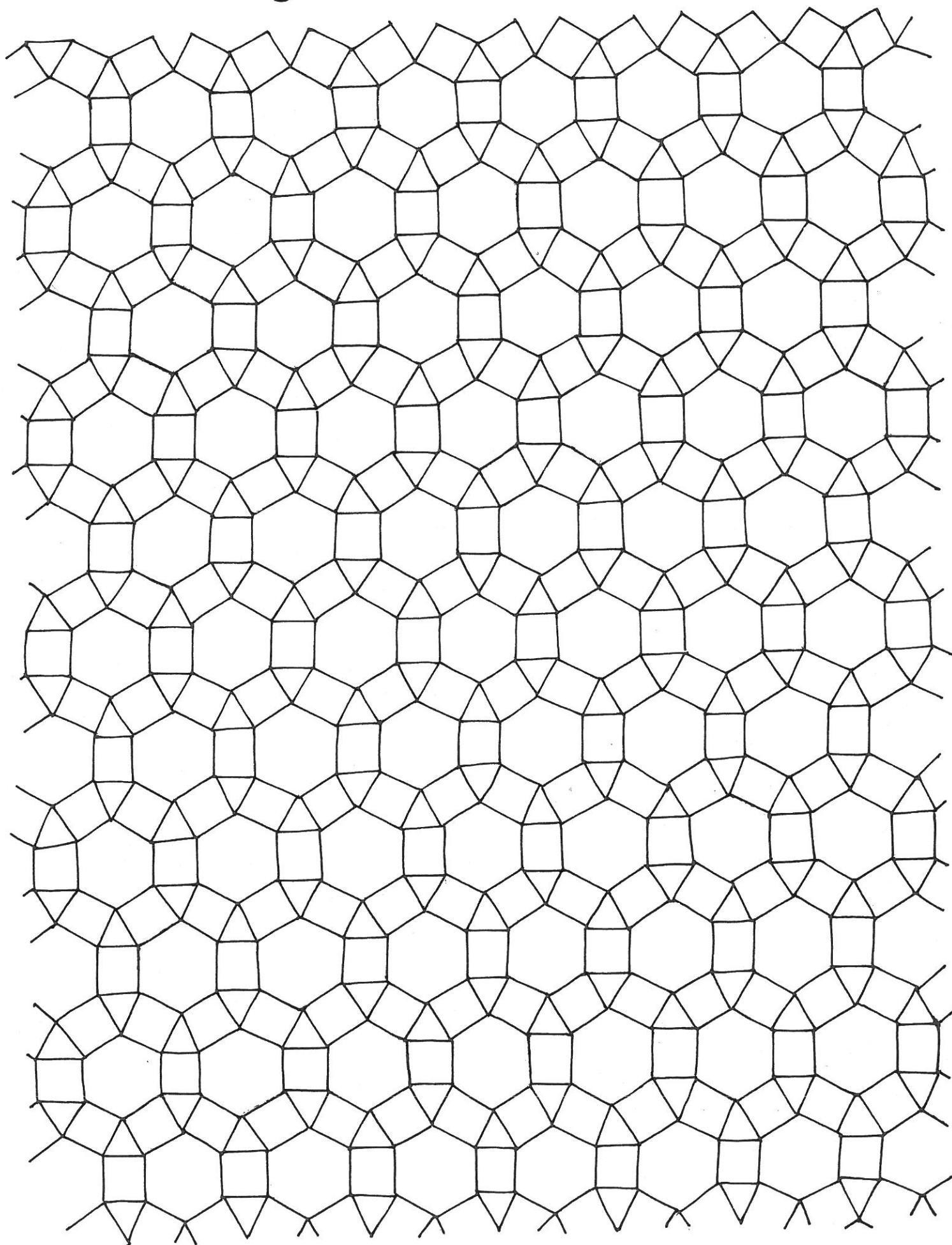


SMILE WORKCARDS

Logic and Sets Pack Four

Contents

	Title	Card Number
1	An Islamic Design w/s	1734
2	Flying Engineers	1766
3	Logiblock Sets	2101
4	Think	1706
5	Who has the Microcomputer?	1898
6	In your Mind	600
7	Domino Puzzle	905
8	Turn it Over!	2069
9	Mastermind	1345
10	Shunting	477
11	The Coin Problem	1918



Are there more squares than triangles in this tessellation?
What is the ratio of hexagons, squares and triangles?

Flying Engineers

You may like to work in a group.

International Excavators Ltd have four depots in London, Frankfurt, Madrid and Athens.

There are ten maintenance engineers who move from one depot to another as required.

This week there are 4 engineers in London (Sue, Hassan, Fred, Naomi), 2 in Frankfurt (Manuel, Mustapha), 2 in Madrid (Wayne, Maria) and 2 in Athens (Sunjee, Rahama).

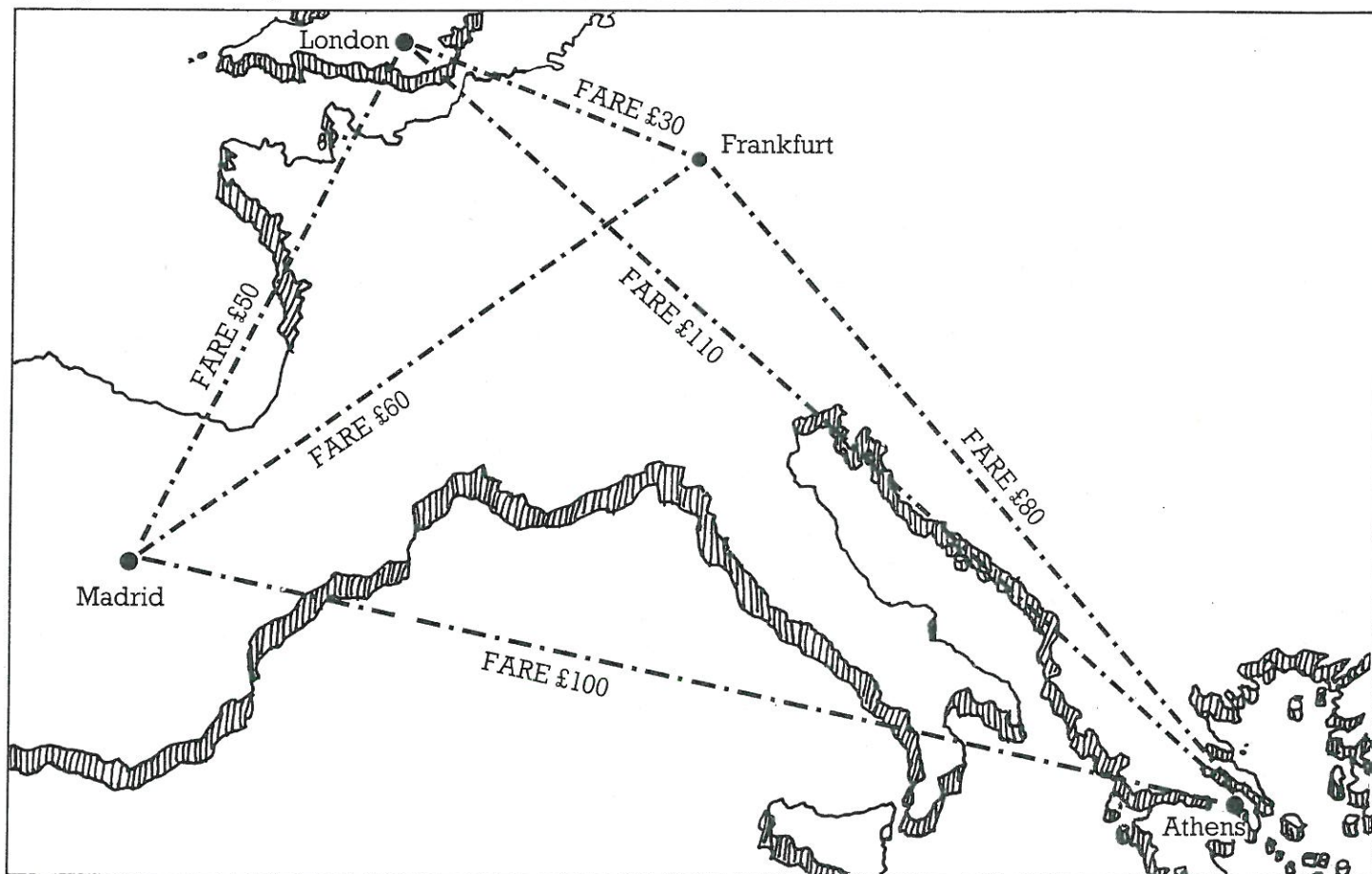
Next week there must be 2 in London, 1 in Frankfurt, 3 in Madrid and 4 in Athens.

