PBS KIDS GO!

Cyberchase
Activity Book

INSIDE:
Math Puzzles,
Projects,
Games,
and More!

Watch CYBERCHASE on PBS KIDS GO!
pbskidsgo.org/cyberchase
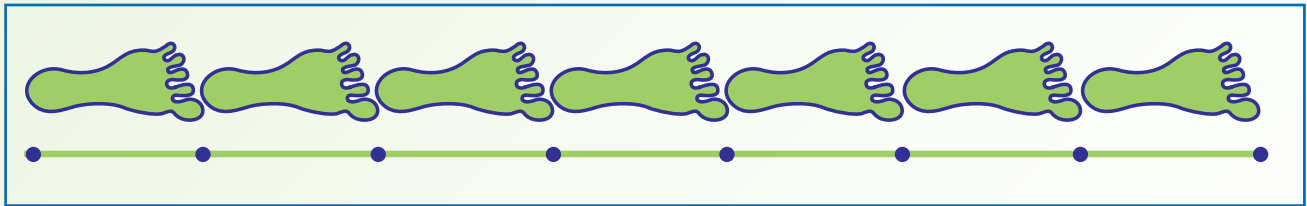
Bianca's Body Math

Did you know that for a lot of people, their foot is the same length as their forearm? Find out if it's true for you!

YOU NEED

piece of string (a little longer than your height)
black marker

DIRECTIONS

First, start at the end of your string and mark off seven of your foot-lengths.

Now use the string to measure the body parts listed below. Have a friend help. Be sure to measure from one black mark on the string to the next.

Measure	About how many foot lengths?
From wrist to elbow (forearm)	_____
Around widest part of your fist	_____
Around your forehead	_____
From head to toe	_____

Who Knew?

A person's height is often the same as his or her arm span (arms out to side, middle fingertip to middle fingertip). Is yours?
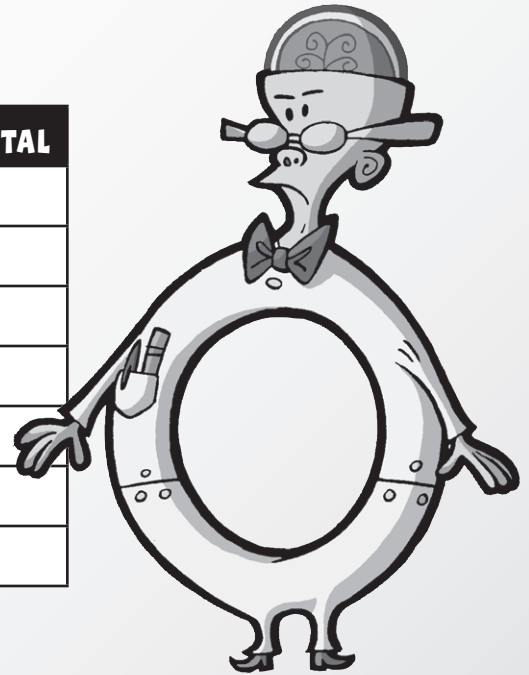
100 or Bust!

Think zero is a big nothing? Think again! Here is a game where zero can help you win—or make you lose.

YOU NEED

2 charts like the one below (one for you and one for a friend)
1 die

| ROUND	TENS	ONES	RUNNING TOTAL
ROUND 1			
ROUND 2			
ROUND 3			
ROUND 4			
ROUND 5			
ROUND 6			
ROUND 7			

DIRECTIONS

To play, players take turns rolling the die for seven rounds, filling in their charts after each turn. To fill in your chart, write the number rolled in either the tens or the ones column. Put a zero in the other column. Keep track of your running total. For example, if you roll a 6, you can write either
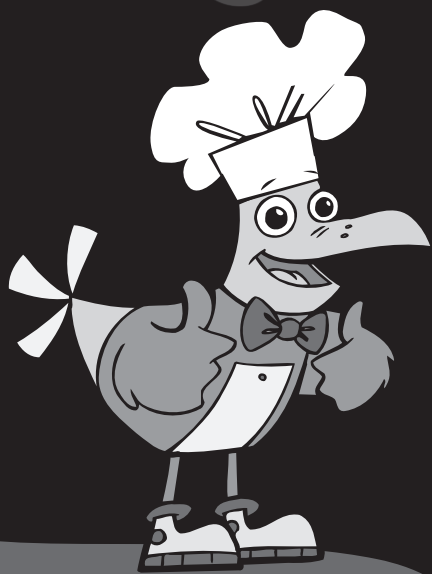
ROUND	TENS	ONES	RUNNING TOTAL
ROUND 1	0	6	6

