

Design a Board Game

This booklet will help you to design your own board game.
There are four stages involved.



Stage 1
Looking at examples
pages 2–14



Stage 2
Developing your own ideas
pages 15–23

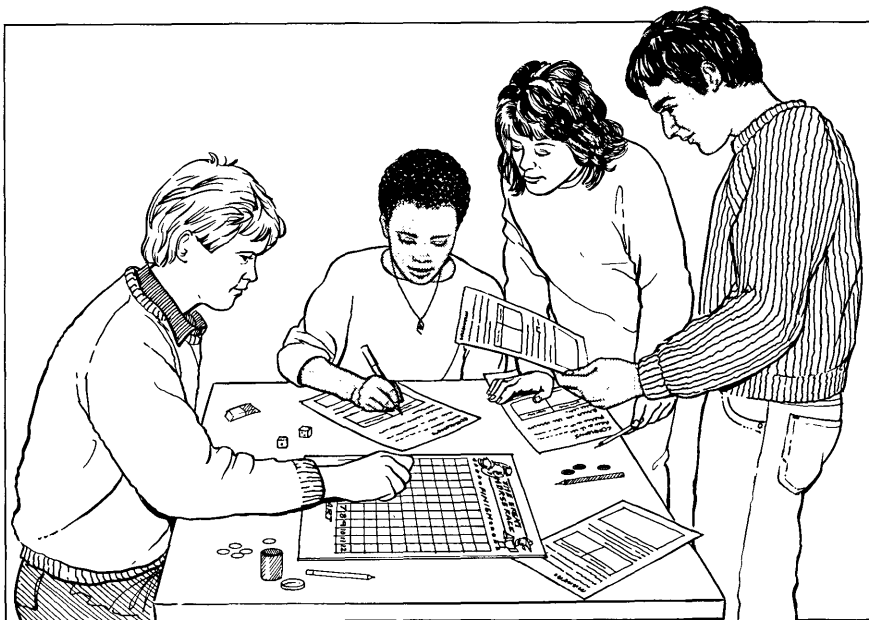


Stage 3
Making your game
pages 24–28



Stage 4
Testing and evaluating
pages 29–31

Stage 1 Looking at examples



To begin with, you will play some games that were invented by other people, to see what you can learn from them.

Later on, you will invent your own game.

Will you be able to make better games than these?

The games are called:

		<i>page</i>
■ The Great Horse Race	1 to 12 players	4
■ Bugs	2 players	6
■ Goal	2 players	8
■ Treasure Island	2, 3 or 4 players	10
■ Honeycomb	2 players	12

You will also be asked to think about other games you have played.

As you play each game, you have to fill in a copy of the 'Comments' sheet.

STAGE 1 AND STAGE 4

Comments

Name of the game _____

Filled in by _____

While you are playing, write down some good and bad features of it.

Good points	Bad points
<i>It's a game of skill because...</i> <i>It's exciting because...</i>	<i>It's not fair because...</i> <i>It's boring because...</i> <i>The rules aren't clear because...</i>

Play the game a few times.
 Make a note of the result on the back of this sheet.

About how long did each game take? minutes

After you have played, say how you could improve the game.

make the counters smaller, and make them this shape...

Change the rule for winning to...

make the board look like this...

