



Dark Skies Rangers

Wildlife Activity for Elementary Grades

Do they “see the light”?

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

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

Grade Range: Intermediate grades

Standards:

This activity will best serve as a lesson related to designing “scientifically oriented questions” and designing the procedures in the scientific process.... AND.... It is fun to see what questions it generates. The variables of the location, the source of light (watts, florescent/incandescent/LED or many others.)

Time to Do Activity: This is a short activity...

2 sessions and may not take the entire session either day. (Meant to point out unintended consequences of artificial lighting on an ecosystem.)

Materials needed:

- clear sticky tape—packaging tape, contact paper, fly paper
- assortment of light bulbs (florescent/incandescent, LED, high/low watts)

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 (session) 1-- Hook: Satellite image of planet at night

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 individual Student handout #1, each student completes this. (Ask them to quickly check their first thoughts on this. 3/4 mins. max)

- 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 collect their evidence. They will be collecting their evidence that night for HW.

Day 2

Part 3—Communicating results

- Students will display their evidence along with their conclusion on a large sheet of paper organized in a gallery walk around classroom so all in class can observe. (5 mins) (in the real world some students will not complete their HM. This gallery walk will give all students evidence on how light affects behavior- most will collect insects.
- Teacher will orchestrate the class processing their ideas and findings. NOTE- There will be evidence that shows no effect and this is to show that light does not effect all species in the same way BUT does effect some, concentrate on that. **A reference to food webs could show how the light effects other species indirectly.**
- Teacher presents class with idea that maybe other animals are also affected by light (artificial and natural). Show a U-tube short of turtles hatching on the coast of Central America. This will direct the discussion to a larger issue of food webs and the loss of one species in web can effect the entire web. This will broaden the discussion at the wrap up.
- (Through- out this discussion some students will volunteer information on the effects of light on plants. Congratulate all students for making this connection then also affected by introducing artificial light.)

Part 4 –Wrap up (Depending on time)

Distribute the readings and have students see how lighting effects insects and other species as mentioned in the articles

(Use a reading strategy)

OR

Distribute to students a list of species and have them research how light might affect their behavior.

Reading materials at different levels:

- Articles from web. -- Attached
- Scientific America, *Reflected Light Disrupts Animal Behavior* January 7, 2009.
- BBC News, Light Pollution forms ‘eco-traps’, Mark Kinver,
<http://news.bbc.co.uk/2/hi/science/nature/7821298.stm>.

Assessment: Design a Rubistar document to guide the learners.

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