or

ROUND	TENS	ONES	RUNNING TOTAL
ROUND 1	6	0	60
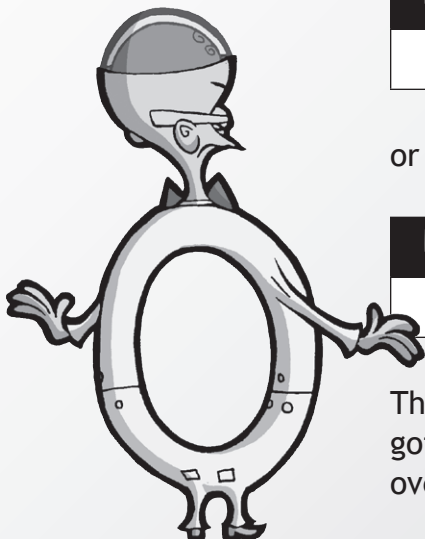
The winner is the player whose game total is closest to 100 without going over. Be careful! Use the tens column wisely, or you'll go over 100.

Digit's Cyber-Dough

Digit has a cool recipe for Cyber-Dough. It's easy to make, fun to play with—and it has Hacker stumped! The recipe tells exactly how much salt to use, but Hacker can't figure out how much flour, water and oil to add. Can you?

**Make Delete!**

Ooh, this looks like fun!

YOU NEED

- ☐ **salt**
  ¼ cup, or 4 tablespoons

- ☐ **flour**
  4 times the measure of salt

- ☐ **water**
  same as the measure of salt

- ☐ **vegetable oil**
  ½ the measure of salt

- ☐ **food color**
  (red, yellow, green, blue)

- ☐ **mixing bowl**
- ☐ **cookie sheet**
- ☐ **flat toothpicks**
- ☐ **large paper clip**
- ☐ **black marker**
- ☐ **rubber gloves**
- ☐ **apron**

(See back cover for the recipe amounts.)

1. In a bowl, mix the salt and flour. Add water SLOWLY, then the oil. Mush the mixture with your fingers until it feels like clay and makes a ball. (If dough is too sticky, add a little flour. Too stiff? Add a little water.)

2. Break off about half of the dough and set it aside. Add five drops of blue food color and one drop of green to the other half of the dough in the bowl. Work the color into the dough until smooth.

*BE CAREFUL: Food color may stain your fingers and clothes. Put on rubber gloves and an apron when mixing the colors.*
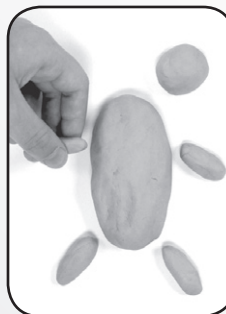
3. Make shapes for Delete's body. Make four small cylinders for his arms and legs, one large cylinder for his body, and one small ball for the front of his head as shown.
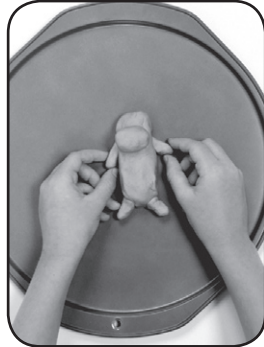
Want to hang up Delete? Bend a paper clip like this and stick the bottom into Delete's back before Step 4.

4
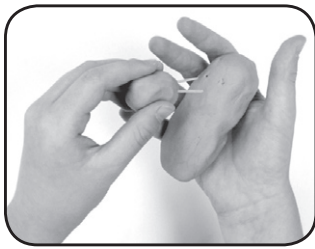
4. Use two half-toothpicks to attach the front of Delete's head to his body.

5. Attach the arms and legs by pressing them onto the body.

6. From the uncolored dough you set aside before, break off a piece the size of a golf ball. Break off two more pieces the size of marbles.