DESIGN A BOARD GAME
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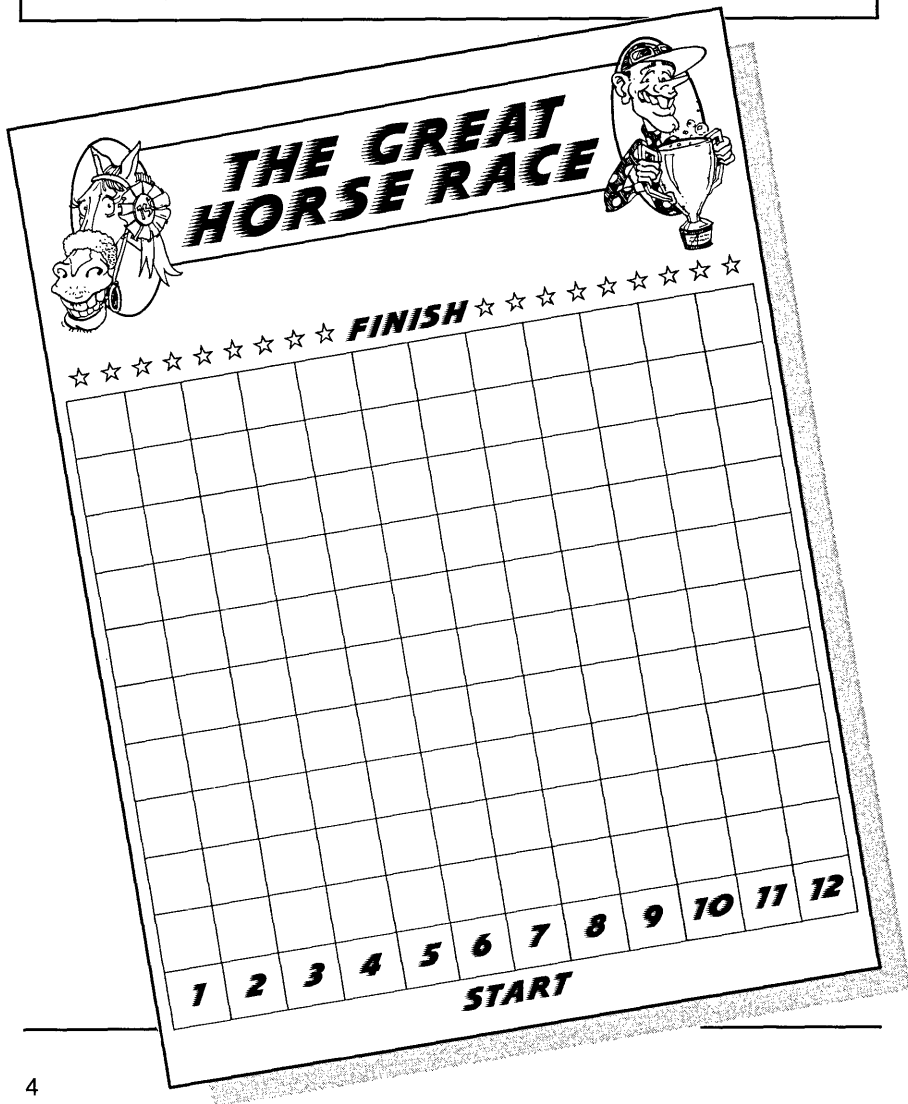
M1

THE GREAT HORSE RACE

A game for 1 to 12 players.

What you need

The board, two dice and twelve counters to represent the horses



Aim of the game



Twelve horses enter a race. The first one to pass the finishing line wins.

Rules

How to start

- Put the horses on their starting squares, labelled **1** to **12**.
- Each player chooses a different horse.
(If there are only a few players, then each player can choose two or three horses.) The remaining horses are still in the race – but no-one owns them.

How to play

- Throw the two dice, and add the scores
(eg   gives the number 8).
- The horse with that number moves *one* square forward.
- Keep throwing the dice.
The horse which is first past FINISH is the winner.



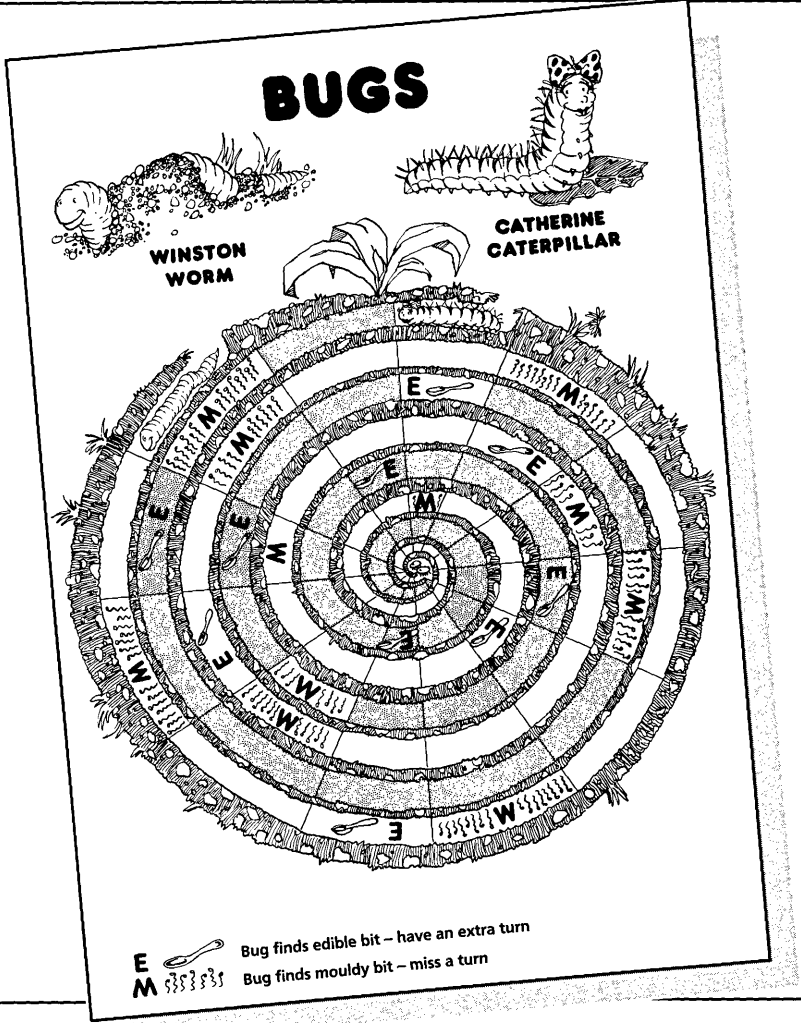
- Play this game a few times.
- Each time you play, write down, on the back of your 'Comments' sheet, which horse comes 1st, 2nd, 3rd, and so on.

