

**Learn & Play**



# Sudoku

for First Grade





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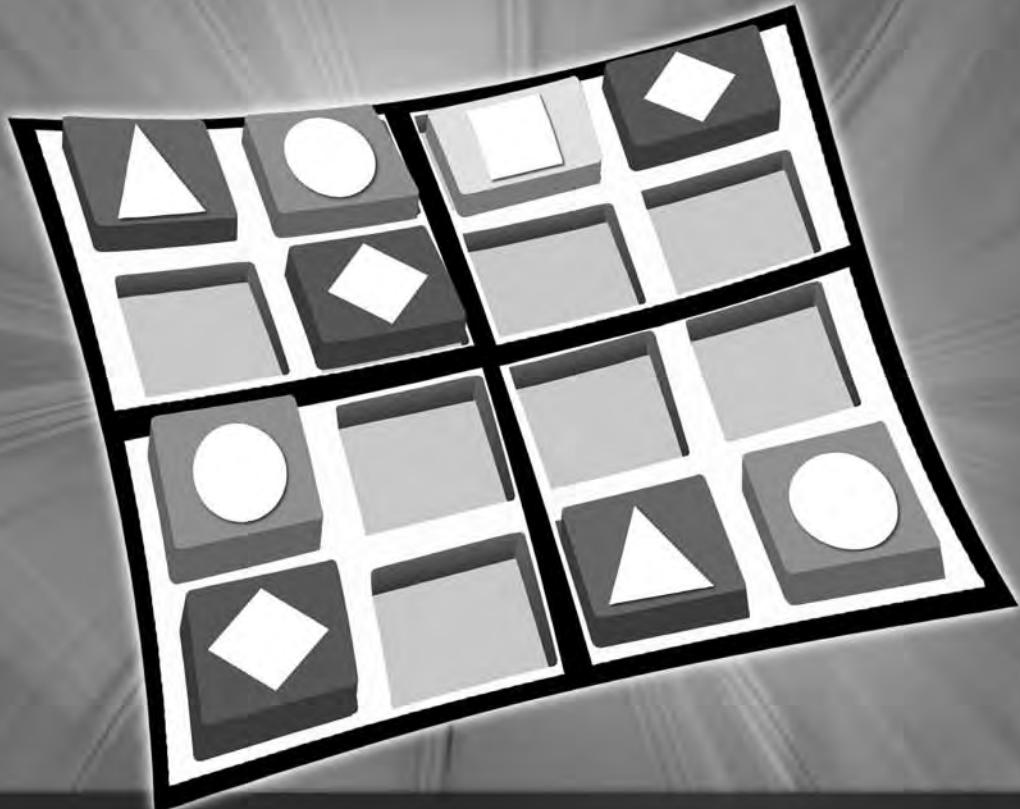
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**Learn & Play**



# Sudoku

for First Grade



**Author**

Donna Erdman, M.Ed.



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Corinne Burton, M.A.Ed.

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## What Is Sudoku?

Whether you are traveling or just relaxing on a Sunday morning, Sudoku is a pastime that the whole family can enjoy. The Sudoku craze has taken over. It is goodbye to crossword puzzles and magic squares and hello to Sudoku. If you search the word *Sudoku* on Google™, you will get over 70 million hits. Sudoku puzzles are published in newspapers, magazines, and books. They even come in electronic handheld games or interactive games on the Web.

Sudoku is a logic puzzle. Each puzzle has one or more mini-grids. Each mini-grid has boxes that are arranged in rows and columns.

Hints are given in some of the boxes. There are different types of puzzles. The puzzles can be  $1 \times 1$  grids,  $2 \times 2$  grids,  $2 \times 3$  grids,  $3 \times 3$  grids, or even more. Pictures, letters, and numbers are all used within the puzzles in this series.

The objective of a Sudoku puzzle is to fill in all the boxes of the puzzle using only the given hints. Each column, row, and mini-grid must have each picture, letter, or number only once. That means you have to pay attention to three things while you try to solve these puzzles. You have to look up and down the column, across the row, and around the mini-grid!



Source: TheSupe87/Shutterstock, Inc.

## The History of Sudoku

How did the Sudoku craze start? Sudoku puzzles first appeared in a U.S. magazine in 1979. At that time it was called "number place." A magazine editor from Japan saw the number place puzzle and liked it so much that he decided to create a magazine with his version of it. He called the puzzle Sudoku. The word *su* in Japanese means *number*, and the word *doku* means *single*. The puzzle became very popular in Japan. Today, 660,000 Sudoku magazines are circulated every month in Japan.



Source: Daniel Gale/Shutterstock, Inc.

The Sudoku craze spread to the United Kingdom when Wayne Gould saw the puzzle in a magazine while working in Hong Kong. He was fascinated by the puzzles, so he created a computer program to generate Sudoku puzzles. Then, he sold his idea to the *London Times*. They used Gould's program to create a series for their daily games pages. Other newspapers then jumped on the bandwagon, spreading the craze back to the United States. In April 2005, Sudoku became a regular feature in the *New York Post*. *The Daily News* and *USA Today* followed a few months later.

## The History of Sudoku (*cont.*)

### Deep Roots

The puzzle goes back further than 1979. It actually has its roots in Latin Squares. Latin Squares were taken from the work of Swiss mathematician Leonhard Euler. He lived from 1707 to 1783. A Latin Square is a square grid that contains sets of different symbols repeated. The cells of the grid contain each symbol only once and the symbol can appear only once in each row and column. (Sound familiar?) Sudoku puzzles are really Latin Squares that have some of the symbols already filled in, and you have to fill in the rest. A set of Latin Squares is combined to form a Sudoku puzzle.

### A Mental Sport

In 2006, the World Puzzle Federation held its first World Sudoku Championship. Like the Olympics, different countries send teams. There are both individual and team competitions. Each country can enter six participants plus one nonplaying captain. The participants have to solve different variations of Sudoku puzzles.

### Find Out More

- What other number puzzles have similar rules to Sudoku?
- What other ideas have come from mathematician Leonhard Euler?

### Sudoku Research

Sudoku is a kind of logic puzzle. No mathematical skills are needed to solve the puzzles, and you do not even need to use arithmetic. People solve the puzzles by logical reasoning alone (Sharp 2006). For this reason, these puzzles can be interesting and addictive for both children and adults alike. Not only are the puzzles a fun hobby, but the skills used to solve Sudoku puzzles can be transferred and applied to other areas of life.

For young people, the main benefit of solving Sudoku puzzles is the development of logical reasoning skills. These skills will help them solve math problems.

There is a misconception that logical reasoning has nothing to do with mathematics. This seems to be tied to the idea that mathematics is about numbers. Indeed, Sudoku puzzles could have letters or colors or pictures instead of the numbers or any other property that comes with various attributes. (Sharp 2006)



Portrait by Johann Georg Brucker

## Sudoku Research (*cont.*)

The heart of the puzzle, the mini-grid, is really a math problem about arrangements or combinations of objects (Sharp 2006). Logic is required in most areas of mathematics, and many examples of math problems can be given that require logical reasoning. Students can also use logical reasoning skills to find new ways to look at a problem and develop creative problem solving strategies.

To fully understand the depth of math concepts and become lifelong learners of mathematics, students need both logical reasoning and problem-solving skills. By solving Sudoku puzzles, students will begin to develop systematic thinking. They will learn to identify patterns and apply them. And, they will develop an awareness of the need to examine data carefully. These skills will also transfer over to other content areas, such as language acquisition. Puzzles are “well suited for contributing to a problem-based environment that is conducive to learning in the second-language classroom and may play an important role in the development of critical and higher-order thinking skills.” Most importantly, puzzles offer second-language students the opportunity to repeat vocabulary and sentence structures in authentic contexts (Raizen 1999).

In the classroom, Sudoku puzzles are an easy way to differentiate instruction. The different grade levels of Sudoku can be used in one classroom. Each student can be given a puzzle from the grade level and skill level that best suits his or her cognitive development of logical reasoning and problem-solving skills.

Riddles and puzzles have broad appeal and are accessible to literally all ability levels. The conditions and objectives of the problems that are posed as puzzles are usually understood easily, although the solutions may be challenging. Even though some students may not be able to solve every puzzle, many enjoy the challenge of the attempt. (Evered 2001)

Students who have not been successful in mathematics can find success in solving Sudoku puzzles. In the preface to Raymond Smullyan’s book, *The Lady or the Tiger and Other Logic Puzzles*, he states, “So many people I have met claim to hate math, and yet are enormously intrigued by any logic or math problem I give them, provided I present it in the form of a puzzle. I would not be at all surprised if good puzzle books prove to be one of the best cures for the so called, math anxiety” (1982).

Sudoku puzzles serve as an excellent warm-up activity, closing activity, problem-of-the day, enrichment activity, or break from the traditional curriculum content. Will Shortz, a puzzle creator and editor, states, “You can learn it in 10 seconds, and yet the logic needed to solve Sudoku is challenging. It’s a perfect amount of time to spend on a puzzle, anywhere from five minutes to half an hour” (Bennett 2006).

## Sudoku Research (cont.)

The puzzles are engaging and addictive for students. Filling in the empty cells appeals to them, and the rush at the very end to complete the puzzle gives them a great feeling of accomplishment. This inherent element of solving the puzzle adds a level of excitement to the classroom and is an intrinsic motivator for students (Evered 2001). The puzzle serves as a catalyst for learning (Raizen 1999).

For both adults and students, Sudoku is a way to sharpen your brain and improve your focus. It requires concentration, patience, and self-discipline. According to Shortz, "You have to be focused to be a good Sudoku solver, because if you make a mistake and then base further logic on the mistake you made you have no option but to erase everything and start over. So Sudoku really teaches you to be careful" (Bennett 2006). Sudoku can also be a way to reduce stress or anxiety. While working on the puzzle, all other challenges and worries can be put aside. The puzzle becomes your focus and as a result, your brain feels refreshed and ready to tackle whatever life throws at you. Other researchers are finding Sudoku as a way to slow the progress of Alzheimer's disease (Critser 2006).

This puzzle with its simple rules and small numbers can be a tool for students, teachers, and parents. For students, it helps them develop logical reasoning skills and problem-solving strategies. Students will become self-disciplined, patient, and careful problem solvers. For teachers, it is a tool for differentiating instruction, engaging students, and supporting language acquisition. For parents, it is a family pastime that reduces stress, increases focus, and turns a child from a math hater to a math lover.



Source: Ramon Berk/Shutterstock, Inc.

## Works Cited

- Bennett, J. 2006. Addicted to Sudoku. An interview with Will Shortz. *Newsweek* (Society, Web Exclusive), February 23.
- Critser, G. 2006. Changing minds in Alzheimer's research. *Los Angeles Times*, November 5.
- Evered, L. J. 2001. Riddles, puzzles, and paradoxes. *Mathematics Teaching in the Middle School* 6 (8): 458–461.
- Raizen, E. 1999. Liar or truth-teller? Logic puzzles in the foreign-language classroom. *Texas Papers in Foreign Language Education* 4 (n1): 39–50.
- Sharp, J. 2006. International perspectives, beyond Su Doku. *Mathematics Teaching in the Middle School* 12 (3): 165–169.
- Smullyan, R. 1982. *The Lady or the Tiger and Other Logic Puzzles*. New York: Alfred Knopf.

## Learn to Play Sudoku

### Sudoku Words

- **mini-grid**—group of square boxes that make a larger square
- **column**—line of boxes that goes up and down
- **row**—line of boxes that goes side to side
- **hints**—boxes that are filled in before you start the puzzle

### Sudoku Rules

- Every mini-grid must have only one of each picture or number.
- Every column must have only one of each picture or number.
- Every row must have only one of each picture or number.

### How to Play

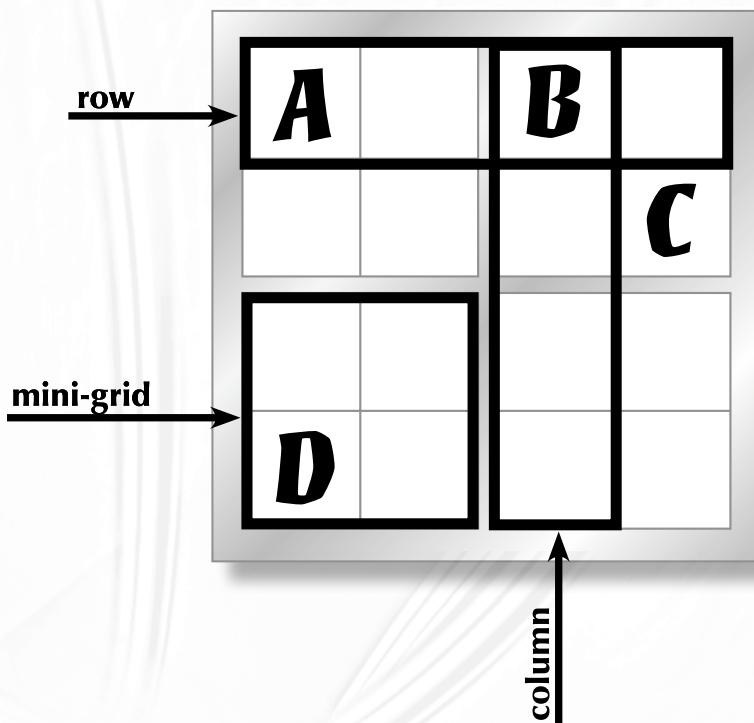
- **Step 1**—Look at the puzzle. Find a mini-grid that has lots of hints.
- **Step 2**—Look at each row and column of the mini-grid. Fill in the missing pictures or numbers. Each number or picture can only be used once!
- **Step 3**—Look at the columns and rows again. Check to make sure none of the pictures or numbers are the same. Move any that are the same.
- **Step 4**—Do these steps again for each mini-grid.



### Top Secret Tip

Try this! Don't look for the mini-grid with the most hints. Look for the column or row with the most hints. Then start the puzzle there.

### The Parts of a Sudoku Puzzle



## Strategies for Sudoku

### What Is a Strategy?

A strategy is a plan. It is a way to solve a puzzle. It is good to have a plan. That way, you know what steps to take as you work. Strategies help you solve Sudoku puzzles. Without a strategy, you may work really hard. And even then, you might not solve the puzzle. With a plan, you know you will do well.

### Strategy 1—Use Cutout Pictures or Numbers

#### Step 1

- Cut out the pictures or numbers on pages 61–62.

#### Step 2

- Find an empty box. This box is in a mini-grid.
- Move a picture or number into the box.

#### Step 3

- Look at the column with your piece.
- Is any picture or number there two times?

#### Step 4

- Look at the row with your piece.
- Is any picture or number there two times?

#### Step 5

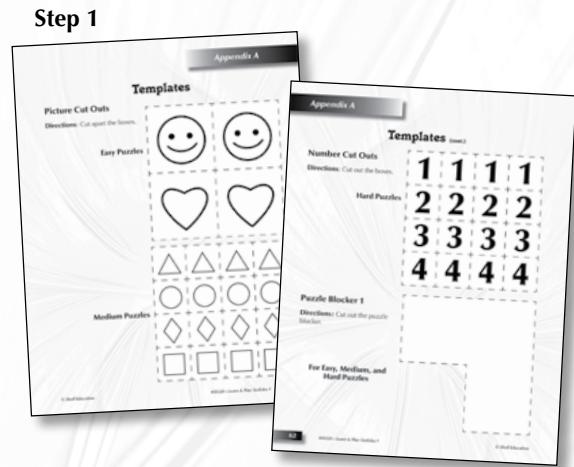
- If any picture is there two times, put a different picture or number in the box.
- Check the mini-grid, row, and column again.

#### Step 6

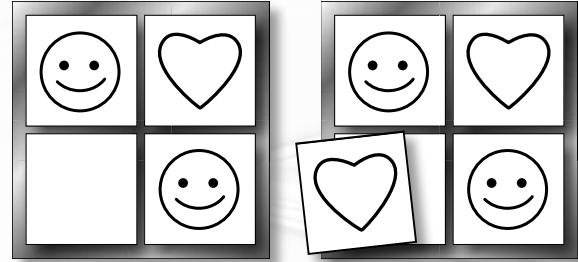
- Find another empty box.
- Move a picture or number into the box.
- Do steps 3, 4, and 5 again.