What is the best way to move them so that the cost of the air fares is as small as possible?

Air Fares

London			Frankfurt	Madrid	Athens	
£30						
£50		£60		£100		
£110		£80				

The map below shows the depots of International Excavators Ltd and the air fares between them.



Turn over

Later on in the year

International Excavators Ltd decide to hold a conference at which all the engineers are to attend. The week before the conference the engineers are distributed as follows:

- 2 engineers in London
- 1 engineer in Madrid
- 3 engineers in Frankfurt
- 4 engineers in Athens

Which city should the conference be held in if International Excavators Ltd wish to keep the cost of air travel as low as possible?

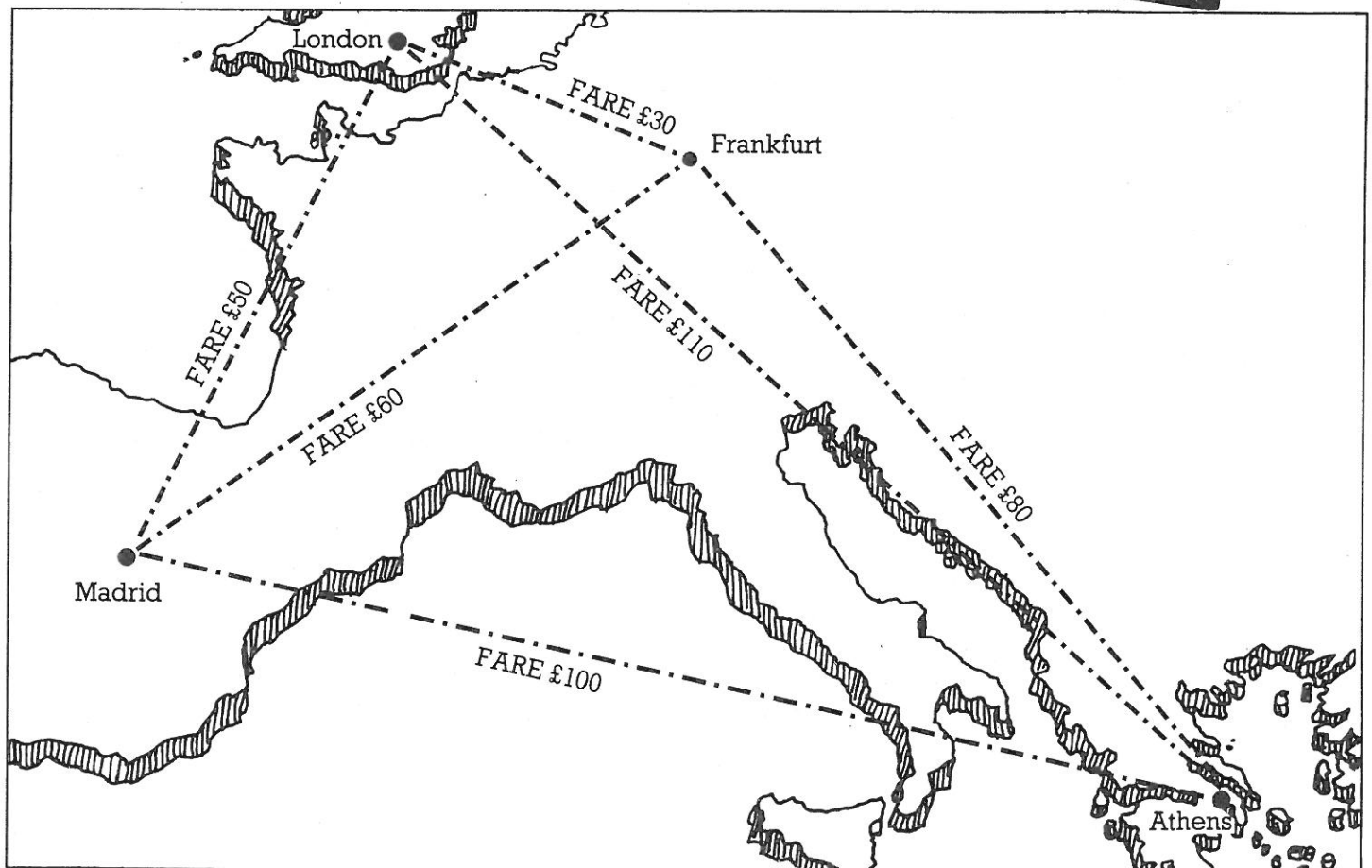
The cost of air travel is not the only thing which must be taken into account. The cost of one night's stay in an hotel is as follows:

- £28 (U.K.)
- 4080 pesetas (Spain)
- 165 DM (West Germany)
- 2130 drachma (Greece)

Which city should the conference be held in if the total cost (air fares and over-night stay) is to be kept as low as possible? Use a calculator and the table of exchange rates to compare prices.

