

# BAT RESEARCH SIMULATION PRE-PROGRAM ACTIVITIES

*A variety of activities to hook student interest in bats and issues surrounding bats.*

## ARIZONA ACADEMIC STANDARDS

SC05-S3C1  
SC07-S3C1  
SC08-S3C1  
SCHS-S3C1  
SC06-S4C1  
SC06S4C3  
SC07-S4C3  
SCHS-S4C3  
SC08-S4C4  
SCHS-S4C4

## VOCABULARY

Adaptation  
Chiroptera  
Echolocation  
Habitat  
Habitat Loss  
Hibernate  
Migrate  
Nocturnal  
Pollinator  
Rabies  
Roost  
Seed dispersal  
Vertebrate

## ANTICIPATORY

For Grades 6-12:

### Benefits of Bats

From Association of Zoos and Aquariums Bat Education Activities <http://www.aza.org/thematic-educational-activities/>

Students investigate products (manipulatives and pictures) to explore the importance of bats for humans and nature.

### Bats: Maligned or Malicious?

From National Wildlife Federation Night Friends

<http://www.nwf.org/~media/PDFs/Be%20Out%20There/Schoolyard%20Habitats/Night-Friends.ashx>

Students explore views and myths about bats, and present their findings.

### Species Profiles

From Bat Conservation International <http://www.batcon.org/index.php/all-about-bats/species-profiles.html>

Pictures and information for North American Bat Species

## PowerPoint Presentations

Grade 6

### Bats A to Z: An Alphabet Book About Bats

From the Lubee Bat Conservancy [http://www.batconservancy.org/siteRoot/pdf/Lubee/Lubee\\_Bats\\_A\\_to\\_Z\\_Presentation.ppt#1](http://www.batconservancy.org/siteRoot/pdf/Lubee/Lubee_Bats_A_to_Z_Presentation.ppt#1)

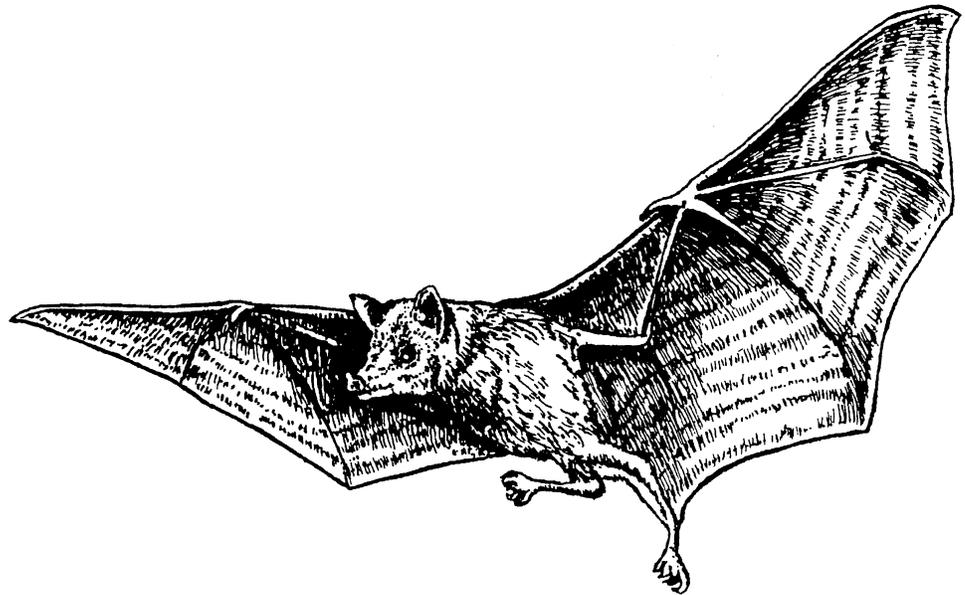
Information and pictures about bats

Grades 7-12 (adaptable for Grade 6)

### Why Care About Bats

From Association of Zoos and Aquariums Bat Education Activities <http://www.aza.org/thematic-educational-activities/>

Information and pictures about bats, with teacher notes in the notes section



# BAT RESEARCH SIMULATION PRE-PROGRAM ACTIVITIES

*A variety of activities for students to explore natural history, importance of and threats to bats*

## ARIZONA ACADEMIC STANDARDS

SC05-S3C1-02&03  
SC07-S3C1-01,02&03  
SC08-S3C1-01&02  
SCHS-S3C1-01,02,03,04&05  
SCHS-S3C2-01,04  
SC06-S4C1-06&07  
SC06-S4C3-02  
SC07-S4C3-03,04,05  
SCHS-S4C3-01&02  
SC08-S4C4-01&06  
SCHS-S4C4-02,04&06  
SC06-S1C2-01,02,04&05  
SC07-S1C2-01,02,04&05  
SC08-S1C2-01,02,04&05  
SCHS-S1C2-01,02,03,04&05  
SC06-S1C3-01,02,04&06  
SC07-S1C3-01,02,05,06&07  
SC08-S1C3-01,02,05&08  
SCHS-S1C3-07  
6.SP.4 6.SP.5 8.SP.1  
7.SP.2 7.SP.3 HS.S-ID.1  
HS.S-ID.6 HS.N-Q.1

