Kindergarten Unit
‘Bats All, Folks!’

TWO WEEKS OF ENGAGING BAT-THEMED LESSONS AND ACTIVITIES

These activities were developed or curated by the Kindergarten teachers from the Morenci Unified School District thanks to a grant administered by Freeport-McMoRan.
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INTRODUCTION

This outline provides a 2-week example of how teachers can incorporate a cross-curricular unit on bats. It includes lessons and activities in language arts, math, science and art. Teachers may use this unit as a whole or pick and choose activities that suit your needs. You may also adapt it to an existing unit that you are already using.

Curated Teacher Resources Included:

- Science Lesson Plan - Nocturnal Animals
- Math Lesson Plan - Bats in a Cave
- Graphing: Are Bats Cool or Creepy? lesson page
- Bat Measurement Activity
- Bat Habitat Color Sheet sample from Project Edubat
- The Fat Bat Game
- Bibliography
- Online Resources (for additional learning and background)
KINDERGARTEN UNIT OUTLINE FOR SCIENCE

Unit topic and length: Students will learn about bat habitats, important vocabulary and answer important question concerning bats in our surrounding area. These lessons/activities will incorporate 4 Common Core science standards. There are 10 days planned with various activities. Student engagement in tasks will vary, but the recommendation is 30 minutes or less for each activity.

Common Core Learning Standards Correlation - Science

K.1S.C1.PO1 – Observe common objects using multiple senses. “I can explore objects using different senses.”

K.1S.C1.PO2 – Ask questions based on experiences with objects, organisms and events in the environment. “I can ask questions and investigate the answers.”

K.1S.C3.PO1 – Organize (e.g. compare, classify, sequence) objects, organisms and events according to various characteristics. “I can group things in different ways.”

K.4S.C3.PO2 – Identify that plants and animals need the following to survive. (Food, water, air, space). “I can find and name thing plants and animals need to survive.”

Big Ideas/Essential Questions

“I can explore objects using different senses.”

Big Ideas:

1. We use our senses to explore objects in the world around us.
2. We are able to observe objects in different ways by using different senses.

Essential Questions:

1. What are some observable characteristics of bats?
2. How does a mother bat use her sense of smell and hearing to locate her pup?
“I can ask questions and investigate the answers.”

Big Ideas:

1. We can think critically and ask “What if” and “Why” to investigate.
2. We can examine relationships and communicate results.

Essential Questions:

1. How do bats hang upside down?
2. Why do bats hang upside down?
3. Why are bats so important?

“I can group things in different ways.”

Big Idea:

1. Living and non-living things have characteristics and can be grouped using characteristics.

Essential Questions:

1. Is a bat a bird?
2. What does nocturnal and diurnal mean?
3. What are mammals? How can they be organized?

“I can find and name things plants and animals need to survive.”

Big Idea:

1. Plants and animals need specific things to grow and survive.

Essential Questions:

1. What do bats eat?
2. Where do bats live? What is a habitat?
3. What will happen if a bat's habitat is destroyed?
Science Unit Overview

Day 1: Read Bats by Gail Gibbons and discuss characteristics of various bats. Use provided graphic organizer to write characteristics of bats.

Day 2: Bat Habitat. Discuss what a habitat is (Bat Squad! - “Hey Bat, What’s Your Habitat?”) and specifically what a bat habitat may be (caves, barns, tall trees, attics, garages).

Day 3: Take a look at what this site offers and explore some of the engaging videos about the life of the cartoon bats (From Farm to Table, Om Nom Nom, Very Scary, A Change of Heart). The videos introduce the ideas that 1) bats provide important services to people and 2) bats are not scary, but helpful and interesting.
https://www.savelucythebat.org/meet-reggie-and-friends/

Day 4: Family Sense. Discuss how female bats use their sense of smell and hearing to find their pups. Do the activity found at
https://assets.speakcdn.com/assets/2332/activity_-_family_sense1.pdf

Day 5: Echolocation. Continue discussing how bats use their senses to maneuver through the night and find food. This is a catchy song on YouTube about echolocation:
http://www.youtube.com/watch?v=Hr-Y2Tt8qFE

Day 6: Read digital story Echo the Bat.
https://er.jsc.nasa.gov/seh/Echo_the_bat/Echo_the_Bat_Story/story.html

Day 7: Continue with the concept echolocation. Play the following game to reiterate this concept. Directions for the game can be found here:

Day 8: Read Bats: National Geographic Kids. Specifically focus on the term nocturnal (there are also plenty of other facts provided in the link for mini-lessons). What does it mean to be nocturnal/diurnal? What other animals are nocturnal/diurnal? This day may lend itself to open another unit or mini-lesson on nocturnal animals in general.

Day 9: Sorting Nocturnal Animals (see lesson details below).

Watch the video clip: https://www.youtube.com/watch?v=sYKCkIr2GvY
Nocturnal Animals Science Lesson Plan

Performance Objective:

- K.1S.C3.PO1 – Organize (e.g. compare, classify, sequence) objects, organisms and events according to various characteristics.

