

# Echo the Bat & The Pigeon Adventure

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# Echo the Bat

## IMAGERS

Interactive Multimedia Adventures for Grade-school Education using Remote Sensing



Student's Site

Teacher's Guide

# Echo the Bat

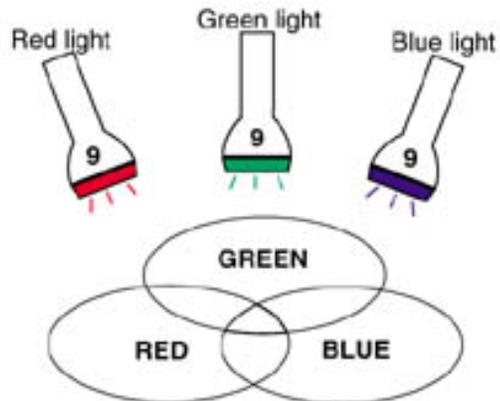
## Activity on Primary Colors

Name: \_\_\_\_\_ Date: \_\_\_\_\_

### Digital Picture Activity

Take a look at the picture on the back of this worksheet. The numbers in each square represent the amount of red light, green light and blue light from 0-9. These three colors of light (also called the primary colors of light) can be mixed to create different colors. This is how your computer monitor can display thousands, even millions, of colors.

- 0 = light off
- 9 = light on
- 5 = about 1/2 the amount of light



Example:



0 red = red light off  
0 green = green light off  
9 blue = blue light on

Therefore:  
0,0,9 makes blue

## Content from the Adventure

Netscape: Adventure of Echo the Bat (2b)

One part of the sensor records only the amount of blue light reflected.

images.gsfc.nasa.gov/adventure/fg2b\_e.html#2

# Echo the Bat

## Wavestown Activity

Label the chart below, then match the lines in the picture to the Electromagnetic Spectrum.

## Electromagnetic Spectrum Site

**The Electromagnetic Spectrum**

Radio Waves | Microwaves | Infrared | Visible Light | Ultraviolet | X-rays | Gamma Rays

### Visible Light Waves

Visible Light Region of the Electromagnetic Spectrum

Infrared      Ultra-Violet

Visible light waves are the only electromagnetic waves we can see. We see these waves as the rainbow. Each color has a different wavelength. Red has the longest and violet has the shortest wavelength. When all the waves are seen together, it is light.

When white light shines through a prism or through water vapor like the rainbow, the white light is broken apart into the colors of the visible light spectrum.

# Echo the Bat Successes

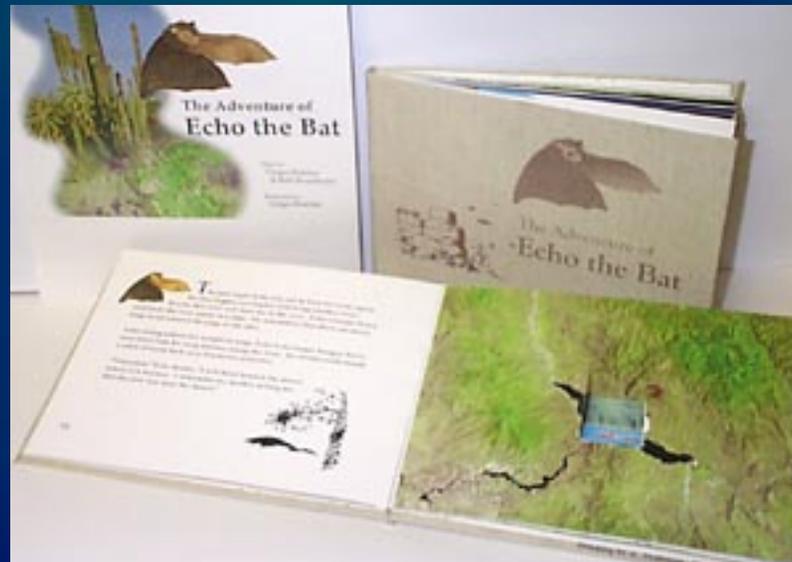
- “Outstanding Educational Product”
  - NASA’s Earth Science Enterprise Educational Products Review
- Science Magazine
- Washington Times
- Net Mom - 4th edition of the “Internet Family & Kids Yellow Pages”