## VOCABULARY

Adaptation  
Chiroptera  
Echolocation  
Endothermic  
Frugivore  
Insectivore  
Megabat  
Microbat  
Nectarivore  
Nocturnal  
Pollinator  
Roost  
Vertebrate

## EXPLORATION ACTIVITIES

Grades 6-8

### The Wing's the Thing (Bat Anatomy)

From US Fish and Wildlife Service: Indiana Bat Curriculum

<http://www.fws.gov/midwest/Endangered/mammals/inba/curriculum/index.html>

Students identify and label bat anatomy on a diagram.

Grades 9-12 (adaptable for Grade 8)

### Bats of Arizona – Classification

From Arizona Game and Fish Department [http://www.azgfd.gov/i\\_e/ee/resources/posters/bats\\_hs.shtml](http://www.azgfd.gov/i_e/ee/resources/posters/bats_hs.shtml)

Using a glossary of Scientific Names given to bats, students translate names into descriptive characteristics.

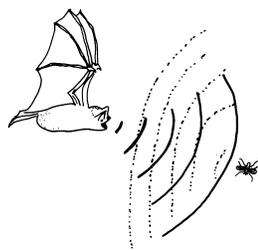
Can be used together with AZGF Wild Kids Worksheet: [http://www.azgfd.gov/i\\_e/ee/resources/wild\\_kids/bats712.pdf](http://www.azgfd.gov/i_e/ee/resources/wild_kids/bats712.pdf)

Bat poster from AZGF, or with Species Profiles from Bat Conservation International <http://www.batcon.org/index.php/all-about-bats/species-profiles.html>

Grades 6-8 (adaptable for Grades 9-12)

**Bats and Echolocation** From Scientific American Frontiers Calls of the Wild Teaching Guide <http://www.pbs.org/saf/1308/teaching/teach.pdf>

Students experiment with reflected sound waves in order to analyze echo return time and calculate the distance of the reflecting surface.



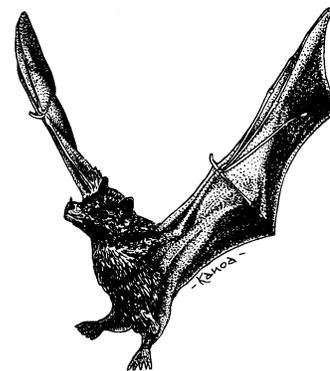
Grades 7-12

### Plotting Populations – Graph drawing activity

From US Fish and Wildlife Service: Indiana Bat Curriculum

<http://www.fws.gov/midwest/Endangered/mammals/inba/curriculum/index.html>

Students draw graph of bat population data, and interpret graph to draw conclusions.



Grades 7-12

### Threats to Bats (article)

From Association of Zoos and Aquariums Bat Education Activities <http://www.aza.org/thematic-educational-activities/>

Students read an article regarding impacts threatening bat populations world-wide.

Grades 7-12

### Caves and Humans – So Happy Together? – Impact of Human Use

From US Fish and Wildlife Service: Indiana Bat Curriculum

<http://www.fws.gov/midwest/Endangered/mammals/inba/curriculum/index.html>

In a worksheet activity, students analyze various scenarios of cave use and its impacts on the environment and bats.

# BAT RESEARCH SIMULATION POST-PROGRAM ACTIVITIES

*A variety of activities for students to apply program concepts, and elaborate on the importance of bats to humans and to the larger ecosystem, threats to bat populations, and strategies for preservation*

## ARIZONA ACADEMIC STANDARDS

SC05-S3C1-02&03  
SC07-S3C1-01,02&03  
SC08-S3C1-01&02  
SCHS-S3C1-01,02,03,04&05  
SC06-S3C2-01  
SC07-S3C2-01  
SC08-S3C2-01  
SCHS-S3C2-01,04&05  
SC06-S4C3-02  
SC07-S4C3-03,04&05  
SCHS-S4C3-01&02  
SC08-S4C4-01,05&06  
SCHS-S4C4-02&04  
SC06-S1C3-01,02,04&06  
SC07-S1C3-01,02,&05  
SC08-S1C3-01,02&05  
6.SP.4 6.SP.5 8.SP.1  
7.SP.2 7.SP.3 HS.S-ID.1  
HS.S-ID.6 HS.N-Q.1

## VOCABULARY

Adaptation  
Endangered  
Endangered species  
Frugivore  
Habitat  
Habitat Loss  
Hibernate  
Insectivore  
Migrate  
Migration corridor  
Nectarivore  
Pollinator  
Roost  
Seed dispersal

## APPLICATION /ELABORATION

Grades 6-8

### **Bats: A Creativity Book for Young Conservationists**

From Bat Conservation International  
<http://www.batcon.org/pdfs/education/CreativityBook2011.pdf>

Students engage in various creative thinking activities to review importance and issues about bats.

