

The background of the cover is a close-up photograph of several large, faceted, reddish-orange gemstones, likely rubies, set against a lighter, possibly white, mineral matrix. The gemstones show clear crystal faces and internal inclusions. A green rectangular banner is positioned at the top center, containing the title and author information.

Zoom™ In on

Rocks and Minerals

# Gems

Andrea Rivera





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# Table of Contents

Science . . . . .	4
Technology . . . . .	8
Engineering . . . . .	10
Art . . . . .	14
Math . . . . .	16
Key Stats . . . . .	20
Glossary . . . . .	22
Booklinks . . . . .	23
Index . . . . .	24

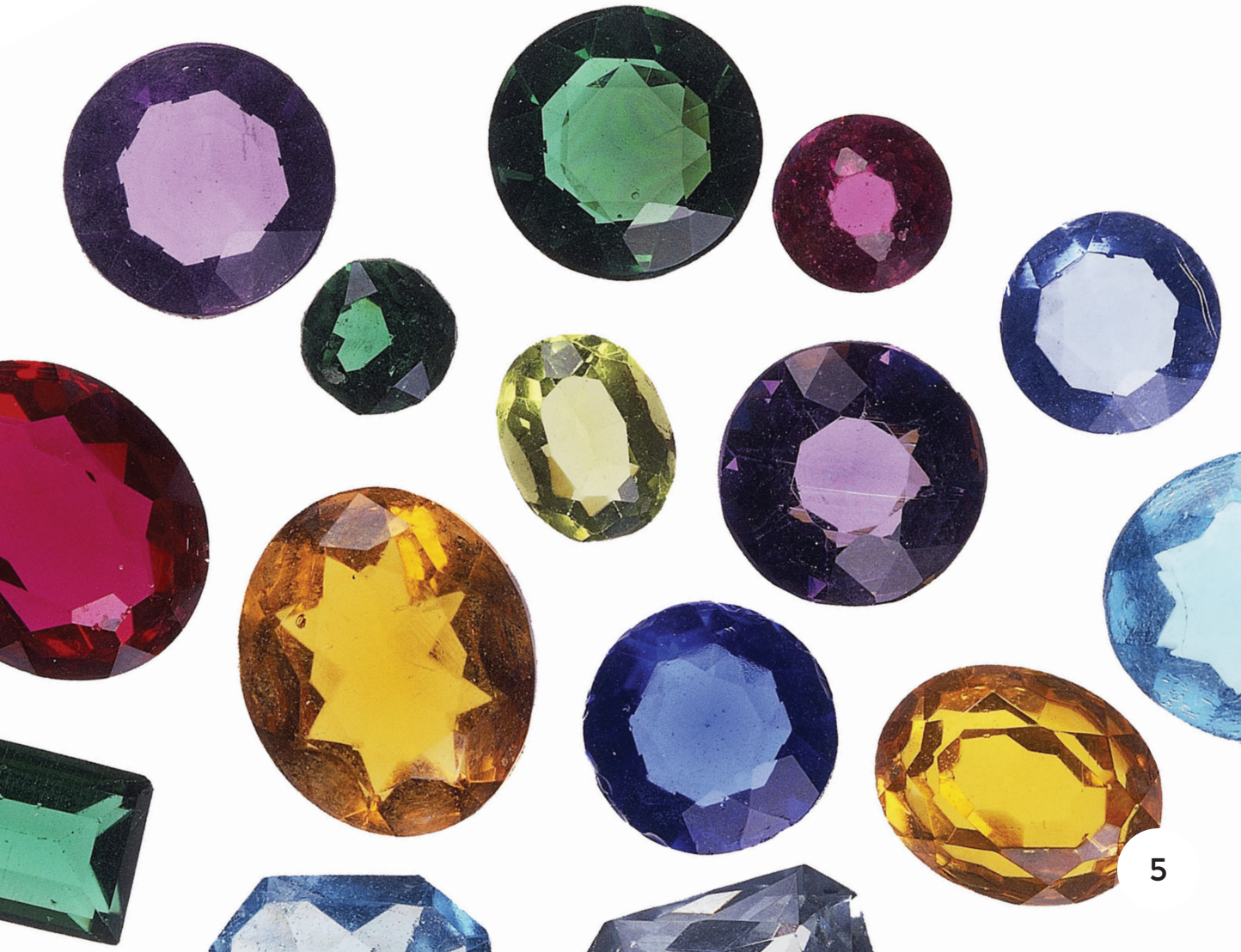


# Science

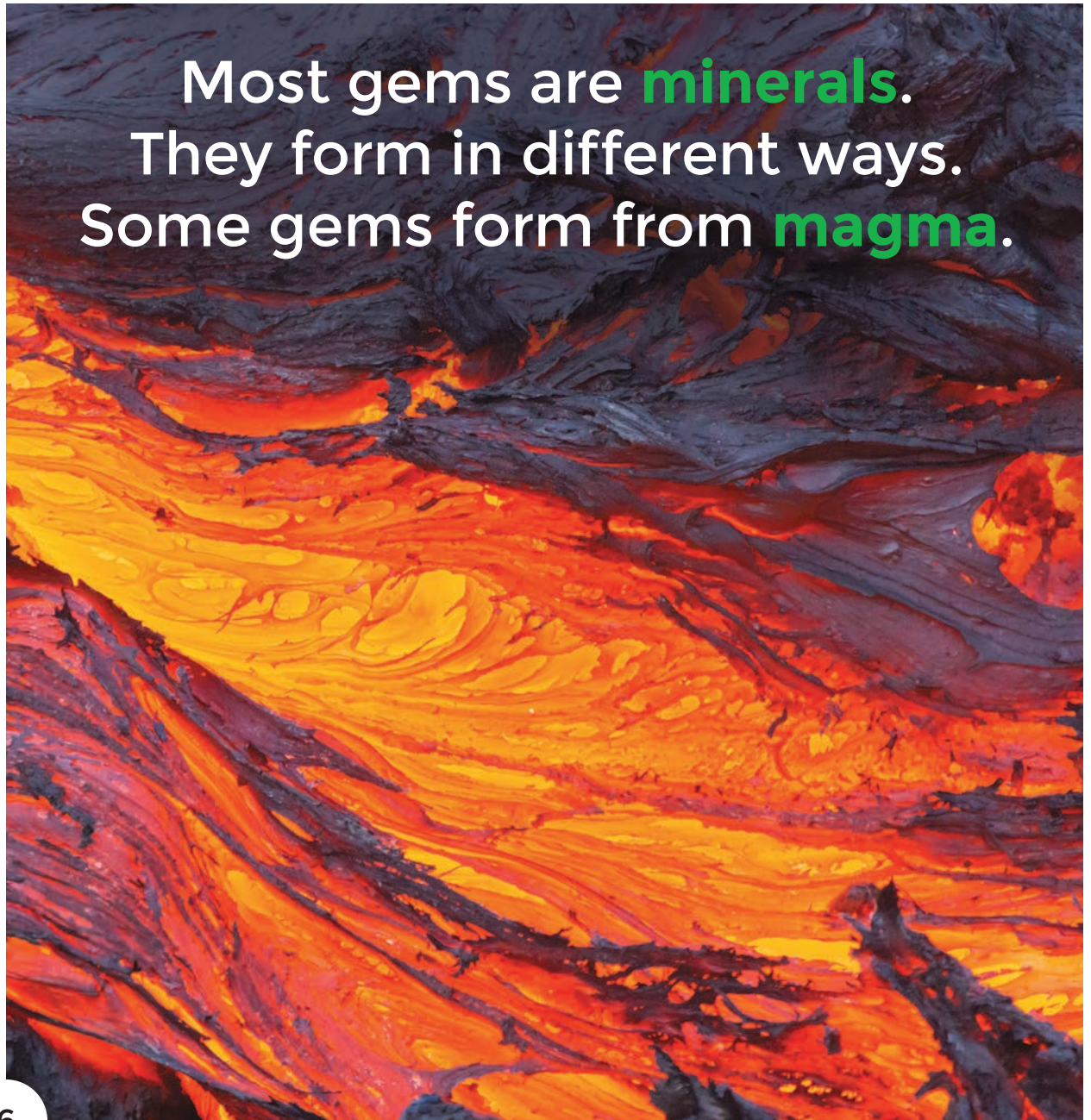
Gems are special stones.  
They are strong and  
beautiful. They are also  
hard to find. This makes  
them precious.