#### Step 7

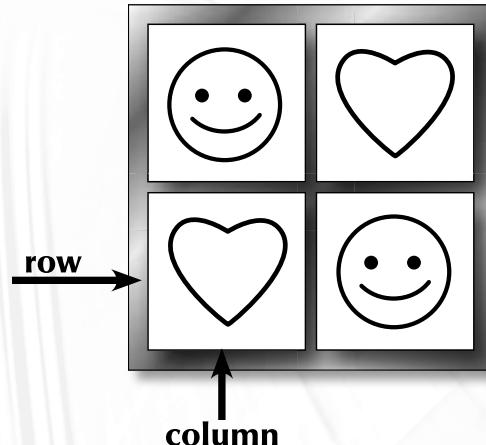
- If you get stuck, put a different picture or number in the box.
- Check each mini-grid, row, and column.
- Yeah! You did it!



#### Step 2



#### Steps 3–5



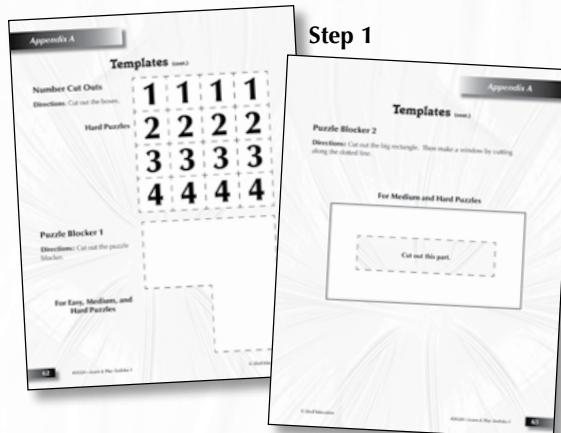
# Introduction

## Strategies for Sudoku *(cont.)*

### Strategy 2—Using a Puzzle Blocker

#### Step 1

- Cut out Puzzle Blocker 1 (page 62) and Puzzle Blocker 2 (page 63).



#### Step 2

- Put Puzzle Blocker 1 over the puzzle.
- You only want one mini-grid to show.

#### Step 3

- Fill in the empty boxes on the mini-grid.
- Remove Puzzle Blocker 1.

#### Step 4

- Place Puzzle Blocker 2 on a row across the mini-grid.
- Check the pictures or numbers. Make sure no picture or number is there two times.
- If the pictures or numbers are the same, change them in the mini-grid.

#### Step 5

- Place Puzzle Blocker 2 on a column from the mini-grid.
- Check the pictures or numbers. Make sure no picture or number is there two times.
- If the pictures or numbers are the same, change them in the mini-grid.

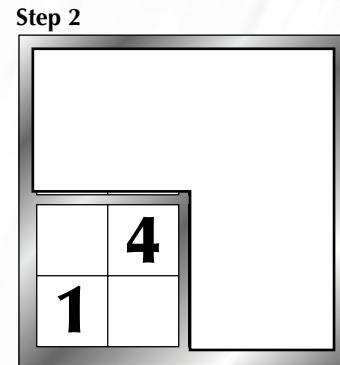
#### Step 6

- Go back and forth with the puzzle blockers. Check each mini-grid, row, and column.

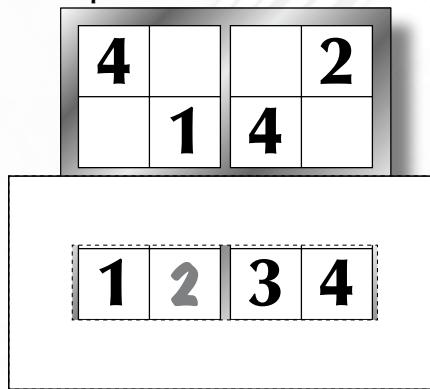
#### Top Secret Tip



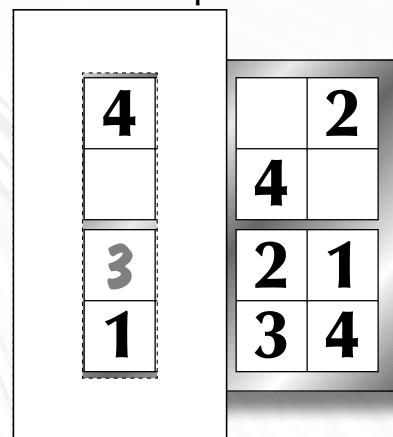
The cutout pieces and Puzzle Blockers can be used together. That would mean less erasing for you!



#### Step 4



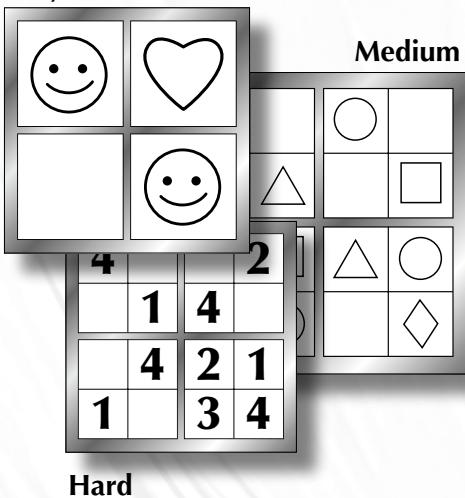
#### Step 5



## How to Use This Book

### Leveled Puzzles

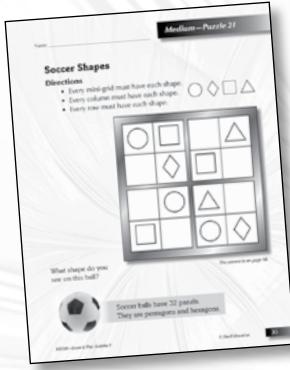
Easy



- The Sudoku puzzles in this book are divided into three levels: easy, medium, and hard. Each level has a specific puzzle variation. There are 15 puzzles for each level. That makes a total of 45 puzzles in this book.

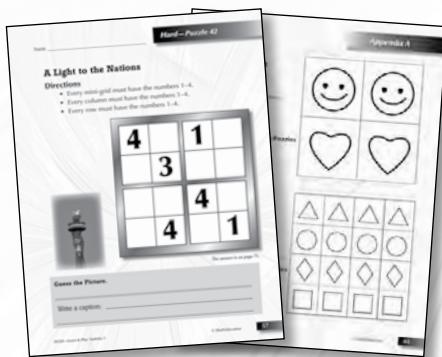
- As students move through each level, the puzzles get more difficult. When math teachers created these puzzles, they progressively decreased the number of hints within each variation. They also analyzed the difficulty of each puzzle by the types of logic needed to solve it. Puzzle solvers solved the puzzles to ensure there was one correct solution for each puzzle. In addition, each level of *Learn & Play: Sudoku* was field tested in classrooms.

### Themes of Puzzles



- Each of the three levels has a content-area theme tied to state and national standards. The easy puzzles have a science theme. The medium puzzles have a math theme, and the hard puzzles have a social studies theme.
- All the math themes are tied to the Curriculum Focal Points as identified by the National Council of Teachers of Mathematics.
- Throughout each section, the titles, images, and captions relate to the theme.

### Special Additions and Appendices



- Special additions are included within each section of puzzles. Some pages have fun facts related to the images. On other pages, students get to write their own fun facts. The last five puzzles in each section show close-ups of pictures. Students should guess what the picture is and write a new caption.
- The appendices include templates, a list of photograph sources, and the answer key. The answer key shows the completed puzzles for your reference.

## Puzzle Variations at Each Grade Level

	Easy or Beginner		Medium or Intermediate		Hard or Challenging	
	Variation	Hints	Variation	Hints	Variation	Hints
<b>First Grade</b>	1 x 1 with pictures	3–1	2 x 2 with pictures	11–8	2 x 2 with numbers	8–5
<b>Second Grade</b>	2 x 2 with pictures	11–8	2 x 2 with numbers	7–5	2 x 2 with letters	6–4
<b>Third Grade</b>	2 x 2 with letters	6–4	2 x 3 with letters	20–18	2 x 3 with numbers	17–14
<b>Fourth Grade</b>	2 x 3 with letters	17–15	2 x 3 with numbers	15–13	3 x 3 with numbers	44–40
<b>Fifth Grade</b>	2 x 3 with numbers	12–10	3 x 3 with letters	40–36	3 x 3 with numbers	36–32

## Correlations

The activities in this book meet the following standards:

- Students understand and apply basic principles of logic and reasoning.
- Students effectively use mental processes that are based on identifying similarities and differences.
- Students apply basic trouble-shooting and problem-solving techniques.
- Students apply effective decision-making techniques.
- Students use trial and error and the process of elimination to solve problems.

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A correlation of these standards for your state can be printed directly from the Shell Education website: <http://www.shelleducation.com>. If you require assistance in printing correlation reports, please contact Customer Service at 1-800-877-3450.

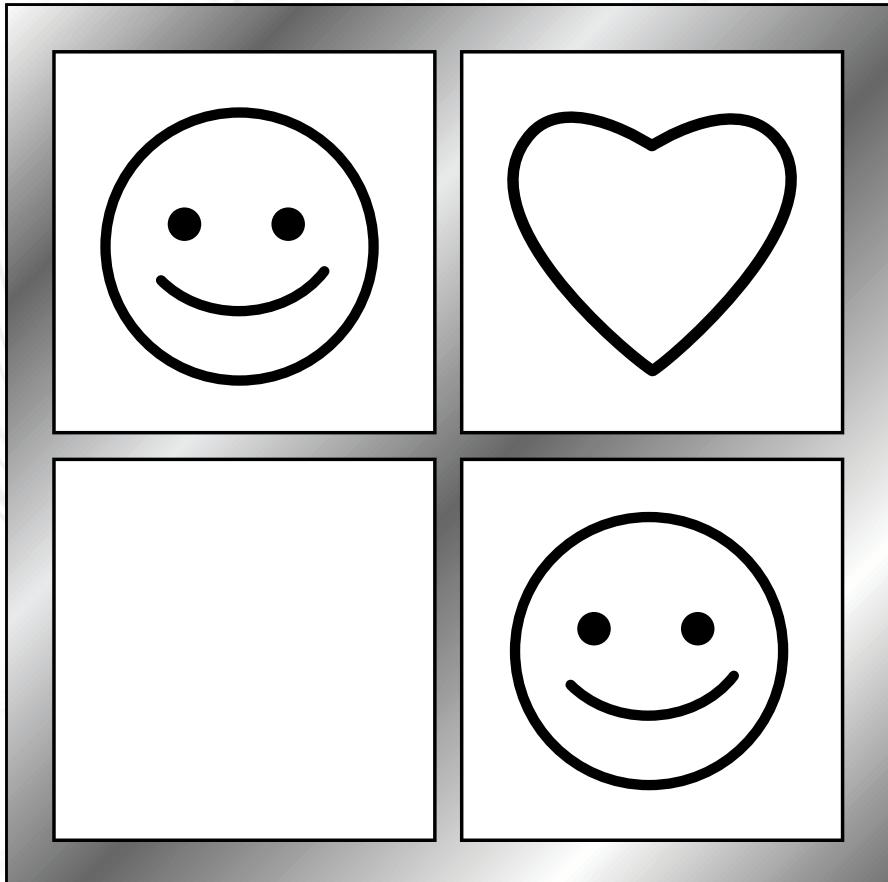
## **World of Animals**



## Panda, Panda

### Directions

- Each column must have each shape.
- Each row must have each shape.



The answer is on page 65.



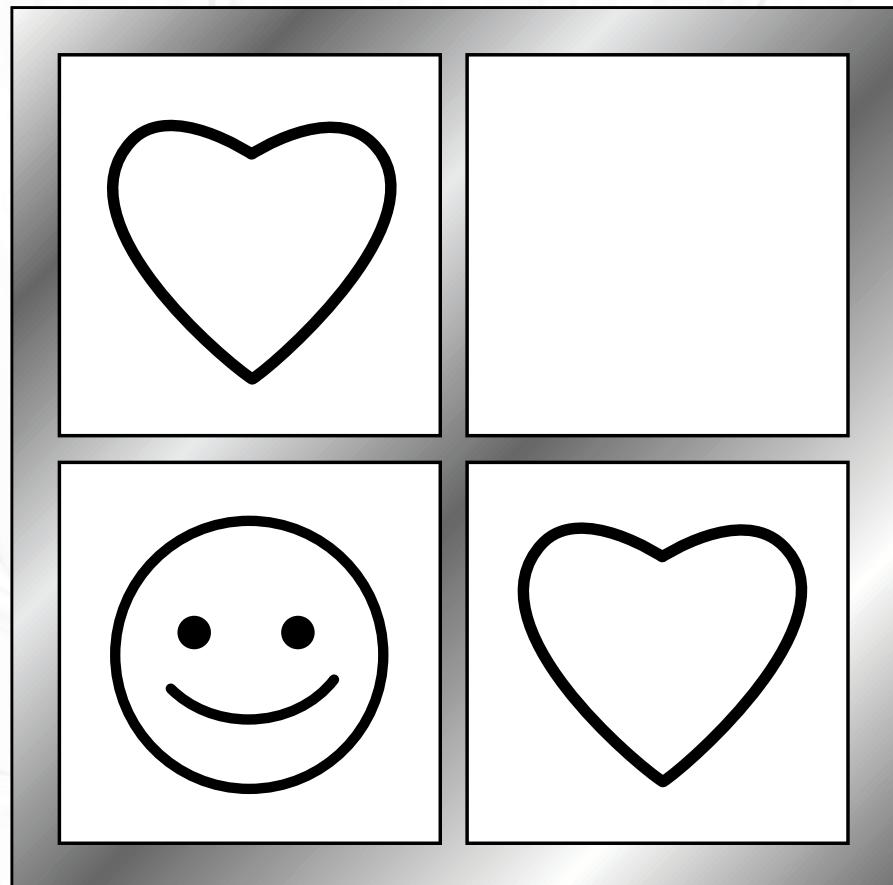
A giant panda eats his lunch.

Name \_\_\_\_\_

### Beautiful Birds

#### Directions

- Each column must have each shape.
- Each row must have each shape.



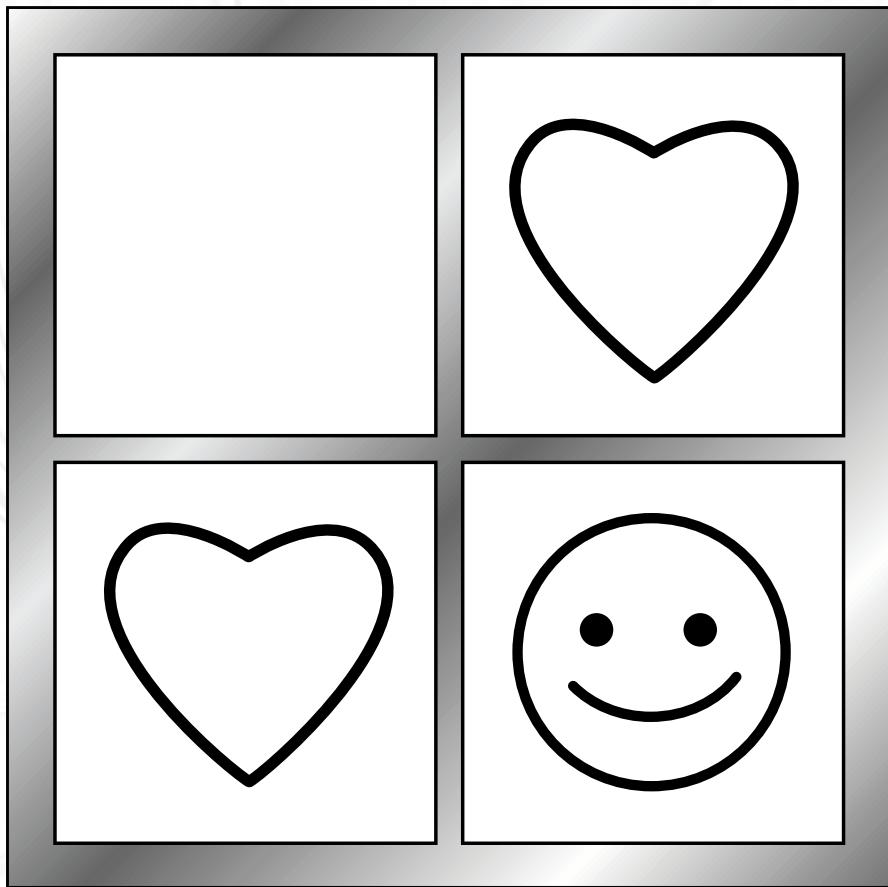
The answer is on page 65.