# Echo & MU-SPIN

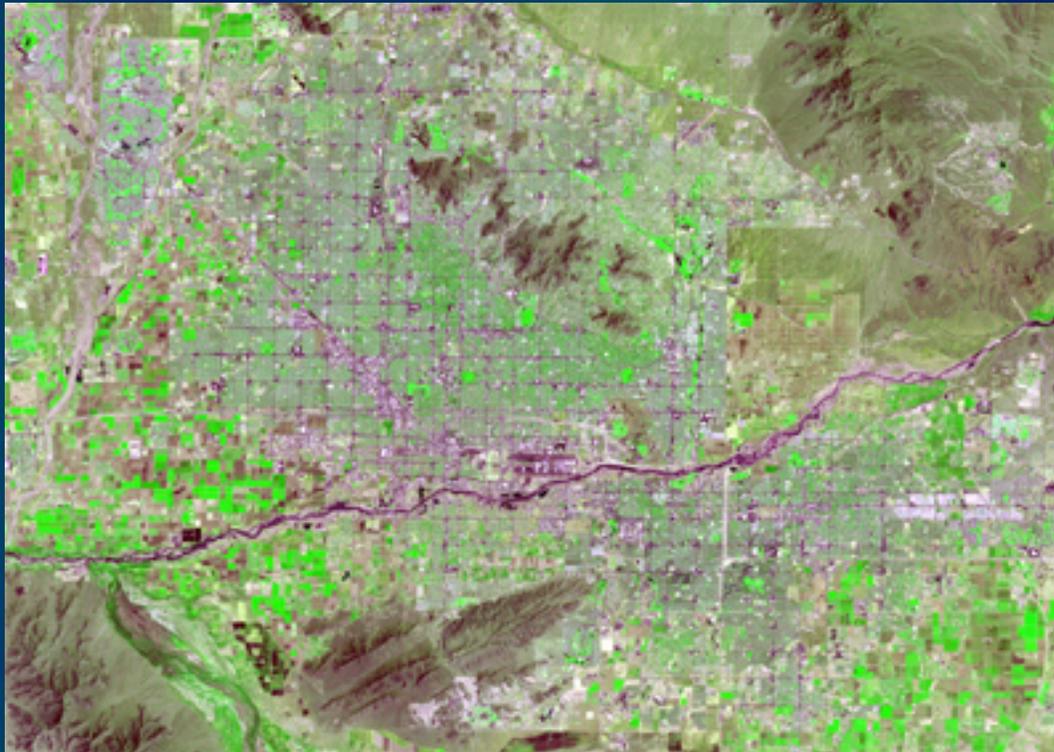
- Echo's Funding cut short
- Delivered project in Feb. 98
- MU-SPIN funding enabled us to pilot test, revise and prepare Echo for the NASA's Earth Science Enterprise Education Review
- Continued support led to the development of Echo the Bat Book

# Echo the Bat for K-4

- Echo the Bat Pop-up book was created in Spring 99 to help bring remote sensing concepts to early elementary