People collect gems.  
They often use the gems  
for jewelry or decoration.



Most gems are **minerals**.  
They form in different ways.  
Some gems form from **magma**.

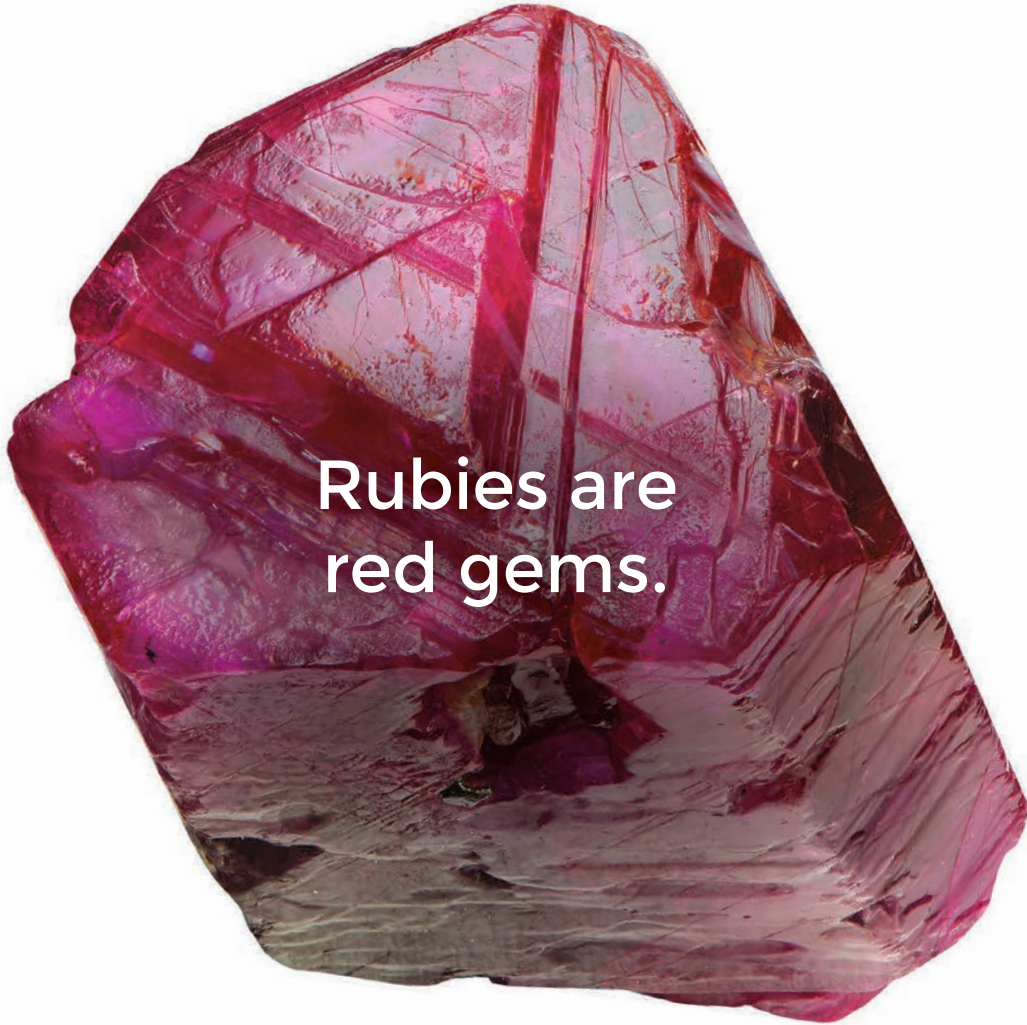




Others form  
inside rocks.  
Living things can  
make gems, too.

