

Teacher Guide for ASK

January 2013: Our Star

This guide was prepared by Betty Lou Askin, a retired educator who lives in Toronto, Ontario.

Objectives:

- To learn about the sun.
- To appreciate the effects that the sun has on our lives.
- To learn about the work some astronomers are doing with regards to the sun.

Pre-reading:

- Let the students suggest what they think might be included in this issue of ASK based on the title and the cover page.
- View the Contents page and discuss the illustrations and article titles.
- Ask the students to develop a **KWL** chart about the sun. **What I Know, What I Want to Learn** and **What I Learned**.

Scoops

Cute Cars

- Why is the Hiriko suited for large cities?
- Describe the Hiriko.
- Explain how it works.

Cat's Eye View

- What is a "kitty cam"?
- Explain what the scientists learned about housecats when they were outside.

Tropical Paradise: Antarctica

- Where were the scientists working?
- What did they discover?
- Why is this information important?

Feeling Touchy

- What does your finger tip feel/sense?
- What have scientists developed?
- What is the purpose of this invention?

Nestor's Dock

- Why were the friends depressed?
- Why was the teacher excited?
- Explain why the experiment was not a success.

The Surprising Sun

Vocabulary: hydrogen, helium, plasma, molecules, atoms, electrons, atomic fusion, corona, sunspots, auroras and magnetic poles.

Use these questions and ideas to focus on the information:

- Why does our sun not look like a star?
- What elements are found in the sun?
- Describe how "ginormous" the sun is.
- What are the 4 states of matter?
- What is plasma?
- Explain why the sun is eating itself.
- Why is the sun's light old?
- Describe the sun's colors.
- What is puzzling the scientists about the upper surface of the sun?
- What are sunspots?
- How are auroras formed?
- Creative Work: Ask the students to write an essay titled " The Sun's Energy Runs Our World". Have them use the information on page 11 to help develop their informative piece of writing.

Our Star

Suggestion for dealing with this article:

- Use the **Read Aloud Method**. Let students take turns reading the information bubbles on pages 12 and 13. Read through once. On the second reading stop after each piece of information to discuss the information that is provided.

Where Does the Sun Get Its Shine?

Use these ideas as a focus for the reading:

- List 6 things that early people thought about the sun.
- What did the people learn about the sun in the 1800's?
- Explain what professor Helmholtz thought.
- What did Lord Kelvin believe?
- Who were Marie and Pierre Currie? What did they wonder about?
- What was Cecilia Payne's great discovery?
- What did Einstein learn about the sun?
- Why does the sun shine?
- Creative Work: This article could be used as a type of play using a narrator and various actors.

The Star Gazers

Discussion questions:

- What is the function of the McMath-Pierce Telescope?
- Why were the scientists excited about Venus?
- What information did Venus provide?
- Why do you think that Penn believes creativity is important?
- What are sunspots?
- Explain what happened between 1645 and 1715.
- What are solar flares?
- Why is it important to study solar weather?
- Why are telescopes important in space?

Living on Sun Time

Use this article to answer the questions below:

- Describe Jean Jacques' experiment with the mimosas.
- Make a list of circadian rhythms.
- When does our body temperature change?
- Describe your body clock.
- Explain what scientists learned about the horseshoe crabs.
- Explain how a human master clock works.
- What is "jet lag"?
- Why did scientists study the Arctic reindeer?

Jimmy the Bug

- How did people brush their teeth before the toothbrush was invented?
- What was used instead of toothpaste?

Marvin and Friends

- What inspired Marvin?
- How did he fool his friends?
- Who spoiled his magic?

Culminating Activities:

- Choose 5 things that you have learned about the sun. Write a short paragraph about each of your topics using information from this magazine issue.
- Complete the **KLW** if it was started at the beginning of this guide.