These birds look like they  
are talking.

### Little Newt

#### Directions

- Each column must have each shape.
- Each row must have each shape.



The answer is on page 65.



Newts have long tails.

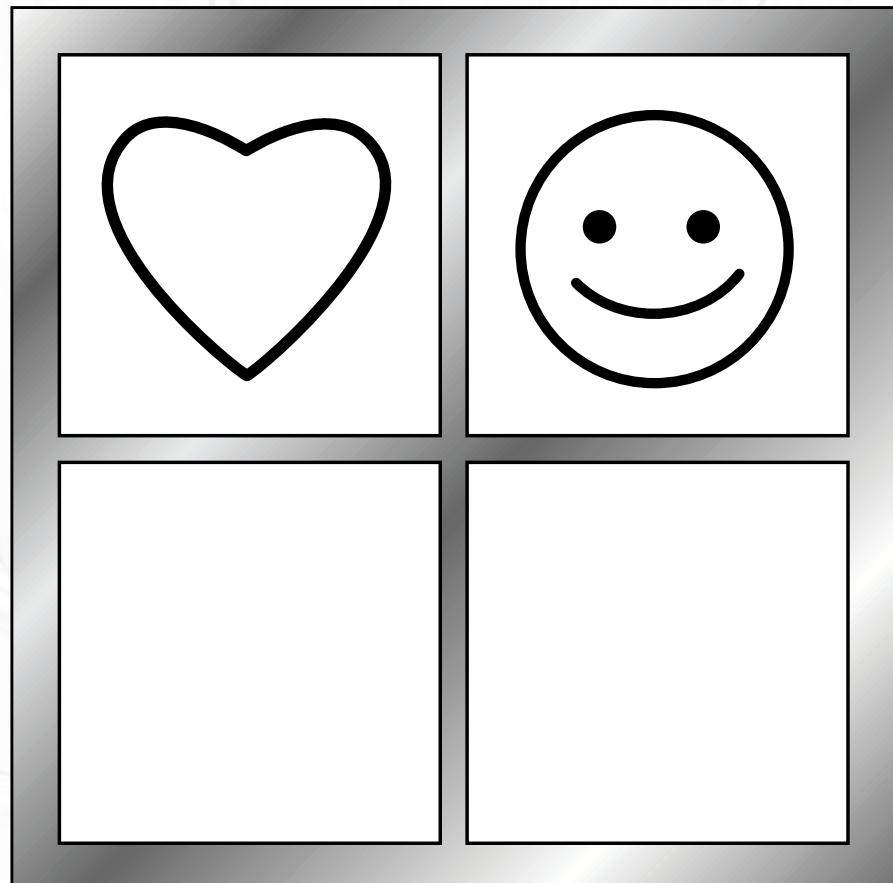
Name \_\_\_\_\_

## Easy—Puzzle 4

### Diving Turtle

#### Directions

- Each column must have each shape.
- Each row must have each shape.



The answer is on page 65.

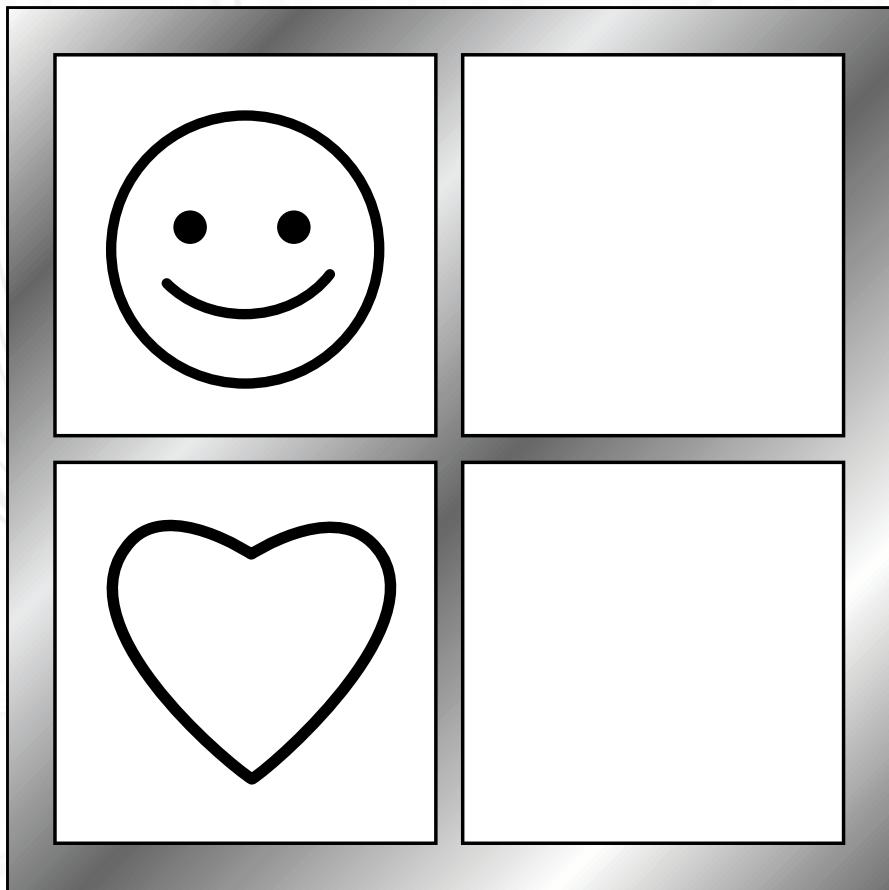


This turtle dives in the ocean.

## School of Fish

### Directions

- Each column must have each shape.
- Each row must have each shape.



*The answer is on page 65.*



Fish swim together in groups.

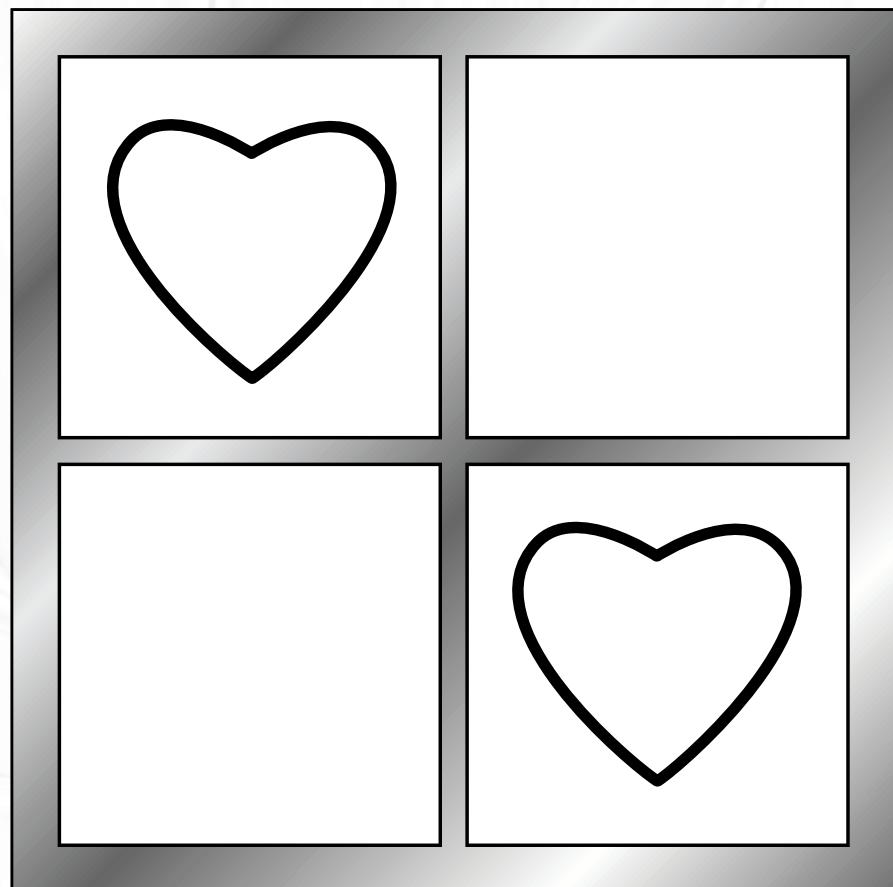
Name \_\_\_\_\_

## Easy—Puzzle 6

# Giraffe Family

### Directions

- Each column must have each shape.
- Each row must have each shape.



These giraffes stay cool in the shade.



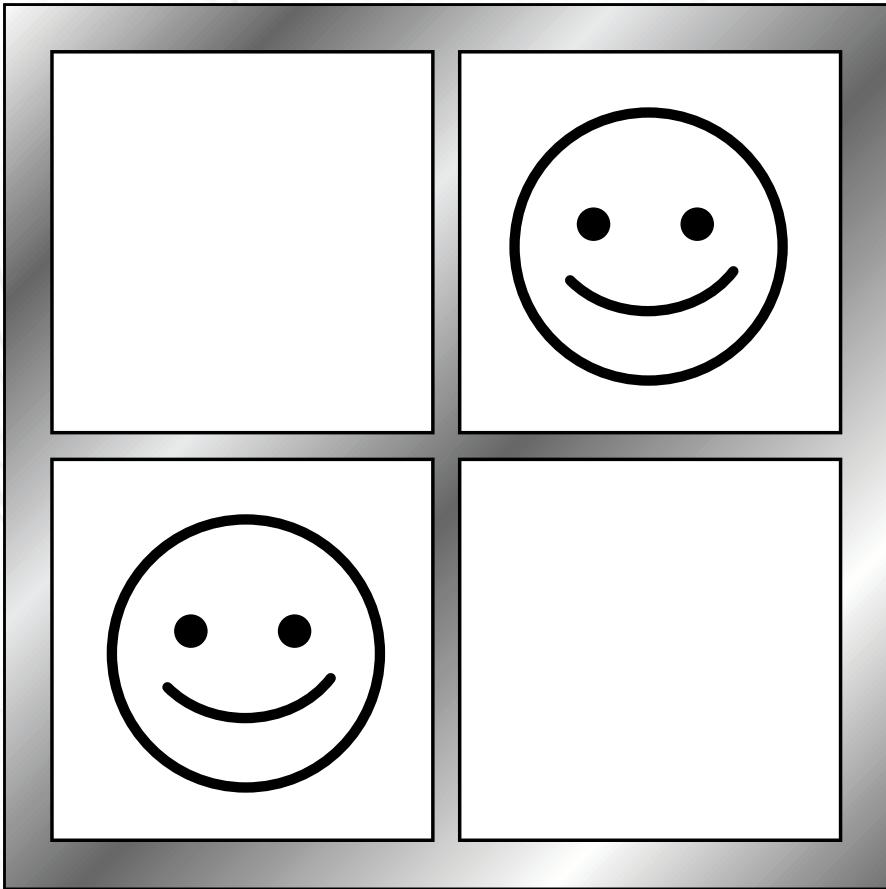
*The answer is on page 65.*

You drink water every day. A giraffe can go for two weeks without water!

## Penguins in a Line

### Directions

- Each column must have each shape.
- Each row must have each shape.



King penguins  
walking in a line.



*The answer is on page 66.*

Emperor penguins can stay underwater  
for over 20 minutes.

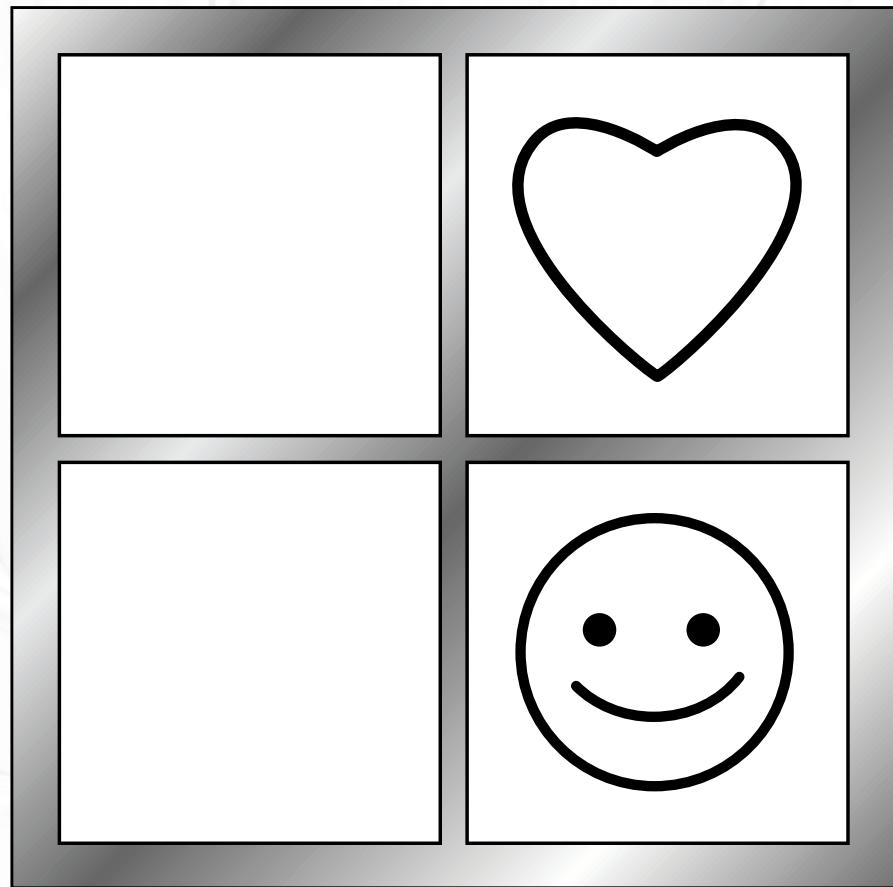
Name \_\_\_\_\_

## Easy—Puzzle 8

### Funny Frogs

#### Directions

- Each column must have each shape.
- Each row must have each shape.



Frogs love to cool off in the water.



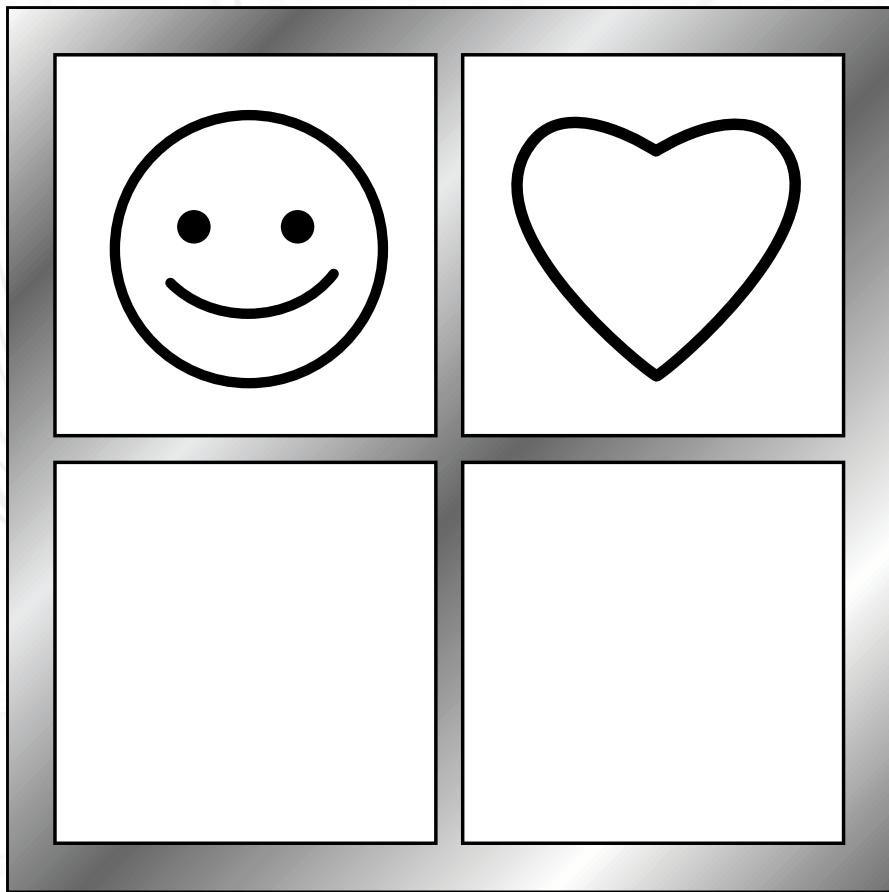
*The answer is on page 66.*

Frogs can breathe through their skin.

