

# Patch Program

## Go with the Glow

Discover the science of lava lamps, glow sticks, deep sea creatures, glowing fungi and more! Get crafty and learn how you can take action and Go with the Glow.

### All level requirements:

- Discover: Pick at least one of the four categories to learn more about.
- Connect: Pick at least one glow activity to do, but we encourage you to really get glowing!
- Take Action: Complete at least one activity. Or think of your own way to “glow up” your community.

When you’re done, [submit photos](#) and a story to inspire other Girl Scouts to earn this patch, too. [Purchase patch](#) by October 31, 2026.

## Discover

Get ready to light up your mind! Along the way, you'll explore the amazing science of glowing things found on Earth, in the ocean, and even in the sky.

### • **Stuff that Glows:**

- **Lava lamps** - Lava lamps were invented in 1963 and make a fun, colorful glow. Even though they are called lava lamps, they do not contain real lava. Inside the lamp is colorful wax in a special liquid. The wax moves because of heat. When the wax at the bottom of the lamp gets warm, it becomes lighter and floats to the top. As it cools down at the top, it becomes heavier and sinks back to the bottom. Then the process starts again, creating the smooth, flowing motion that makes lava lamps so interesting to watch! Explore [how lava lamps work](#), take a look at [how they're made](#), or learn [how lava lamps help encrypt data?!?!?](#)

- **Glowsticks** - From birthday parties to Halloween and even scuba diving, glowsticks are used in many fun ways. But, [how do they work?](#) Glowsticks glow because of a process called “chemiluminescence,” which is when a chemical reaction creates light. Inside a glowstick is a small glass tube filled with one chemical and a larger plastic tube filled with another chemical and a colorful dye. When you bend and crack the glowstick, the glass tube breaks. This allows the chemicals to mix together and create light. The colorful dye gives the glowstick its bright color, making it fun to watch and use! Once broken, a glowstick cannot be rebroken to make the chemical reaction happen again. However, you can slow a glowstick’s decay of light by putting it in a freezer. It won’t be as bright as it once was, but it will last a little longer.
- **Black lights** - Black lights may look purple, but they give off a special kind of light called ultraviolet (UV) light that our eyes cannot see very well. Some materials can absorb UV light and then shine with bright colors. This is called fluorescence. That is why white clothes, neon colors, and glow-in-the-dark posters can look extra bright under a black light. Explore more with [Hank Green in this SciShow video](#)
- **Creatures that Glow on Their Own:**
  - **Anglerfish** - Anglerfish use a glowing lure that hangs in front of their mouths to attract smaller fish. When curious prey swims closer, the anglerfish quickly catches it. Learn [how this fish, fishes.](#)
  - **Bristleworm** - Some bristleworms glow with bright blue-green light during mating season. The glow helps them find other bristleworms in the dark ocean.
  - **Squids** - The Hawaiian Bobtail Squid uses glowing bacteria to help hide its shadow from predators below. The Vampire Squid can produce glowing lights from its body and release glowing mucus to confuse predators and escape.
  - **Coral** - Some corals contain special proteins that glow under blue or ultraviolet light. These glowing colors may help protect the coral and the tiny algae that live inside it.
  - **Jellyfish** - Many jellyfish glow with blue or green light because of special chemicals in their bodies. This glow can help scare away predators or attract other animals.

- **Fungi** - Do not mistake this one for a tasty treat! Bitter oyster mushrooms in North America have a secret talent—they glow. While bitter oyster mushrooms grow across Northern America and Europe, they also call Central Texas their home, growing in late spring and early summer in this region and preferring to grow on decaying trees such as live oak, birch, maple, hickory, pecan, and American hornbeam. The glow power of the bitter oyster mushroom is the brightest on the gill edges (pictured below) and can vary in brightness in different environments.

