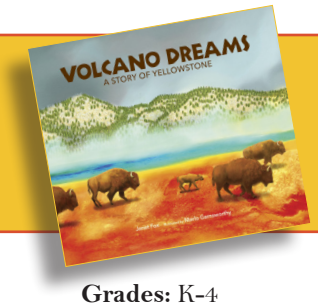


Volcano Dreams: A Story of Yellowstone

Grades: K-4
Age Range: 5-9
Publisher: Web of Life Children's Books
ISBN-10: 0988330385
ISBN-13: 978-0988330382

About the Book:

Lyrical prose and luminous paintings lead readers on a tour of the Yellowstone supervolcano, from the wolves, elk, bears, and mountain goats that roam its surface to the fiery depths of its magma chamber. VOLCANO DREAMS knits together the vibrancy of the Yellowstone ecosystem with its explosive history, placing the everyday lives of its creatures within the context of geological time. Janet Fox's poetic text takes us to the root of it all – the "sleeping giant" of magma responsible for the Yellowstone landscape – and Marlo Garnsworthy's evocative paintings capture the awe of natural forces at work in our nation's oldest national park.

About the Author:

Janet Fox is an author, mom, outdoor enthusiast, and former teacher. She has an MS in marine geology and an MFA in Writing for Children. Her award-winning books, written for children and young adults, have won her fans of all ages. She's been to the bottom of the ocean in a submersible and has spent many years in Yellowstone National Park "geyser gazing" with her son and geophysicist husband. She lives in Bozeman, Montana. You can find out more about her and her books at www.janetsfox.com.

About the Illustrator:

Marlo Garnsworthy grew up in Australia and has always been an adventurer with a deep fascination with the natural world. As a child, if Marlo wasn't outdoors, she could be found drawing or pouring over as many books as she could get her hands on. Today, Marlo is published as both an illustrator and an author. To learn more about this author/illustrator and science communicator, visit Marlo's website called Wordy Bird Studio at www.wordybirdstudio.com.

Discussion Questions:

As the sun rises, something is sleeping in Yellowstone.

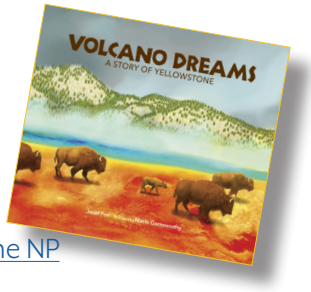
- A *habitat* is an animal's natural home or environment. Examine each animal's habitat. Identify ways that the natural world provides for each animal's needs.
- The term *terrain* refers to the physical features of a particular stretch of land. Consider how each animal has adapted to Yellowstone's terrain. Explore the notion that "ages upon ages ago" the volcanic terrain was very different.
- Do you think the animals are aware that an ancient volcano exists deep beneath the surface of the earth? Explain your answer.

Even the earth isn't sleeping in Yellowstone.

- Make a connection between the mud pots, steam vents, and geysers of present day and those when the volcano was active. Discuss how these landforms serve as a ventilation system for both the ancient active volcano and the sleeping one that breathes deep below.
- Compare and contrast the red-hot, violent atmosphere of the ancient volcano and the serenity of Yellowstone Park today. Consider the remarkable fact that, over thousands of years, the terrain surrounding the active volcano transformed into the lush habitat that exists today.

But today, the animals find refuge near hot springs and in lush meadows.
They find shelter under cool pines and inside yellow caves.

- Examine the changes in the terrain that have occurred over time. Consider how volcanic ash and pumice formed cliffs, hot lava formed columnar joints, liquid rock became black obsidian glass, and deep canyons were once ancient streams and rivers. Identify ways that the plants and animals have adapted to the earth's transformation into a fertile habitat.
- The definition of the word *refuge* means a place to hide, shelter, and protection. Describe ways that Yellowstone Park offers refuge to the animals that live there.
- Consider ways that Yellowstone National Park serves as a refuge for visitors today, even though a volcano dreams deep below the earth's surface.



