



Chimney Swift Lesson Plans



Lesson 1: Chimney Swift Biology & Ecology

Lesson 2: Chimney Swift Migration

Lesson 3: Chimney Swift Conservation

Chimney Swifts

Lesson 1: Chimney Swift Biology & Ecology

OBJECTIVES:

1. Distinguish chimney swifts from other birds
2. Label external body parts and describe their functions
3. Describe the chimney swifts' ecological role

TEACHING TIME:

1 class period:
PowerPoint presentation and activities

REFERENCES:

Cink, Calvin L. and Charles T. Collins. 2002. Chimney Swift (*Chaetura pelagica*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online:
<http://bna.birds.cornell.edu/bna/species/646/articles/introduction>

Chimney Swifts: America's Mysterious Birds above the Fireplace by Paul D. Kyle and Georgean Z. Kyle, 2005.

All About Birds: Chimney Swifts
http://www.birds.cornell.edu/AllAboutBirds/BirdGuide/Chimney_Swift_dtl.html#habitat

MATERIALS:

Learning materials: Overhead Projector, SmartBoard, or LCD Projector for PowerPoint presentation

- Download PowerPoint presentation ZipFile. Make sure to extract both the PowerPoint presentation and the .wmv movie file.

Worksheet handouts:

Biology and Ecology worksheet

TEACHING PROCEDURE

Introduction / Anticipatory Set

1. Teacher: Download PowerPoint presentation to present, if you do not have classroom access to a computer and LCD Projector, you can print the pages onto overhead slides and use an overhead projector.
2. Start off lesson by playing the video on the first page of the PowerPoint Presentation of chimney swifts entering a roost.

Stimulate Prior Knowledge and Inform Learners of Objectives

To bring out student ideas about the lesson topic, ask the following questions:

- Ask students what they know about chimney swifts, or if they do not have any prior knowledge of chimney swifts, ask them to describe something about the video they just saw. Did they think they were birds or bats? Have they seen them before? What do they think they are doing?
- What do you think they eat?
- How do you think they live, what are their habits?
- What special adaptations do you think they need to live?
- What makes them a Chimney Swift?

Make a list of key words or ideas about Chimney Swifts on a board, chart, or an overhead slide as the discussion progresses. Tell students they will be given the opportunity to learn more about Chimney Swifts and their ecological roles. After this introduction, go into the PowerPoint presentation.

Background information for Instructor: Guidance for Learning

The Position of Chimney Swifts in the Animal Kingdom

Kingdom: Animalia

Phylum: Chordata

Class: Aves

Order: Apodiformes

Family: Apodidae

Genus: *Chaetura*

Species: *Chaetura pelagica*

Biology

See corresponding worksheet: Biology and Ecology worksheet

Life History

Chimney Swifts are one of the most active birds in the world. They fly almost constantly during the day. You can hear them chittering during the spring and summertime as they fly high above, catching flying insects. They have been described as resembling a "flying cigar."

Migration

Chimney Swifts spend the winter in the Amazon Basin of South America, then travel here in the Spring to breed and raise their family. In the Fall, they congregate in large groups as they prepare for their migration trip back to South America. They use large older chimneys as roosts. Roosting groups can number as few as a couple of swifts or larger with thousands of swifts!

To learn more about Fall roosting swifts in your area and to take part in A Swift Night Out, a national program to count swifts, see this website for more information:

www.chimneyswifts.org

Nesting

Chimney Swift nests are a half saucer shape of woven small twigs held together with their own saliva and glued with saliva to the inside wall of a chimney. The nest is about 4 inches wide by 1 inch tall. They typically lay 2-7 eggs. The eggs are incubated for 18-21 days by both parents. After hatching the young stay in the nest for 20 days. After fledging, they will stay in the chimney for another 8-10 days practicing flying. 30 days after hatching, they will take their first flight out of the chimney.