## Cranky Crocodile

### Directions

- Each column must have each shape.
- Each row must have each shape.



This crocodile is looking at you!



*The answer is on page 66.*

Do you know how to tell an alligator from a crocodile? Check out his teeth. If you can see only the top teeth, he's an alligator. If you can see all his teeth...RUN!

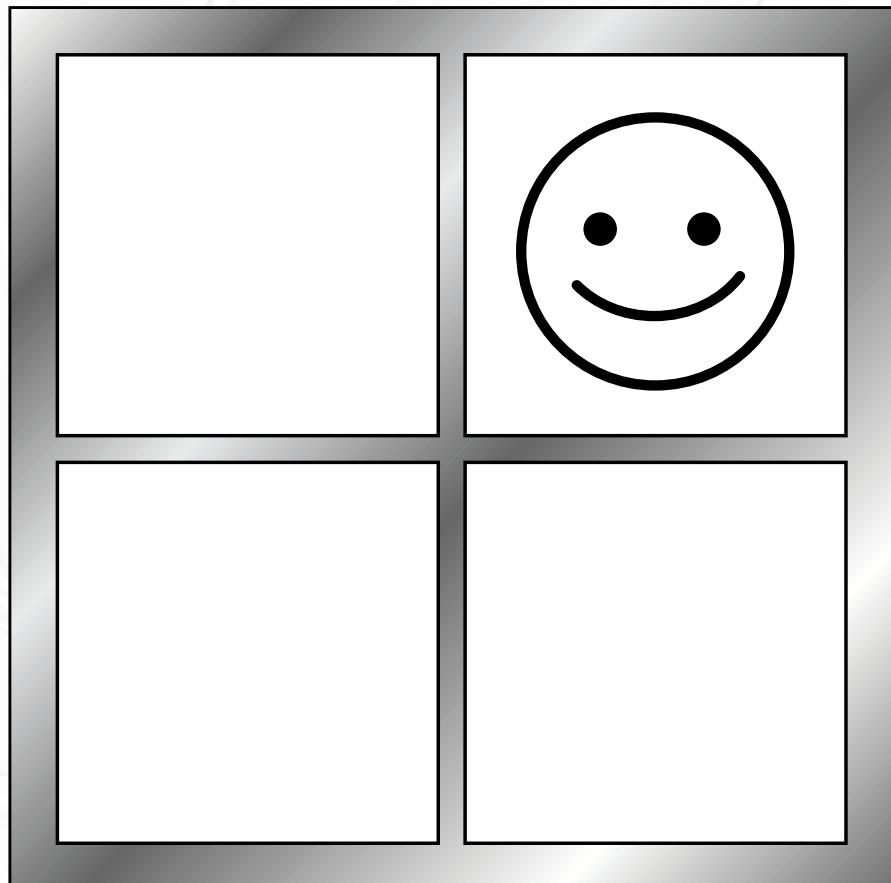
Name \_\_\_\_\_

## Easy—Puzzle 10

### Shark!

#### Directions

- Each column must have each shape.
- Each row must have each shape.



Sharks are part of  
the fish family.

*The answer is on page 66.*

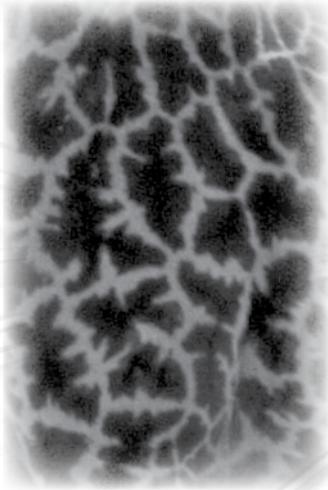
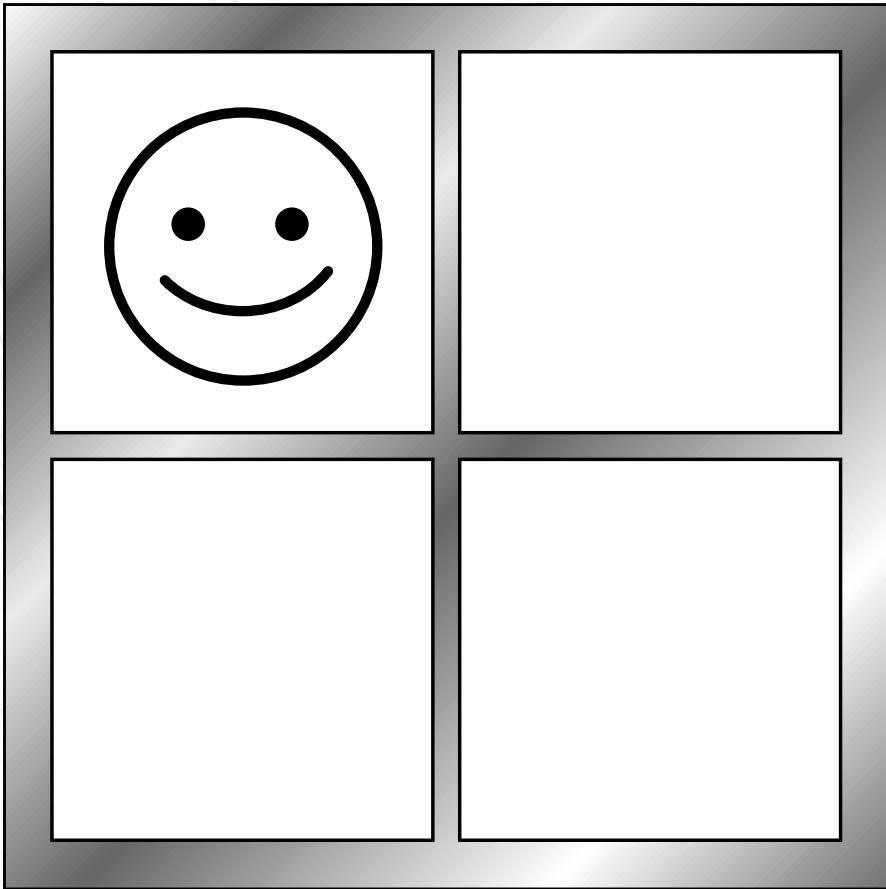


Can you believe that sharks have been  
around for about 400 million years?  
Wow, that's a long time!

## Shady Spots

### Directions

- Each column must have each shape.
- Each row must have each shape.



The answer is on page 66.

### Guess the Picture

What is this picture? \_\_\_\_\_

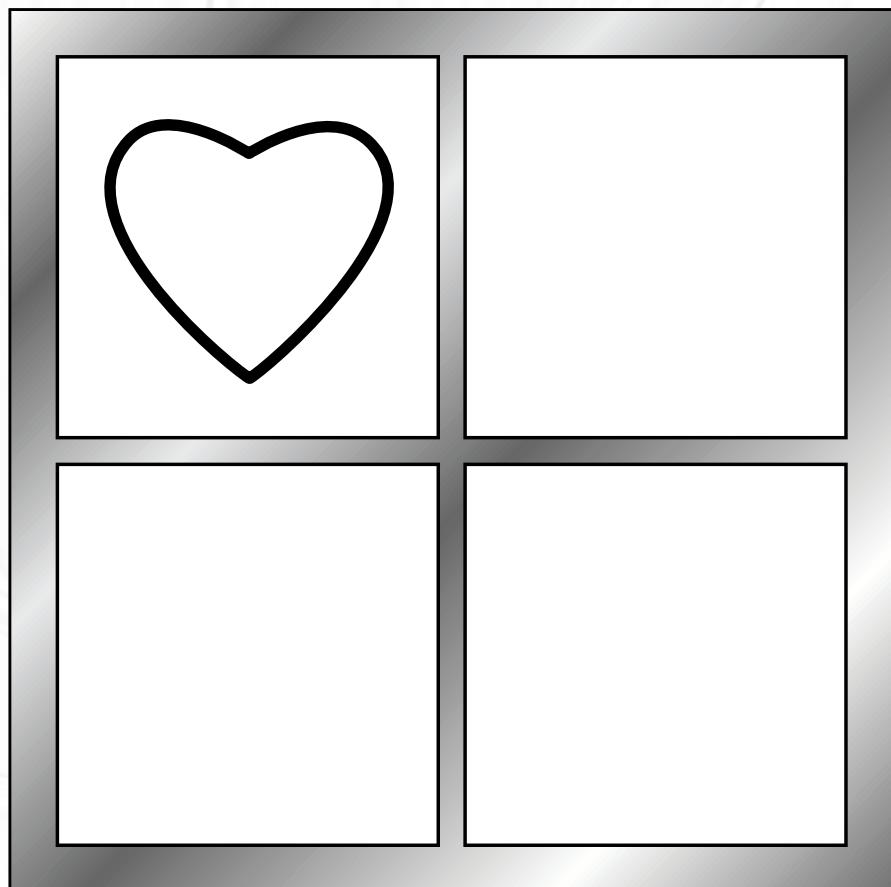
Write a caption: \_\_\_\_\_  
\_\_\_\_\_

Name \_\_\_\_\_

## Light as a Feather

### Directions

- Each column must have each shape.
- Each row must have each shape.



The answer is on page 66.

### Guess the Picture

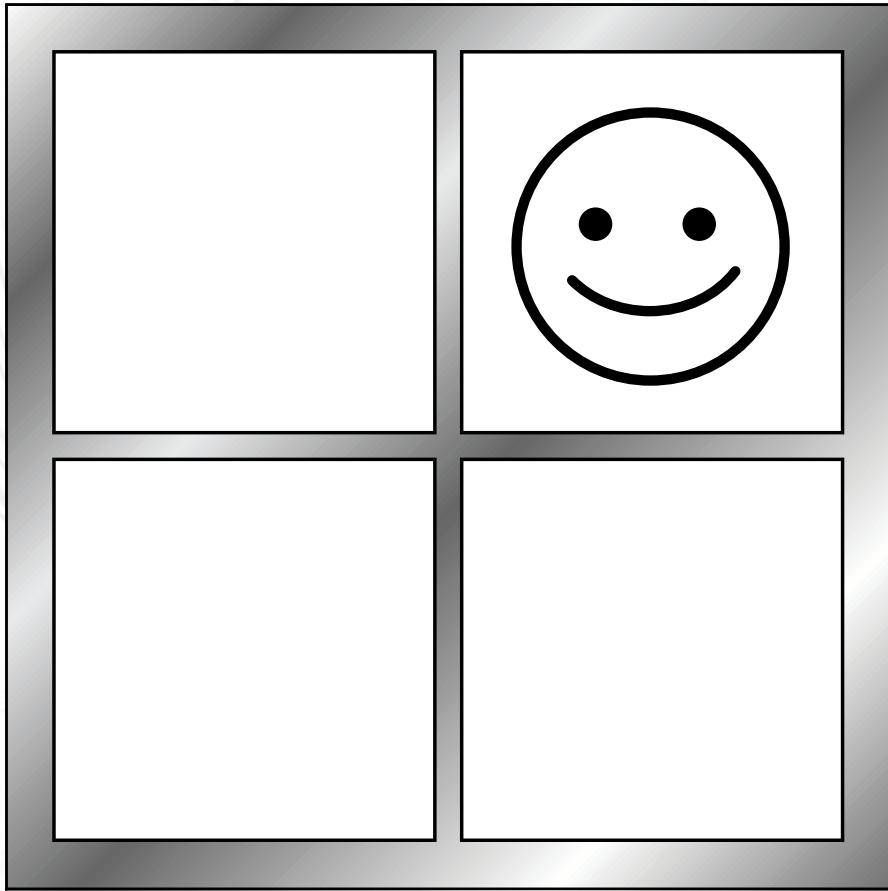
What is this picture? \_\_\_\_\_

Write a caption: \_\_\_\_\_  
\_\_\_\_\_

## Watch Out!

### Directions

- Each column must have each shape.
- Each row must have each shape.



The answer is on page 67.

### Guess the Picture

What is this picture? \_\_\_\_\_

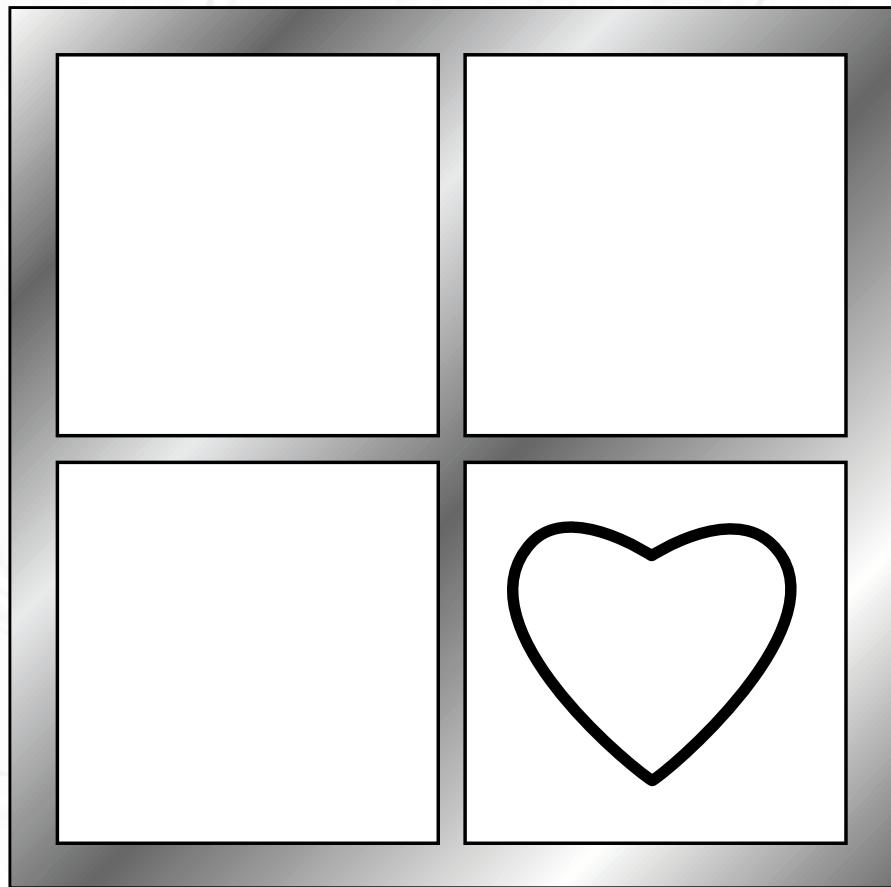
Write a caption: \_\_\_\_\_  
\_\_\_\_\_

Name \_\_\_\_\_

## **Line Up, Please**

### **Directions**

- Each column must have each shape.
- Each row must have each shape.

*The answer is on page 67.*

### **Guess the Picture**

What is this picture? \_\_\_\_\_

Write a caption: \_\_\_\_\_  
\_\_\_\_\_

## Tails of the Sea

### Directions

- Each column must have each shape.
- Each row must have each shape.



A large square containing a black-outlined smiley face with two dots for eyes and a curved line for a smile.	



*The answer is on page 67.*

### Guess the Picture

What is this picture? \_\_\_\_\_

Write a caption: \_\_\_\_\_  
\_\_\_\_\_

## **Medium Puzzles**

### **Shapes, Shapes, Everywhere!**



## Five Sides for School

### Directions

- Every mini-grid must have each shape.
- Every column must have each shape.
- Every row must have each shape.



<input type="text"/>	<input type="text"/>

*The answer is on page 67.*



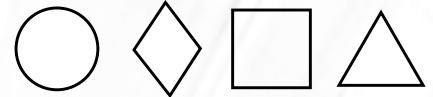
Drivers slow their cars  
when they see this sign.