BUGS

A game for 2 players.

What you need

A board, a dice and two counters to act as bugs.



What it's about

The apple has two tunnels leading to the core in the middle.

Each bug follows one tunnel.

Aim of the game

To reach the core first.

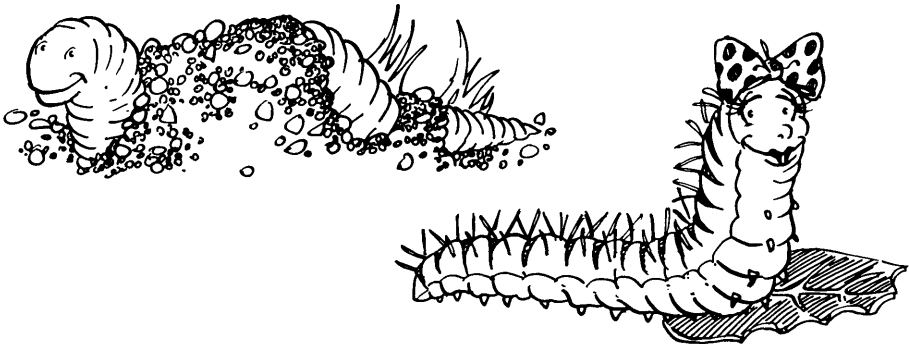
Rules

How to start

- Put the bugs on the two bug pictures.

How to play

- Take it in turns to throw the dice.
- Move your bug along your tunnel the number of spaces shown by the dice.
- If you land on an **M** (mouldy) space – miss a go.
- If you land on an **E** (edible) space – have an extra go.



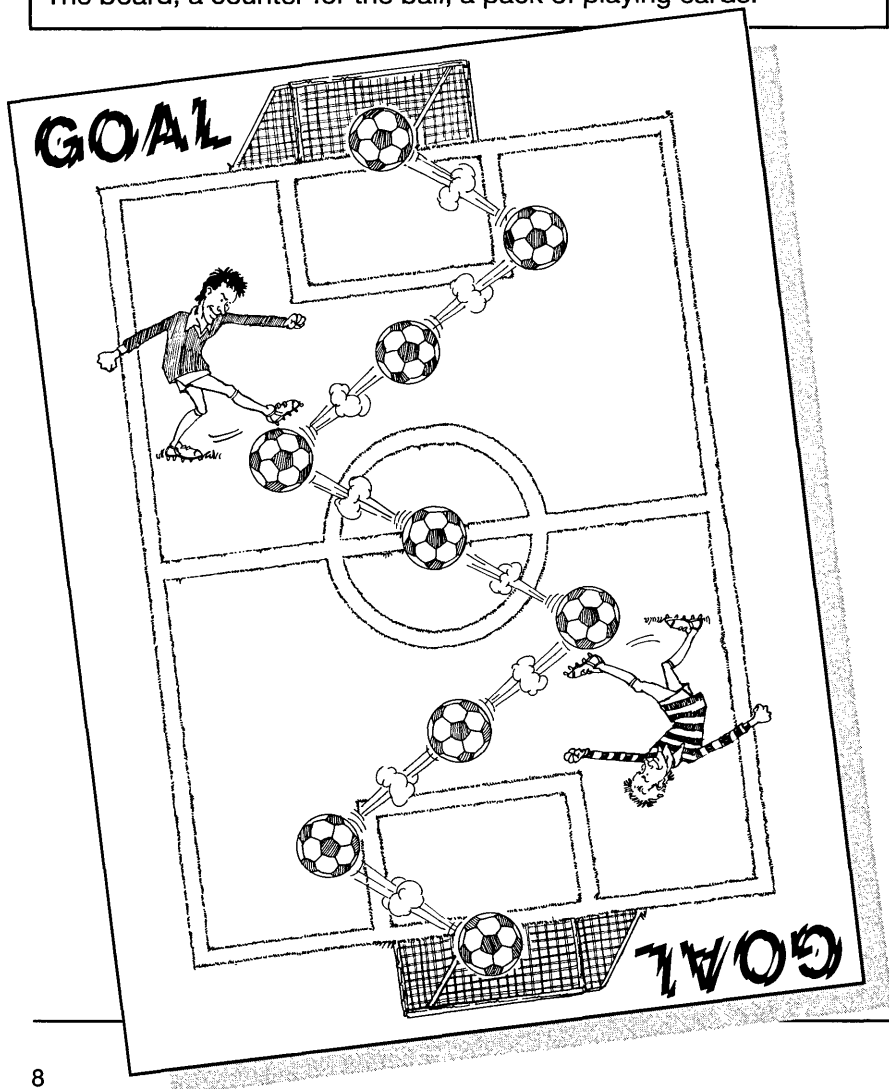
- Play this game a few times.
- Each time you play, write down, on the back of your 'Comments' sheet, whether Winston or Catherine wins.

