



# Dark Skies Rangers

Wildlife Activity

## Do they “see the light”?

Written by Chris Donovan



**Goal:** Students will plan and conduct a simple investigation surrounding the effect artificial light has on insect behavior (animals). They will make predictions, observations, collect data and generate conclusions. They will generalize their findings to other species and research if their ideas are supported by evidence.

**Content Objective:** Students will...

- Plan and conduct an investigation
- Analyze and graphically represent data
- Draw conclusions based on their investigation
- Work in a group
- Communicate results of their investigation to an audience of their peers

**Language Objective:** Students will

- write a summary of an article using correct sentence structure.
- Watch a video and sequence the story when given four story cards.
- Discuss with partner and write down a procedure for collecting data.

**Grade Range:** MS to HS

**Standards:**

**MS**

S1C1PO1, 2,3 C2PO1,2,5 C3PO1,3 C4PO2,5  
S2C2PO1 - S3C1PO1,3—S4C3PO5

**HS**

S1C1PO1,4 C2PO 1,2,5 C3PO1,2 C4PO3  
S3C1PO2,3,5 C3PO2

**Time to Do Activity:**

- Two sessions and may not take the entire session either day.

*(This is a short activity that exposes students to think about the unintended consequences artificial lighting has on an ecosystem.)*

**Materials needed:**

- clear sticky tape—packaging tape, contact paper, fly paper3PO

- assortment of light bulbs/ various wattage  
**Cautionary Note;** students will be collecting their data at home around light sources. Depending on grade level you might think about sending home a note, to be signed by parent, alerting them of this.

## Day 1

**Hook:** Satellite image of earth at night available on Internet at <http://incredimazing.com/static/media/2008/03/07/dfe0d8c8c1036e0/EarthatNight.jpg>

### **Activity: Overview**

Question opener-

*Do you think artificial light has any affect on animal behavior? Give an example to support your thought.*

### **Part 1 –Introduction (grouping and pre-assessment)**

- Pass out Student Sheet #1. Each student completes this.
- Select a sharing technique where student have to meet up with at least 3 others to exchange ideas. (T-P-S)

### **Part 2-- Planning and conducting investigation-- (HW)**

- Group students in pairs according to like-minded answers to “light affecting animal behavior.”
- Distribute *Student Activity sheet #2* to each student. Have the pairs individually complete sheet agreeing on how they will support their statement. They will be collecting their evidence that night for HW.

## Day 2

### **Part 3—Communicating results**

- Students will display their evidence and a written conclusion on a large sheet of paper provided by teacher (if possible). Conduct a *gallery walk* around classroom so all students can observe what was collected. (5 mins.) In the real world some students will not complete their HM. This gallery walk will give all students experience on how light affects behavior. (Most will probably collect insects.)
- Teacher will then aid the class in processing their findings. (NOTE: There might be evidence that shows artificial light has no effect on behavior; this is fine. Light does not affect all species in the same way BUT does affect some, concentrate on this.

- Teacher will choose a video showing another animal other than what students are familiar with, being affected by artificial light. (You can find videos on Google Video of hatching turtles heading toward the ocean. This is an opportunity to talk about food webs **and** how artificial light can indirectly affect the stability of a particular food web in an ecosystem with the loss of one species in a web possibly affecting the entire web. This will broaden the discussion at the wrap up. (During this discussion some students will volunteer information on the effects artificial light has on plants. Congratulate all students for making this connection but do not pursue this because of time limitation.)

**Part 4 –Wrap up (Depending on time)**

- Distribute readings you have found on subject (below) and have students summarize how lighting effects various types of species using a reading strategy.
- OR
- Distribute to students a list of species and have them research how artificial light might affect their behavior.

**Reading materials at different levels:**

- Articles from web.
- Scientific America, *Reflected Light Disrupts Animal Behavior* January 7, 2009.
- BBC News, Light Pollution forms ‘eco-traps’, Mark Kinver, Effects Of Artificial Light on Wildlife  
<http://www.wildlandscpr.org/biblio-notes/effects-artificial-lighting-wildlife>
- LP and Animal Behavior <http://www.starlight-theatre.ca/images/LP-ANIMALS.PDF>
- Effects of LP on Deep Sea Organisms  
<http://montereybay.noaa.gov/research/techreports/trkochevar.html>

**Assessment:** Create your own rubric using RubiStar--

<http://rubistar.4teachers.org/index.php>

**Suggested integrations:**

SS-maps, Technology- web use- graphic, LA- summarizing articles-writing,