Name \_\_\_\_\_

## Wrong Way Rectangle

### Directions

- Every mini-grid must have each shape.
- Every column must have each shape.
- Every row must have each shape.



		○	
	□		
□		◇	○
△	◇		□
○		△	◇

**WRONG  
WAY**

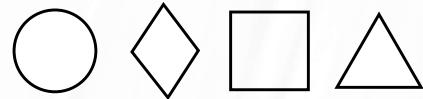
*The answer is on page 67.*

Oops! Don't go that way!

## Choo! Choo! Circle

### Directions

- Every mini-grid must have each shape.
- Every column must have each shape.
- Every row must have each shape.



		◇
△	□	
	○	
□		
◇	○	
△		

*The answer is on page 67.*



Be careful around  
railroad tracks.

Name \_\_\_\_\_

## Upside-Down Triangle

### Directions

- Every mini-grid must have each shape.
- Every column must have each shape.
- Every row must have each shape.




The answer is on page 68.

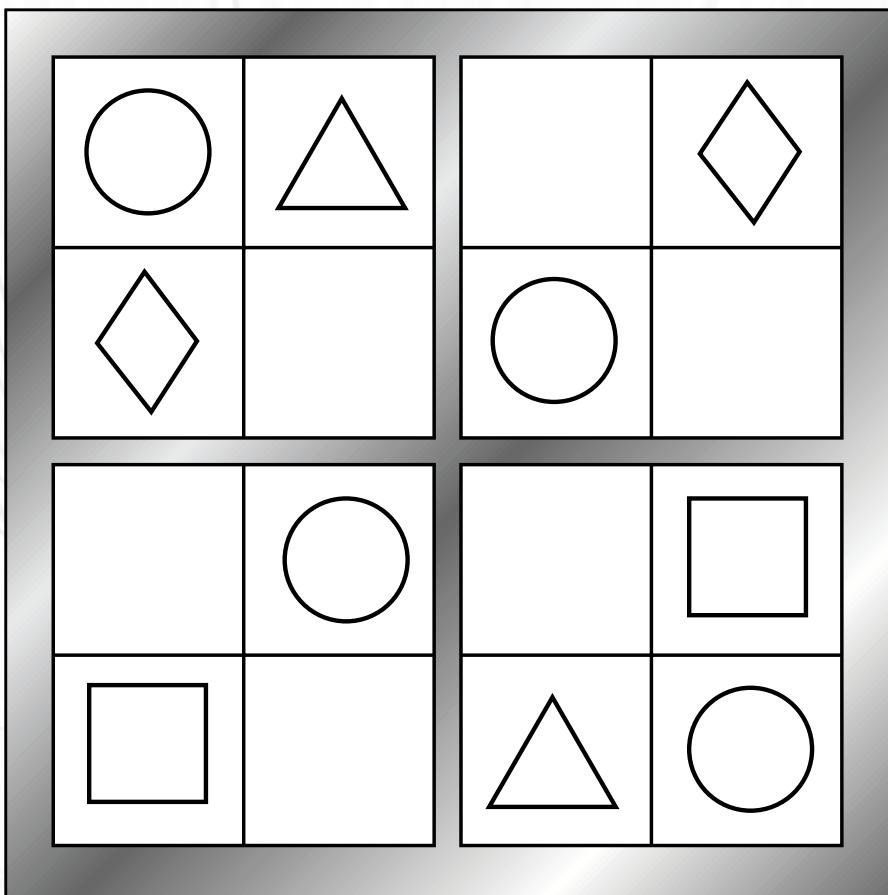


The word *yield* means to let someone else go first.

# **Octa-Gone**

## Directions

- Every mini-grid must have each shape.
  - Every column must have each shape.
  - Every row must have each shape.



*The answer is on page 68.*



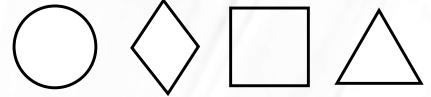
How many stop signs do you see in one day?

Name \_\_\_\_\_

## Soccer Shapes

### Directions

- Every mini-grid must have each shape.
- Every column must have each shape.
- Every row must have each shape.




What shapes do you see on this ball?



Soccer balls have 32 panels.  
They are pentagons and hexagons.

*The answer is on page 68.*

## Knocking Down the Dominoes

### Directions

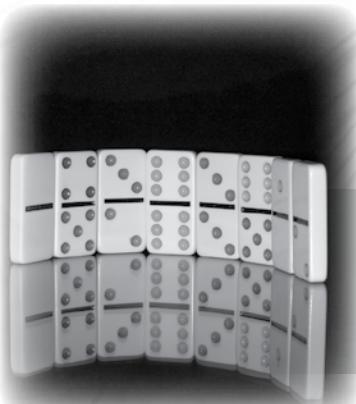
- Every mini-grid must have each shape.
- Every column must have each shape.
- Every row must have each shape.



○	
□	◇
△	□
○	

These dominoes  
are rectangles with  
circles on them.

*The answer is on page 68.*



Dominoes were invented about 900 years ago. The first dominoes were made from animal bones.

Name \_\_\_\_\_

## Circles Inside Circles

### Directions

- Every mini-grid must have each shape.
- Every column must have each shape.
- Every row must have each shape.




Are you dizzy when you look at this?



The answer is on page 68.

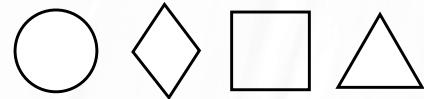
Write your own fun fact: \_\_\_\_\_

\_\_\_\_\_

## Sailing Triangles

### Directions

- Every mini-grid must have each shape.
- Every column must have each shape.
- Every row must have each shape.



		○
□	◇	
	○	
◇		
		○

Sailboats have triangular sails.



People used to use animal skins for boats and rafts.

*The answer is on page 68.*

Name \_\_\_\_\_

## Shaping the Sky

### Directions

- Every mini-grid must have each shape.
- Every column must have each shape.
- Every row must have each shape.




Skylights let in beautiful light.



*The answer is on page 69.*

Write your own fun fact: \_\_\_\_\_

\_\_\_\_\_

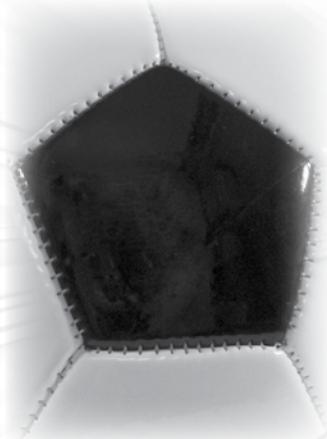
**Run! Kick!****Directions**

- Every mini-grid must have each shape.
- Every column must have each shape.
- Every row must have each shape.



A 4x4 grid divided into four 2x2 mini-grids. The shapes are placed as follows:

Row\Col	1	2	3	4
1	□			
2			◇	
3		△	□	
4			◇	

*The answer is on page 69.***Guess the Picture**

What is this picture? \_\_\_\_\_

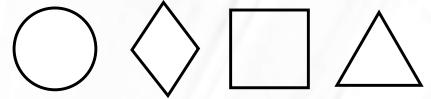
Write a caption: \_\_\_\_\_  
\_\_\_\_\_

Name \_\_\_\_\_

## Double Dots

### Directions

- Every mini-grid must have each shape.
- Every column must have each shape.
- Every row must have each shape.






The answer is on page 69.

### Guess the Picture

What is this picture? \_\_\_\_\_

Write a caption: \_\_\_\_\_

## Toot! Toot!

### Directions

- Every mini-grid must have each shape.
- Every column must have each shape.
- Every row must have each shape.






*The answer is on page 69.*

### Guess the Picture

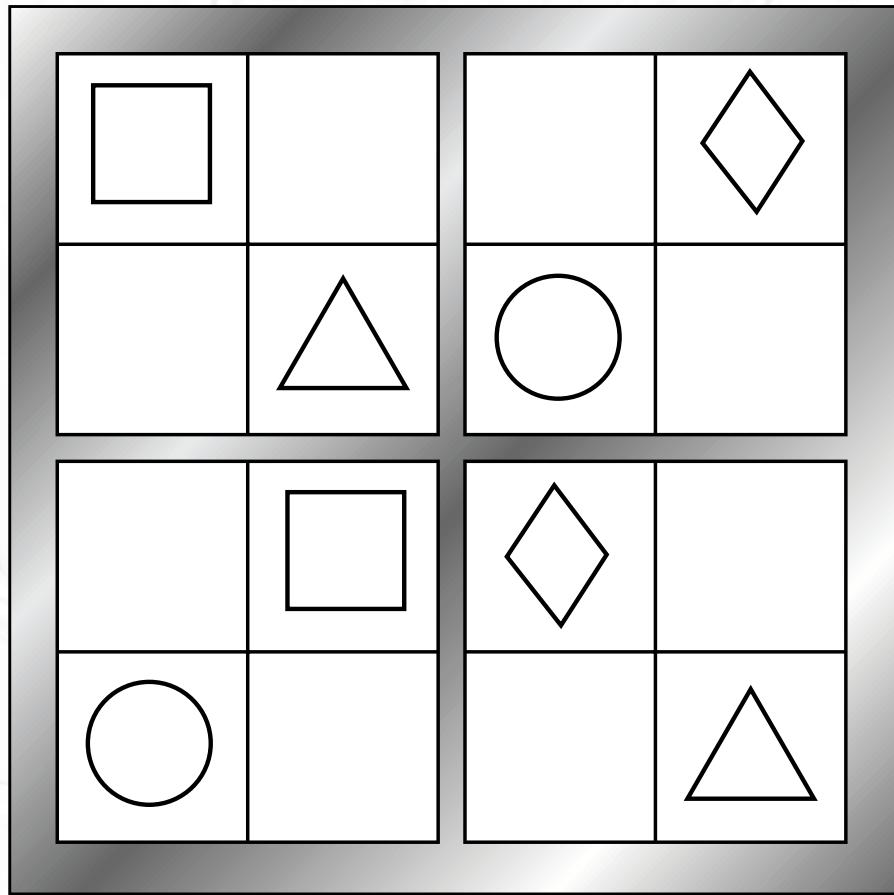
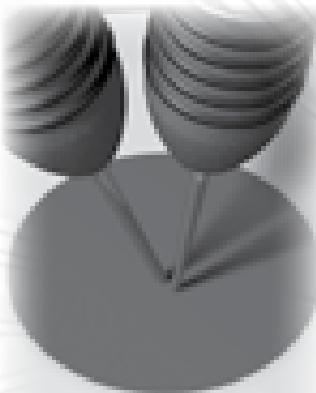
What is this picture? \_\_\_\_\_

Write a caption: \_\_\_\_\_  
\_\_\_\_\_

Name \_\_\_\_\_

**Bull's-eye!****Directions**

- Every mini-grid must have each shape.
- Every column must have each shape.
- Every row must have each shape.



The answer is on page 69.

**Guess the Picture**

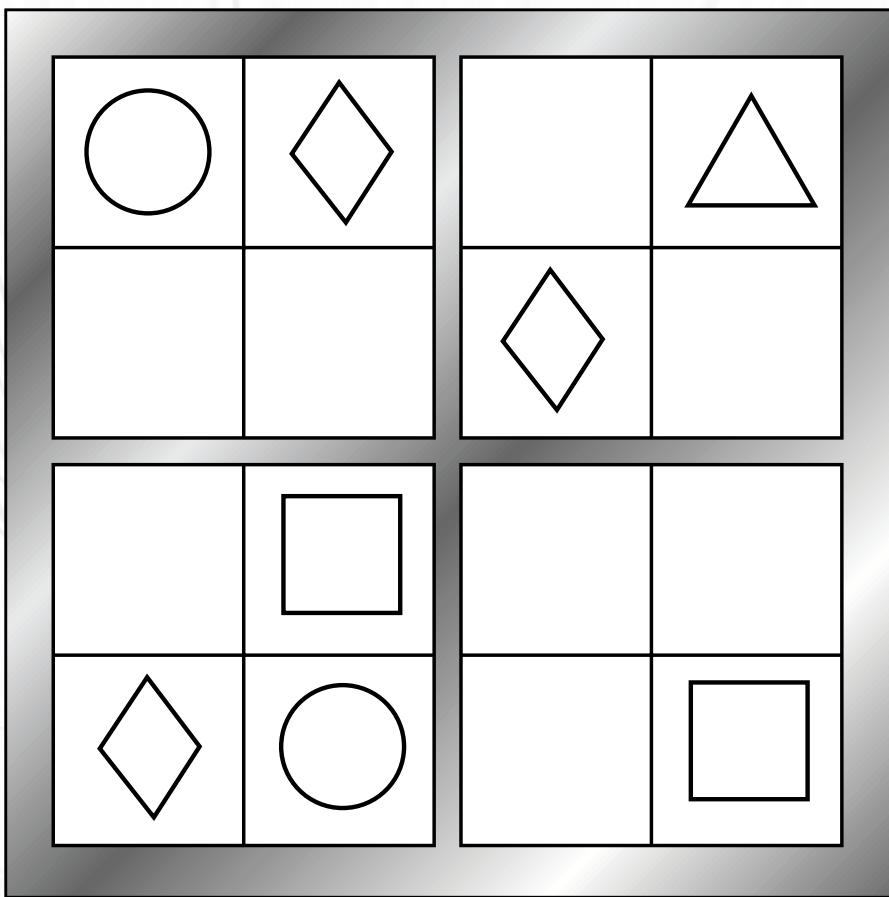
What is this picture? \_\_\_\_\_

Write a caption: \_\_\_\_\_  
\_\_\_\_\_

# Just Floating Along

## Directions

- Every mini-grid must have each shape.
  - Every column must have each shape.
  - Every row must have each shape.



*The answer is on page 69.*

## Guess the Picture

What is this picture? \_\_\_\_\_

Write a caption: \_\_\_\_\_

## **The United States of America**



## Our Capitol Building

### Directions

- Every mini-grid must have the numbers 1–4.
- Every column must have the numbers 1–4.
- Every row must have the numbers 1–4.

4		
	1	
		2
	4	
	4	2
1		1
		3
		4



Laws are made  
in this building.

*The answer is on page 70.*

## Bridging the Water

### Directions

- Every mini-grid must have the numbers 1–4.
- Every column must have the numbers 1–4.
- Every row must have the numbers 1–4.

3			4		
1			3		
	1			3	
2					4



The Golden Gate  
Bridge is orangey-red.

*The answer is on page 70.*

## Winning World War II

### Directions

- Every mini-grid must have the numbers 1–4.
- Every column must have the numbers 1–4.
- Every row must have the numbers 1–4.

	4		1	
3			2	
	3	2		
1				4

*The answer is on page 70.*



The men at Iwo Jima  
were very brave.

Name \_\_\_\_\_

## Hard—Puzzle 34

# Symbols of the United States

### Directions

- Every mini-grid must have the numbers 1–4.
- Every column must have the numbers 1–4.
- Every row must have the numbers 1–4.

2	1	3	
	3		
3			2
	2	4	



The bald eagle and the flag are symbols of our country.

*The answer is on page 70.*

## Faces of Presidents

### Directions

- Every mini-grid must have the numbers 1–4.
- Every column must have the numbers 1–4.
- Every row must have the numbers 1–4.

			4
2			1
		2	
		4	
	1		2
		2	3

*The answer is on page 70.*



There are four presidents  
on Mount Rushmore.

## Which House?

### Directions

- Every mini-grid must have the numbers 1–4.
- Every column must have the numbers 1–4.
- Every row must have the numbers 1–4.

3			2
	2	3	
	3	4	1
			3

The president and his family live in the White House.



*The answer is on page 70.*

George Washington never lived in the White House.

## Welcoming Others!

### Directions

- Every mini-grid must have the numbers 1–4.
- Every column must have the numbers 1–4.
- Every row must have the numbers 1–4.

2				1			
		1					
			2		4		
				3			2

The Statue of Liberty stands tall and proud.



*The answer is on page 71.*

The Statue of Liberty was a gift from the people of France.

**M-i-ss-i-ss-i-pp-i****Directions**

- Every mini-grid must have the numbers 1–4.
- Every column must have the numbers 1–4.
- Every row must have the numbers 1–4.

			1
	1	4	
1			
		3	
3	2		

Many boats use the big Mississippi River.