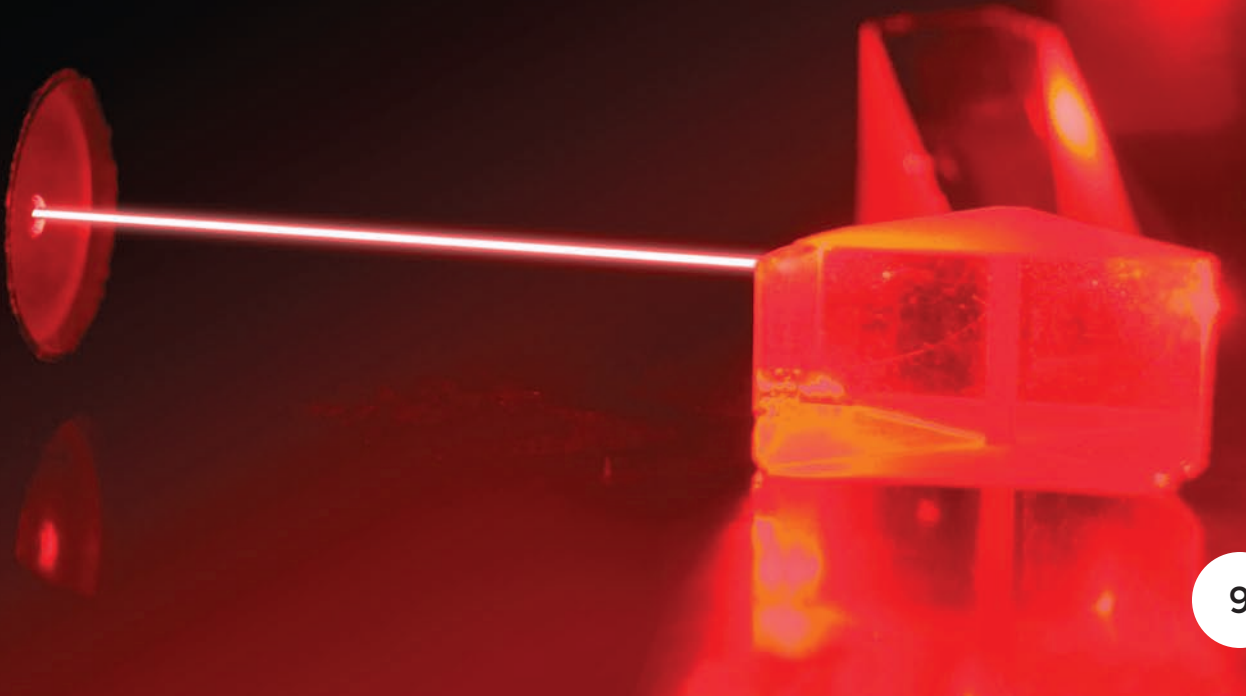


# Technology





They were used in the first **lasers**.  
They can make the red light  
from laser pointers.



# Engineering



Gems are hard. They do not easily scratch or break. Special machines cut them.



**Diamonds, rubies, and sapphires  
are the hardest gems.**





Sapphires can be  
added to glass.  
They make the  
glass very  
strong.





Military vehicles use it for windows.  
It protects soldiers.

# Art



Pearls are used to make jewelry.  
They form inside oysters.

An object enters  
the oyster. **Nacre**  
builds up. It forms  
a pearl. The pearl is  
smooth and  
shiny.







# Math

Most gems come  
from mineral crystals.  
They grow in six shapes.





Each shape comes from the way its **atoms** are arranged.



The shapes have **faces**.  
Some faces look like squares.



Others look like triangles.