Learning Objective:

- The student will be able to correctly sort nocturnal and diurnal animals in the corresponding column.

Essential Questions:

- What does nocturnal mean? What does diurnal mean? What are characteristics of both types of animals? Can you name animals in both categories?

Materials Needed:

- Web address:
  - https://www.wpbstv.org/songs-nocturnal-diurnal-which-one-are-you-pbs-kids/
- Pictures of various types of animals
- Nocturnal and diurnal sign (taped on popsicle sticks)
- Is it Nocturnal? worksheet
Anticipatory Set:

- I will ask students to “Think back to the last couple of days when we have read or looked at a video clip about bats and we learned a new word that describes what type of animal it is...?” What does nocturnal mean? Turn to your partner and tell them what you think?

Direct Instruction:

- I will show video clip and review the definitions of nocturnal and diurnal.

Guided Practice:

- I will show the students pictures of various animals either printed out or on smart board. Based on prior knowledge and direct instruction, students have to decide if the animal is nocturnal or diurnal and hold up the corresponding sign.

Assessment:

- I will ask questions throughout the lesson, watching for correct cards to be held up.

Independent Practice:

- Students will then be given directions to complete a worksheet independently. Students have to cut out the animal, decide it its nocturnal or diurnal and glue it in the correct column.

Closure:

- We will some back together on the rug and think, pair, share. Students have to think of one animal that is nocturnal and one that is diurnal and share with their partner.

Extension:

- Students can write a sentence filling in the blank, A ___________ is ________________ (nocturnal/diurnal) because ________________. Writing can be collected to create a class book of nocturnal and diurnal animals.
KINDERGARTEN UNIT OUTLINE FOR MATH

**Introduction:** This unit outline provides a 2-week example of how teachers can integrate math performance tasks into a bat unit. Teachers may use this unit as a whole or pick and choose activities that suit your needs. You may also adapt it to an existing unit that you are already using.

**Unit topic and length:** Students will learn basic facts about bats, incorporating 4 math standards. There are 10 learning plans included that cover math standards. Student engagement in tasks will vary, but the recommendation is 30 minutes or less for each activity.

**Common Core Learning Standards Correlation - Math**

*K.M.CC.A.03* – Identify numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects). “I can identify and make a model of numbers 0-20 in different ways.”

*K.M.CC.B.04* – Understand the relationship between numbers and quantities; connect counting to cardinality. “I can count objects and tell how many there are.”

*K.M.CC.C.06* – Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group. “I can compare two groups of objects using greater than, less than, or equal to.”

*K.M.MD.B.03* – Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. (Limit category counts to be less than or equal to 10). “I can sort objects into different groups and then compare the amounts in each group.”
Big Ideas/Essential Questions

“I can identify and make a model of numbers 0-20 in different ways.”

Big Ideas:

3. A number tells how many.
4. Numbers go in a certain order.
5. A number can be shown in different ways.
6. Objects can be counted and represented with a correct number.

Essential Questions:

1. What is a number? How are numbers used?
2. What is a number? How can a number be shown in different ways?
3. What is counting? How can a number be matched to a given set of objects?

“I can count objects and tell how many there are.”

Big Ideas:

1. A number tells how many.
2. Numbers go in a certain order.
3. A number can be shown in different ways.
4. Objects can be counted and represented with a correct number.
5. When counting objects, the last number counted is the total amount of objects.

Essential Questions:

4. What is a number? How can a number be shown in different ways?
5. What is counting? How are objects counted?
"I can compare two groups of objects using greater than, less than, or equal to."

Big Ideas:

4. Objects can be counted and represented with a correct number.
5. Two groups of objects can be compared to each other.
6. Some groups of objects have a greater amount, some have a less amount, and some have the same amount as another group of objects.
7. Greater than means more, less than means fewer, and equal to means the same amount.

Essential Questions:

1. What is counting? How are objects in separate groups counted?
2. What words can be used to compare the number of objects in each group? How do we decide which group has more, less, or equal amounts?
3. What is greater than, less than and equal to? How can we use these terms to help us compare groups of objects?

"I can sort objects into different groups and then compare the amounts in each group."

Big Ideas:

1. Objects have observable attributes and can be categorized by those attributes.
2. Size, shape, color, texture, and weight are some attributes.
3. Large groups of objects can be sorted into smaller groups of like objects.
4. Objects categorized into a group can be counted and compared to other groups.

Essential Questions:

4. What are attributes? How can they be used to sort objects?
5. What is sorting? How can objects be sorted into groups?
6. What is comparing? How can one group of objects be compared to another?
Math Unit Overview

Day 1: Graphing activity (p1 of the Bat Activities pdf). Have a class discussion regarding whether the students think bats are cool or creepy. Students will tally and graph their friends' opinions on the included sheet. You can also do a whole class graph on the board.

Day 2: Bats in A Cave Math Lesson: Counting (see lesson below). Students roll dice to count the bats in the 'bat cave'. This lesson includes counting and number writing. A formal lesson plan, manipulatives, and worksheet are provided.