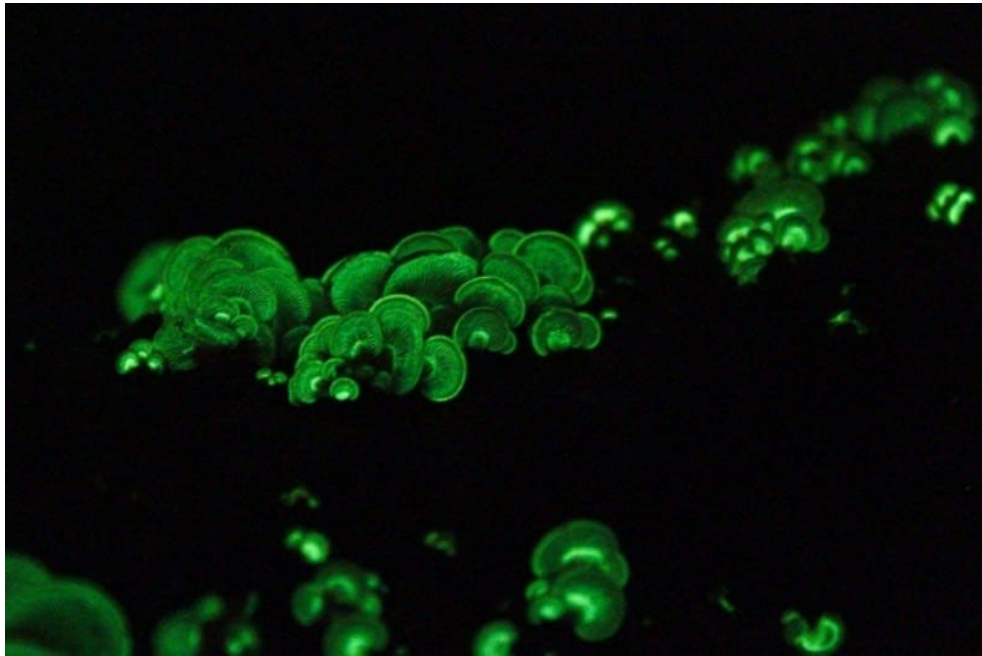


Image Credit: Matthew Schink

- **Fireflies** - Also called lightning bugs, fireflies are glowing insects found almost everywhere in the world except Antarctica. There are about 2,400 kinds of fireflies, including around 120 kinds in North America. Fireflies are actually beetles. Fireflies make their own light inside their bodies and use their flashes to communicate with other fireflies. Learn more about [how they glow](#) or [watch a firefly show](#).

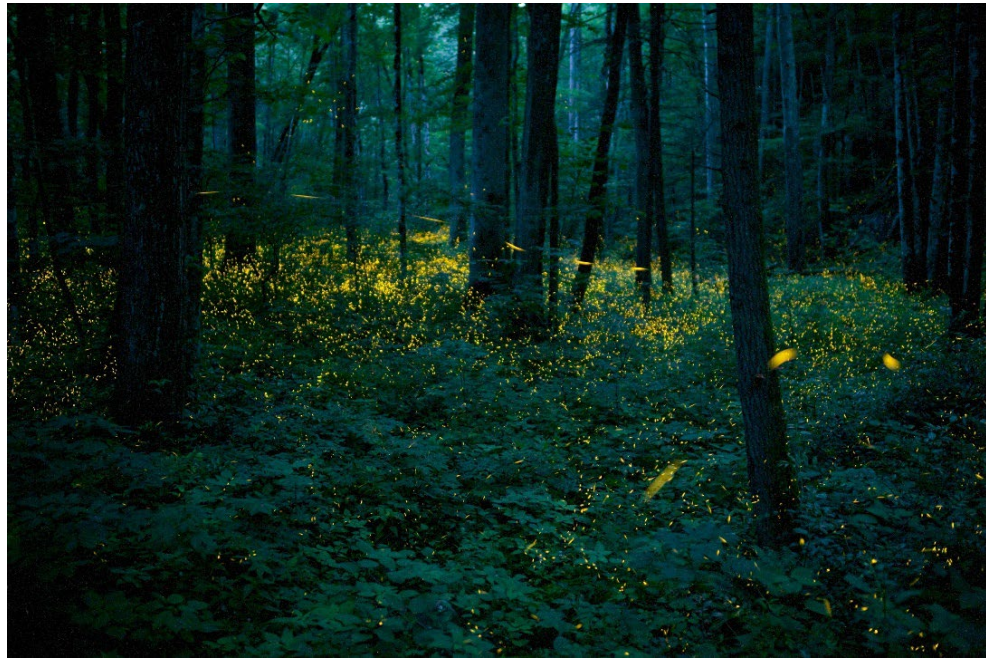


Image Credit: Nature Picture Library

- **Creatures that Glow under Black Light:** Some plants and animals can make their own light. Others only seem to glow when a black light shines on them. This is called “biofluorescence.” They absorb the black light and then give off bright colors that we can see. From lightning bugs to microscopic glowing dinoflagellates, learn about the science of bioluminescence in nature with [David Attenborough’s YouTube documentary, “Life That Glows.”](#)

- **Scorpions** - If you are camping, a black light flashlight can be a useful tool to bring along. Scorpions glow a bright blue-green color under a black light, making them easier to spot at night. Scientists are not completely sure why scorpions glow, but it can help you know where not to put your sleeping bag!



Image Credit: Elizabeth A. Cummings

- **Platypuses** - While platypuses aren't naturally teal like in *Phineas and Ferb*, in 2020 scientists discovered that under ultraviolet light platypuses coincidentally have a strong teal glow.



Image Credit: Mammalia

- **Opossums** - The American Opossum also glows under ultraviolet light becoming a magnificent magenta color!



- **Our Glowing Sky:**

- **Northern Lights** - The Northern Lights, also called the *aurora borealis*, happen when tiny particles from the Sun crash into gases high in Earth's atmosphere. This creates colorful lights that dance across the night sky. They are easiest to see near the North Pole, but during strong solar storms they can sometimes be seen farther south, including Texas. In the Southern Hemisphere, a similar light show is called the Southern Lights, or *aurora australis*. [Dive deeper into the science of auroras](#) or [learn more from the polar locals](#).