Family Life

Chimney swifts are monogamous; records indicate that some chimney swifts will remain with the same mate for up to eight or nine years. Swifts are known to stay together as family groups. They have been seen migrating together and during the breeding season, young from the previous year will assist with raising the new brood. They are known as "helpers at the nest".

Conservation

Chimney Swifts used to nest in large, old, dead, hollowed out trees. Very few of these trees now exist and swifts have had to adapt to using human made chimneys as nesting areas. In the past this worked out well for the swifts and with an abundance of nesting areas available to them, their population grew.

Unfortunately, in the past decade chimney designs have changed and many new chimneys can not be used by swifts to nest. Also, many older homes have put caps on their chimneys, which keep out the swifts. This has led to a rapid decline in the swift population.

Student Practice and Teacher Feedback

Biology and Ecology worksheet: After PowerPoint presentation, allow students to complete their worksheets.

After worksheet is completed, each student can share what they have learned about Chimney Swifts. This discussion will reinforce what was presented in the PowerPoint slide show.

Evaluation

Successful completion of worksheets and contribution to discussions.

Chimney Swift Anatomy Answer Key

Chimney swifts have several anatomical features that are unique to this species. Label these features and describe their function below.

Small bill with large gape.
Used for capturing flying insects.

Tiny feet and legs.
Used as grappling hooks to
cling to rough surfaces.

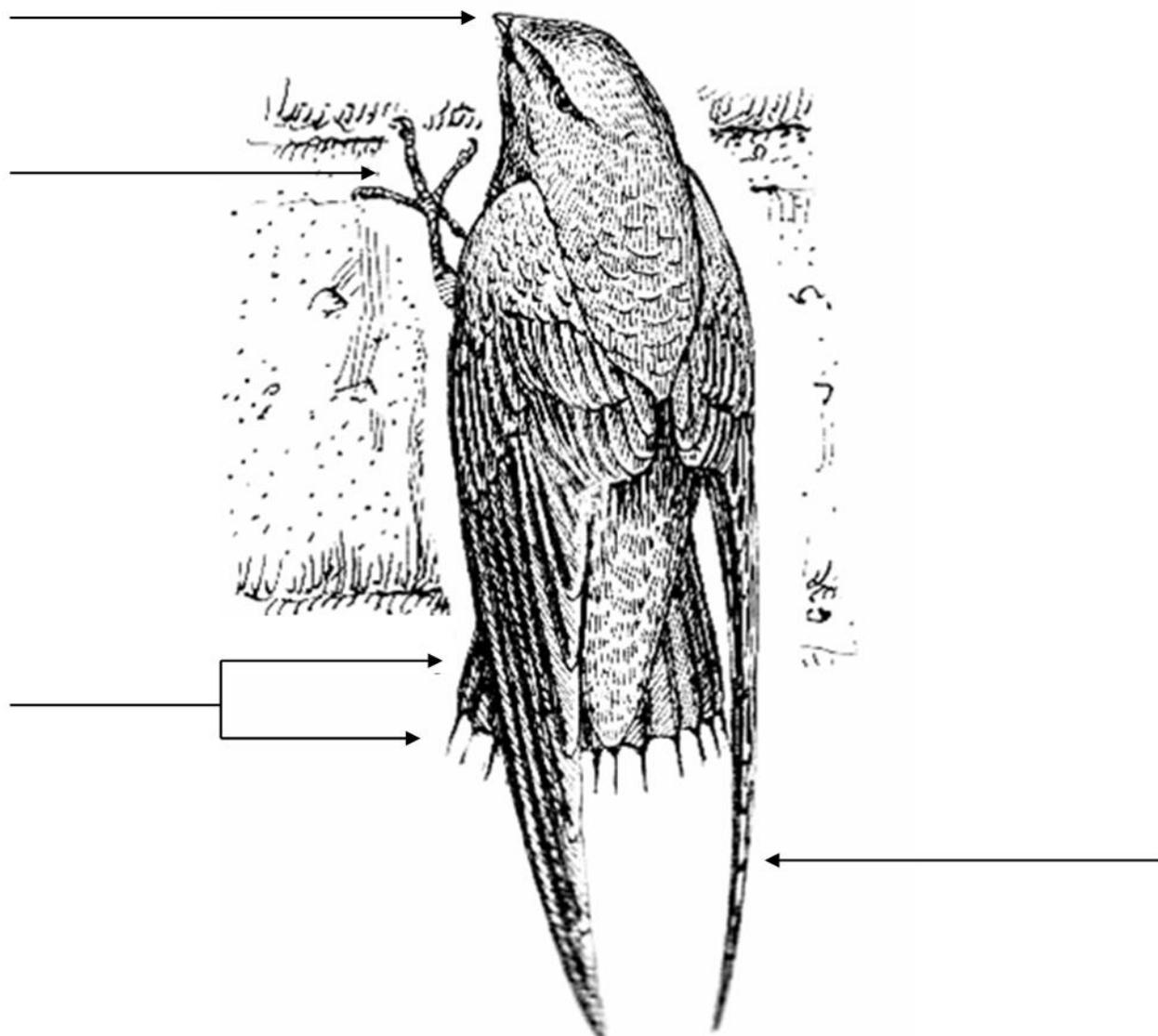
Short tail with stiff
bristled tips.
Helps them stay in
place while clinging to
a vertical surface

