



# Night Hike

Students will learn about night vision, how animals hunt in the dark, and make light friction.

**Grade Level: 3-6**

## Objectives:

- Students learn how their eyes adjust to the dark and that they can develop night vision like animals.
- Students will test their observation, vision, and listening skills while on a night hike.
- Students will learn about echolocation and how animals use it to hunt and find their way in the dark.
- Students will learn how to make light/sparks from friction in their mouths.

## Materials Needed:

- A bandana to use as a blindfold
- Different colored non-toxic markers
- Enough Wint-o-Green Life Savers for each person

**Prep Time: 10 min**

**Activity Time: 1 hour**

## Nevada State Standards Addressed:

- **L5.C5**– Plants and animals have adaptations allowing them to survive in specific ecosystems.
- **N8.A6**– Scientific inquiry includes evaluating results of scientific investigations, experiments, observations, theoretical and mathematical models, and other scientists' explanations.
- **L5.C2**– Organisms interact with each other and with the non-living parts of their ecosystem.

## NAAEE standards Addressed:

- **1.3**– Openness to Inquiry
- **3.1**– Critical and Creative Thinking
- **3.2**– Applying skills to issues
- **4.1**– Sense of personal stake and responsibility
- **5.1**– Learner centered instruction
- **5.2**– Different ways of learning

## Key Vocabulary:

- **Triboluminescence:** Light produced by friction, usually within a crystalline substance.
- **Echolocation:** The method of locating objects by determining the time for an echo to return and the direction from which it returns, as by radar or sonar.
- **Rhodopsin:** Bright-red photosensitive pigment found in the rod-shaped cells of the retina of certain fishes and vertebrates. It is broken down by the action of dim light into retinal and opain. It's what gives us night vision.

## Lead-In Information

Tonight we will be learning how to observe the area around us while only using our hearing, and once our eyes adjust, our night vision. We will be taking a short night hike and each of us will be able to hike solo for a bit to be able to fine tune these observation skills silently.

## Preparations:

Make sure that you have markers and a bandana for your hike. Make sure that each student has comfortable shoes, a jacket and a water bottle before you leave for your hike. Since Triboluminescence can't be done until dark, make sure you bring Wint-O-Green Life-Savers but save until the end.

## Activities:

### Activity 1: Bat and Moth

**Step One:** Gather students in a circle. Explain that this is the boundary for the game and that it is everyone in the circles job to make sure that the blindfolded person remains within the boundary by gently helping them stay in.

**Step Two:** Explain what echolocation is and how bats use it to search for their dinner (i.e. Moths)

**Step Three:** Explain that the bat must send out a call "Bat, Bat," and the moth must answer "Moth, Moth," much like "Marco, Polo." The bat must try and tag the moth (make sure to explain good tags and bad.)

**Step 5:** Blindfold your bat and let the game commence

**Step 6:** Once the moth has been caught, rotate the kids out and let two new

people play.

### Activity 2: Solo Hike

**Step 1:** Explain to the kids that you usually go on your nightly rounds alone and that the best part of it is the peaceful silence of the dark. Tell them that when you hike quietly at night, you allow your eyes to adjust. As they adjust, the rods and cones in the eyes make and build up Rhodopsin, which is the chemical that gives us and the nocturnal animals their night vision. This is an adaptation that some animals have made to be able to hunt during the least hot part of the day in the summertime. (By this time it should be getting increasingly dark out.)

**Step 2:** Tell the kids that they are going to be hiking back to camp "soo," or 20 counts behind and in front of someone. One adult will start and one will bring up the tail. We will be safe because although we will be hiking "alone" we will be close to others.

**Step 3:** Remind everyone that this is a silent hike and that they will be making observations along the way. Ask them to remember some of these if they notice anything new and cool, they can share it later but mostly stress that this is

to enjoy the woods in silence.

**Step 4:** Begin hiking with 20 seconds counts between each person.

**Step 5:** Back at camp, wait for everyone to arrive. Debrief the hike if need be, but some groups will feel particularly quiet after this activity, that is okay, just read the group and see what they need next.

### Activity 3:

#### Triboluminescence

**Step 1:** Explain to the group what Triboluminescence is (light caused by friction.)

**Step 2:** Do the Triboluminescence conga line while chanting (this is a fun way to teach the kids to remember the word.)

**Step 3:** Tell everyone to find a partner for this next part of the activity.

**Step 4:** Explain that now we are going to pass out your Triboluminescence makers (lifesaver) but that no one should put it in their mouths until you say to.

**Step 5:** Have the partners face each other and get really close. Then explain that when the lights go out, they will put the life saver in their mouth and chew with their mouths open (you can joke about how this is the only time it is ever socially acceptable to do so.)

**Step 6:** When everyone is ready, turn of the light and let the magic happen!

**Step 7:** Quick debrief about what everyone saw (they should say sparks or flashes, they may designate a color.)

### Review Questions:

- What is echolocation?
- How do bats use it to find their dinner (moths)?
- What is Rhodopsin?
- What does it do in your eyes?
- What is Triboluminescence?

### Evaluation:

Ask students if they noticed a difference in their ability to see after they had been in the dark a while. Ask what kinds of things they noticed hiking alone in the dark then when they hiked with others or during the day.

### Learning Intelligences Addressed:

- Kinesthetic
- Spatial
- Linguistic
- Intrapersonal
- Interpersonal