### **Recommended activities: Save the Cave, Dear Editor and Bat Rap**

Grades 6-8

### **Pest Control - It All Adds up**

From US Fish and Wildlife Service: Indiana Bat Curriculum <http://www.fws.gov/midwest/Endangered/mammals/inba/curriculum/index.html>

Students solve word problems about bats' eating habits and impacts on crops.

Grades 6-8

### **Make and Play Game**

From Association of Zoos and Aquariums Bat Education Activities <http://www.aza.org/thematic-educational-activities/>

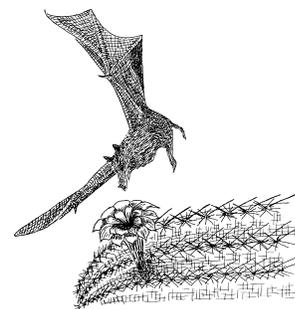
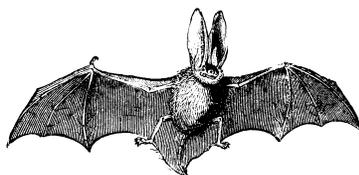
Students play a situational dice game to simulate a year in the life of a bat and the obstacles it faces.

Grades 6-8

### **Bats: Need Nectar, Will Travel**

From Arizona-Sonora Desert Museum Teacher Information Packet - Plant & Animal Partners program  
[http://www.desertmuseum.org/center/edu/docs/k-](http://www.desertmuseum.org/center/edu/docs/k-5_DesertGardeners_batGame.pdf)

[5\\_DesertGardeners\\_batGame.pdf](http://www.desertmuseum.org/center/edu/docs/k-5_DesertGardeners_batGame.pdf)  
Students role play as nectar-feeding bats on their annual migration, and try to avoid various hazards that hinder their progress.



Grades 7-12

### **Decades of Decline – graph interpretation**

From US Fish and Wildlife Service: Indiana Bat Curriculum <http://www.fws.gov/midwest/Endangered/mammals/inba/curriculum/index.html>  
Students analyze graphs for trends in bat populations.

Grades 7-12

### **Cave Conservation– Why Care? – Research and Role Play**

From US Fish and Wildlife Service: Indiana Bat Curriculum <http://www.fws.gov/midwest/Endangered/mammals/inba/curriculum/index.html>  
Students research views of interest groups and present information in a role-playing activity.

Grades 6-12

### **Speak up for Bats**

From Association of Zoos and Aquariums Bat Education Activities <http://www.aza.org/thematic-educational-activities/>  
Students engage in letter-writing campaign to lawmakers requesting support for white-nose syndrome research.

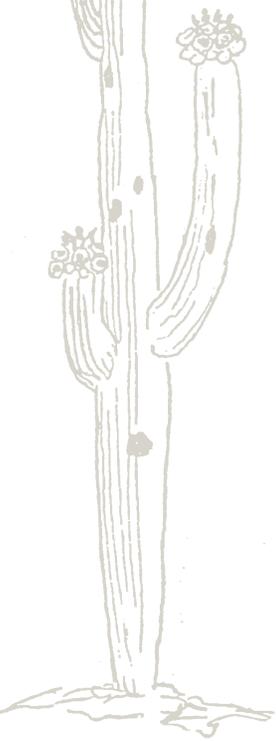
Grades 6-12

### **Build a Bat House**

From National Wildlife Federation - Night Friends  
<http://www.nwf.org/~media/PDFs/Be%20Out%20There/Schoolyard%20Habitats/Night-Friends.ashx>  
Students build bat houses for roosting bats.

# BAT RESEARCH SIMULATION POST-PROGRAM ACTIVITIES

*Find curriculum resources to integrate bat themes into interdisciplinary/cross-curricular lessons.*



## FURTHER RESOURCES

**Bats Live – A Distance Learning Adventure** [http://www.batslive.pwnet.org/resource/lesson\\_plans.php](http://www.batslive.pwnet.org/resource/lesson_plans.php)  
Resource Center for K-8 curricula

**Mathwire – Math Activity Themes-Bats** <http://mathwire.com/themes/themebat.html>  
Standards-based math activities that incorporate bat themes

**ASDM All About Bats Teacher Information Packet**  
<http://www.desertmuseum.org/center/edu/resources.php>  
More bat resources for Grades 6-12 curricula

**ASDM Sonoran Desert Bat Fact Sheets** <http://www.desertmuseum.org/kids/bats/>

Pictures and Information for some of the Sonoran Desert Bat species