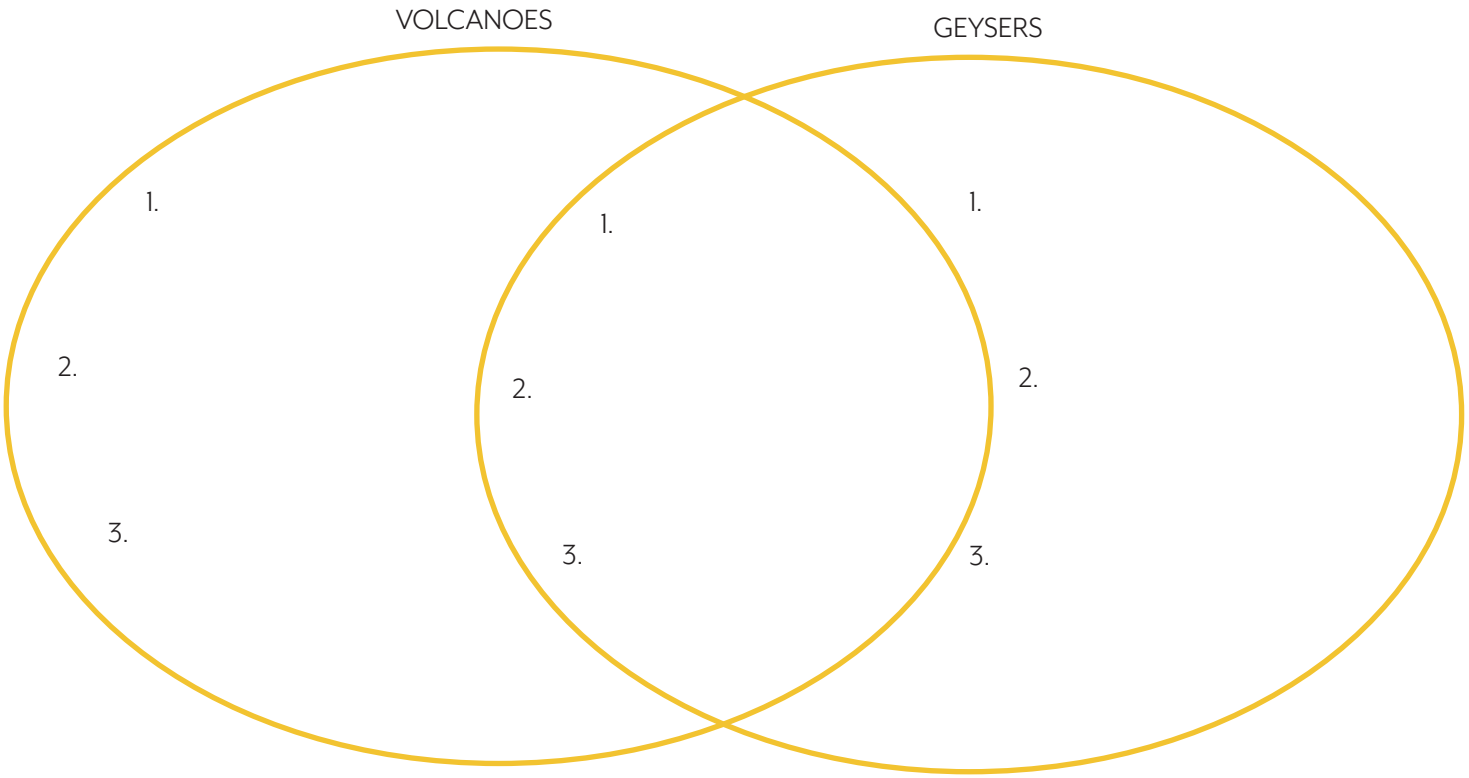
Extension Activities:

Volcanoes vs. Geysers

Watch the videos available on the left. Study the illustration featured in *Volcano Dreams: A Story of Yellowstone.* Using the Venn diagram below, compare and contrast the physical attributes of volcanoes and geysers and their effect upon the habitats that surround them. Write and illustrate a short essay describing your observation. Share your work with the class.

Video List (click on links below)

Massive Volcanic Eruptions
Old Faithful Geyser Eruption Yellowstone NP
Geyser Animation
Geysers: How do they work?
Volcano Animation
How Volcanoes Work



Mentos Geyser Analysis

Create a hypothesis by answering the following question.: Which creates a larger reaction when mixed with Mentos, regular Coke or Diet Coke containing aspartame (artificial sugar)?

Materials: 2L regular Coke, 2L Diet Coke, 6 Mentos, paper, pencil

Experiment:

- In an open outdoor setting, place 3 Mentos in the regular Coke.
- Observe and record reaction.
- Repeat process with Diet Coke.

Conclusion: State whether your hypothesis was correct. Explain the theory behind your hypothesis and why it was or wasn't proven to be true.

Extension: Apply the same scientific reasoning to geyser eruptions. Research and report upon the physical properties necessary to produce a large eruption, such as Old Faithful's.

Dropped Phrase Puzzle Answers

CALVONIC HAS — VOLCANIC ASH
RADCELA — CALDERA
TEAMS SENTV — STEAM VENTS
RAOCMNUL NOITJS — COLUMNAR JOINTS
IMUEPC — PUMICE
REYSESG — GEYSERS
BOASIIDN — OBSIDIAN
OHT GSNSRIP — HOT SPRINGS
MAAGM — MAGMA
LAAV — LAVA
RUFSEIS — FISSURE

AND THE VOLCANO DREAMS BENEATH THEM ALL AS THE SUN SETS.

Dropped Phrase Puzzle

Unscramble each of the clue words. Use the Glossary as reference.
Copy the letters in the numbered cells to other cells with the same number.

CALVONIC HAS

RADCELA

TEAMS SENTV

RAOCMNUL NOITJS

IMUEPC

REYSESG

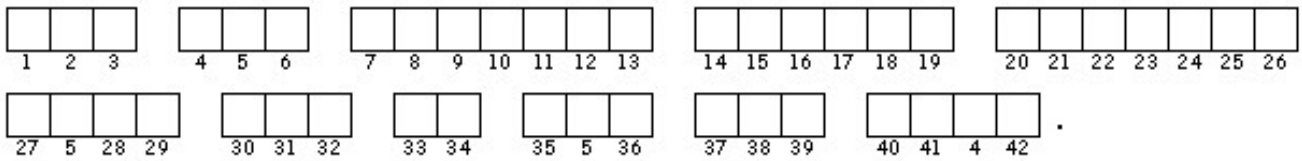
BOASIIDN

OHT GSNSRIP

MAAGM

LAAV

RUFSEIS



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