Stiff, crescent shaped wings.
Used for gliding and quick
ariel maneuvers.



Chimney Swift Anatomy

Chimney swifts have several anatomical features that are unique to this species. Label these features and describe their function below.



Chimney Swifts

Lesson 2: Chimney Swift Migration

OBJECTIVES:

1. Define migration.
2. Describe the chimney swifts' life cycle.
3. Discuss why birds migrate.

TEACHING TIME:

1 class period:
PowerPoint presentation and activities

REFERENCES:

Cink, Calvin L. and Charles T. Collins. 2002. Chimney Swift (*Chaetura pelagica*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online:
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MATERIALS:

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Worksheet handouts:

Migration worksheet

TEACHING PROCEDURE

Introduction / Anticipatory Set

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2. Start off lesson by playing the video on the first page of the PowerPoint Presentation of chimney swifts entering a roost.

Stimulate Prior Knowledge and Inform Learners of Objectives

To bring out student ideas about the lesson topic, ask the following questions:

- Remind the students about what they learned in the previous lesson on chimney swift biology and ecology. Given what they have learned, what do you now think about this video?
- What do you think they are doing?
- What season of the year do you think the swift behave like this?

Make a list of key words or ideas about Chimney Swifts on a board, chart, or an overhead slide as the discussion progresses. Tell students they will be given the opportunity to learn more about Chimney Swift migration. After this introduction, go into the PowerPoint presentation.

Background information for Instructor: Guidance for Learning

Migration

Bird migration refers to the regular seasonal journeys undertaken by many species of birds. Bird movements include those made in response to changes in food availability, habitat or weather. Migration is marked by its annual seasonality. In contrast, birds that are non-migratory are known as resident birds. Many land birds migrate long distances. The most common pattern involves flying north to breed in the spring/summer and returning to the wintering grounds in warmer regions to the south.

Reasons for migration:

Chimney swifts are thought to migrate for several reasons. Here in the spring and summer temperatures are warm and insects, their food source, are abundant. In the Fall, it gets cooler and insects become scarce, so there is a lack of food. Also Swifts are very small birds and can not tolerate cold weather. So they migrate down to South America where they can find food and warm temperature all winter.

So why do they not just stay in South America all year? One theory is that there are many nest predators in those areas, so if they stayed and nested there, they would not be

successful. So they migrate to the US and Canada, where there are less predators, and they can successful raise their brood.

