



# The Mini Page

Issue 03, 2020

Founded by Betty Debnam

**Next Week:**  
It's primary season!

## Fantastic Lights



photo by Alison Tomlin

Imagine looking up and seeing bright, colorful streamers of light waving in the night sky. These waves of colored light in the north are called the **aurora borealis** (uh-ROAR-uh bore-ee-AH-lus), or the **northern lights**.

If you live in or have visited the far north of America, in Alaska or Canada, you may have seen the aurora borealis during the dark winter nights. In the summer, the night sky is usually too light for the colors to stand out.

People in northern countries such as Norway often see the northern lights. The farther south you are, the less likely you are to see them. But every once in a while, when conditions are right, people as far south as Los Angeles can see the glow of the aurora.

### Polar aurora

The aurora light shows appear near both poles. Aurora borealis is Latin for "northern dawn." In the south it is called **aurora australis**, or "southern dawn." Few people get to see the aurora australis, however, because it usually shines above Antarctica.

Auroras can be giant light shows stretching for



photo courtesy NASA

When an aurora is seen from space, it often looks like a circle around one of the poles.

### Mini Fact:

Auroras are usually made of blue-green light, although sometimes the light is pink, purple or red.

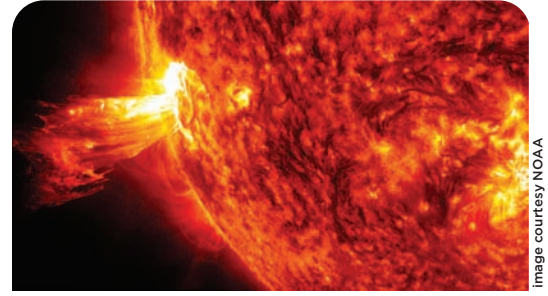


image courtesy NOAA

### Magnetic field

The magnetic field is like a bubble surrounding the Earth. It turns the Earth into a giant magnet.

The sun has its own magnetic bubble surrounding it. When the sun's bubble is blown outward, it sends out a stream of electrically charged particles toward Earth. This blowing stream is called the **solar wind**.

### A solar production

Sometimes a big magnetic bubble is blown loose from the sun. The magnetic bubble can slam into the Earth's atmosphere at a million miles per hour.

When this hits the atmosphere, it creates waves in the Earth's magnetic field. These waves hit charged particles already trapped in our magnetic field. These crashing particles create waves of light.

If there is a lot of activity in the sun, the incoming bubble can squash the Earth's magnetic field. Light from the aurora borealis can then be pushed south so the aurora is visible much farther from the North Pole.

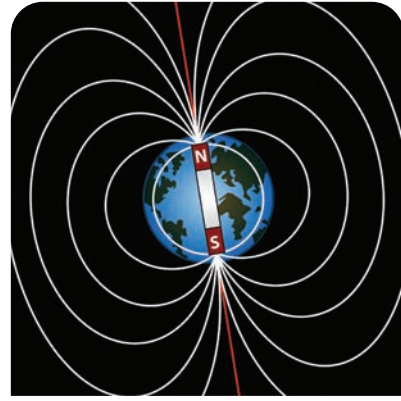


image courtesy seifinks.gov

thousands of miles up and down the sky. The light usually appears near the horizon. The polar auroras may shine anywhere from 60 to 600 miles above the Earth.

### Setting the stage

There are two main ingredients needed to make polar auroras:

1. the magnetic field around the Earth, and
2. the magnetic field around the sun.

When something is **magnetic**, it is attracted to something else. A magnetic field is like an invisible force field surrounding a body such as a planet or the sun.

Experts believe the Earth's magnetic force field is created this way:

- In the middle of the Earth there is iron rock. It is so hot that it is liquid.
- The Earth rotates, moving the liquid iron around.
- When the liquid iron moves, it creates electrical currents.
- When the electrical current moves, it produces the magnetic field.