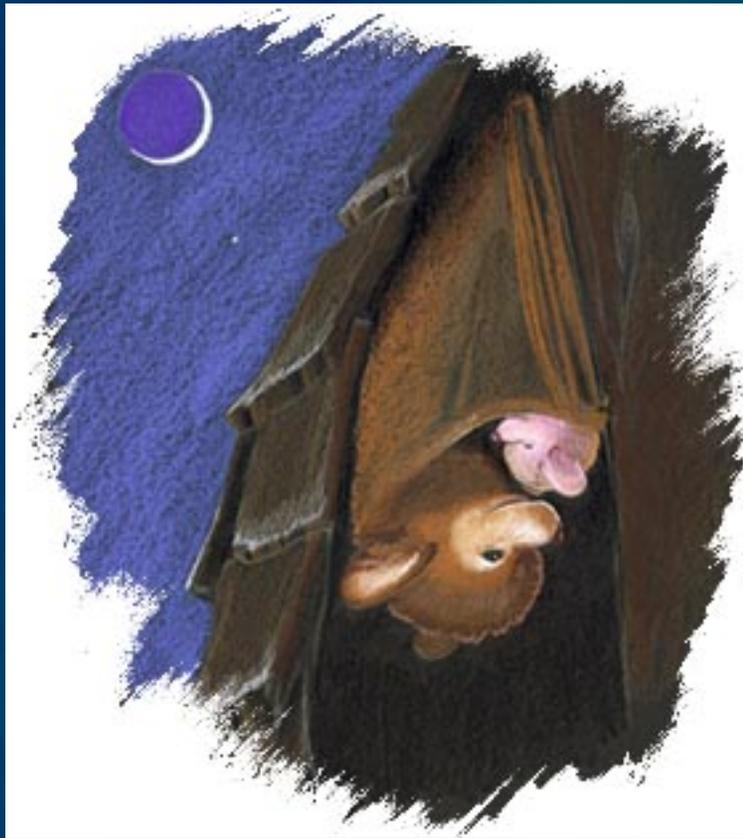


# Echo the Bat Book



Storyline  
& images  
focus on  
shape,  
pattern,  
& texture

# Echo the Bat Book



Supplemental guide with hands-on activities to encourage parents & teachers to explore remote-sensing concepts with their children.

# The Pigeon Adventure (K-4)

- Online Adventure
  - based on Adventure of Echo the Bat
  - reinforces abstract concepts through engaging multimedia environment
- Curriculum support materials
  - meets educational reform efforts
  - teaches science while connecting to other curricula

# Lessons & Activities

- UNIT 1: Earth from Above
- UNIT 2: Our Changing Earth
- UNIT 3: The Urban Habitat

Individual lessons for K-2 & 3-4

# Objectives

- Identifying shapes, patterns and textures in R.S. imagery
- Identifying prominent features
- Describing change over time
- Identify changes in habitats
- Relating change to major historical events

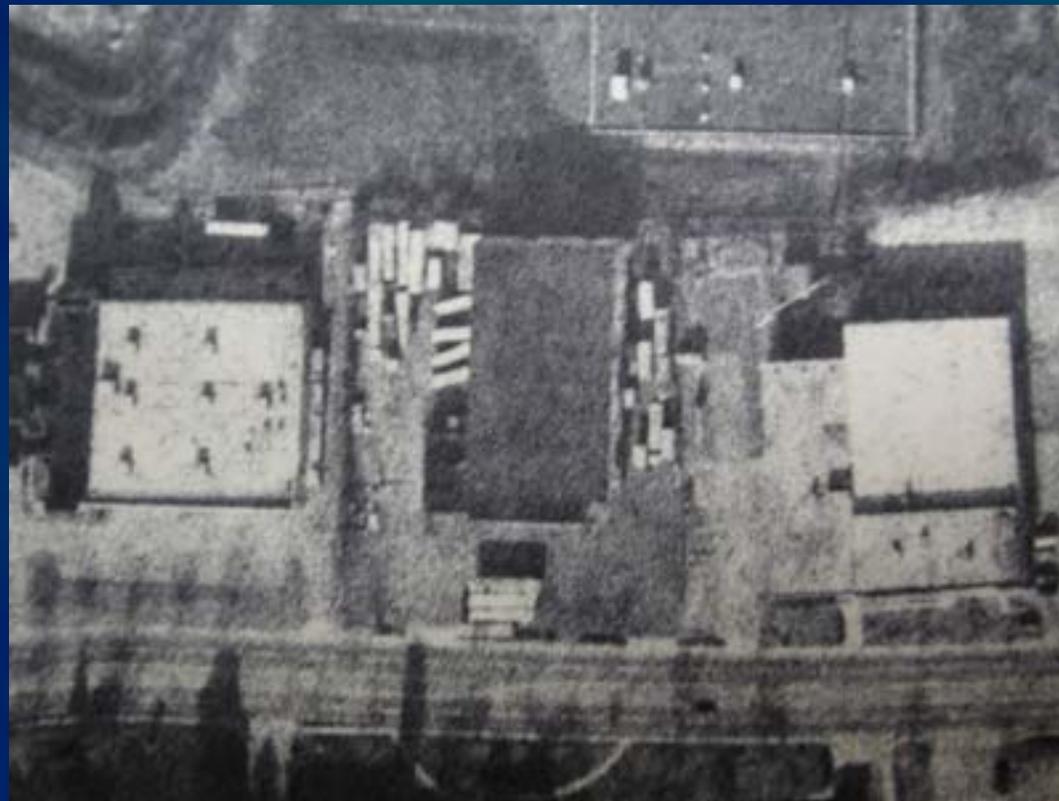
# Perspective

- Looking at common objects from top and side views.