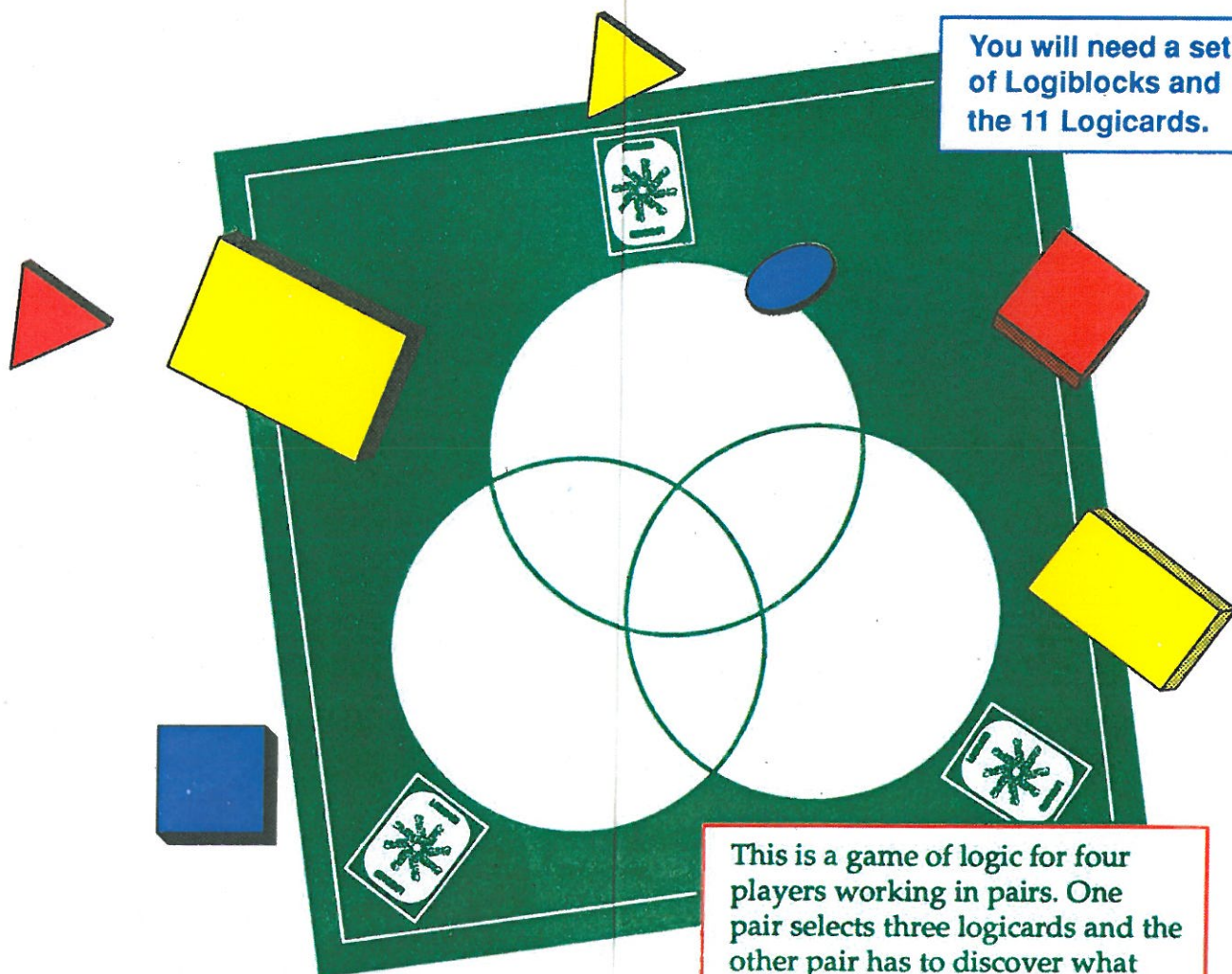
The pound	
Australia \$	1.90
Austria Sch	27.20
Belgium Fr	78.30
Canada \$	1.72
Denmark Kr	13.90
Finland Mkk	8.04
France Fr	11.82
Germany DM	3.88
Greece Dr	174.00
Hong Kong \$	9.70
Ireland Pt	1.24
Italy Lira	2470.00
Japan Yen	315.00
Netherlands Gld	4.36
Norway Kr	11.12
Portugal Esc	217.00
South Africa Rd	2.85
Spain Pta	217.00
Sweden Kr	11.15
Switzerland Fr	3.23
USA \$	1.27
Yugoslavia Dnr	336.00

The map below shows the depots of International Excavators Ltd and the air fares between them.



LOGIBLOCK SETS

You will need a set of Logiblocks and the 11 Logicards.



This is a game of logic for four players working in pairs. One pair selects three logicards and the other pair has to discover what they are and where they go in the smallest possible number of goes.

How to play.

All players should read ALL these instructions.

You should have the 11 logicards with RED, GREEN, YELLOW, BLUE, SQUARE, CIRCLE, TRIANGLE, LARGE, SMALL, THICK and THIN printed on one side.

Make sure that you have all looked at the logicblocks and can recognise the above attributes.

First pair Choose 3 logicards.

DO NOT let the other pair see them.
Look at the cards before placing them
FACE DOWNWARDS on the 3 spaces
provided.

These cards 'name' the circles that they are
next to, e.g. if the logiccard says *THIN* then all
shapes placed in that circle must be thin.

You can look at the cards during the game if
you forget what you have chosen.

Second pair Your aim is to find which 3 logicards have
been chosen.

To do this you need to:

- Choose a logicblock.
- Ask the first pair to place it on the
correct part of the board.

Remember :

Logicblocks placed where 2 CIRCLES OVERLAP,
e.g. *THIN* overlaps *BLUE* means that all logicblocks in
that space must be thin and blue. Their shape does not
matter.

Sometimes it is impossible to put a logicblock
on a space, e.g. if *THIN* overlaps *THICK*. You
cannot get a shape that is both thick and thin.

Logicblocks placed where 3 CIRCLES OVERLAP,
e.g. *THIN*, *BLUE* and *SQUARE*, have to be thin
and blue and square. Their size does not matter.

If a logicblock DOES NOT BELONG in any of
the circles, place it on the outside of the
board.

You are allowed only ONE ATTEMPT to
name the logicards after your selected
logicblock has been placed on the board.

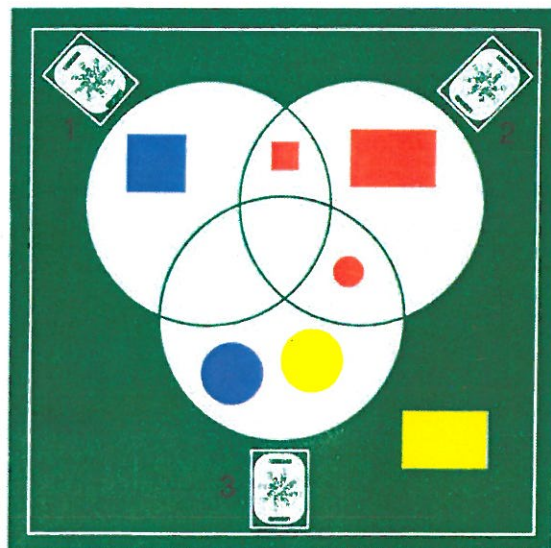
You should try to use as few logicblocks as
possible to name the 3 logicards.

First pair

Do not reveal any of the cards
until the other pair have decided
correctly on all three.