7. Color the balls with food color:

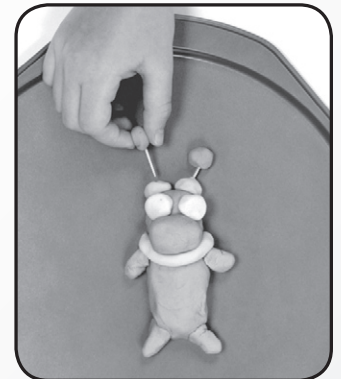2 drops yellow

3 drops yellow + 1 drop red

no food color

8. Use the yellow ball to make Delete's collar and the two antenna bases. Use the orange ball to make the two antenna ends. Use the uncolored ball to make his two eyes.

antenna ends
antenna bases
eyes
collar

9. Attach the collar and eyes. Use toothpicks to attach each antenna to its base.

10. Ask an adult to help you bake Delete. Bake him at 300° for 40 to 45 minutes, or until dry. Let cool. Use a black marker to add eyeballs, mouth, buttons, and boots.

Hey, what about me?

You can make Buzz!

Make a ball out of green dough for Buzz's body. Roll a snake from uncolored dough for lips. (Make the lips red with food color.) Add arms, legs, antennas, and eyes same as for Delete. Draw on details when dough is dry.

The Fine Number 9

Some kids use their fingers to add. But what about to multiply? Inez likes to use her fingers to multiply by 9. Here's how it works:

To multiply 4 times 9, she folds down the fourth finger from the left (to show the 4).

How does she read the answer? The tens are to the left of the folded finger and the ones are to the right. Hmm . . . 3 tens, 6 ones, and—check it out! The answer is 36! Now you try it.
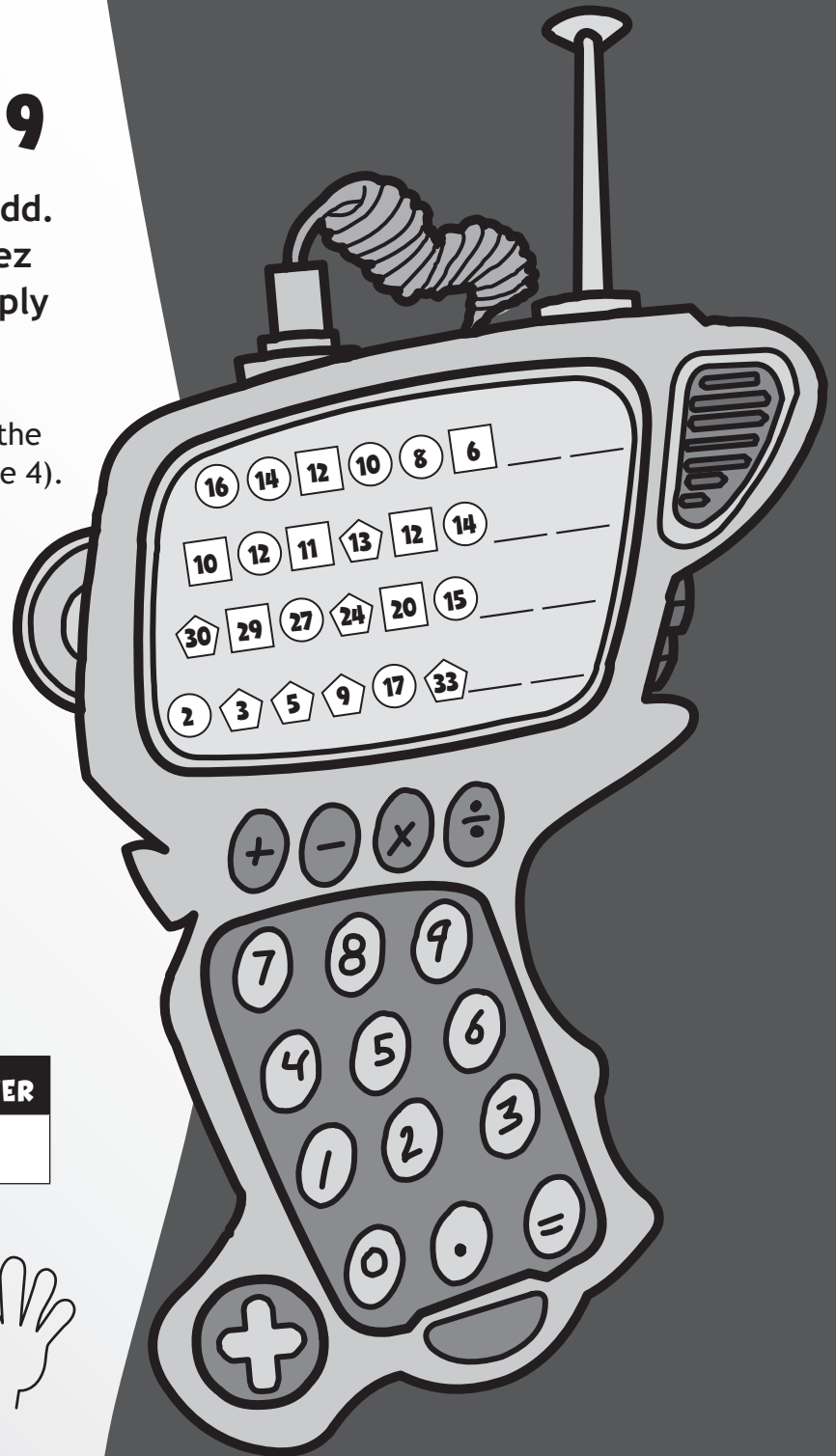
What's 5 times 9?