GOAL

A game for 2 players.

What you need

The board, a counter for the ball, a pack of playing cards.



What it's about

This game is rather like hockey or football.

Aim of the game

To score more goals than your opponent before time runs out.

Rules

How to start

- Place the ball in the centre circle.
- Give one player a *red Ace*, 2, 3, 4, 5, 6, 7, 8, 9 and 10.
Give the other player a *black Ace*, 2, 3, 4, 5, 6, 7, 8, 9 and 10.
(The rest of the cards are not used.)

How to move the ball

- Look at your cards.
- Now each choose a card and put it face down on the table.
- Both of you turn your cards over at the same time.
- If you have the higher value, move the ball one step towards your opponent's goal.
- Now each choose another card and put it face down on the table. Compare them as before.

Scoring goals

- You score when the ball reaches your opponent's goal. Then you replace the ball in the centre circle.
- Time runs out when both players have used up their ten cards.
The person who has scored the most goals is the winner.

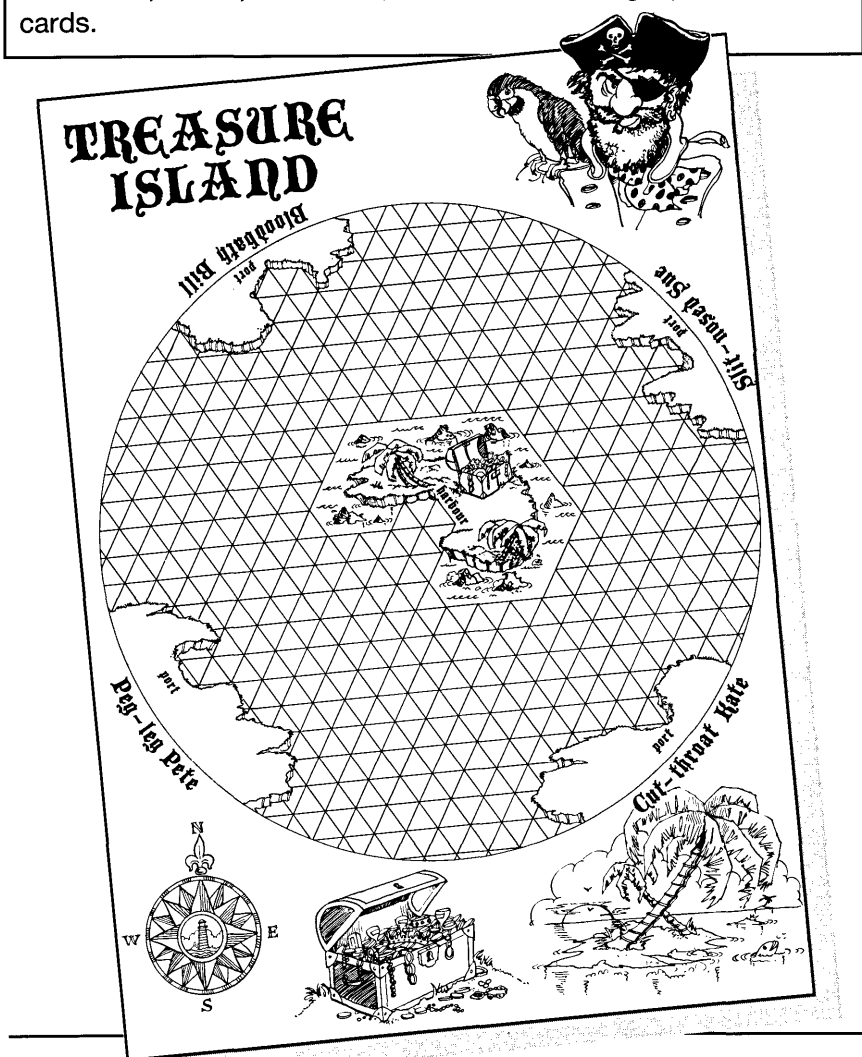
- Play the game a few times.
- Each time you play, write down, on the back of your 'Comments' sheet, whether the red or black team wins.

