. This holiday is celebrated right after Bat Week on November 1st and 2nd. Day of the Dead is not a sad affair, but rather a lively and colorful celebration of the dearly departed, a reunion of the entire extended family (living and dead), and a reminder that life and death are closely connected. During this time, it is believed that the spirits of the dead return to earth to visit their families and loved ones. Day of the Dead is an important festival that honors death as a part of life in an open and joyous way. It also recognizes the continuance of human life in a spirit world, promoting the idea that all our ancestors and descendants make up a vital part of our family.

One staple of the holiday is **sugar skulls**. These brightly colored skulls made from sugar paste are used for decorations as a symbol of death. The bat masks for this lesson were designed to look like sugar skulls as a fun way to celebrate an important Mexican holiday while also learning about bats from Mexico.

Get Ready – Preparation

This fun activity will give people of any age a chance to examine the facial features of four different bat species found in Mexico including Vampire bat, Mexican Long-Tongued bat, Ghost-faced bat, and the California Leaf-nosed bat. You will need to print each of the bat masks on 8.5 x 11in card stock paper.

Get Set – Exploring Bat Faces – Hand Out Materials

- 1) Hand out different bat masks to each of the students.
- 2) Encourage your students to share what differences they notice when they look at the different bat masks. Ask them the following questions:
 - Why would a bat have a long, slender nose (to reach inside plants to gather nectar)?
 - Why would a bat have big ears (to help them echolocate)?
 - Do all bat species eat the same types of food (no – bats eat all kinds of different foods including insects and nectar)?
 - What is that flap of skin in the front of the ear and what might it do (the tragus – helps with echolocation)?



Go! – Decorate Your Bat Mask

Depending on the age group you are working with, you can trim around the bat mask to get rid of the unneeded paper. Or, you can have the students cut the masks out themselves. Don't forget to cut out the holes of the eyes!

Once the mask has been cut out, allow students to color in the mask. You can show pictures of the bat species, but it might be more fun to let people use their imaginations. That way, they can use whatever colors they want to decorate their masks.

After the masks are colored in, you can either tape the finished mask to a large Popsicle stick (this will allow the student to hold the mask in front of their face). Or you can punch two small holes on the side of the mask and attach elastic. You will need to push the elastic through the hole and tie a knot to keep it from slipping out.

Go Even Further: Exploring Four Cool Bats!

A brief description of each of the four bat species has been provided to help you lead a discussion about the fascinating faces of each of these bats.

Go Even Further: Day of the Dead

To learn more about Day of the Dead check out our special Day of the Dead lesson where students can learn about the culture and traditions of the holiday and even learn how to make sugar skulls. Available on the Project Edubat website – <https://batlive.pwnet.org/edubat/curriculum.php>

Suggested Resources:

Vampire Bat

<https://kids.nationalgeographic.com/animals/mammals/facts/vampire-bat>

Mexican Long-Tongued Bat

<https://www.fs.fed.us/wildflowers/pollinators/pollinator-of-the-month/mexican-long-tongued-bat.shtml>

Ghost-faced Bat

<https://www.batcon.org/article/ghost-faced-bat/>

California Leaf-nosed Bat

https://www.desertmuseum.org/kids/bats/california_leaf_nosed_bat.php

Day of the Dead

<https://dayofthedead.holiday/>



Vampire Bat



Vampire bats have small, triangular ears and a squished looking face. These bats use both echolocation and heat sensors in their face to help locate prey. Most noticeably, these bats have two, sharp front teeth.

This species is limited to living in warmer climates, which makes living in the deserts and tropics of Mexico the perfect home. Unlike Dracula, these little guys want nothing to do with you. This vampire mainly drinks the blood of animals, more commonly, livestock.

Fun Facts:

- Unlike other bats, vampire bats can walk, run, and hop along the ground!
- Vampire bat saliva contains a compound that prevents blood from clotting so they can eat. This doesn't have any long-term effects on their prey and is being studied to help stroke victims.
- Vampire bats are very social bats, and they take care of their friends – even when they are sick.

Mexican Long-Tongued Bat



Mexican long-tongued bats have much longer snouts than other bats. Their nose includes a “nose leaf”. They are dark brown and look very similar to lesser long-nosed bats who have shorter snouts. These bats are common throughout Mexico but can be found in South-Western United States and Central America.

The reason these bats have long faces and tongues is because they are pollinators. Their tongues are great for extracting nectar out of desert plants like cactus and agave. They also eat fruit and insects when needed.

Fun Facts:

- Mexican long-tongued bats are sometimes nighttime hummingbird feeder visitors. People will wake up, confused to empty feeders.
- The tongue of a Mexican long-tongued bat can extend to up to a third of its body length!

Ghost-faced Bat



These bats have a strange appearance. One of this bat's striking features is its tiny eyes which appear to be located inside the bat's large, rounded ears. **Ghost-faced bats** have wart-like bumps on their noses and leaf-like appendages on their chin. Their noses are described as "underdeveloped" and have a squished appearance. They can be found in Mexico and most of Central America.