TENS	ONES	ANSWER

What's 7 times 9?

TENS	ONES	ANSWER

What's 9 times 9?

TENS	ONES	ANSWER

Patterns to the Rescue

Hacker has locked Motherboard's memory bank with a secret code, and Digit is stumped! Can you finish each pattern and help save Motherboard?

16 14 12 10 8 6 ___ ___

10 12 11 13 12 14 ___ ___

30 29 27 24 20 15 ___ ___

2 3 5 9 17 33 ___ ___

6

Who's Older?

Is Inez older than Creech? Is Matt older than Fluff? Find out when you read this graph!

Each dot on the graph marks a character's height and age. To find out who is older, measure the height of each character. Then match the height with a dot on the graph. When you have matched all the heights, can you tell who is older?
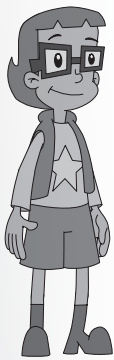
Inez	Fluff	Creech	Slider	TW	Matt

(See back cover for the answer.)

HEIGHT

AGE

Play Cyber-Sudoku!

The Poddles of Poddleville have their own special game. In this game, only Poddles with numbers **1**, **2**, **3**, and **4** can play. They each have to find a place in the box so they appear only once in each column, row, and box of four. Four of them are in position. Can you place the rest? Grab your pencil and give it a try!
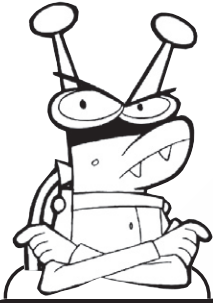
In this game, Poddles with numbers **1**, **2**, **3**, **4**, **5**, and **6** can play. They can appear only once in each column, row, and box of six. Are you up to the challenge?

(See back cover for the answers.)

