

# Turn Off the Light!

*Final facilitator version - 90-minute activity with printable role cards*

**Activity focus:** Understanding how natural day-night rhythms shape ecosystems, and how artificial light at night changes animal, plant, and human behaviour.

**Duration:** 90 minutes

**Suggested age:** Approximately 11-15, adaptable for older groups

**Group size:** 12-24 participants

## Learning objectives

- help participants recognise that different species are active and resting at different times of the day
- show how artificial light at night can change feeding, movement, communication, pollination, and sleep
- build empathy for both fauna and flora by exploring ecological relationships through role-play
- encourage participants to think about more responsible lighting choices in homes, schools, and communities

## Materials

- printed role cards (one per participant, with duplicates if the group is large)
- open space in the room or outdoors
- paper and pens for short notes or the worksheet
- a laptop and projector if using short videos instead of a live light simulation
- optional: labels for spaces such as pond, flowers, tree, sleeping area, street light

## Preparation

- Choose 10-14 role cards depending on group size. For large groups, repeat roles such as bee, moth, bat, or plant.
- Mark a few simple habitat zones in the room, for example flowers, tree, pond, shelter, and lit area.
- If you cannot simulate light in the space, prepare short visual prompts or videos for: day, dusk, natural night, and brightly lit night.
- Explain that the activity is a simulation. Participants should act safely and respectfully rather than running or colliding.

## Activity flow

### 1. Introduction and framing - 15 minutes

- Introduce the idea that ecosystems depend on regular cycles of light and darkness.
- Ask participants: Who is active in the day? Who is active at dusk or dawn? Who needs darkness?
- Briefly define artificial light at night (ALAN) and explain that the group will explore what happens when natural rhythms are disturbed.



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## 2. Role card familiarisation - 10 minutes

- Give each participant one role card.
- Ask them to read their species or human role and think about four questions: When am I active? When do I rest? What do I need? What may change under artificial light?
- If participants share the same role, let them quickly compare answers together.

## 3. Ecosystem simulation across 24 hours - 25 minutes

**Suggested phases:** dawn, day, dusk, natural night, night with some warm light, bright night with cold light

- Call out each phase or show a short visual cue.
- After each transition, give participants 1-2 minutes to act according to their card.
- Pause briefly after each phase and ask a few participants what changed for them.
- Encourage interactions: bees and butterflies visit the day-flowering plant; moths visit the night-flowering plant; bats hunt insects; the owl searches for prey; the tree offers shelter; the human roles affect everyone else.

## 4. Quick fact-check or mini research - 10 minutes

- Ask each participant or pair to add one real fact about their role.
- They can answer one of these prompts: What is one adaptation of this species? What is one risk it faces from artificial light? What does it depend on?
- This step deepens understanding without forcing participants to research everything before the role-play.

## 5. Reflection and discussion - 15 minutes

- Which roles seemed to benefit from daylight?
- Which roles needed darkness?
- Which roles depended on dawn or dusk?
- What happened to pollination when moths were distracted by light?
- How did artificial light affect communication, hunting, feeding, or sleep?
- Which impacts were direct, and which were indirect through the food web or habitat use?

## 6. Solutions and closing - 15 minutes

- Ask participants what people can do differently when using outdoor light.
- Build a short list together. Useful ideas include: only light what is needed, use lower brightness, point light downward, prefer warmer colour temperatures, and switch lights off when they are not needed.
- Finish by asking each participant to share one thing they learned or one change they would make in their own environment.

## Facilitator tips

- Keep the movement simple. The strength of the activity is in relationships and behavioural change, not in acting skill.
- Do not frame all light as bad. Daylight is essential. The key point is that species need the right light at the right time.
- If the group is younger, reduce the number of roles and keep the debrief very concrete.
- If the group is older, ask them to notice cause and effect chains: light affects moths, which affects pollination, which affects plants and wider ecosystems.