# Introduction to Imagery

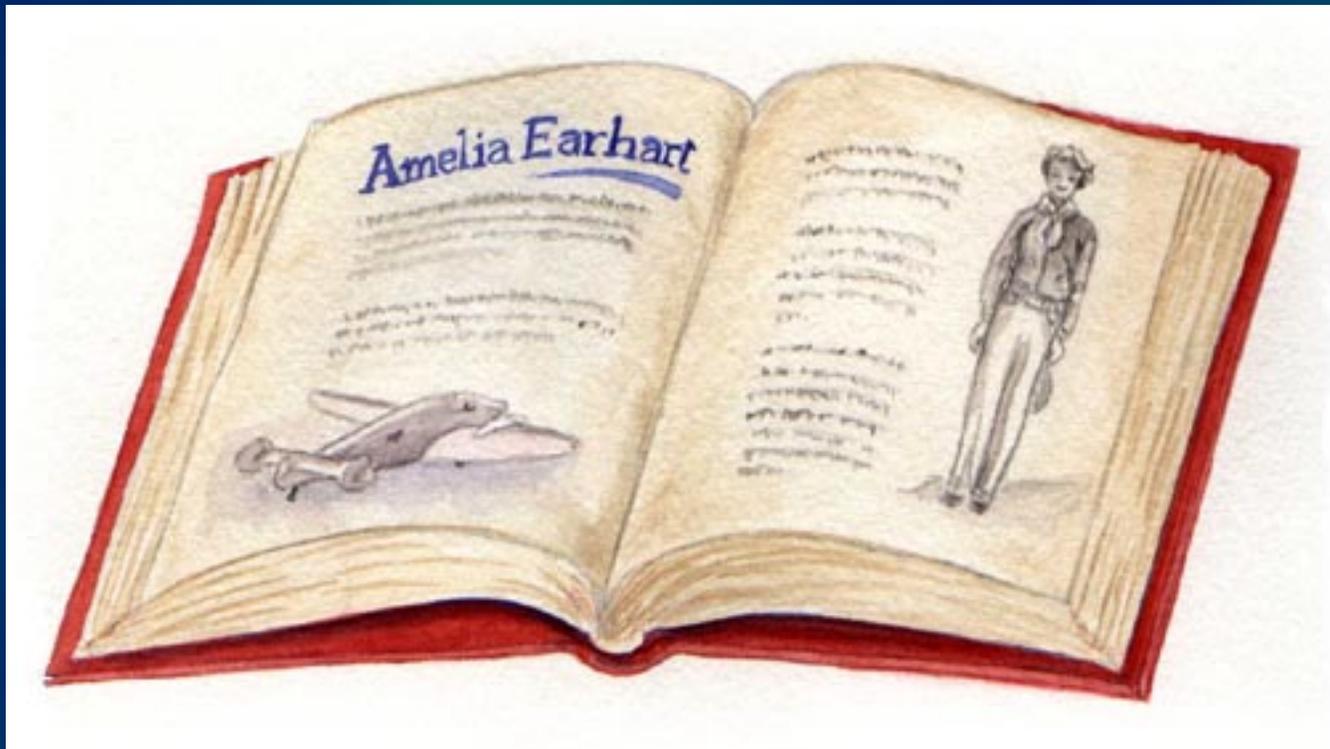
- Identifying shapes and patterns in aerial images