Build a Better Bunny Copter

Delete invented this Bunny Copter. Can you improve his invention so it twirls faster?
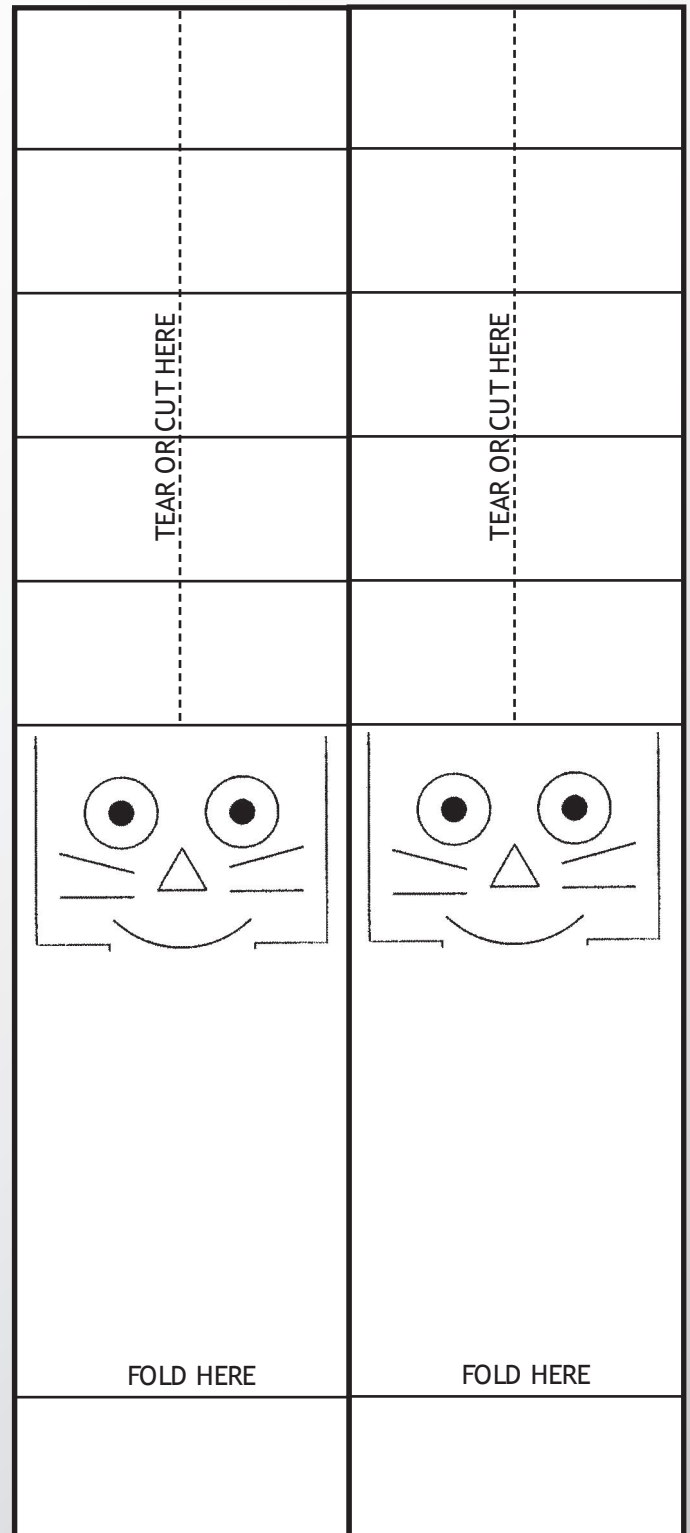
YOU NEED

Bunny Copter strips*
2 paper clips
crayons
scissors

DIRECTIONS

1. Color the bunny's faces, and cut out the strips.

2. Make Delete's invention! Starting at the top of a strip, count down two boxes. To make ears, cut along the dotted line to the solid line at the bottom of the second box. Fold one ear forward on the solid line. Fold the other back.

3. Make a place for Delete to ride. Fold up the bottom of the strip on the solid line. Attach Delete (a paper clip).

4. Test the invention! Hold up the copter and let it drop. How fast does it twirl before it hits the floor? Can you think of ways to change it so it twirls faster? What happens if you bend the ears the opposite way? Try another copter to test your ideas.