**A possible
solution**

1. Square
2. Red
3. Circle



CIRCLE

YELLOW

SQUARE

THIN

GREEN

LARGE

THICK

BLUE

SMALL

RED

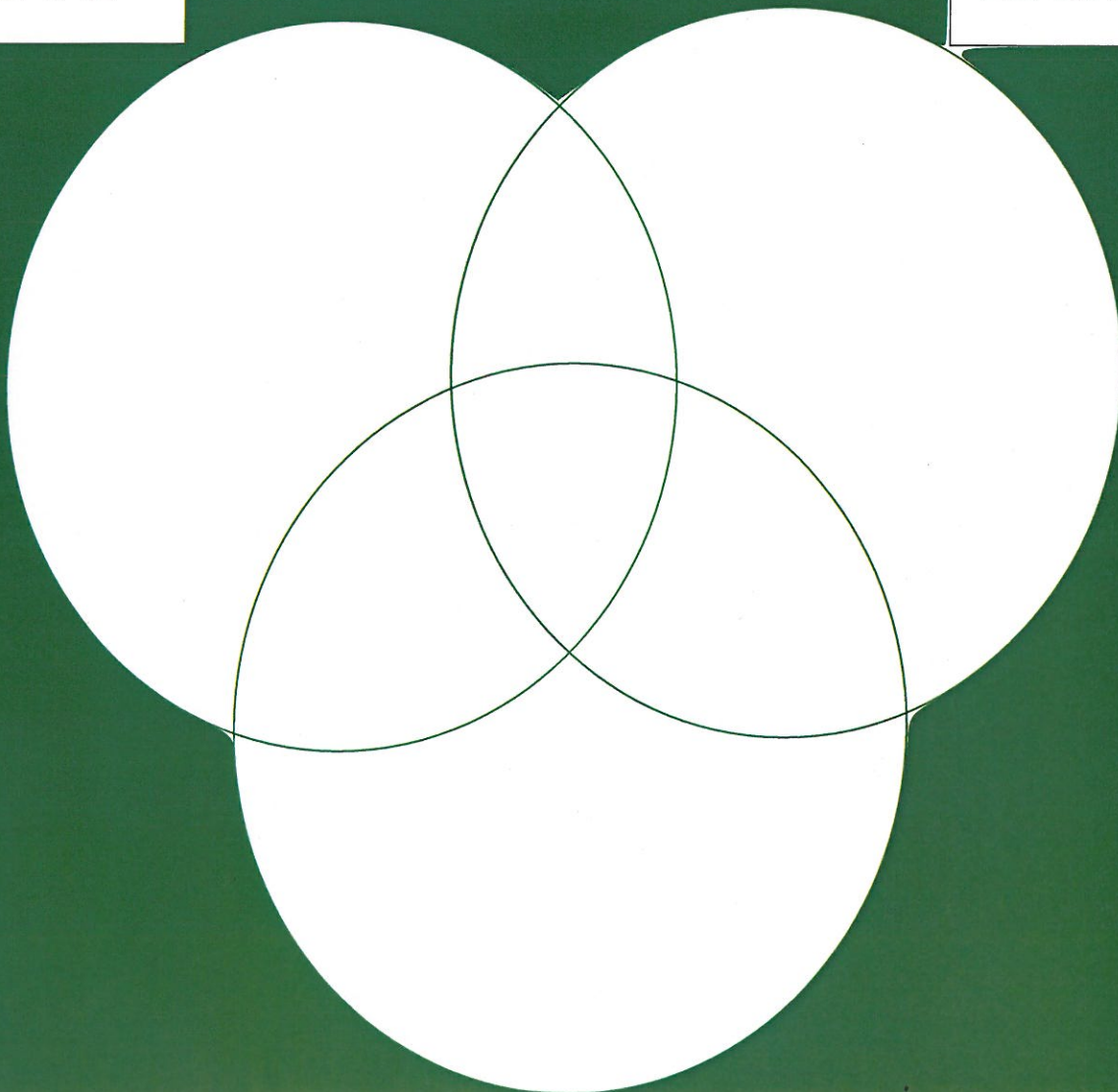
TRIANGLE

LOGICARD

LOGICARD

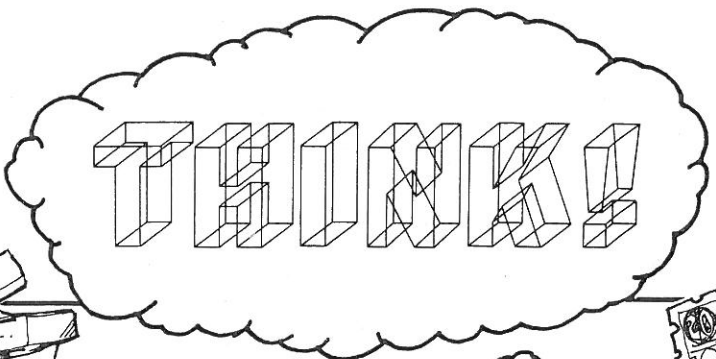
LOGICARD

LOGICARD

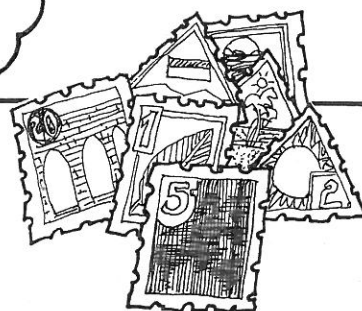
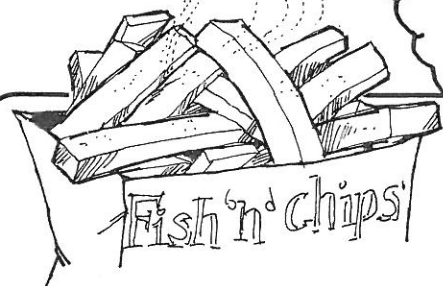


LOGICARD

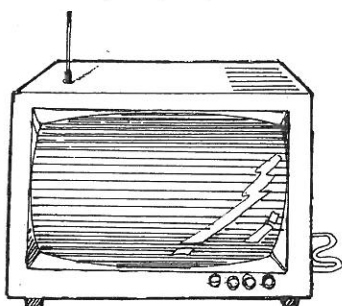
LOGICARD



THINK!

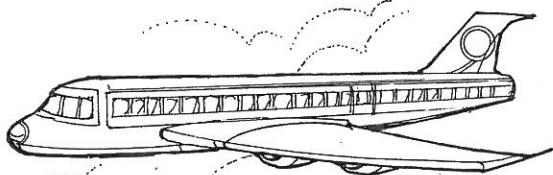


1. Between 7 p.m. and 7.30 p.m. at the chip shop 27 customers bought fish, 53 customers bought chips.
How is it that only 60 people were served?



3. A survey was conducted to find out which television channels people had been watching the previous evening.
Of the 100 people questioned,
73 had watched BBC1,
67 had watched ITV,
47 had watched both.

How many people watched neither BBC1 nor ITV? You can't work out how many people did not watch television. Why not?



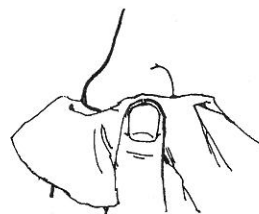
5. 82 airline passengers flew from London to Paris and 38 flew from Paris to Algiers. If 18 passengers flew on both flights, how many passengers were there altogether?

JE PARLE
FRANÇAIS...

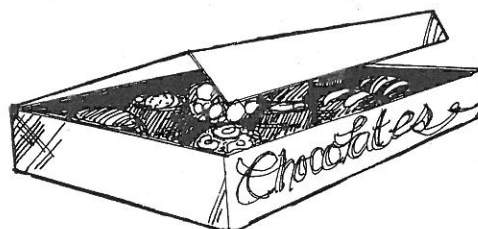
ICH SPRECHE
DEUTSCH...

7. In a small town on the French-German border 64% of the population are French speaking, 58% of the population are German speaking.
What percentage of the population speak both French and German?

2. Susan bought a pack of 50 assorted foreign stamps.
15 of the stamps came from Europe,
11 of the stamps were triangular,
6 of the European stamps were triangular.
*How many triangular stamps were not European?
How many European stamps were not triangular?*



4. A virus can occur in two different strains which give rise to two different symptoms: headache and sniffles.
In her surgery one morning, Dr. Smith saw 29 patients.
14 complained of sniffles,
7 complained of headache.
How many complained of both?



6. A box contained 20 milk chocolates. 10 of the chocolates had hard centres but only 5 of the milk chocolates had hard centres.
If 7 of the plain chocolates had soft centres, how many chocolates were in the box?