Student Practice and Teacher Feedback

Migration worksheet: After PowerPoint presentation, allow students to complete their worksheets.

After worksheet is completed, each student can share what they have learned about Chimney Swifts. This discussion will reinforce what was presented in the PowerPoint slide show.

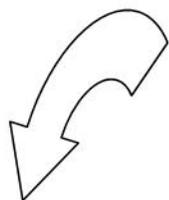
Evaluation

Successful completion of worksheets and contribution to discussions.

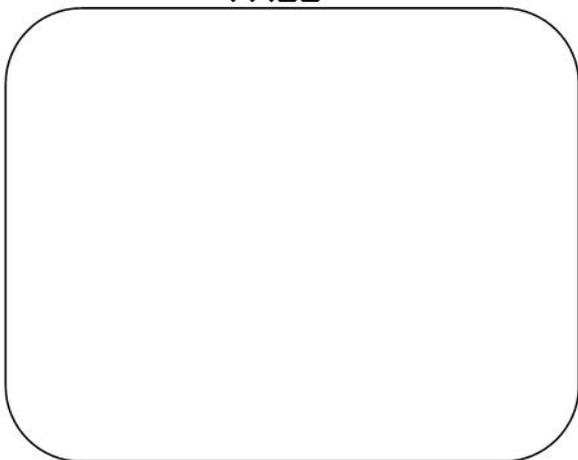
Chimney Swift Migration

Chimney swifts are migratory birds. For each season provide a brief description of the swifts' location and activities.

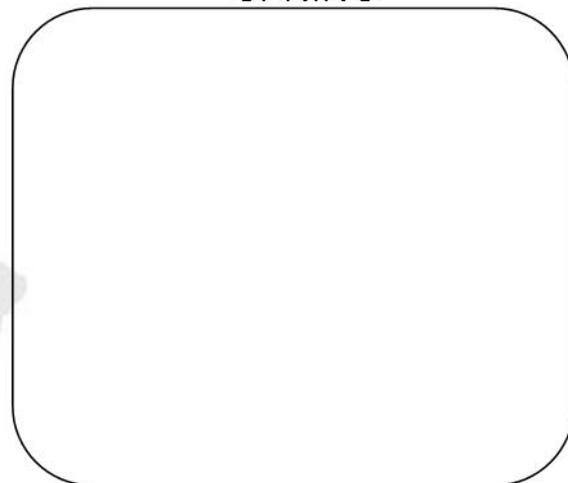
SUMMER



FALL



SPRING



WINTER



Chimney Swifts

Lesson 3: Chimney Swift Conservation

To coincide with Swift Night Out, this lesson must be done in August (if you are located farther north) or September (if you are located further south).

OBJECTIVES:

1. Describe conservation issues affecting chimney swifts
2. Participate in Swift Night Out
3. Observe swifts in their natural habitat

TEACHING TIME:

1 class period for PowerPoint presentation and activities, and one evening for Swift Night Out participation.

REFERENCES:

Swift Night Out: <http://www.concentric.net/~dwa/page56.html>

Cink, Calvin L. and Charles T. Collins. 2002. Chimney Swift (*Chaetura pelagica*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online.
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Introduction / Anticipatory Set

1. Teacher: Download PowerPoint presentation to present, if you do not have classroom access to a computer and LCD Projector, you can print the pages onto overhead slides and use an overhead projector.

Stimulate Prior Knowledge and Inform Learners of Objectives

To bring out student ideas about the lesson topic, ask the following questions:

- Ask students what they know about chimney swifts.

Make a list of key words or ideas about Chimney Swifts on a board, chart, or an overhead slide as the discussion progresses. Tell students they will be given the opportunity to learn more about Chimney Swift conservation. After this introduction, go into the PowerPoint presentation.