9

TEAR OR CUT HERE

TEAR OR CUT HERE

FOLD HERE

FOLD HERE
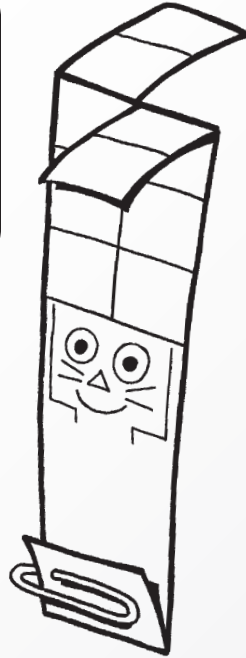
Dr. Marbles' Gotcha Game
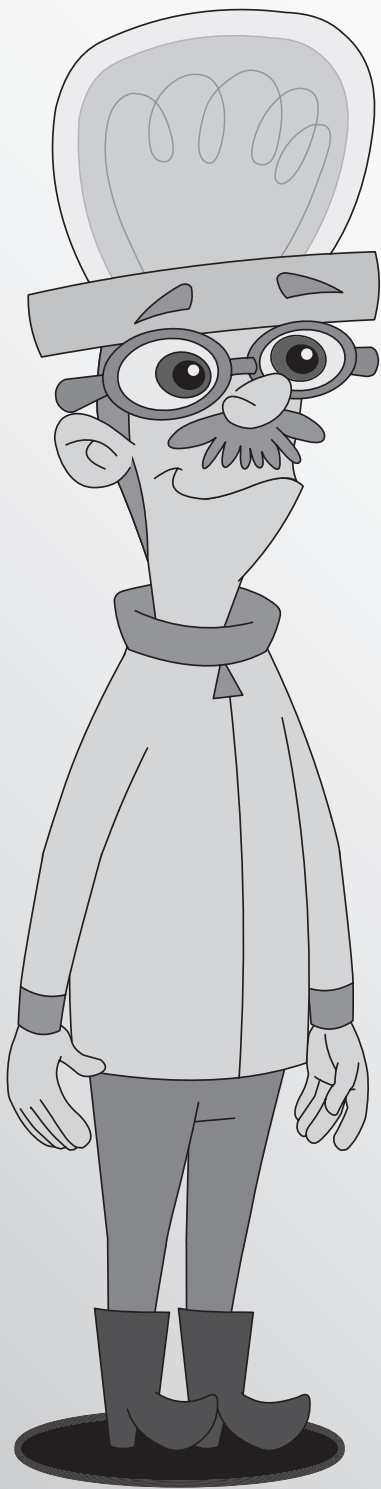
As you play this game, look for a pattern that can make you a winner ... every time!

YOU NEED

15 marbles (1 of them red)
or
any 15 objects, 14 of one color and 1 of another

Number of players: 2 players

Object: Make your opponent take the red piece.

To play: Place all 15 marbles or objects on the table. Players take turns and remove one, two or three pieces per turn. You don't want to take the red piece!

The winner: the one who makes the opposing player take the red piece!

What's the Pattern?

Force your opponent to take a turn when there are 13, 9, and 5 marbles left (counting the red marble). If you do this, you can control the game.

To see how this works, draw 5 marbles on paper and label one red. If it is your opponent's turn, and she takes 1 marble, you can take 3 and force her to take the red. If she takes 2 marbles, you can take 2 and win. And if she takes 3 marbles, you can still win by taking 1. There's no way you can lose!