- Diamonds form in high temperatures. It has to be more than  $2,000^{\circ}\text{F}$  ( $1,093^{\circ}\text{C}$ ).
- Some people collect birthstones. Each month is assigned at least one gem. The gems are said to bring good luck to people born during that month.
- Gems have been treasured for thousands of years. Ancient people wore crystals to protect against evil. Some people even crushed and swallowed gems to treat sickness.





# Glossary

**atoms** - the smallest particles.  
Atoms combine to form molecules.

**face** - a flat surface that forms the boundary of a crystal.

**laser** - a device that makes a small, intense beam of light.

**magma** - very hot, liquid rock from deep inside the earth.

**mineral** - a substance that forms naturally under the ground.

**nacre** - a hard, mineral substance.

# Booklinks

For more information on **gems**,  
please visit [abdobooklinks.com](http://abdobooklinks.com)



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# Index

crystals, 16

diamonds, 11

glass, 12

jewelry, 5, 14

lasers, 9

magma, 6

minerals, 4, 16

oysters, 14, 15

pearls, 14, 15

rocks, 7

rubies, 8, 11

sapphires, 11, 12

soldiers, 13

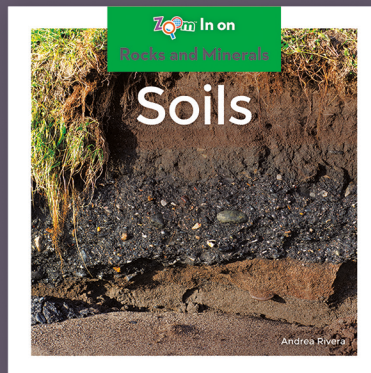
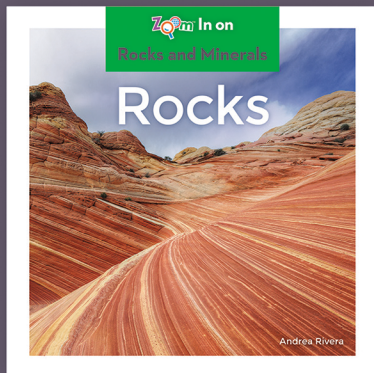
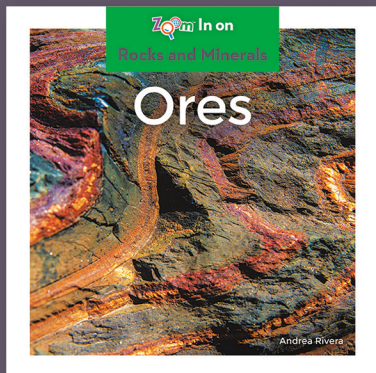
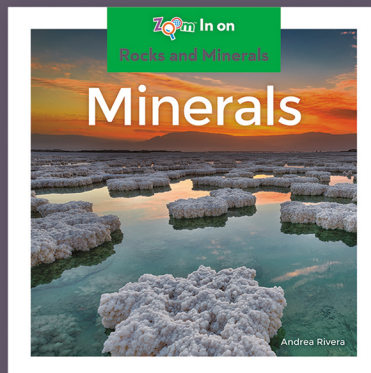
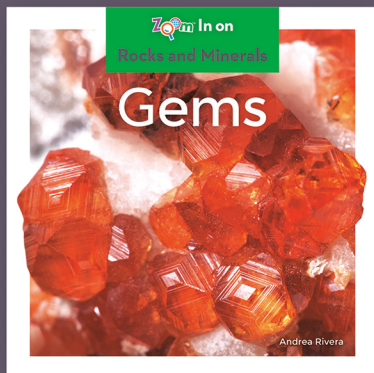
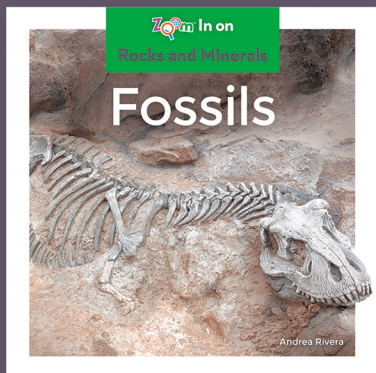


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