Background information for Instructor: Guidance for Learning

Chimney Swifts are among many avian Neotropical migrants which are showing a statistical decrease in population. These birds historically nested and roosted in hollow trees. As American pioneers moved westward across the continent, they cleared forests and removed the swifts' natural habitat. The birds that Audubon called American Swifts became known as Chimney Swifts as they readily adapted to the masonry chimneys erected by those same pioneers. Over the decades, the range of the swifts expanded and their numbers swelled with the ever increasing availability of this new, man-made habitat. However, changes are again challenging this adaptable species. Most new chimney construction uses metal flue pipe rather than stone or clay. Chimney Swifts require roughly-textured, vertical surfaces in which to roost and construct their nests. The surface of the metal is not only too smooth to be useful to the swifts, it can also be a death trap to the unsuspecting birds. To compound the problem, many suitable chimneys are being capped by intolerant or ill-informed homeowners who are unaware of the beneficial aspects of housing avian insectivores.

The preservation and proper maintenance of existing nest sites is critical to the future of Chimney Swifts, but these efforts alone may be insufficient. The summer skies are filled with many species of birds. However, none seem to be as much at home on the wing as the Chimney Swifts. While even the graceful swallows must perch to preen and socialize, the Chimney Swifts flicker on, chipping and careening endlessly throughout the day. Small, sleek, bluish-black with silver-grey throats, Chimney Swifts have been called "flying cigars" and "bows and arrows." Their stiff, flickering movements alternate with long, graceful sweeps of flight as they scour the skies for flying insects. As captivating as their flight is to watch, their clandestine terrestrial behavior is even more remarkable. Unable to perch or stand upright as songbirds do, Chimney Swifts are uniquely equipped to roost clinging to vertical surfaces. Their small but strong feet are tipped with four

forward-facing claws which act as grappling hooks to hold them firmly to their roost. Their tail feather shafts extend as stiff exposed spines to provide additional support for their vertical lifestyle. Although they will occasionally roost in the open, Chimney Swifts prefer the safety of an enclosed area such as a chimney, air shaft or abandoned building. It is in these inaccessible locations that they not only roost but build their nests, raise their families and congregate prior to migration.

The adaptation by Chimney Swifts to make use of man-made structures is a result of deforestation and the loss of large hollow trees as natural roosting and nesting sites. This ability to adapt has not only allowed Chimney Swifts to survive as a species, but it has caused their range to greatly expand. As recently as the 1940's, Chimney Swifts were rarely sighted west of the Mississippi River. They are currently common from the east coast to the foot of the Rocky Mountains. While Chimney Swifts would seem to be an exception to the generally declining populations of migratory birds, the pendulum may be swinging back against them. Chimney Swifts commonly roost together in large numbers in a single shaft. However, each breeding pair must have a site of their own to raise their young. This becomes a problem with the advent of metal chimneys and the increasing desire of home owners to cap their chimneys. Suitable nesting sites will be harder to find.

-From Texas Partners in Flight.

Swift Night Out Participation

Depending on your geographical location, this night should occur in August if you are in the Northern US and September if you are in the Southern US. If you already have located a roost to observe swifts make sure you are there at least 30 minutes before sunset. If you need assistance in finding a roost, you can contact your local Audubon Society or www.chimneyswifts.org to find a roost near you.

A Swift Night Out is a continent-wide effort to raise awareness about and encourage interest in Chimney Swifts. On one night over the weekend of August 8, 9, 10, or September 12, 13, 14 observe a roost starting about 30 minutes before dusk and estimate the number of swifts that enter. When you have your number, email your findings to: DWA@austin.rr.com

Student Practice and Teacher Feedback

After PowerPoint presentation, discuss conservation issues facing chimney swifts and possible solutions. Each student can share what they have learned about Chimney Swifts. This discussion will reinforce what was presented in the PowerPoint slide show.

If you are participating in Swift Night Out, following the event, or the next day in class you can further discuss what was witnessed, and referring back to Lesson 2 on Migration, discuss this part of the swift life history.

Evaluation

Successful contribution to discussions.