If your opponent takes a turn with 9 marbles left, you can force her to 5 the same way. The same is true of the number 13. Just remember to force your opponent to the numbers 13, 9, and 5 marbles (including the red marble). If you can force your opponent to these key numbers, you'll win ... every time!
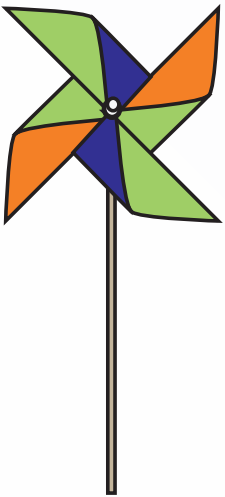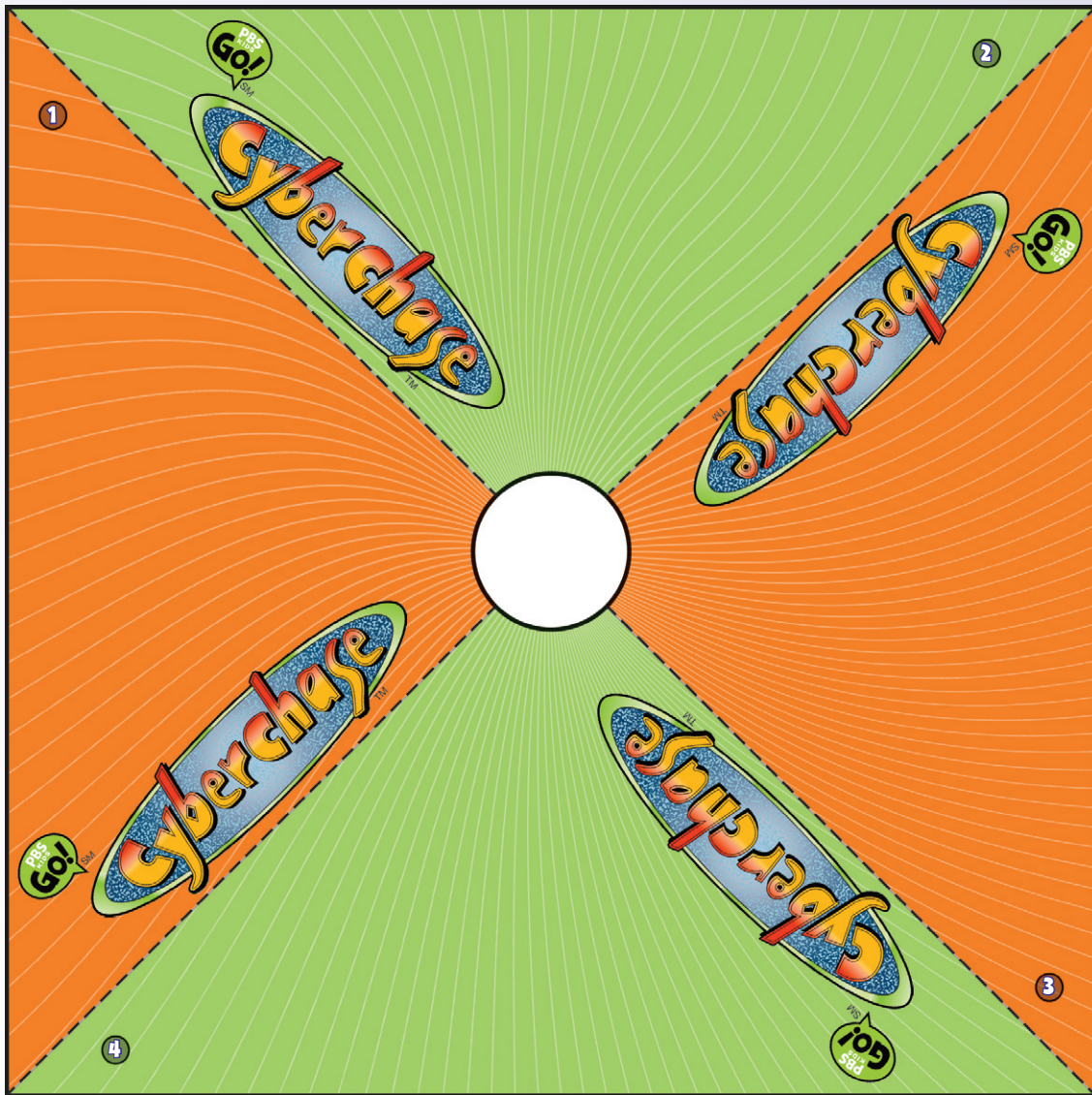
How Windy Is It?

**Make this pinwheel, then hold it up to find out how the wind blows!**

YOU NEED

scissors

pencil with eraser

pushpin or thumbtack

1. Cut out the pinwheel on the solid lines. Then cut along the dotted lines. DO NOT cut into the center circle.

2. Roll the numbered corners to the center in order from 1 to 4.

3. Ask an adult to gently press the thumbtack or pushpin through the corners into the side of the eraser. Don't push it in too tightly or the pinwheel won't turn.