TREASURE ISLAND

A game for 2, 3 or 4 players.

What you need

The board, a dice, four boats, twelve treasure rings, pack of 'Fight' cards.



What it's about

The board shows the sea with four ports and a Treasure Island.

You have to sail to the Island Harbour and collect treasure.

You can attack other ships as well.

Aim of the game

To collect three treasure rings from Treasure Island and land them at your port.

Rules

How to start

- Start with your boats in your ports and the treasure on the island.
- Shuffle the 'Fight' pack and put the cards face down.
- Each player takes a card, but keeps the number on the card secret.

How to make a move

- Throw the dice in turns.
You can move your boat any number of triangles up to the number on the dice.
- You collect treasure when you arrive at the HARBOUR on the island, but your boat can only carry one treasure ring at a time.
- If you land on a triangle next to a boat carrying treasure, you fight. You both show your 'Fight' card. The player with the highest score takes the treasure, the loser gets a free move of two triangles. Then put your cards to the bottom of the pack and take new ones.

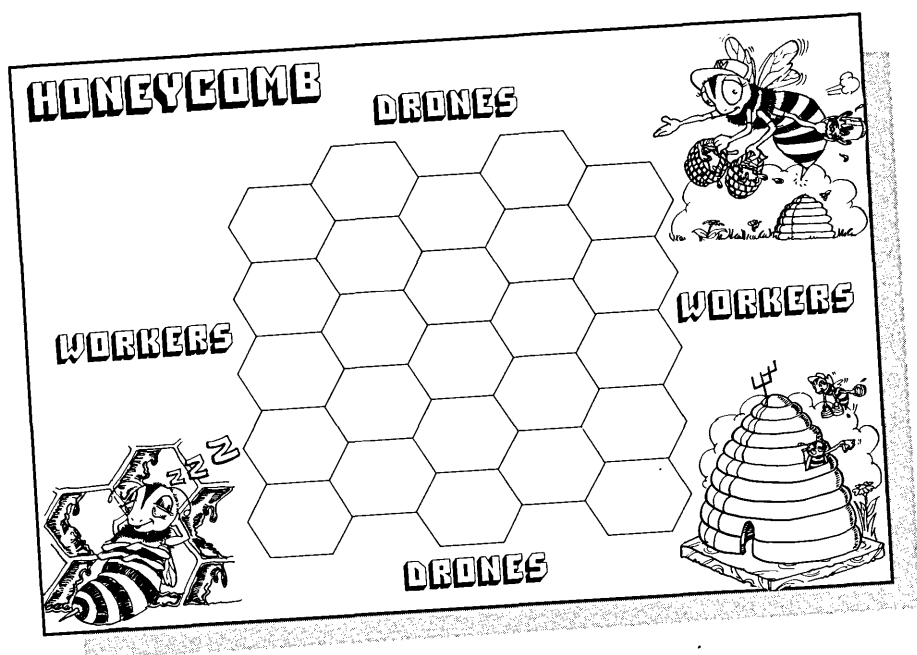
- Play the game a few times.
- Each time you play, write down, on the back of your 'Comments' sheet, the name of the winning Pirate.

HONEYCOMB

A game for 2 players.

What you need

The board, and a set of counters in two colours, one for the 'Worker' bees and one for the 'Drones'. 13 of each colour will be needed.



What it's about

Two kinds of bee are trying to control a hive – the 'Workers' and the 'Drones'.

