

# **Starry Skies Patch Program Brownies**



**GIRL SCOUTS of GREATER LOS ANGELES**

[www.girlscoutsla.org](http://www.girlscoutsla.org)

## STARRY SKIES PATCH PROGRAM

for Brownies

This patch program correlates with the Brownie Journey, **It's Your World – Change It!** (Brownie Quest).

Complete **four (4)** of the activities listed, with **at least one from each section**.

Supplies Needed:

- black construction paper
- gummy stars
- notebook paper
- chalk
- star map (see references, next page)
- telescope

**Discover:**

1. Find the North Star

- a. Find the Little Dipper. (Hint: it's the one with the backwards handle)
- b. The North Star is the last star at the tip of the handle. It always points to the north.
- c. Do you know its other name? It is also called Polaris.

2. Your constellation

- a. Look at a star map and find a constellation that could be seen on your birthday.
- b. What does it look like? How does it relate to you and the person you are?

**Connect:**

1. Make your own constellation (have example handy)

- a. Explain to the girls that they are making their own dot-to-dot constellation.
- b. Place six to eight gummy stars on the black construction paper.
- c. With the chalk, draw the connecting line between the stars to create a picture of an object.
- d. Discuss "light pollution" and other forms of pollution that can affect what you see in the sky.

2. Story time

- a. Listen to a folk story explaining what is in the sky or how it got there.
- b. Find out what "space junk" is, and discuss what you can do to help.
- c. Draw a picture for the story you listened to.

**Take Action:**

1. Stargazing: Find a place in your community where you can stargaze. Choose a constellation that you do not know and describe it.

- a. What does it look like to you?
- b. Work with your families/troop to start an initiative to reduce light pollution.

2. Moongazing: Find a place in your community where you can look at the moon through a telescope.

- a. Tell someone what it looks like. Does it look like cheese?
- b. Work with your families/troop to start an initiative to reduce space junk.

## REFERENCES

### Star Maps:

Internet: <http://neave.com/planetarium/>

Free iPhone and iPad star map app: <https://itunes.apple.com/us/app/starmap/id284408099?mt=8>

Free Android star map app: <http://www.google.com/mobile/skymap/>

**Light Pollution:** <http://physics.fau.edu/observatory/lightpol-prevent.html#Reduce>

- Learn **the Facts** -- Most importantly, educate yourself on the issues. Explore our pages or visit the [International Dark Sky Association](#) for a wealth of outdoor lighting information. Joining the IDA is a great way to show your support for reducing light pollution, which makes better use of natural resources and helps preserve the sky for amateur astronomy, for ourselves and our future generations.
- Talk **About It** -- Another way to help is to explain to others about the problem of light pollution. One very child friendly book you can get about the issue is *There Once Was a Sky Full of Stars* by Bob Crelin and Amie Ziner, published and sold by [Sky and Telescope](#). It is a wonderful read that easily conveys the issue and brings to the forefront what lost wonders our obsessive lighting steals from our children. I especially like and connect to their descriptions of the lost dreamland yards. To get an idea of how many stars are lost due to light pollution visit the [Astronomy, Our Perceptions of Light, and the Impact of Light Pollution](#) section on our [LP vs. Astronomy web page](#).
- Fix **Your Fixtures** -- Ensure that *you* are not part of the problem by checking outdoor light fixtures around *your* house and/or business. Ensure that the lights do not shine upwards nor outwards and unnecessarily at night. Install the lights high on your home or building. Have the lights pointed downwards and use full cutoff luminaires to better control and direct the light to where it is needed and not to where it is unwanted. Correct those lights that do.

**\*\*Read more information on light pollution by visiting the first link.**

**Space Junk:** <http://www.popularmechanics.com/science/space/news/5-high-tech-space-junk-solutions#slide-1>

No nation yet has a concrete plan for an orbital cleanup. But some scientists are beginning to think seriously about what it would take. The Swiss Space Center at the Ecole Polytechnique Federale de Lausanne (EPFL), for example, recently announced that within the next five years it plans to launch a janitor satellite into space to grab an aging satellite and pull it to a fiery death in the Earth's atmosphere. "We are not going to change the problem of orbital debris by picking up one piece of debris," says Volker Gass, who helped to design the new CleanSpace One device. "But if you clean up a Coke can from your yard, you are setting an example, and maybe your neighbors will keep their yards clean too."

Right now NASA is exploring different strategies for cleaning up both large and small junk. Some scientists at the agency are advocating that humans start cleaning up orbital space by 2020—if we remove five to 10 pieces of junk per year, they say, then orbital debris will remain at manageable levels for centuries. "We want to move forward as many different technologies as we can, in hopes that one will shine," NASA chief technologist Mason Peck says.

**\*\*Read more information on space junk by visiting the first link.**

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<http://www.girlscoutsla.org/pages/shop/index.html#hours>