

Teacher Guide for *ASK, What's down there, anyway?*

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Betty Lou Askin, a retired educator, who resides in Toronto Ontario, prepared this guide.

Pre-reading

- Ask the students to look at the Table of Contents, especially the illustrations. Let them predict what may be discussed in the articles.

Scoops (pages 2-3)

Mountain Grown

- Describe how the Alps are growing.
- Calculate how much the Alps may grow in one year.

Team Penguin

- How hard do the penguins work to obtain food?
- Why do the penguins amuse people?
- Explain the title "Team Penguin".

Fishy Farms

- Describe the relationship between one species of alga and the farmerfish.

Nestor's Dock (pages 4-5)

- What project was assigned to Nestor and his friends?
- Why did Nestor seem concerned?
- Why was Trip's volcano unpredictable?

Inside Earth (pages 6-11)

During or after the reading of this article use these prompts to highlight the content:

- Explain why David Stevenson wrote about the inside of the Earth.
- Why have scientists not searched further into the Earth's center?
- Explain how scientists have been able to learn what is inside the Earth.
- How are the lead in pencils and diamonds related?
- Describe how a diamond anvil is a helpful tool.
- Learning about hydrogen is important for the future. Explain this statement.
- Why is it such a long trip for scientist Tullis Onstott to reach the mines?
- Explain why the microorganisms in the mines differ from those on the Earth's surface.
- Why will the "dark life" inside Earth help in the search of extraterrestrial life?
- Drawing:
The students might enjoy reproducing and labelling the illustration of Earth shown at the top page 8.

What's Under New York City? (pages 12-15)

- The captions found on these pages are roughly divided into the following areas:

Water
Utilities
Subway
Sewers
Footings of buildings
and

4-What's Under Where?

- You might consider arranging the students into six groups. Assign one of the topics listed above each group.
- Ask the students to read the information about their assigned topic. They should then discuss the material within the group. Tell them that they are to prepare to share that information with the rest of the class. They are to prepare written work e.g. charts, pictures, a report and finally to make an oral presentation.

Fire Below Your Feet (pages 16-18)

- Read this article aloud as a whole class or in small groups. Discuss the content/information.
- Ask the students to complete a chart by placing information from the article into two lists. Use the following headings:

The Progress of the Fire

Attempts to Quench the Fire

- News report:
Ask the students to prepare a report about the fire. They may choose a newspaper report, a report or a magazine layout.

If You Could Fly Like a Bird (page 19)

- Read aloud each caption one at a time. Discuss the reasons for the needed changes to the human body.

Birds Can Fly, Why Can't I? (pages 20-23)

- There are 11 different captions and dates that are reported in this article. One method of dealing with this information would be to divide the contents for different groups of students. They could Think, Pair and Share the material.
- When the information has been read and understood, you could create a timeline on the chalkboard or on chart paper. Use the dates that are given and arrange them from earliest to latest. Provide brief information beside each date.
- Creative Work:
Ask the students to use their imagination to create a means of flying other than what we already know.

Diving into the Mysterious World of Dolphins (pages 24-27)

Use these questions to focus on the article:

- Why are dolphins similar to humans?
- Explain why a dolphin can be known as an individual.
- How do dolphins work as a team?
- Why is K. Dudzinski part of a dolphin "pod"?
- Why is it hard to know which dolphin is speaking or listening?
- How does Dudzinski learn which dolphin is speaking?

- List ways in which dolphins are similar to humans.
- Explain how a dolphin uses echolocation.
- Describe the work done with dolphins by Louis Herman.

Marvin and Friends (page 34)

- Why does the digging to China seem hopeless and unnecessary?