*The answer is on page 71.*

Mark Twain said the Mississippi River is “a wonderful book with a new story to tell every day.”

## Ringing in Freedom

### Directions

- Every mini-grid must have the numbers 1–4.
- Every column must have the numbers 1–4.
- Every row must have the numbers 1–4.

3			
		2	
1	4		

The Liberty Bell is in Philadelphia.



*The answer is on page 71.*

Write your own fun fact: \_\_\_\_\_  
\_\_\_\_\_

Name \_\_\_\_\_

## Hard—Puzzle 40

### The Big Hole in the Ground

#### Directions

- Every mini-grid must have the numbers 1–4.
- Every column must have the numbers 1–4.
- Every row must have the numbers 1–4.

1			4		
			2		
		3	1	4	
		1			

Have you ever seen  
the Grand Canyon?



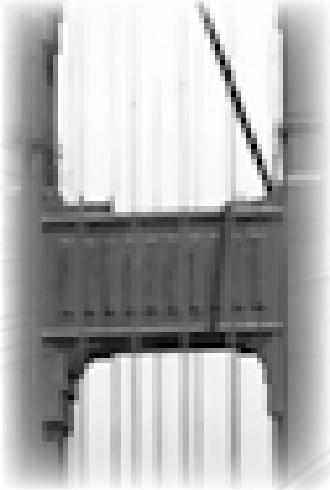
*The answer is on page 71.*

Write your own fun fact: \_\_\_\_\_

## Gateway to Gold Country

### Directions

- Every mini-grid must have the numbers 1–4.
- Every column must have the numbers 1–4.
- Every row must have the numbers 1–4.



2			
	4		4
	4	3	
		2	
			3

The answer is on page 71.

### Guess the Picture

What is this picture? \_\_\_\_\_

Write a caption: \_\_\_\_\_  
\_\_\_\_\_

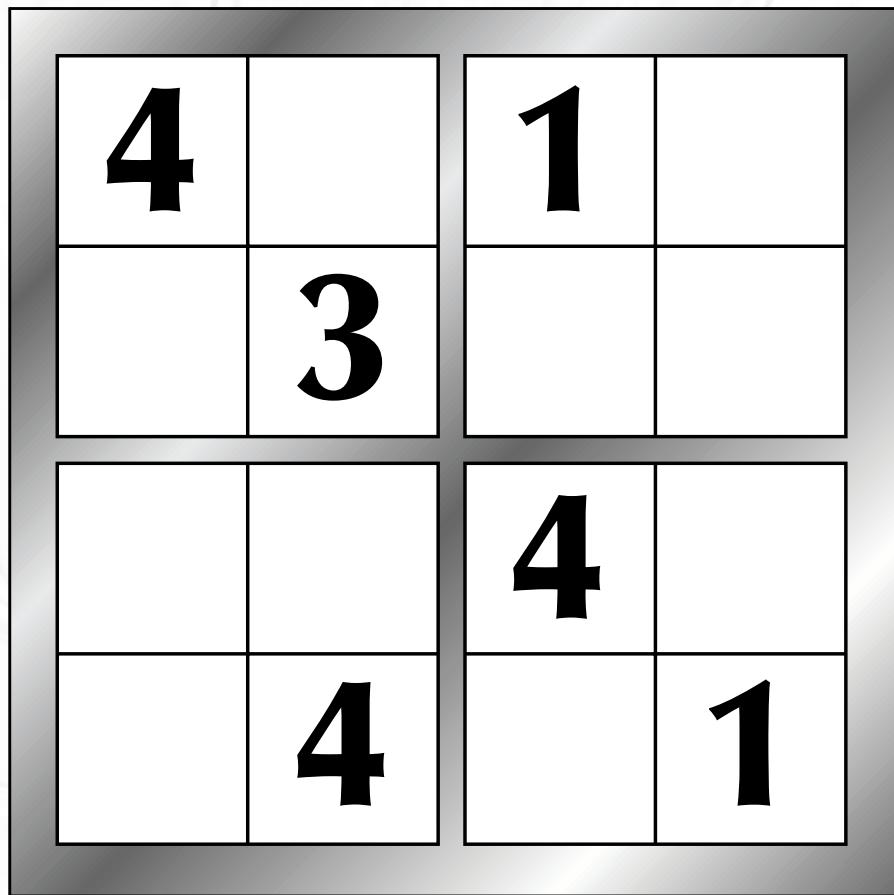
Name \_\_\_\_\_

## Hard—Puzzle 42

### A Light to the Nations

#### Directions

- Every mini-grid must have the numbers 1–4.
- Every column must have the numbers 1–4.
- Every row must have the numbers 1–4.



The answer is on page 71.

#### Guess the Picture

What is this picture? \_\_\_\_\_

Write a caption: \_\_\_\_\_  
\_\_\_\_\_

## An Eye to Freedom

### Directions

- Every mini-grid must have the numbers 1–4.
- Every column must have the numbers 1–4.
- Every row must have the numbers 1–4.

2			1
		3	
	2		4
1			



*The answer is on page 72.*

### Guess the Picture

What is this picture? \_\_\_\_\_

Write a caption: \_\_\_\_\_  
\_\_\_\_\_

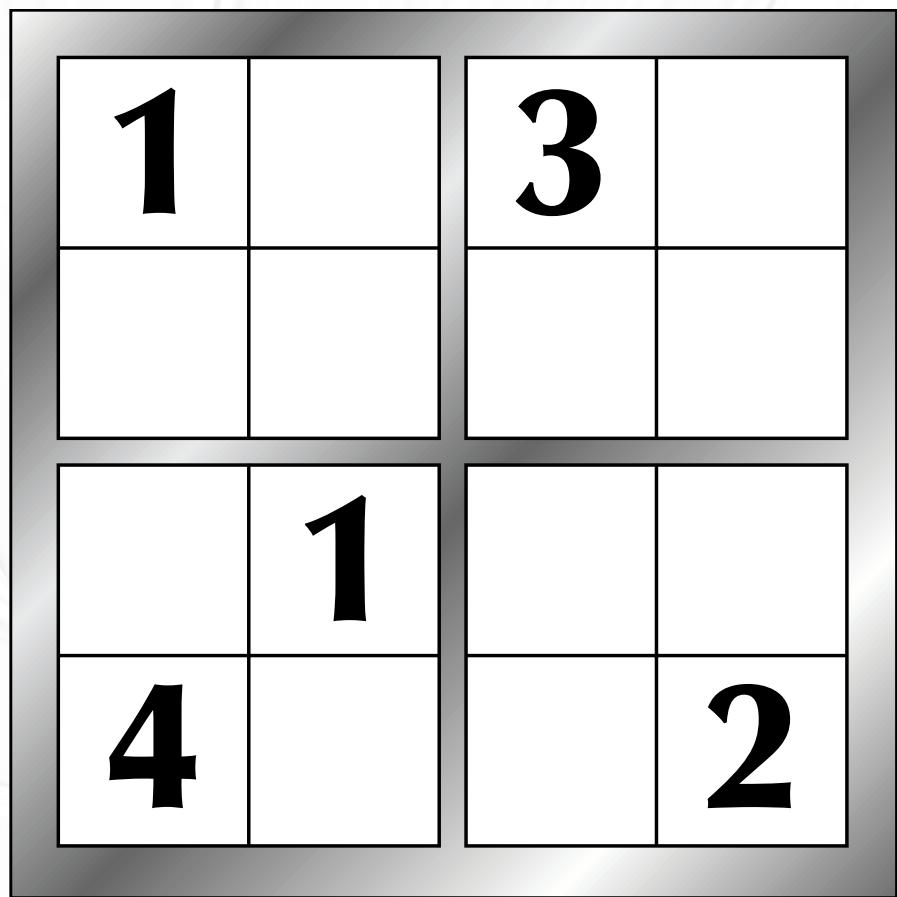
Name \_\_\_\_\_

## Hard—Puzzle 44

# Old Glory

### Directions

- Every mini-grid must have the numbers 1–4.
- Every column must have the numbers 1–4.
- Every row must have the numbers 1–4.



The answer is on page 72.

### Guess the Picture

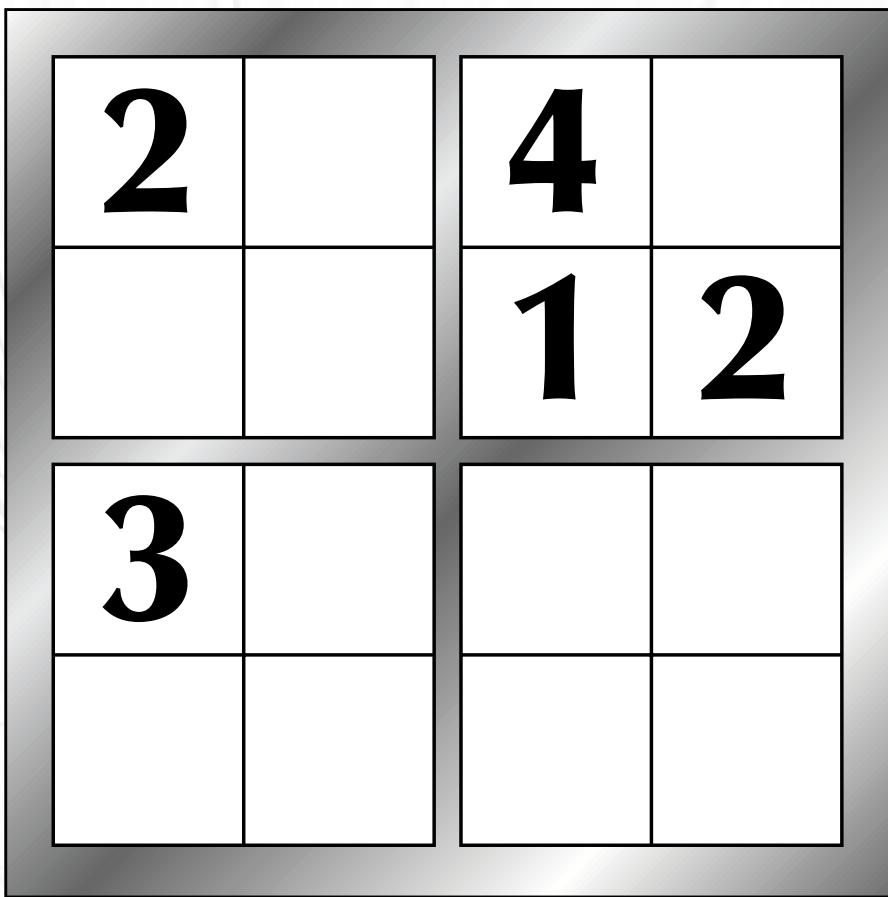
What is this picture? \_\_\_\_\_

Write a caption: \_\_\_\_\_  
\_\_\_\_\_

## A River Runs Through It

### Directions

- Every mini-grid must have the numbers 1–4.
- Every column must have the numbers 1–4.
- Every row must have the numbers 1–4.



*The answer is on page 72.*

### Guess the Picture

What is this picture? \_\_\_\_\_

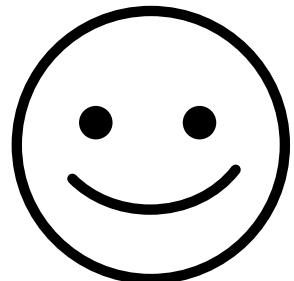
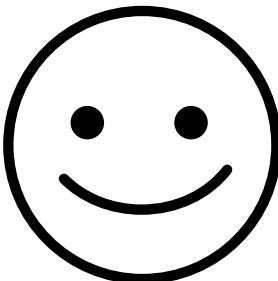
Write a caption: \_\_\_\_\_  
\_\_\_\_\_

# **Templates**

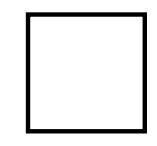
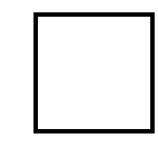
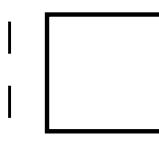
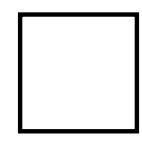
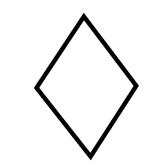
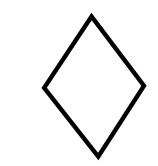
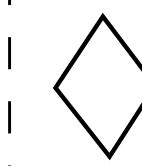
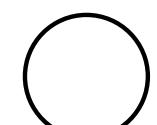
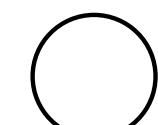
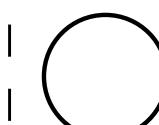
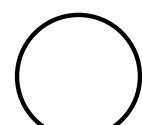
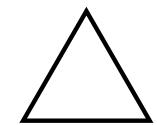
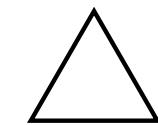
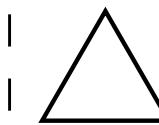
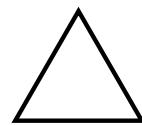
## **Picture Cut Outs**