# Amelia the Pigeon

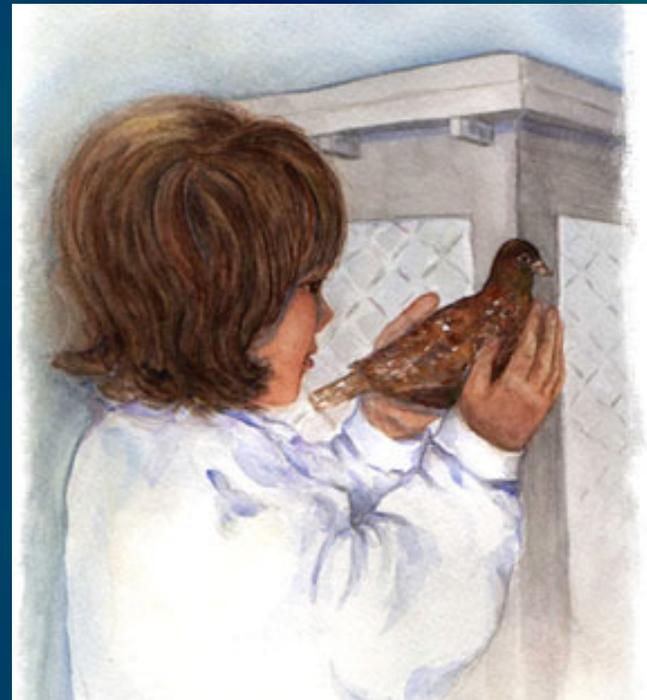


# Amelia Earhart



# Story Introduction

Story of a child caring for their homing pigeon in their Brooklyn Apartment



# Amelia's Adventures

- Bronx Zoo
- Central Park
- Battery Park
- Fort Wadsworth
- Jamaica Bay



# Interactive web pages

Learners are introduced to the visual and historical changes of each location through a family history narrative.



Stumpy John Silver



Battery Park, 1865

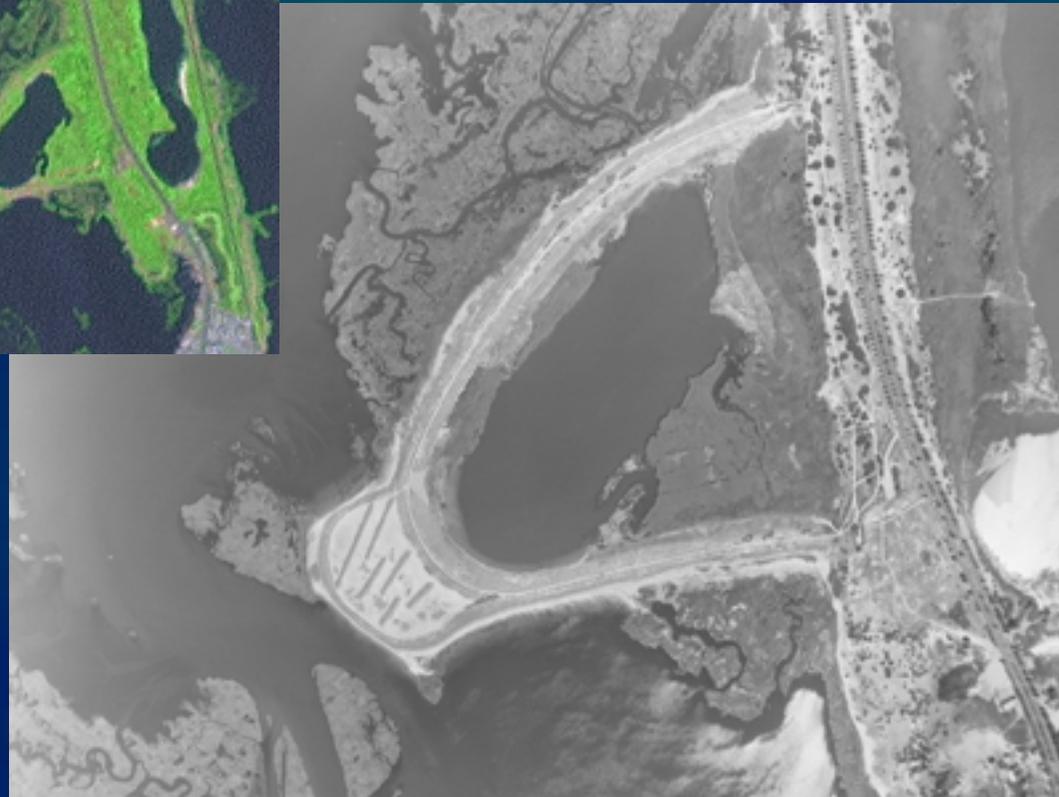
# Historical Aerial Images

- Jamaica Bay Wild Life Refuge



# Introduce Satellite View

- Jamaica Bay Wild Life Refuge



# Learner interactions

- Sequencing close to far  
(aerial - satellite)
- Sequencing images over time  
(technology and change in features)



1900



1940

# Pigeon Timeline

- Nov. 2000 - Testing of classroom lessons
- Fall 2000 - Production of online adventure
- Spring 2000 - Testing of online adventure
- Spring 2000 - Submission to ESE review
- Summer 2000 - Official launch of site

[www.EchoTheBat.com](http://www.EchoTheBat.com)

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