Aim of the game

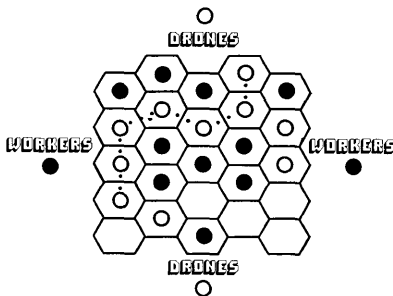
The 'Drones' must try to make a connected path from the top to the bottom of the board. The 'Workers' must try to make a path from side to side.

Rules

- Take turns to put a counter on *any* empty hexagon. (You need not put your first counter at the edge; you need not put your counter next to the one before.)
- The examples show two winning paths.

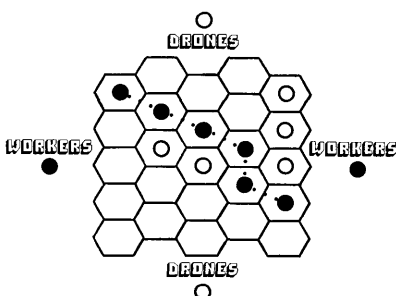
Drones win in this example

Example A



Workers win in this example

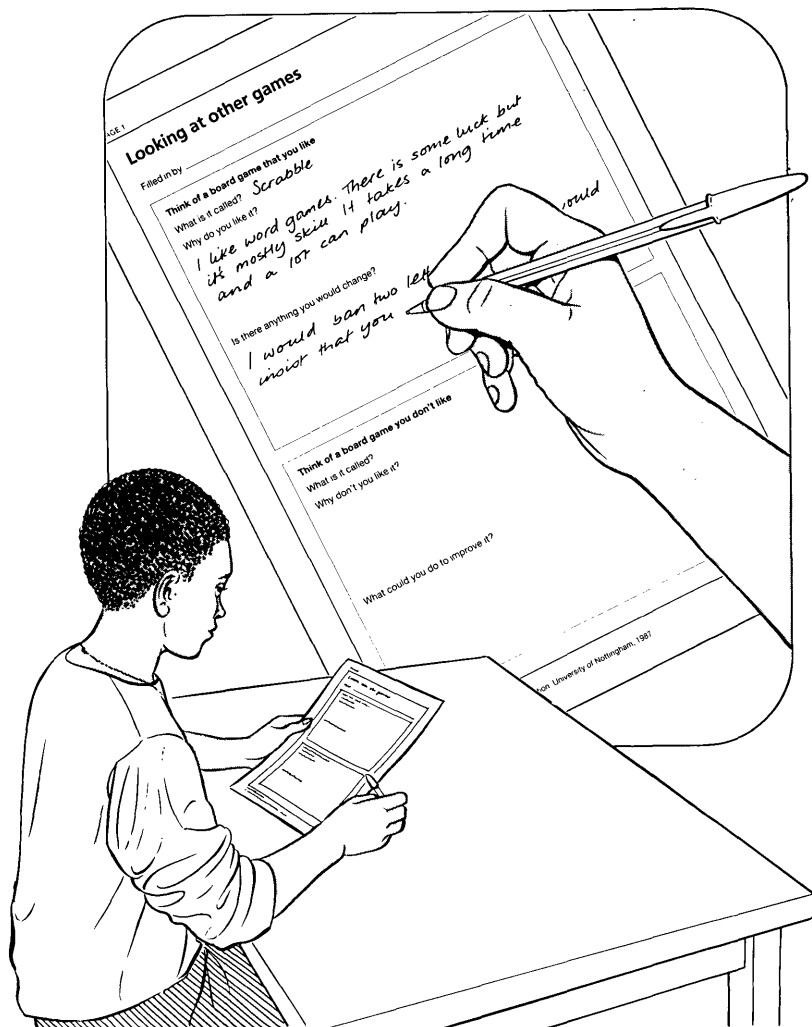
Example B



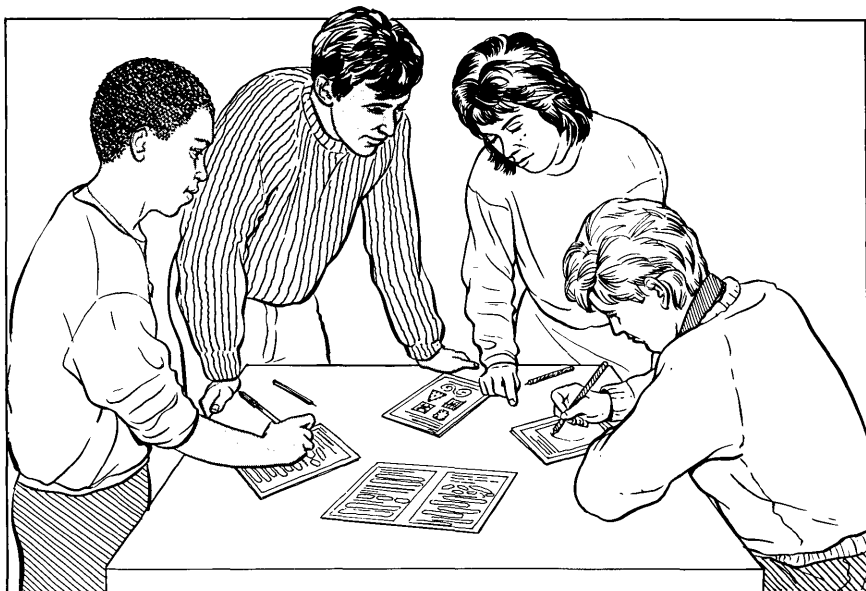
- Play the game a few times.