8. Make up a problem of your own and give it to a friend to solve.

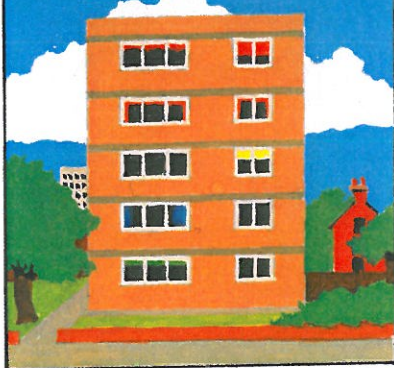


Who has the
micro-computer?



Who drinks
lemonade?

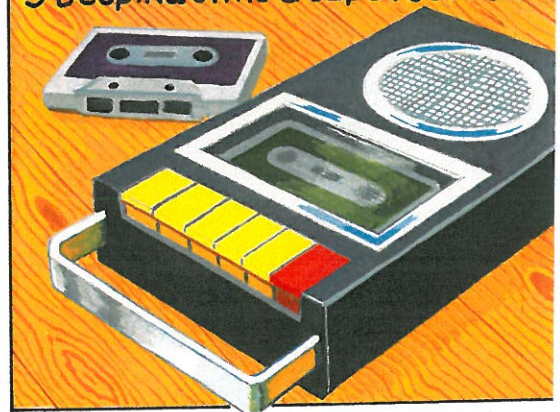
1 There is a block
of five flats.



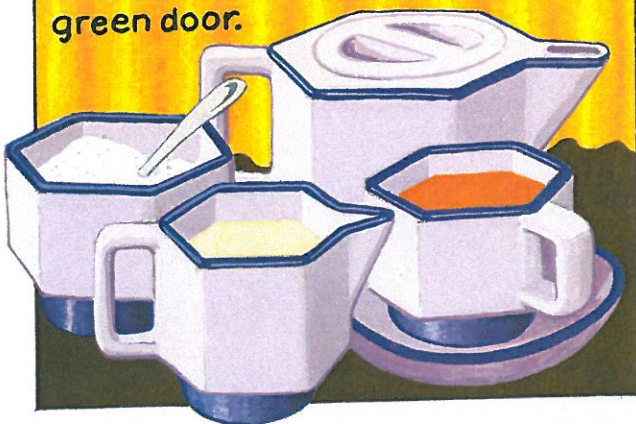
2 Amandep lives in the
flat with the red door.



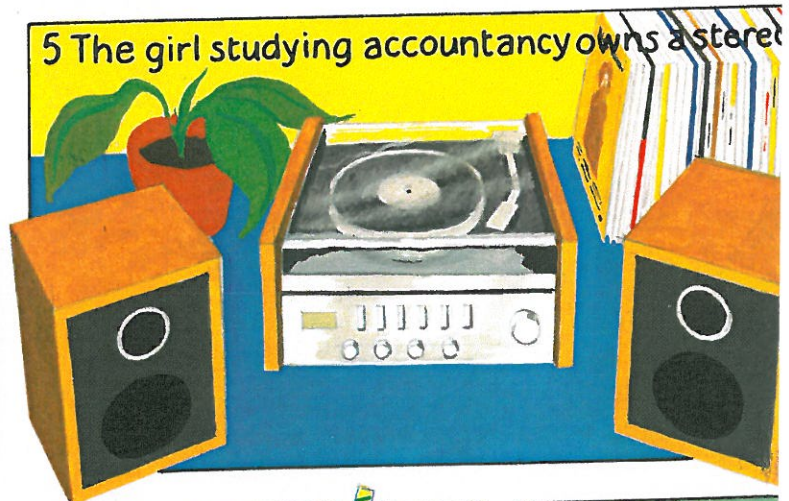
3 Deepika owns a tape recorder.



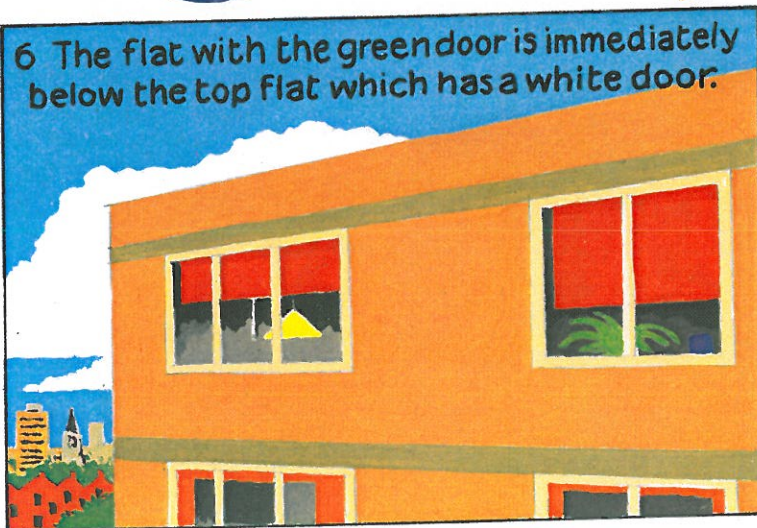
4 Tea is drunk in the flat with the
green door.



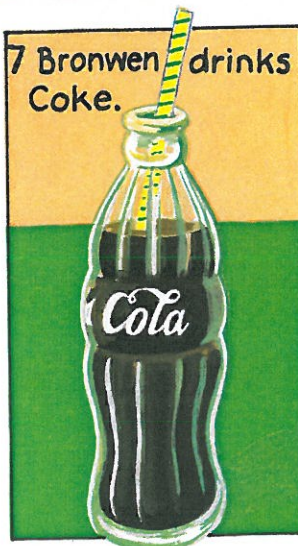
5 The girl studying accountancy owns a stereo.



6 The flat with the green door is immediately
below the top flat which has a white door.



7 Bronwen drinks
Coke.



8 Physics is studied
in the flat with the
yellow door.



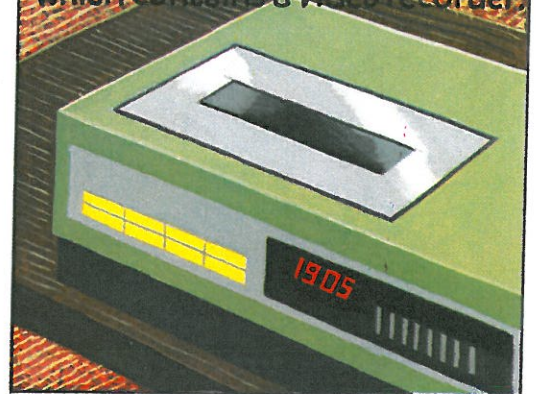
9 Coffee is drunk in the middle flat.



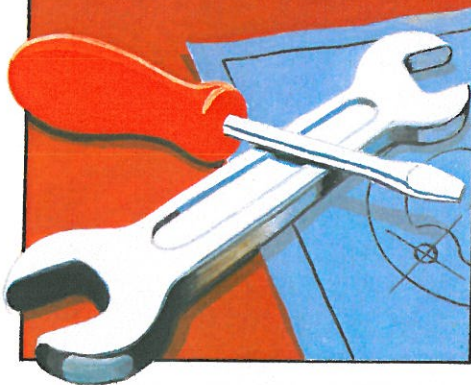
10 Carol lives in the bottom flat.