Image Credit: Marc Rassel

- **The Moon** - While the moon may light up the night sky and help us find our way in the dark, it doesn't create any of that light. It just reflects the sun's rays back onto the Earth! The moon's glow is crucial for many species of plants and animals to find their way or to track time.

## Connect

Host your own glow party with some of these glow-tabulous ideas. We've got the whole party covered from activities to snacks. Whoops, we forgot the music, can you take care of that?

- **Glow Dance** – Light up the party with black light and wear your neons. What color do you think looks best in black light?
- **Glow Bowling** – Put glowsticks in empty plastic bottles, set them up like bowling pins, turn out the lights, and knock down the bottles with a soft ball.
- **Glow Show-and-Tell** - Bring a glow-related item to a troop meeting such as a glow stick, reflective gear, a black light poster, or a favorite glowing toy. Share how it works and why you chose it.
- **Make Your Own Lava Lamp** - Real lava lamps are complicated to make, but you can create a similar bubbling effect at home with a few simple ingredients! Follow this [science educator's video tutorial](#) or the written instructions below:
  - Ingredients:
    - Clear cup or jar
    - Water
    - Oil (vegetable oil, canola oil, or similar cooking oil)
    - Salt or Alka-seltzer tablet
    - Highlighter
    - Optional: Black light flashlight for extra glow
    - Optional: Pliers (for adult use)
  - Instructions:
    - Ask an adult to help with this activity, especially when opening the highlighter and handling the Alka-Seltzer tablet. Alka-Seltzer contains medicine and should not be eaten.

- Fill your cup or jar about  $\frac{3}{4}$  full with water.
  - Have an adult remove the ink tube from the highlighter. Squeeze the ink into the water to create glowing "glow water."
  - Add oil until the container is almost full.
  - If you have a black light, shine it on the mixture to make the glow water shine even brighter.
  - Add a small amount of salt or part of an Alka-Seltzer tablet.
  - Watch colorful bubbles move up and down, just like a lava lamp!
- **Make Glow Punch** – Did you know that tonic water glows under black light? The quinine in tonic water absorbs ultraviolet light and emits a blue light. Experiment with different brands of tonic water – which glows best? What happens if you dilute the tonic water?
  - **Let the Sparks Fly** – Watch sparks fly as you eat candy! When you crush the candy, it releases energy that creates tiny flashes of light. The wintergreen flavor helps make the sparks easier to see.
    - Ingredients:
      - Wint-O-Green Lifesavers®
      - A mirror
      - A dark room
    - Instructions:
      - Go into a dark room and let your eyes adjust for a minute.
      - Stand in front of a mirror.
      - Put a Wint-O-Green Lifesaver in your mouth.
      - Bite down on the candy with your mouth open and watch in the mirror.
      - Look for tiny blue sparks of light!

- **Say Cheese!** Did you know that combining long exposure images and glowing object you can create amazing art? Use flashlights, glow sticks, or LED lights to create long-exposure photographs. Compare techniques and challenge your troop to create pictures using only light. For the best results, keep the room dark with your glowing object as the only light source and keep the camera very still.



Image Credit: PhotoExtremist

- **Glow Detective** – Use a black light to investigate objects around your home or meeting place. Make predictions about what will glow before testing. Create a chart of your results.
- **Design a Glow Product** – Imagine you work for a toy company. Create and draw a new glow-in-the-dark toy, accessory, or invention. Explain how it glows and who would use it.

- **Paint the Moon** – Observe the moon for one or more weeks. Sketch what it looks like each night. How does its shape change? Pick your favorite moon shape and cut it out of a paper plate. Paint a paper plate with glow in the dark paint and decorate with pom poms.



## Take Action

Now it's your turn to help your community shine! Use what you've learned about glow, light, and visibility to make a positive difference. Whether you're helping people stay safe at night, protecting fireflies and dark skies, or brightening someone's day with kindness, your actions can help make the world a little brighter.

- **Be seen, be safe** – Making yourself “glow” can protect you. Research how reflective clothing, flashlights, and safety lights help keep people safe at night. Create a poster or presentation encouraging nighttime safety in your community.
- **Night sky protectors** – Excessive artificial light can make it difficult to see stars and wildlife. Learn about light pollution and identify ways your family, school, or community can reduce unnecessary nighttime lighting. Or, research a Dark Sky park or community. Create a display explaining why protecting dark skies is important for people, animals, and astronomy. [Consider earning your “Dark Skies” patch.](#)

- **Glow kindness campaign** - Create glow-themed encouraging notes, bookmarks, or decorations for a school, library, hospital, senior center, or community organization to help brighten someone's day. You can earn a free [“Caring for My Community” patch](#) for your work in the community. Here are some [letter writing tips](#) for troop leaders.
- **Community light audit** – Where might your community need more glow? Take a walk around your neighborhood, school, or meeting place and observe outdoor lighting. Identify areas that are well lit for safety and places where improvements might be needed.
- **Firefly habitat helpers** - Learn what fireflies need to survive. Create educational posters or social media messages encouraging families to reduce pesticide use and leave natural areas where fireflies can thrive.