**Directions:** Cut out the boxes.

### **Easy Puzzles**



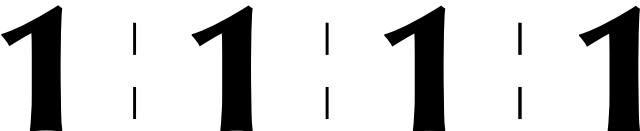
### **Medium Puzzles**



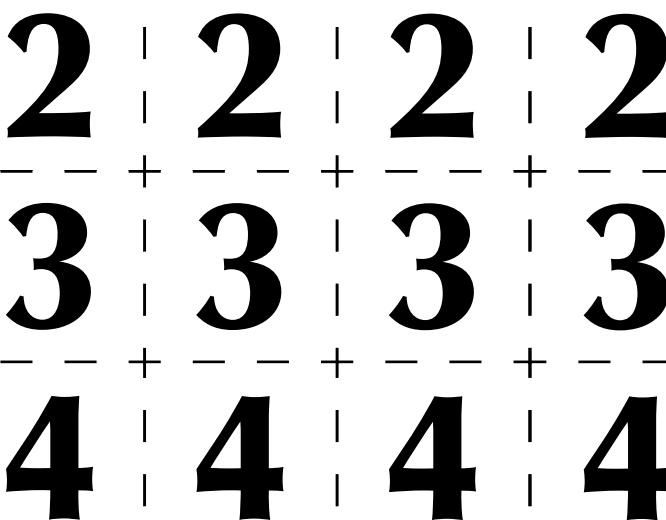
# Templates *(cont.)*

### Number Cut Outs

**Directions:** Cut out the boxes.



### Hard Puzzles

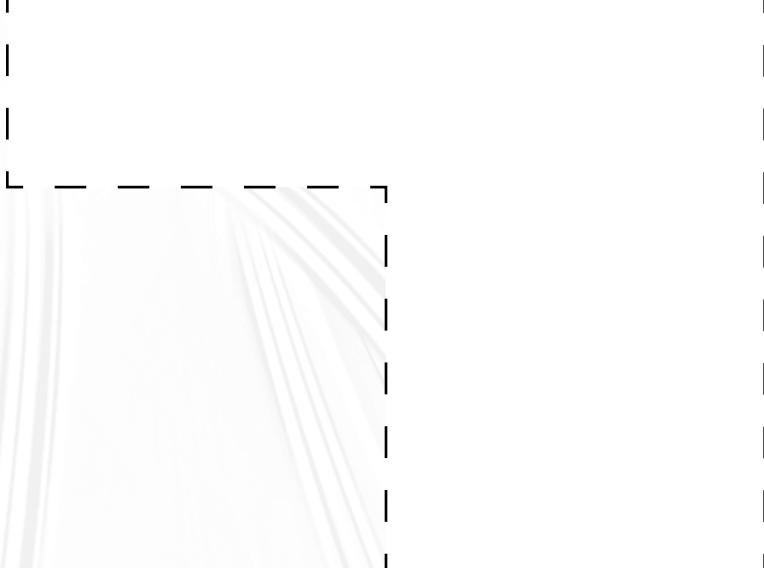


### Puzzle Blocker 1

**Directions:** Cut out the puzzle blocker.



### For Easy, Medium, and Hard Puzzles

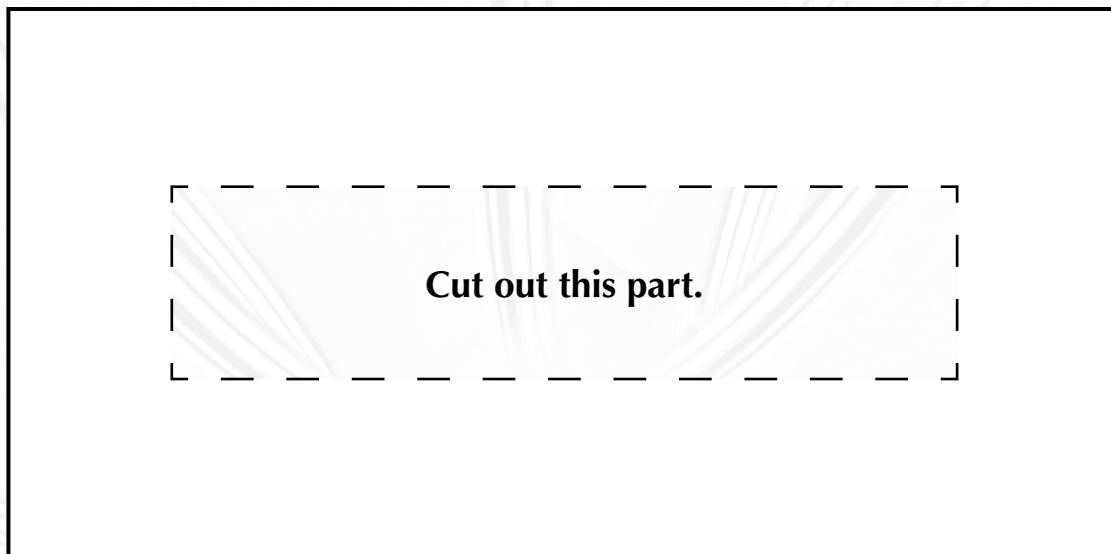


## **Templates** (cont.)

### **Puzzle Blocker 2**

**Directions:** Cut out the big rectangle. Then make a window by cutting along the dotted line.

#### **For Medium and Hard Puzzles**

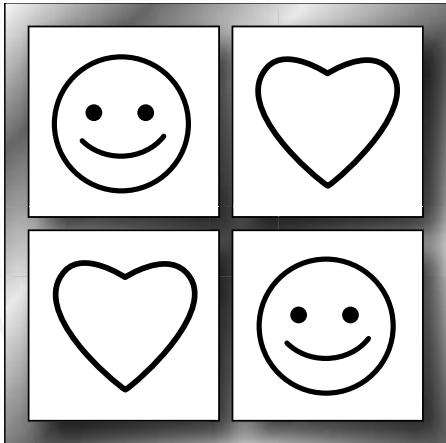


# Photograph Sources

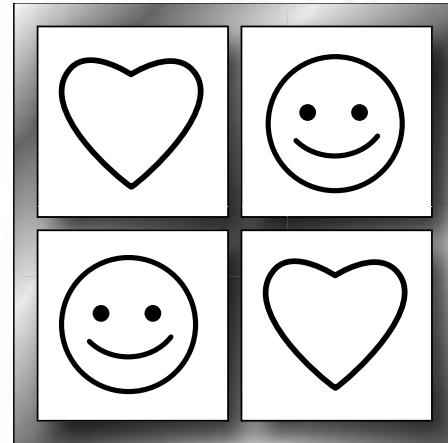
Page	Puzzle Title	Photograph Source
14	Panda, Panda	Mike Flippo/Shutterstock, Inc.
15	Beautiful Birds	James Steidl/Shutterstock, Inc.
16	Little Newt	Stephen Bonk/Shutterstock, Inc.
17	Diving Turtle	David McKee/Shutterstock, Inc.
18	School of Fish	Jim Lipschultz/Shutterstock, Inc.
19	Giraffe Family	Kondrachov Vladimir/Shutterstock, Inc.
20	Penguins in a Line	Jeff Goldman/Shutterstock, Inc.
21	Funny Frogs	Freerk Brouwer/Shutterstock, Inc.
22	Cranky Crocodile	Ian Scott/Shutterstock, Inc.
23	Shark!	Ian Scott/Shutterstock, Inc.
24	Shady Spots	Kondrachov Vladimir/Shutterstock, Inc.
25	Light as a Feather	James Steidl/Shutterstock, Inc.
26	Watch Out!	Ian Scott/Shutterstock, Inc.
27	Line Up, Please	Jeff Goldman/Shutterstock, Inc.
28	Tails of the Sea	Jim Lipschultz/Shutterstock, Inc.
30	Five Sides for School	Carlos E. Santa Maria/Shutterstock, Inc.
31	Wrong Way Rectangle	VanHart/Shutterstock, Inc.
32	Choo! Choo! Circle	Carlos E. Santa Maria/Shutterstock, Inc.
33	Upside-Down Triangle	Carlos E. Santa Maria/Shutterstock, Inc.
34	Octa-Gone	Mark Aplet/Shutterstock, Inc.
35	Soccer Shapes	Dusty Cline/Shutterstock, Inc.
36	Knocking Down the Dominoes	Linda Muir/Shutterstock, Inc.
37	Circles Inside Circles	faberfoto/Shutterstock, Inc.
38	Sailing Triangles	Taiga/Shutterstock, Inc.
39	Shaping the Sky	Shi Yali/Shutterstock, Inc.
40	Run! Kick!	Dusty Cline/Shutterstock, Inc.
41	Double Dots	Linda Muir/Shutterstock, Inc.
42	Toot! Toot!	Carlos E. Santa Maria/Shutterstock, Inc.
43	Bull's-eye!	faberfoto/Shutterstock, Inc.
44	Just Floating Along	Taiga/Shutterstock, Inc.
46	Our Capitol Building	VisualField/Shutterstock, Inc.
47	Bridging the Water	Albo/Shutterstock, Inc.
48	Winning World War II	Michael Smith/Shutterstock, Inc.
49	Symbols of the United States	Kurt De Bryn/Shutterstock, Inc.
50	Faces of Presidents	John Wollwerth/Shutterstock, Inc.
51	Which House?	pmphoto/Shutterstock, Inc.
52	Welcoming Others!	Razvan Toma/Shutterstock, Inc.
53	M-i-ss-i-ss-i-pp-i	Robert Kyllo/Shutterstock, Inc.
54	Ringing in Freedom	pmphoto/Shutterstock, Inc.
55	The Big Hole in the Ground	Oksana Perkins/Shutterstock, Inc.
56	Gateway to Gold Country	Albo/Shutterstock, Inc.
57	A Light to the Nations	Razvan Toma/Shutterstock, Inc.
58	An Eye to Freedom	John Wollwerth/Shutterstock, Inc.
59	Old Glory	Kurt De Bryn/Shutterstock, Inc.
60	A River Runs Through It	Oksana Perkins/Shutterstock, Inc.

# **Answer Key**

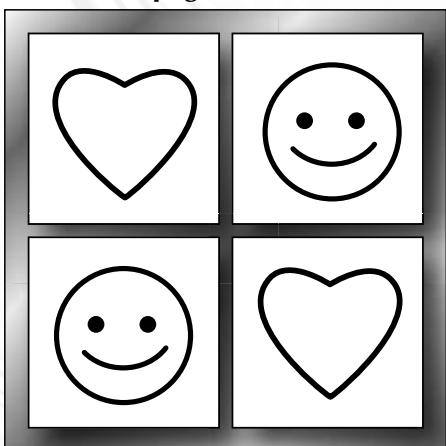
Panda, Panda (page 14)



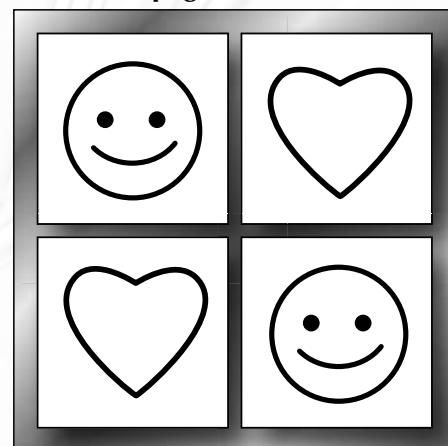
Diving Turtle (page 17)



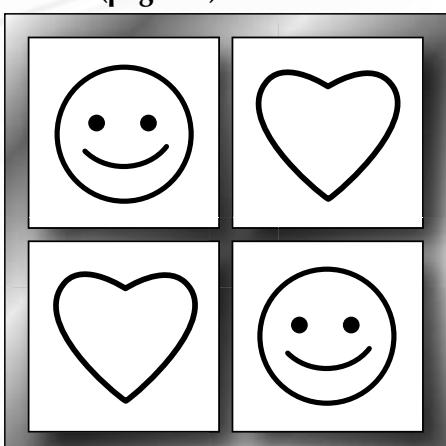
Beautiful Birds (page 15)



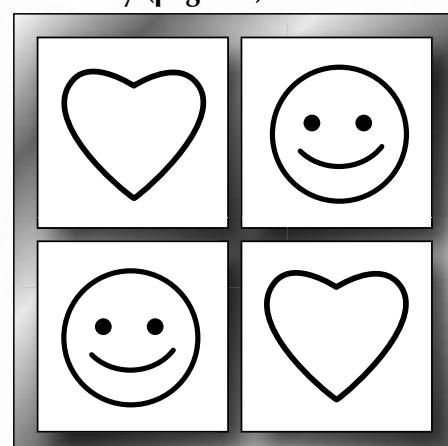
School of Fish (page 18)



Little Newt (page 16)

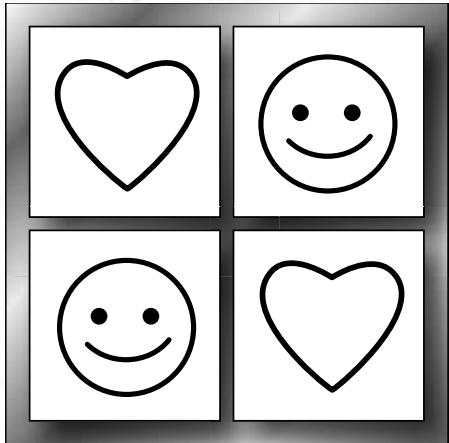


Giraffe Family (page 19)

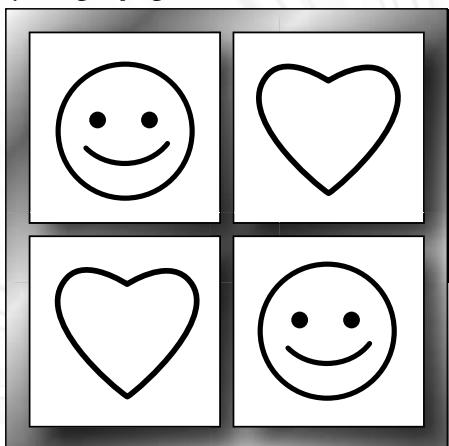


# Answer Key (cont.)

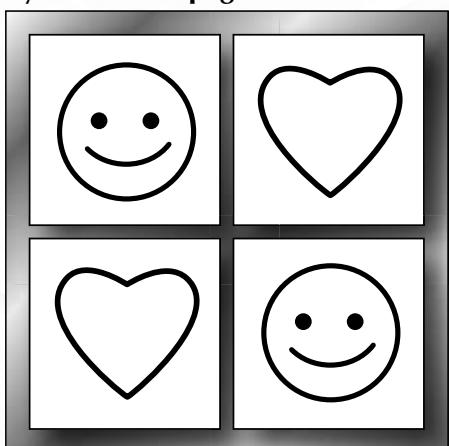
Penguins in a Line (page 20)



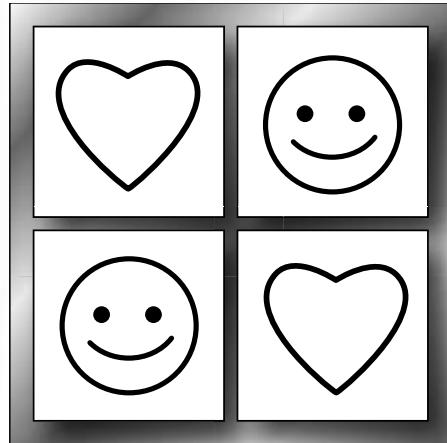
Funny Frogs (page 21)



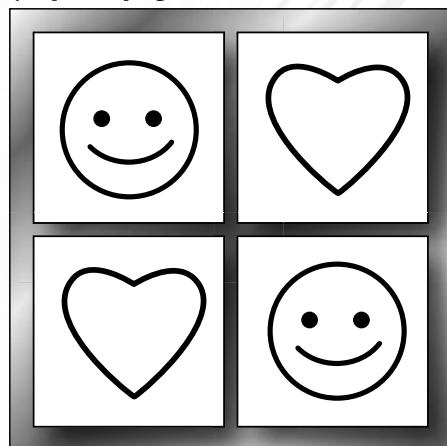
Cranky Crocodile (page 22)



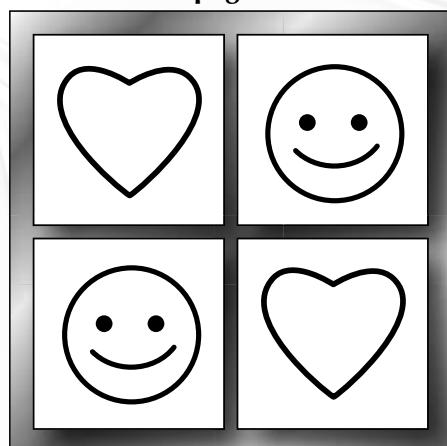
Shark! (page 23)



Shady Spots (page 24)

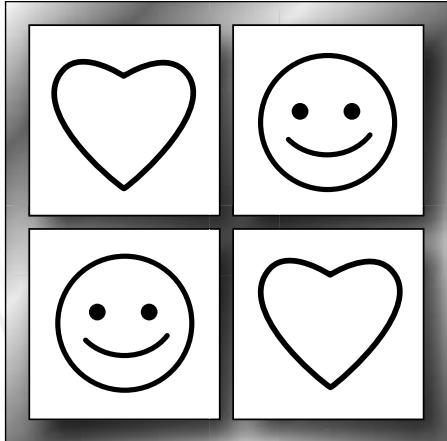


Light as a Feather (page 25)