- Each time you play, write down, on the back of your 'Comments' sheet, whether the 'Workers' or 'Drones' win.

Looking at other games

Ask your teacher for a copy of this sheet, and fill it in yourself.
It will help you to think of other board games you have played.



Stage 2 Developing your own ideas



It's easy to spot mistakes in other people's games, but it's quite hard to avoid making them yourself.

In this section your group will invent a new, original game.

This will involve . . .

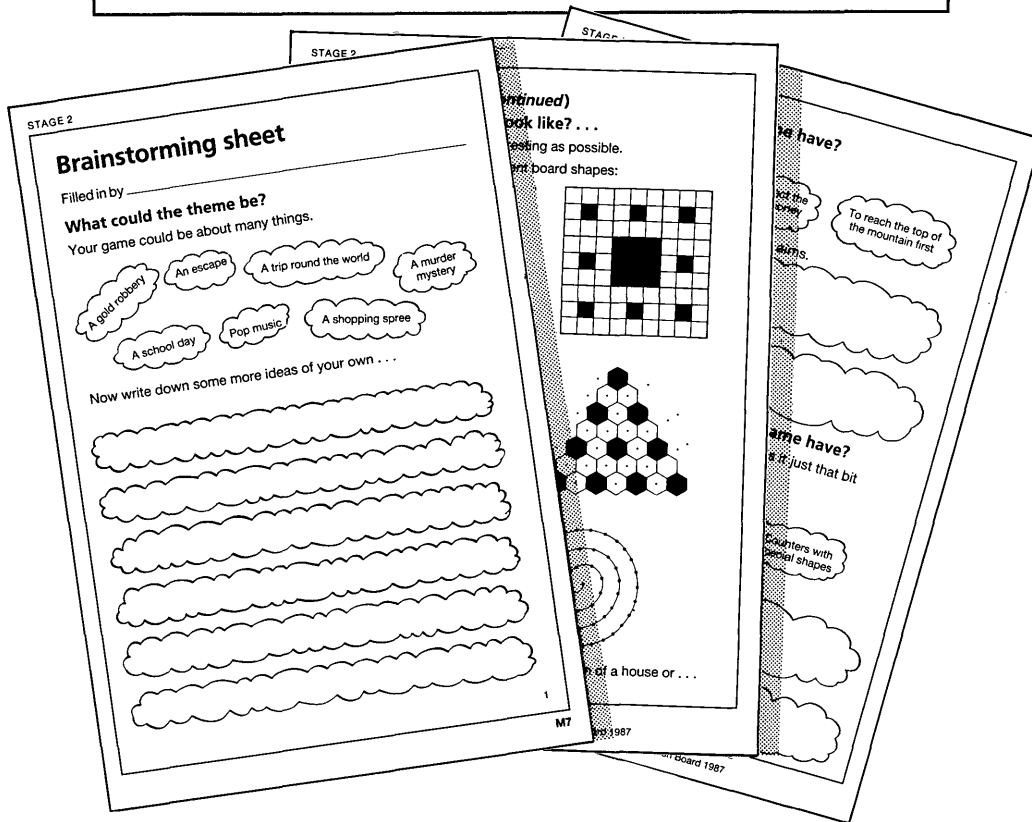
- Brainstorming,
- Reaching agreement,
- Drawing up a rough plan,
- Testing and improving your plan,
- Getting everything ready.

Brainstorming

You will each need a copy of the 'Brainstorming' sheet.