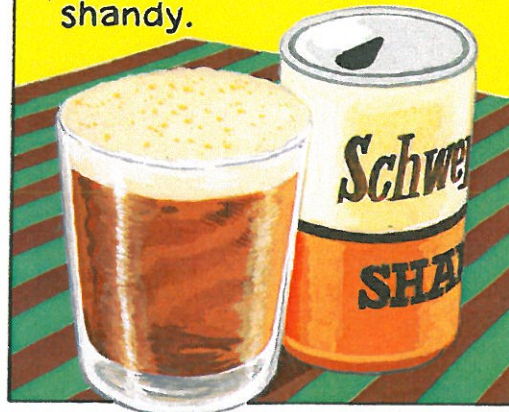
11 The girl who studies maths lives in the flat next to the flat which contains a video recorder.



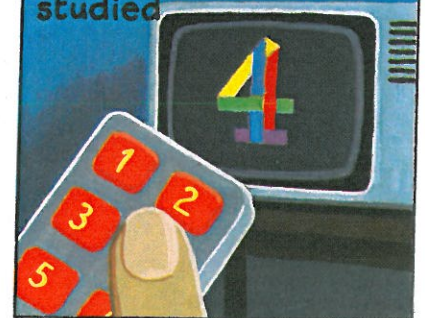
12 Esther studies engineering.



13 The chemistry student drinks shandy.



14 The remote-control TV is in the flat next to the flat in which physics is studied.



15 Carol lives in the flat next to the flat with the blue door.



WHO DRINKS LEMONADE?
WHO HAS THE MICRO-COMPUTER?

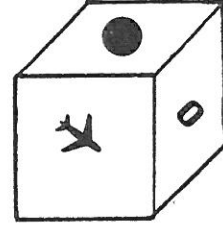
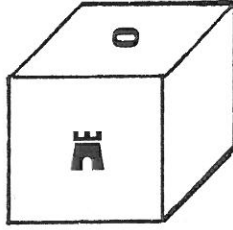
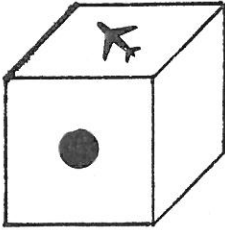
There are five sets to look for:
GIRLS' NAMES
COLOURS OF DOORS
ELECTRONIC EQUIPMENT
DRINKS
SUBJECTS OF STUDY

Who has the micro-computer?



SHOW YOUR FACE

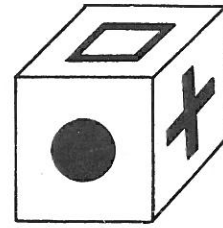
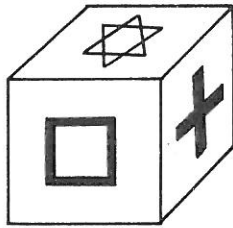
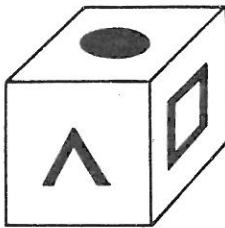
1. Here are 3 views of the same dice:



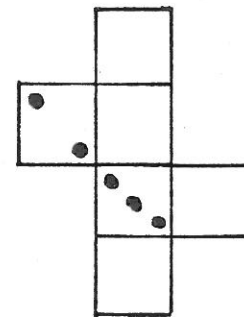
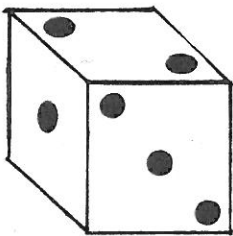
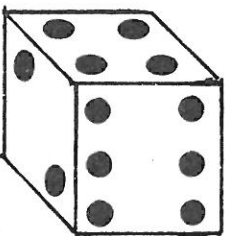
What is opposite ●, ○, 𐄂, ✈, ▲, 𐄃 ?

Can you do it without using a cube?

2. Are these three the same dice? Give reasons for your answer.



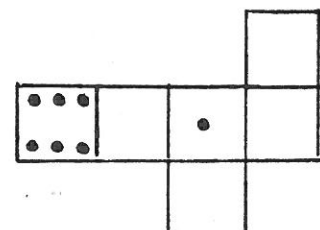
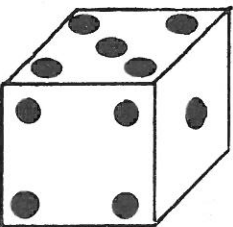
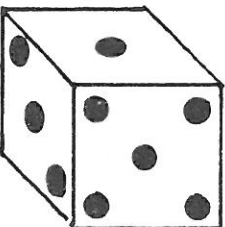
3. These are 2 views of an ordinary dice :



Copy and complete the net of this dice.

What is the sum(s) of opposite faces?

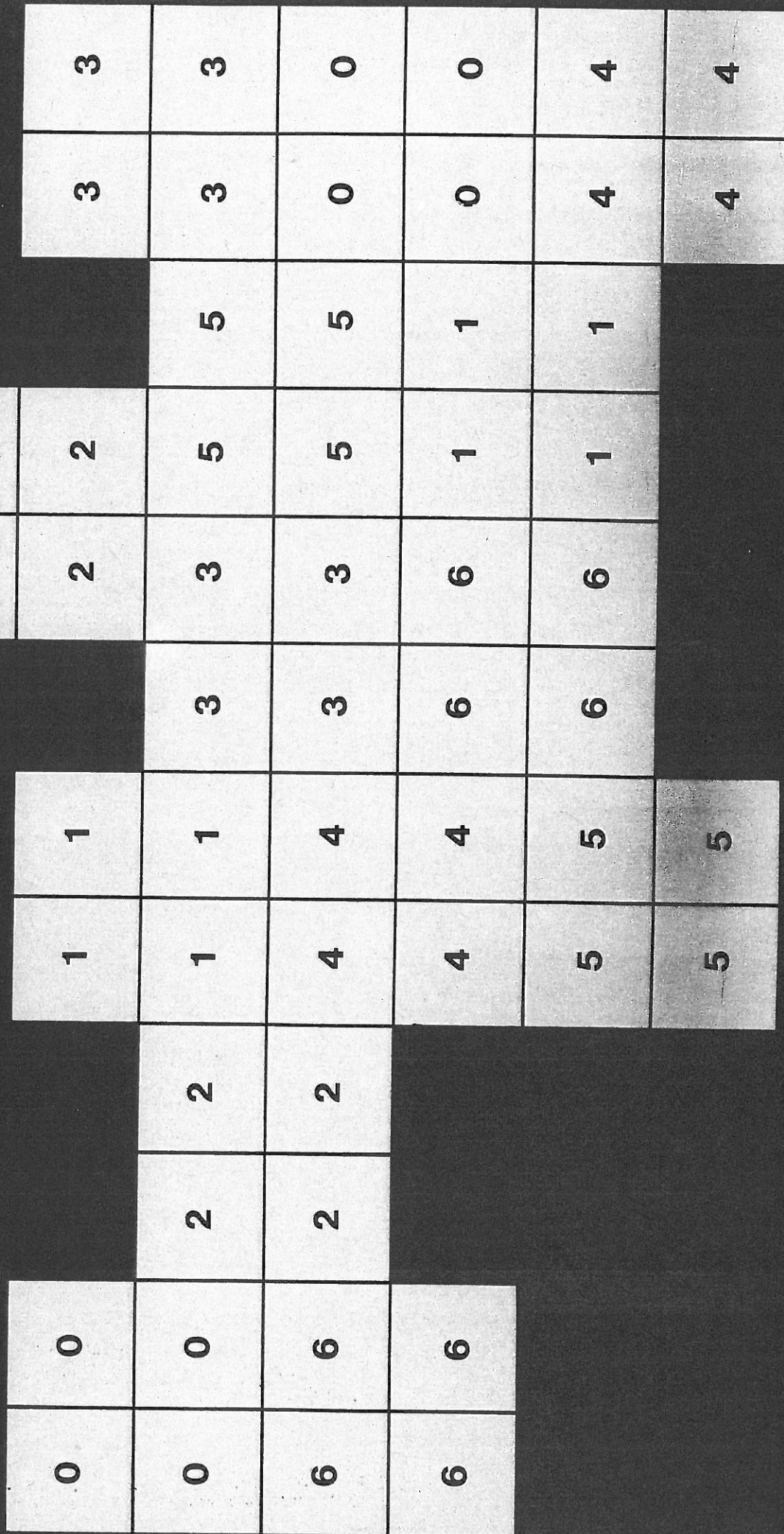
4. Copy and complete the net of this dice:

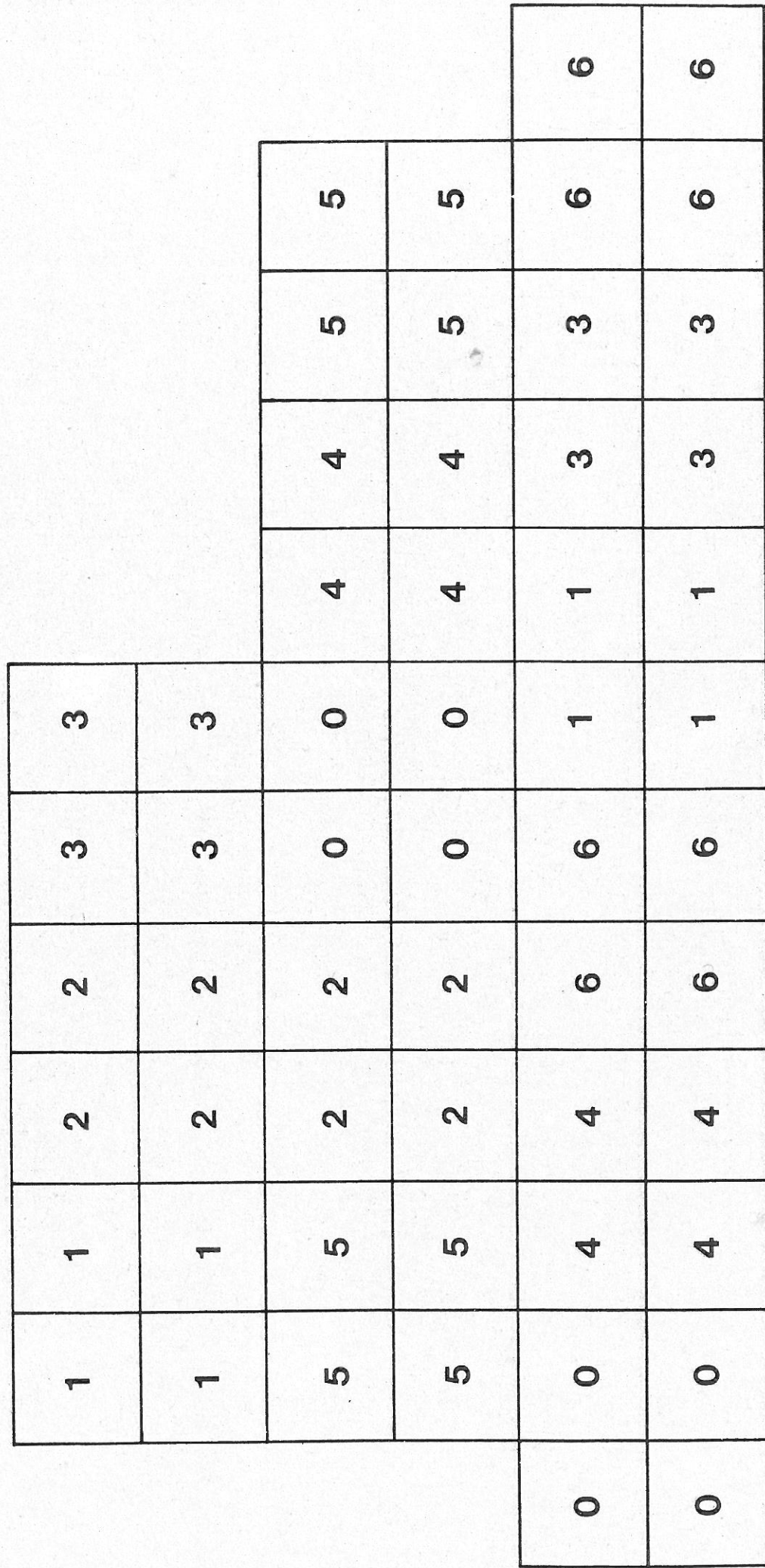


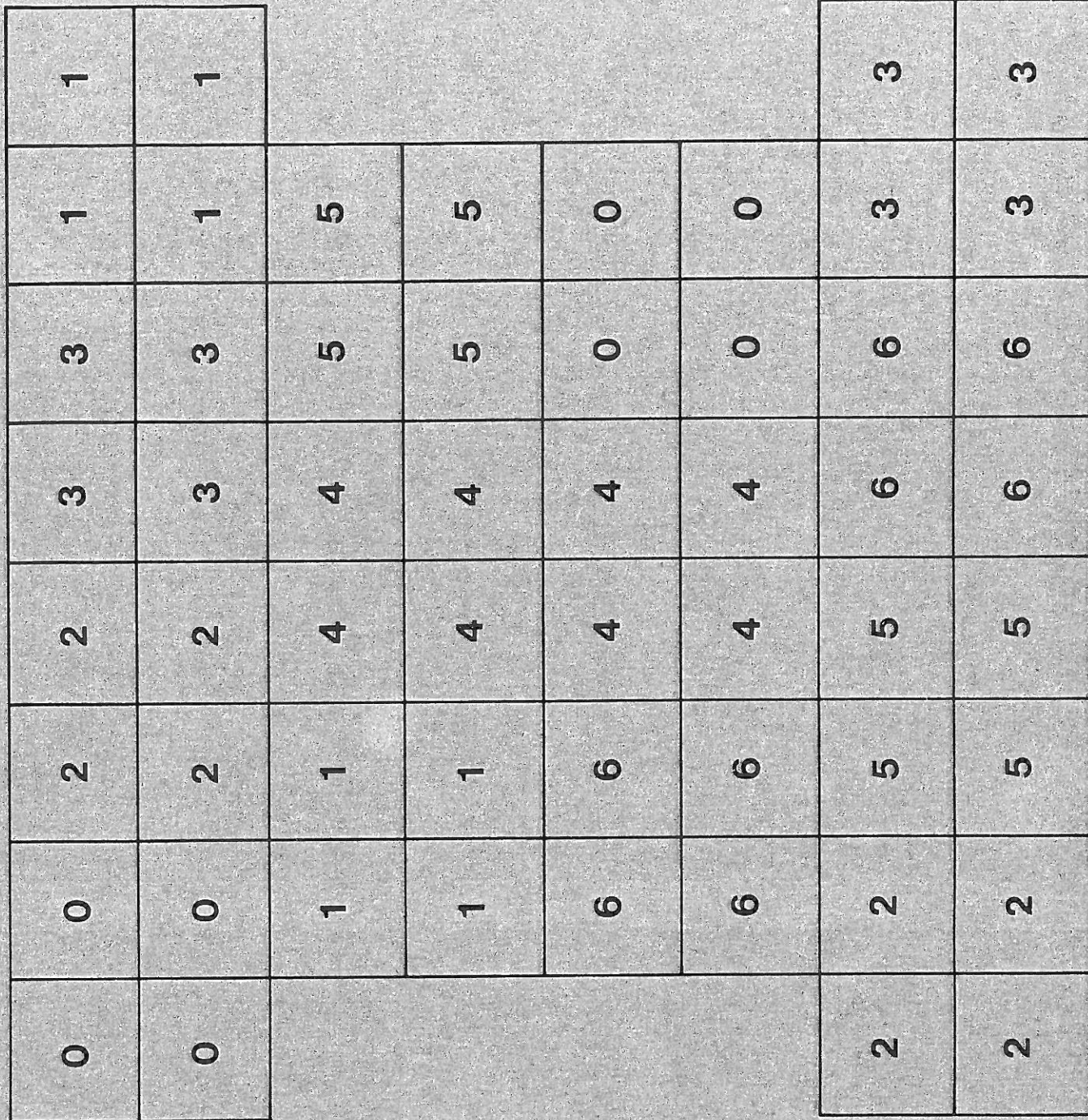
DOMINO PUZZLES

You will need a set of dominoes or SMILE Cut-out Sheet 0905A.
Place the 28 dominoes on the grid to match the numbers.
Some of the dominoes may go sideways or upside-down.

Puzzles 2, 3 and 4 get harder. You may not need to do them all.









6	3	3	3	3	3	0	5
6	1	1	1	1	1	0	5
6	4	4	4	4	4	0	5
6	2	2	2	2	2	0	5
6	1	1	1	1	1	3	4
6	5	5	5	5	5	3	4
6	2	2	2	2	2	3	4
6	0	0	0	0	0	3	4

STYLING

SMILE Cut-out Sheet O9O5A

Cut out the 28 dominoes to do the puzzles on card 0905.

0	0
0	1
0	2
0	3
0	4
0	5
0	6

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

2	2
2	3
2	4
2	5
2	6

3	3
3	4
3	5
3	6

4	4
4	5
4	6

5	5
5	6

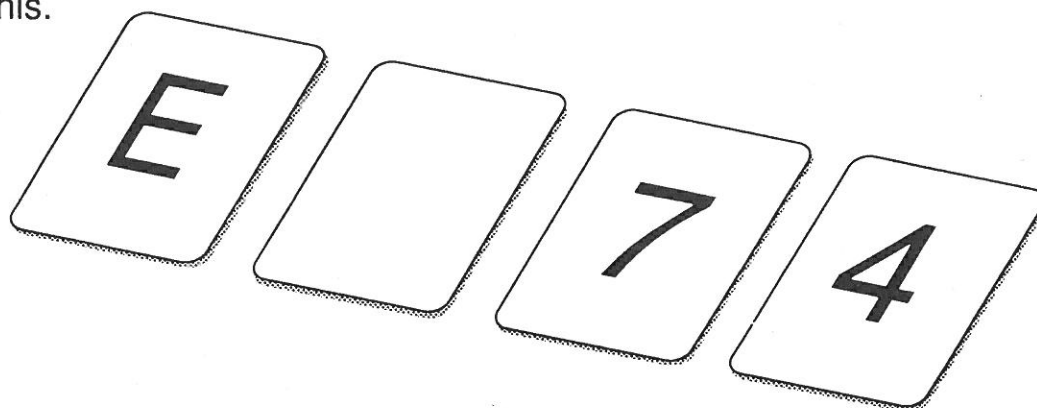
6	6
---	---

Turn it over !

There is a set of four cards with numbers on the front. Sometimes a letter is written on the back. Your friend claims to have discovered something.