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## Bee

<b>Description</b>	A bee is a daytime pollinator that visits flowers to collect nectar and pollen.
<b>Active</b>	Daytime
<b>Resting</b>	Night
<b>Needs</b>	Daylight, flowers, shelter, safe feeding areas
<b>Effect of artificial light</b>	Bright light at the wrong time can confuse rhythms and extend activity unnaturally.
<b>In the activity</b>	During day, move from flower to flower. At night, stop and rest.

**Find one connection:** Who do I depend on? Who depends on me? What changes if light changes my behaviour?



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## Butterfly

<b>Description</b>	A butterfly is a diurnal insect that feeds from flowers and helps with pollination.
<b>Active</b>	Daytime
<b>Resting</b>	Night
<b>Needs</b>	Sunlight, flowers, warmth, safe places to rest
<b>Effect of artificial light</b>	Extra light can disturb normal rest and daily timing.
<b>In the activity</b>	Fly around and visit flowers in the day. At night, stay still and rest.

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## Blackbird

<b>Description</b>	A blackbird forages, sings, and defends territory mainly during the day.
<b>Active</b>	Daytime, especially morning and late afternoon
<b>Resting</b>	Night
<b>Needs</b>	Trees or shrubs, food, safe nesting places, regular day-night rhythm
<b>Effect of artificial light</b>	Light at night can make it sing earlier or rest less.
<b>In the activity</b>	Search for food and sing in the day. At night, perch and rest quietly.

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## Bat

<b>Description</b>	A bat is a nocturnal mammal that hunts flying insects in the dark.
<b>Active</b>	Night
<b>Resting</b>	Day
<b>Needs</b>	Darkness, insects, safe roosting places, clear flight routes
<b>Effect of artificial light</b>	Bright areas may become barriers, and feeding areas may shrink or shift.
<b>In the activity</b>	Rest during the day. At night, fly and hunt insects, but avoid very bright zones.

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# Moth

<b>Description</b>	A moth is a mostly nocturnal insect that may pollinate flowers at night.
<b>Active</b>	Night
<b>Resting</b>	Day
<b>Needs</b>	Darkness, flowers, shelter, natural night cues
<b>Effect of artificial light</b>	Moths may be drawn to lamps instead of flowers and waste energy there.
<b>In the activity</b>	During the day, stay hidden. At night, visit flowers in darkness, but in bright light drift towards the lamp.

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## Frog

<b>Description</b>	A frog is often active in the evening and at night, especially near water.
<b>Active</b>	Dusk and night
<b>Resting</b>	Much of the day
<b>Needs</b>	Water, insects, shelter, damp habitat, places to call safely
<b>Effect of artificial light</b>	Bright light can reduce calling, feeding, and feelings of safety.
<b>In the activity</b>	Stay quiet in the day. At dusk and night, call and move near the pond, but reduce activity when light becomes strong.

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# Owl

<b>Description</b>	An owl is a nocturnal predator that hunts small animals in low light and darkness.
<b>Active</b>	Night
<b>Resting</b>	Day
<b>Needs</b>	Darkness, prey, perches, quiet shelter
<b>Effect of artificial light</b>	Strong lighting can change hunting conditions and expose both predator and prey.
<b>In the activity</b>	Rest in the day. At night, watch and hunt, but react differently when the area becomes brightly lit.

**Find one connection:** Who do I depend on? Who depends on me? What changes if light changes my behaviour?



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## Hedgehog

<b>Description</b>	A hedgehog is a nocturnal mammal that searches for insects and other small food on the ground.
<b>Active</b>	Night
<b>Resting</b>	Day
<b>Needs</b>	Dark, connected habitat, hiding places, food
<b>Effect of artificial light</b>	Bright places can feel unsafe and may stop movement between feeding areas.
<b>In the activity</b>	Curl up or hide in the day. At night, slowly forage, but hesitate or turn away from bright patches.