## Resources



### On the Web:

- [go.nasa.gov/2YxN0dV](http://go.nasa.gov/2YxN0dV)
- [bit.ly/MPnorthernlights](http://bit.ly/MPnorthernlights)

### At the library:

- "Natural Phenomena: Northern Lights" by Ben McClanahan

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## Try 'n' Find

Words that remind us of the northern lights are hidden in this puzzle. Some words are hidden backward or diagonally, and some letters are used twice. See if you can find:



ATMOSPHERE,  
AURORA, AUSTRALIS,  
BLUE, BOREALIS,  
COLOR, DAWN, EARTH,  
FIELD, GREEN, IRON,  
LIGHTS, LIQUID,  
MAGNETIC, NORTHERN,  
POLE, SOLAR, SOUTH,  
SUN, WIND.

B O R E A L I S N E E R G C F  
N O R T H E R N S B L U E A I  
L Q H N S U N C I Y A P L X R  
C H T R A E S W I A R O R U A  
L R O L I G H T S T D L P D S  
E R E H P S O M T A E E X N O  
J M I R O N F I E L D N M I U  
A D I U Q I L P D A W N G W T  
B S O L A R S C O L O R U A H  
V A U S T R A L I S S H A U M

## Cook's Corner

### Chili With Black Beans

#### You'll need:

- 2 pounds lean ground beef
- 1 tablespoon olive oil
- 1 medium onion, chopped
- 3 garlic cloves, peeled and chopped
- 2 tablespoons chili powder
- 2 teaspoons ground cumin
- 1/2 teaspoon salt

- 1/2 teaspoon ground cinnamon
- 1 cup beef broth
- 1 (15-ounce) can tomato sauce
- 1 (6-ounce) can tomato paste
- 1 (15-ounce) can black beans, drained and rinsed



\* You'll need an adult's help with this recipe.

#### What to do:

1. Brown ground beef in a large skillet; pour off fat. Set aside.
2. Heat oil in large pot; add onions and cook until tender. Add garlic; cook another minute.
3. Add spices, stir and cook for 1 minute to blend well. Add broth, tomato sauce, tomato paste and cooked ground beef. Heat to boiling; stir in beans.
4. Reduce heat to low; cover and simmer for 20 minutes. Serves 6.

## Mini Jokes



**Norm:** What does planet Earth use to go fishing?  
**Nelly:** The North and South Poles!

## Eco Note



Let's talk about air. On a clear breezy day, the air smells fresh and clean. Clean air is air that has no harmful levels of **pollutants** (dirt and chemicals) in it. Clean air is good for people to breathe. On a hot day with no wind, the air can feel heavy and have a bad smell. Once in a while, the air can even make your chest feel tight, or make you cough. When too much dirt and chemicals get into the air, the air is dirty or polluted. Dirty air is not good for people to breathe, and sometimes you can even see it: It looks brown and hazy.

adapted from [airnow.gov](http://airnow.gov)

### For later:

Look in your newspaper for reports about the northern lights being visible.

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1. To shine with steady light (4-letter verb)

□ □ □ □

2. Having the look of; painted, bright (8-letter adjective)

□ □ □ □ □ □ □ □

3. Condition of air; wet, stormy, warm or cold (7-letter noun)

□ □ □ □ □ □ □

4. Natural scenery and surroundings (8-letter adjective)

□ □ □ □ □ □ □ □

1. Marcia looked at the pink and yellow \_\_\_\_\_ in the sky.
2. Joey dislikes the \_\_\_\_\_ bruise on his left knee.
3. Josephine heard the \_\_\_\_\_ will be cold and snowy.
4. Bobby likes \_\_\_\_\_ and often hikes to see songbirds.

### ROOTONYM®

by Jan & Carey Orr Cook



Study the definition. When you know the missing word, fill in the letter boxes and the sentence blanks.

Answers: Glow, Colorful, Weather, Nature.

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