Whenever the number is more than 5, E is on the other side.

She puts down the four cards like this.



What is the minimum number of cards you must turn over to check that she is right?

Can you convince someone else?

Smile1345

MASTERMIND

Ten people try to guess
my five-digit number:

06432

29751

94700

38977

87036

43069

76330

52025

61825

18641

Each of these guesses
has exactly one correct
digit in its correct place.

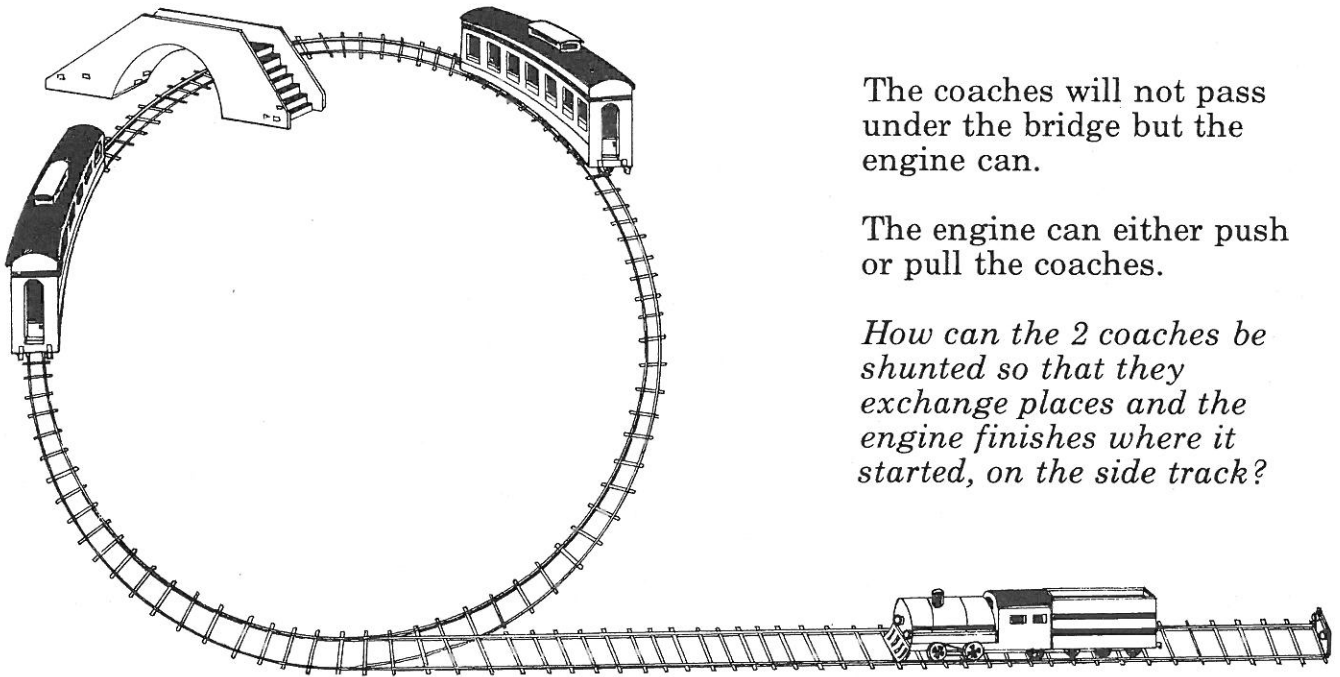
What is my number?

Shunting

The coaches will not pass under the bridge but the engine can.

The engine can either push or pull the coaches.

How can the 2 coaches be shunted so that they exchange places and the engine finishes where it started, on the side track?



The Coin Problem

Put down 5 coins — all showing TAILS.



Can you make all 5 coins show HEADS
by turning them over *two at a time* ?

Try starting with 6 coins, 7 coins . . .

Investigate turning over *three at a time*, *four at a time* . . .