**Find one connection:** Who do I depend on? Who depends on me? What changes if light changes my behaviour?



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## Firefly / Glow-worm

<b>Description</b>	A firefly uses light signals at night to find a mate.
<b>Active</b>	Night
<b>Resting</b>	Day
<b>Needs</b>	Darkness, vegetation, space to signal and be seen
<b>Effect of artificial light</b>	Extra light can make its signals harder to notice.
<b>In the activity</b>	Stay hidden in the day. At night, try to signal to a partner, but struggle when artificial light increases.

**Find one connection:** Who do I depend on? Who depends on me? What changes if light changes my behaviour?



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## Rabbit

<b>Description</b>	A rabbit is often most active at dawn and dusk, when it feeds while avoiding danger.
<b>Active</b>	Dawn and dusk, sometimes night
<b>Resting</b>	Midday and other quieter periods
<b>Needs</b>	Grass or plants, cover, safe feeding places
<b>Effect of artificial light</b>	Brightness can make it feel exposed and reduce feeding in open areas.
<b>In the activity</b>	Feed most at dawn and dusk. In bright conditions, freeze, hide, or avoid open space.

**Find one connection:** Who do I depend on? Who depends on me? What changes if light changes my behaviour?



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## Day-flowering Plant

<b>Description</b>	This plant opens in daylight and depends mostly on daytime pollinators.
<b>Active</b>	Open and attracting pollinators in the day
<b>Resting</b>	Closed or less active at night
<b>Needs</b>	Sunlight, pollinators, water, soil
<b>Effect of artificial light</b>	Night lighting can disturb normal opening and closing rhythms.
<b>In the activity</b>	Open during the day and welcome bees and butterflies. At night, close and rest.

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## Night-flowering Plant

<b>Description</b>	This plant opens or releases scent in the evening or at night to attract nocturnal pollinators.
<b>Active</b>	Evening and night
<b>Resting</b>	Day
<b>Needs</b>	Darkness, moths or other night pollinators, water, soil
<b>Effect of artificial light</b>	If moths are distracted by lamps, the plant may get fewer visits and less pollination.
<b>In the activity</b>	Stay quieter in the day. Open at dusk and night and wait for moths.

**Find one connection:** Who do I depend on? Who depends on me? What changes if light changes my behaviour?



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# Tree

<b>Description</b>	A tree provides habitat, shelter, resting places, and food for many species across the full day.
<b>Active</b>	Supports life all day and night
<b>Resting</b>	Does not sleep like animals, but follows daily and seasonal rhythms
<b>Needs</b>	Soil, water, space, balanced light conditions
<b>Effect of artificial light</b>	Artificial light may affect rhythms, insects around the tree, and how animals use it for shelter.
<b>In the activity</b>	Stay rooted in one place and act as shelter, perch, or habitat for others.

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## Human Sleeping at Night

<b>Description</b>	A person needs darkness and calm at night for healthy sleep.
<b>Active</b>	Day
<b>Resting</b>	Night
<b>Needs</b>	Darkness, quiet, regular routine
<b>Effect of artificial light</b>	Bright or blue-rich light at night can disturb sleep and body clock.
<b>In the activity</b>	Be active in the day. At night, try to sleep, but react when strong light appears.

**Find one connection:** Who do I depend on? Who depends on me? What changes if light changes my behaviour?



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## Human Using Outdoor Lighting

<b>Description</b>	A person may use light for comfort, movement, work, or safety.
<b>Active</b>	Mostly evening and night in this role
<b>Resting</b>	Later at night
<b>Needs</b>	Visibility, safety, practical lighting
<b>Effect of artificial light</b>	Poorly designed lighting can help people in one way while harming wildlife and sleep in another.
<b>In the activity</b>	Switch on or point light, move confidently, and notice how your choices affect others.

**Find one connection:** Who do I depend on? Who depends on me? What changes if light changes my behaviour?



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