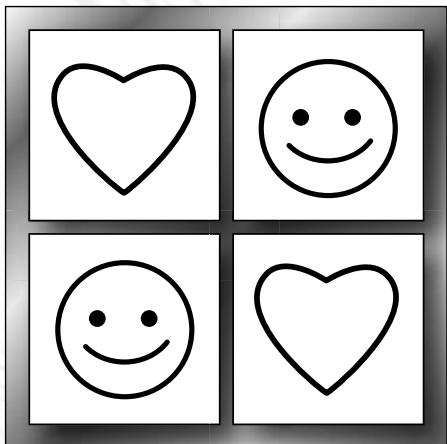


# **Answer Key** (cont.)

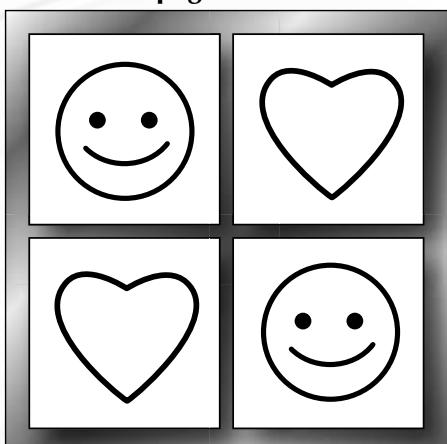
**Watch Out! (page 26)**



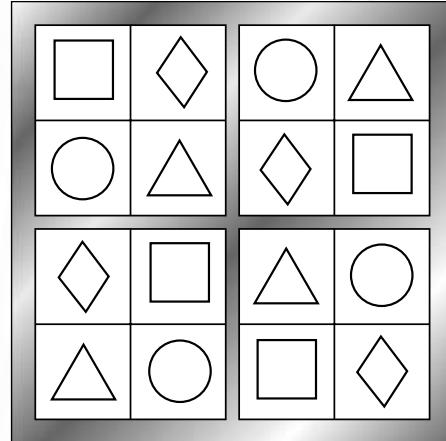
**Line Up, Please (page 27)**



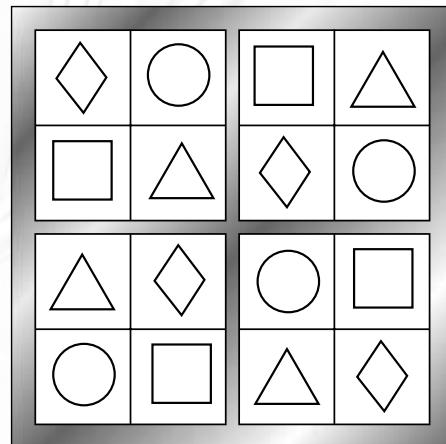
**Tails of the Sea (page 28)**



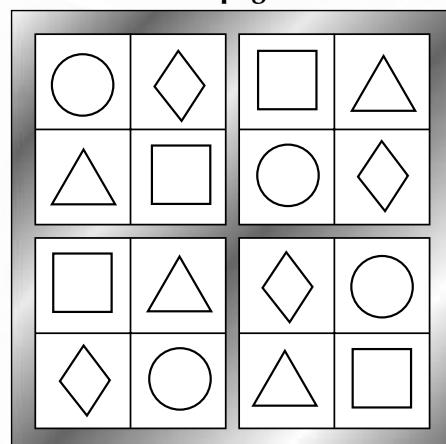
**Five Sides for School (page 30)**



**Wrong Way Rectangle (page 31)**

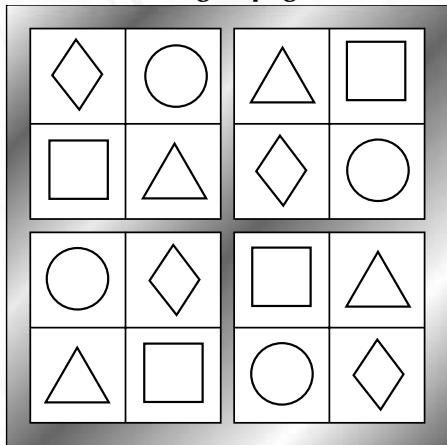


**Choo! Choo! Circle (page 32)**

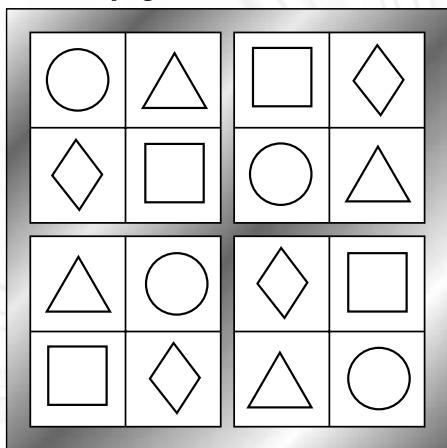


# Answer Key (cont.)

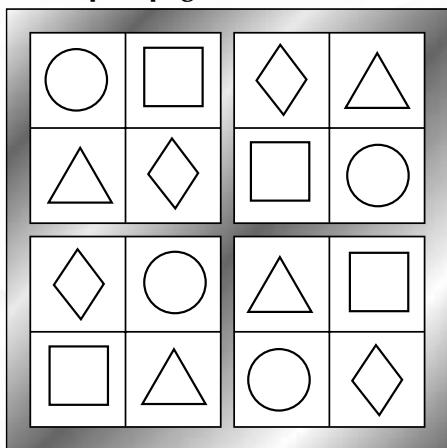
Upside-Down Triangle (page 33)



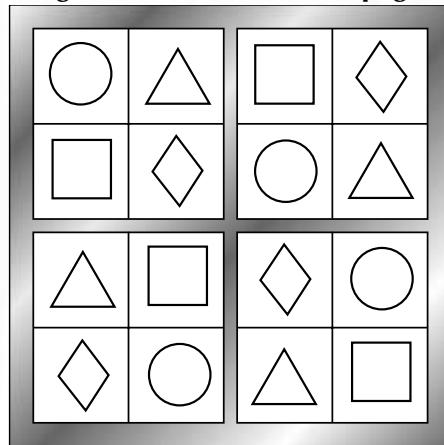
Octa-Gone (page 34)



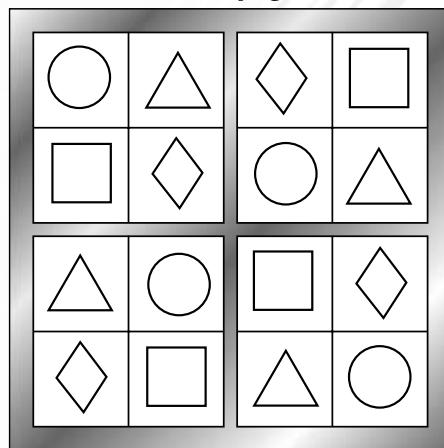
Soccer Shapes (page 35)



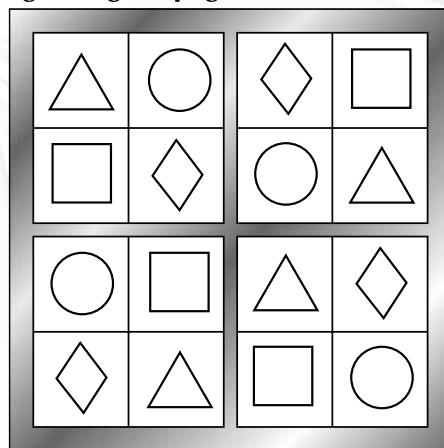
Knocking Down the Dominoes (page 36)



Circles Inside Circles (page 37)

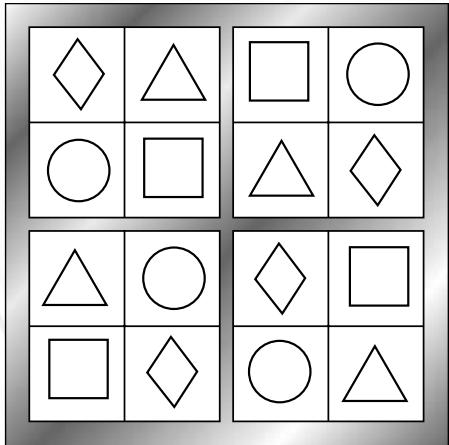


Sailing Triangles (page 38)

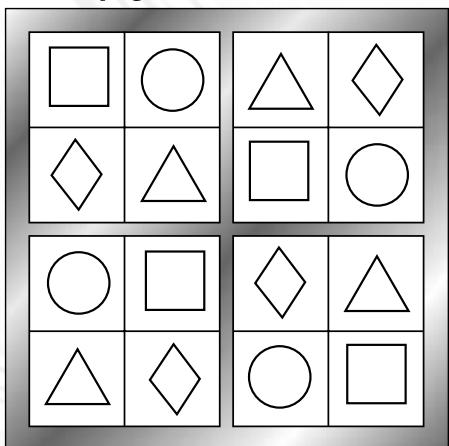


# Answer Key (cont.)

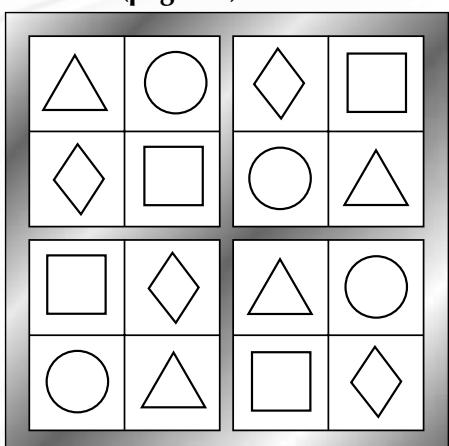
Shaping the Sky (page 39)



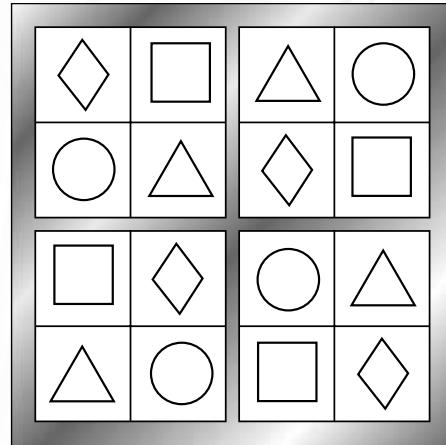
Run! Kick! (page 40)



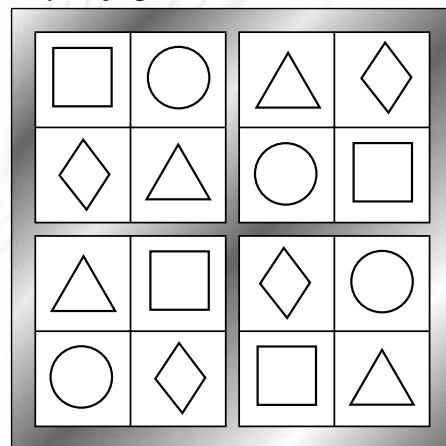
Double Dots (page 41)



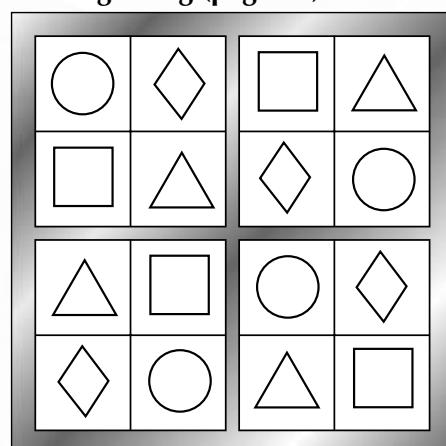
Toot! Toot! (page 42)



Bull's-eye! (page 43)

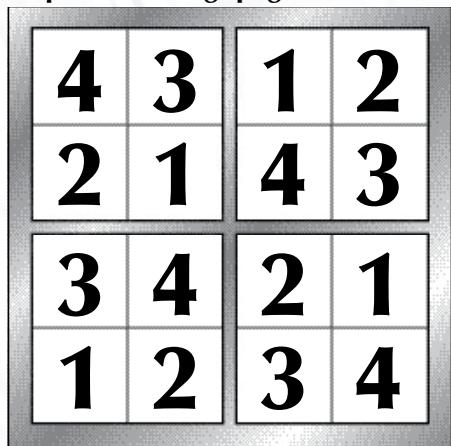


Just Floating Along (page 44)

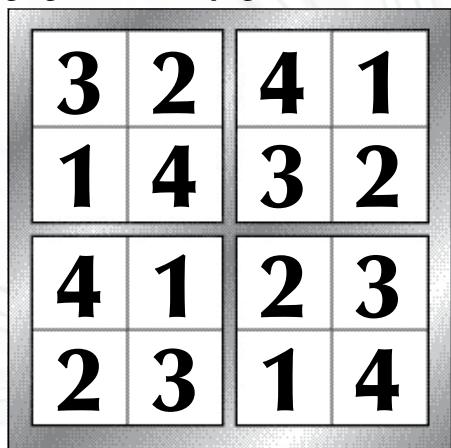


# Answer Key (cont.)

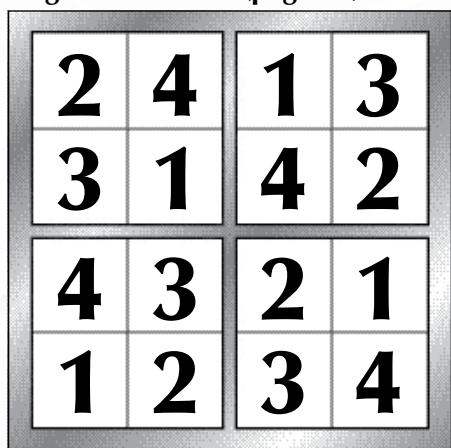
Our Capitol Building (page 46)



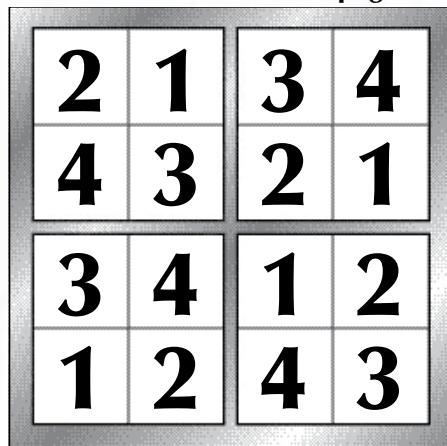
Bridging the Water (page 47)



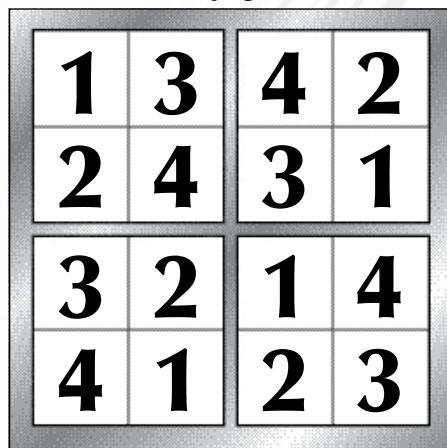
Winning World War II (page 48)



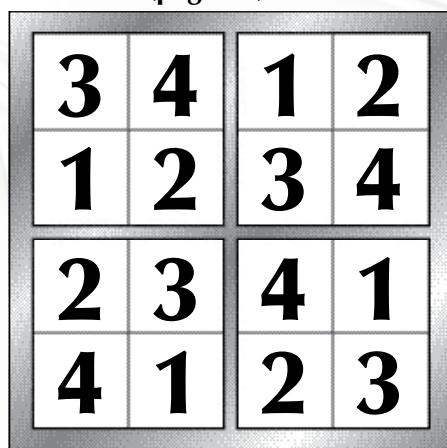
Symbols of the United States (page 49)



Faces of Presidents (page 50)



Which House? (page 51)



# **Answer Key** (cont.)

**Welcoming Others** (page 52)

2	4	3	1
3	1	2	4
1	2	4	3
4	3	1	2

**M-i-ss-i-ss-i-pp-i** (page 53)

4	3	2	1
2	1	4	3
1	4	3	2
3	2	1	4

**Ringing in Freedom** (page 54)

3	1	2	4
4	2	1	3
2	3	4	1
1	4	3	2

**The Big Hole in the Ground** (page 55)

1	2	4	3
3	4	2	1
2	3	1	4
4	1	3	2

**Gateway to Gold Country** (page 56)

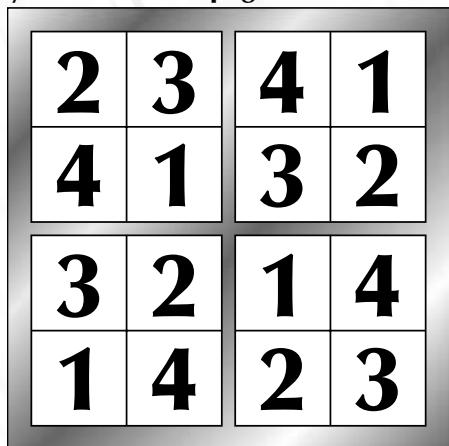
2	3	1	4
1	4	3	2
3	2	4	1
4	1	2	3

**A Light to the Nations** (page 57)

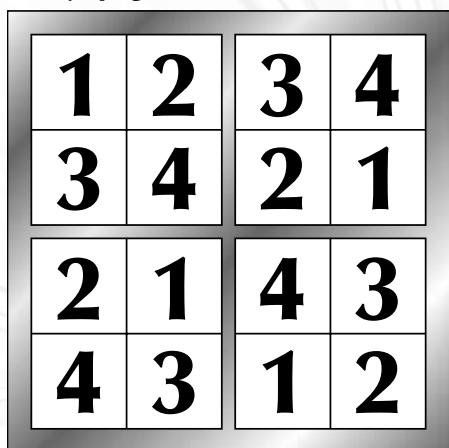
4	2	1	3
1	3	2	4
3	1	4	2
2	4	3	1

## **Answer Key** (cont.)

**An Eye to Freedom** (page 58)



**Old Glory** (page 59)



**A River Runs Through It** (page 60)