Despite their small ears, ghost-faced bats do use echolocation to find their prey, which consists of insects. Little is known about their diet habits, but it is assumed they eat flying insects like moths.

Fun Facts:

- Ghost-faced bats give birth to a single pup and they need hot steamy caves to raise their young.
- They often share roosting sites with other bats, such as cave myotis and Mexican free-tailed bats. Sharing is caring!

California Leaf-nosed Bat



As its name suggest, the **California leaf-nosed bat** has a nose shaped like a leaf. This is because of the fleshy protrusion that sits atop their nose (scientists call this a nose leaf). They are grayish to dark brown in color on their backs and have paler fur on their stomachs. They can be found in the Sonoran and Mojave deserts and western Mexico.

These bats are insectivores, meaning they mainly eat insects. Specifically, the leaf nosed bat eats crickets, grasshoppers, moths, and caterpillars. They are one of the few insectivore bats that will sometimes eat cactus fruit.

Fun Facts:

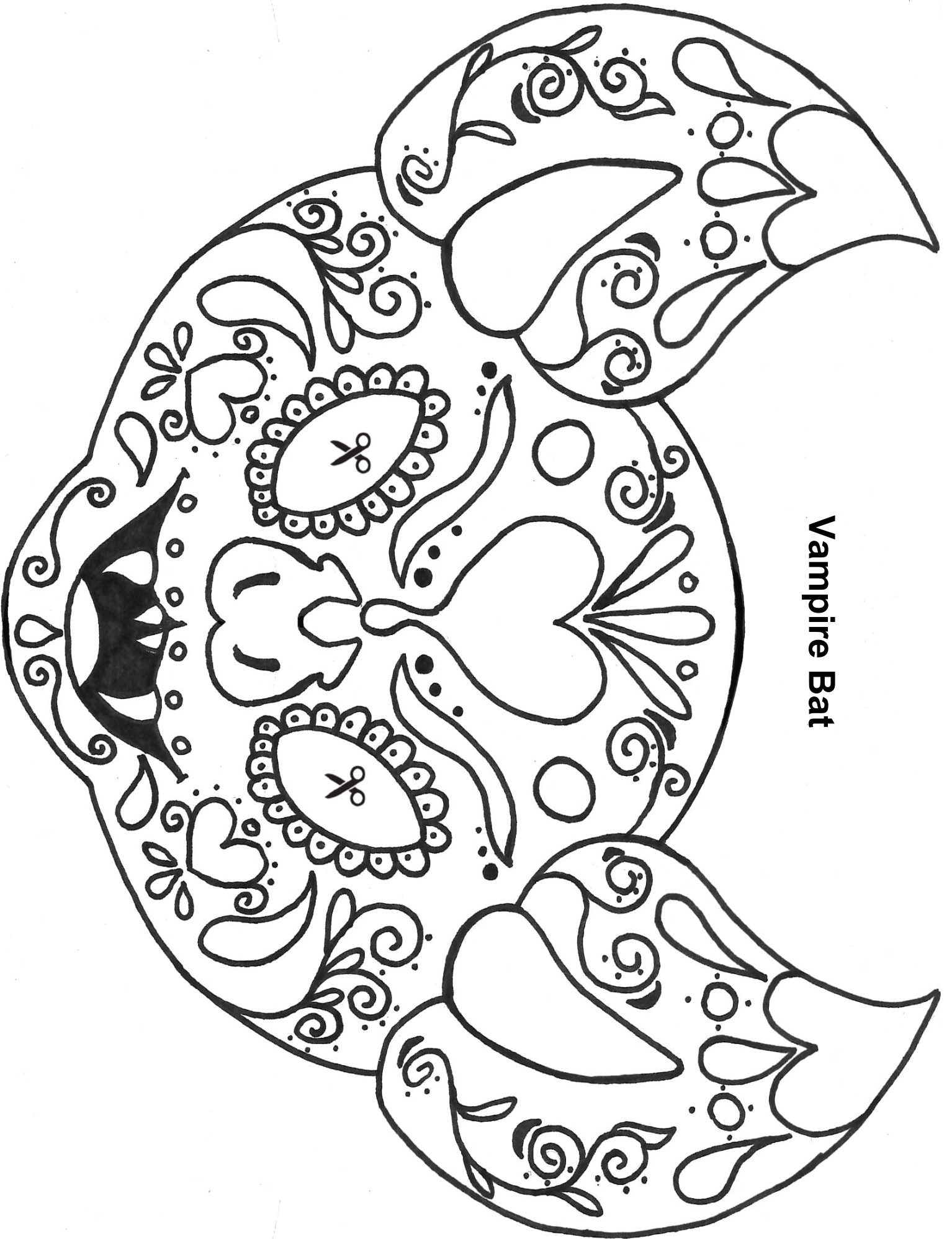
- The California leaf-nosed bat doesn't migrate or hibernate. Besides living in a warm climate, their wings are too short to be able to travel the long distances to migrate.
- These bats are the only in North America to have caterpillars in their diets.



California Leaf-nosed Bat

Ghost-faced Bat





Vampire Bat

Mexican Long Tongued Bat