4. Hold your pinwheel sideways into the wind. How fast does it spin? How could you make it spin faster?
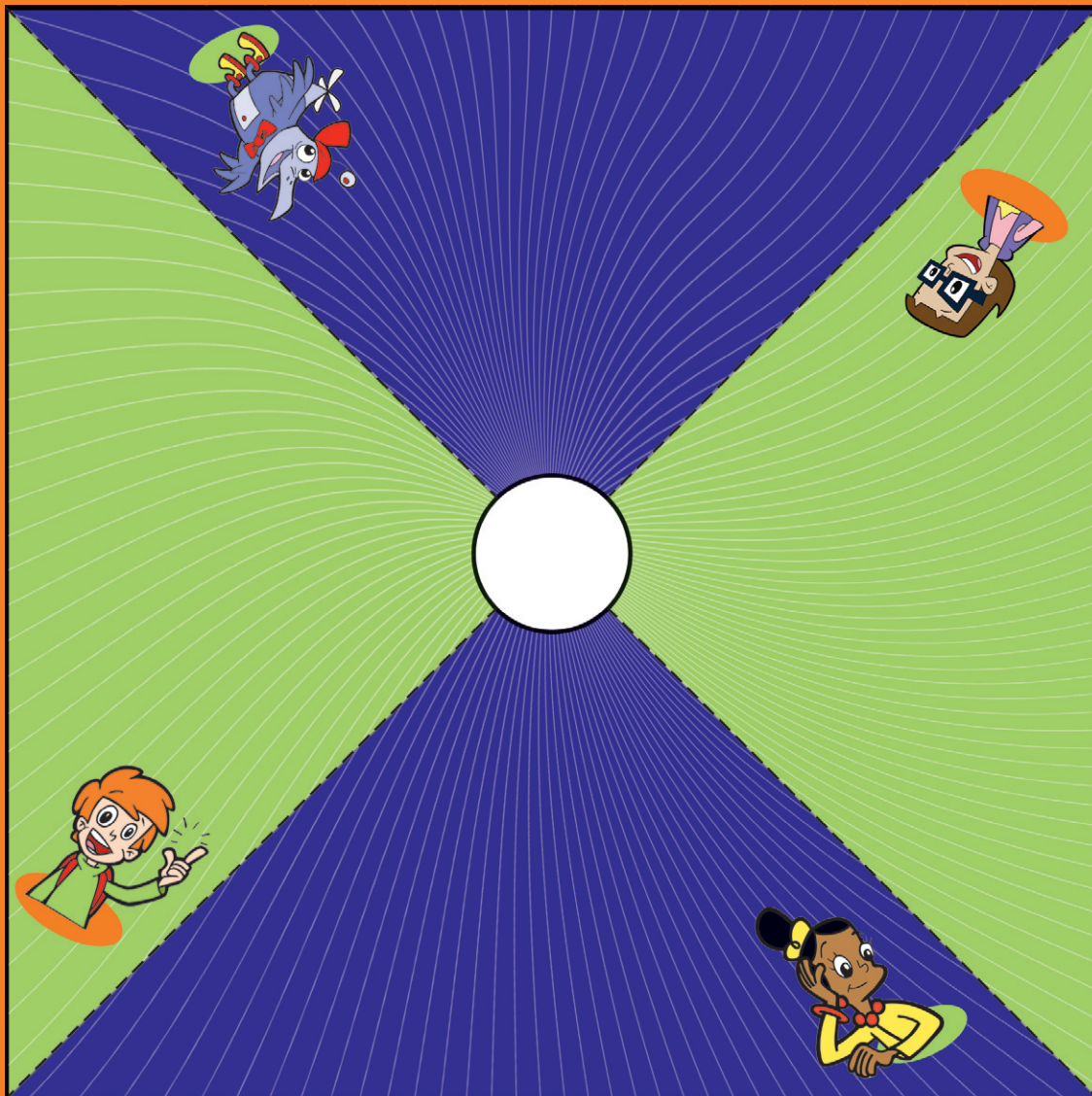
Answers:

Page 4, Digit's Cyber-Dough:
1 cup flour, ¼ cup water, 1/8 cup
or 2 tablespoons of vegetable oil.

Page 6, The Fine Number 9: 4 tens, 5 ones (45);
6 tens, 3 ones (63); 8 tens, 1 one (81).

Page 6, Patterns to the Rescue:
1. 4 (circle), 2 (circle); **2.** 13 (square),
15 (pentagon); **3.** 9 (pentagon), 2 (square);
4. 65 (pentagon), 129 (pentagon).

Page 7, Who's Older?: From youngest to oldest:
TW, Fluff, Inez, Creech, Matt, Slider

Page 8, Cyber-Sudokus:

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

4	3	5	6	2	1
6	1	2	5	3	4
2	5	6	4	1	3
3	4	1	2	6	5
5	6	3	1	4	2
1	2	4	3	5	6