Day 3: Counting to 100 math activity (pp 9-12 of the Bat Activities pdf). The class will count to 600 – the number of insects a little brown bat can eat. Divide students into 6 groups and each group will count 100 insects.

Day 4: Bats in a Cave Math Lesson: Variation 3. Students will sort bats by attribute and compare the amounts in each group. A sorting sheet is included.

Day 5: Have fun counting backwards from five with this Five Little Bats Poem. Print out number/word bat cards (p.20 of the Bat Activities pdf) for a visual if desired.

Day 6: In this yummy activity students measure bats using candy corn! (p. 2-4 of the Bat Activities pdf)

Day 7: Bats in a Cave Math Lesson: Variation 1. This activity is a simple review of the Bats in a Cave lesson. Use the included bats with numbers on them in Variation 1.

Day 8: Using The Fat Bat Game (p.19 of the Bat Activities pdf), students get to fill up the bat with bugs! First, they roll a dice, and then draw the number of bugs on the bat - try to fill him up in 10 rolls of the dice! This would be a great center or table tub activity.

Day 9: Bats in a Cave Math Lesson: Variation 2. Students will count bats in two groups then compare the amounts using greater than, less than, or equal to. Use Variation 2 and materials from the Bats in a Cave lesson. The included sorting sheet would work well as an activity if laminated or in a wipe-off sleeve.

Day 10: Students can use standard and non-standard measurement in this class activity. Use a ruler, yardstick, ribbon, yarn, etc. to measure the length of the smallest and largest bats.
Bats in A Cave Math Lesson

Performance Objective:

- *K.M.CC.A.03* I can identify and make a model of numbers 0-20 in different ways.

Learning Objective:

- The students will be able to correctly identify and write numbers 0-20 and match the number to the correct amount of objects.

Essential Questions:

- What is a number? How are numbers used? How can a number be shown in different ways? What is counting? How can a number be matched to a given set of objects?

Materials Needed:

- ‘Bat Cave’ made from a lunch sack
- Bats to count with (i.e.: printed bats and/or plastic bats)
- Whiteboards, dry erase markers, erasers
- Worksheet

Anticipatory Set:

- As a class we will discuss what we have learned about bats and bat caves. We will talk about and guess how many bats might live in a bat cave. I will then show them our ‘bat cave’ made from a lunch sack and have them guess how many bats might actually be in this bat cave.

Direct Instruction:

- As a class we will review the concept of counting; numbers getting higher by one as we count, and one-to-one correspondence as we count objects. We will practice counting to 20. We will also practice counting bats and writing the number on our whiteboards.
Guided Practice:

- The teacher, then students, will roll the dice and state the number. Then they will count as they take that number of bats out of the cave. Each student in the class will write the number and draw the correct number of bats on their whiteboards. The class will check their work with the teacher’s or student’s work on the front board.

Active Participation:

- Students will work in pairs rolling the dice, saying and writing the number and then counting out the bats from the cave. Or, students can draw the correct number of bats on their whiteboards.

Assessment:

- I will ask questions throughout the lesson, watching to be sure students are counting, drawing and writing the correct numbers.

Closure:

- As a class we will review the concept of counting; numbers getting higher by one as we count, and one-to-one correspondence as we count objects. I will call on students to count to 20 and count objects to 20. Also, students will count the bats on their whiteboards with a buddy.

Independent Practice:

- Students will be given directions to complete a worksheet independently. Students will correctly draw the number of objects for the number given; and also write the correct number for the objects given.
Variation 1: K.M.CC.B.04

“I can count objects and tell how many there are”.

The bats in the ‘bat cave’ will already have a number on them. When a student takes a bat from the cave they will have to count out bats, counters, or draw bats to match the number.

Variation 2: K.M.CC.C.06

“I can compare two groups of objects using greater than, less than, or equal to”.

Students can take a few bats from the cave and put them into two groups and count the number of bats in each group. Then determine greater than, less than, or equal to.

Variation 3: K.M.MD.B.03

“I can sort objects into different groups and then compare the amounts in each group”.

Students can sort the bats by color (black or purple) or texture (plastic or paper) then explain how they sorted them and tell how many are in each group.
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Carney, Elizabeth.  *National Geographic Readers: Bats*

Davies, Nicola.  *Bat Loves the Night – Read and Wonder*

Gibbons, Gail.  *Bats*

Iorio, Nicole.  *Bats! Time for Kids*

Jackson, Tiara.  *About Bats, A Kids Picture Book About Bats*

Milton, Joyce.  *Bats-Creatures of the Night*

Simon, Seymour.  *Amazing Bats*

Wood, Lily.  *Bats-Scholastic Reader*
ONLINE RESOURCES

Information for instructors: https://www.desertmuseum.org/books/nhsd_bats.php

Understanding bats and how they live:

Fun Echolocation Song: http://www.youtube.com/watch?v=Hr-Y2Tt8gFE

Information on Why Bats are so Important:

Information and Videos for instructors:  http://www.batconservation.org/