On your own, make lists and draw diagrams to show

- what your game could be about,
- what the board could look like,
- what the aim of the game could be,
- any special features your game could have.



If you run out of room on your 'Brainstorming' sheet, or if you need any special kinds of paper, then ask your teacher.

Drawing up a rough plan

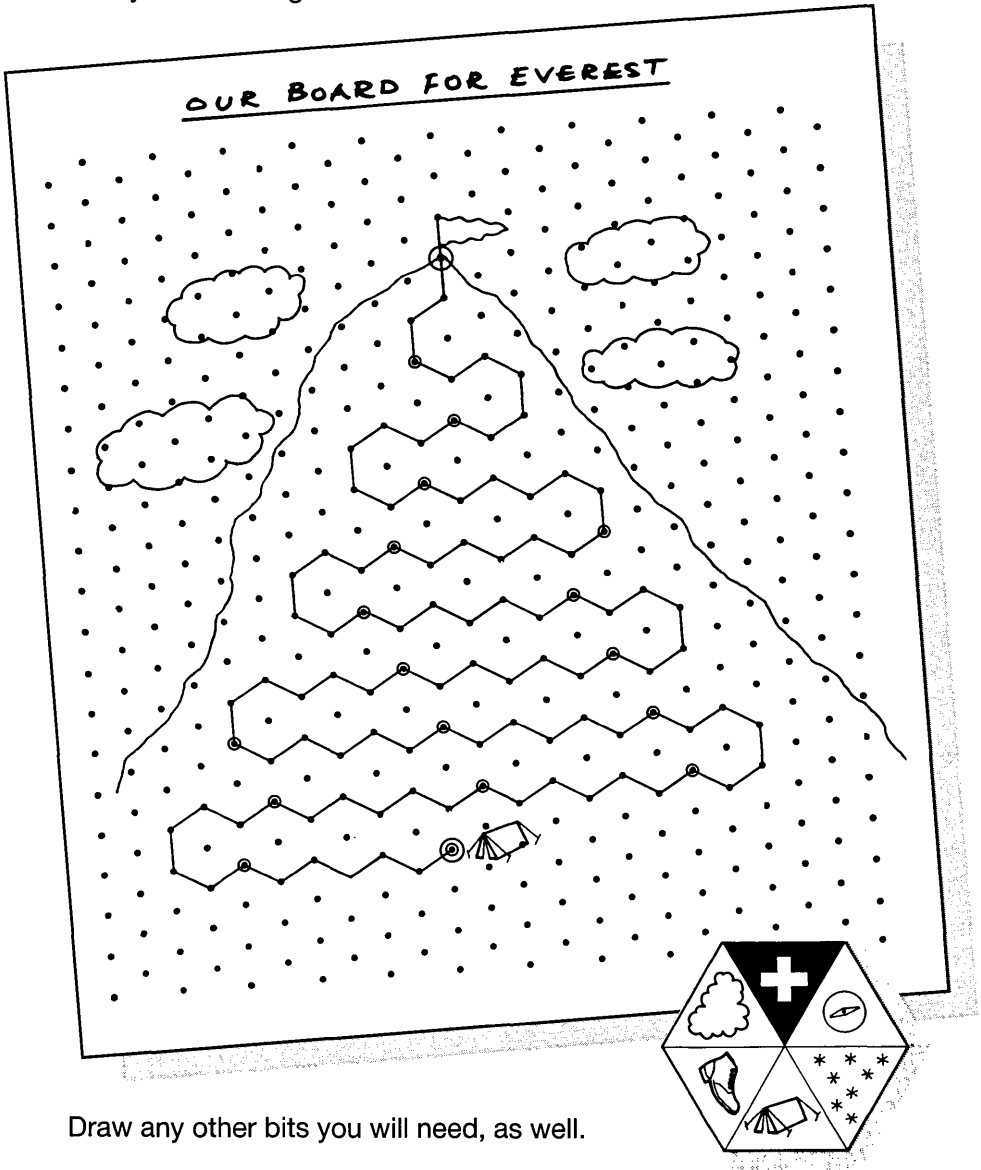
When your group has agreed on your game, each person should fill in the top half of a 'Rough plan' sheet.

Do not worry about writing the rules yet.

Rough plan	
Names <i>Barbara Frazer, Wesley Fisher, David Smith</i> <i>Catherine Swan</i>	
Our game is called ... <i>Everest</i>	
Who it's for ... <i>Four players aged 10 upwards</i>	What you need in order to play ... <i>Board, 2 dice, 4 counters spinner</i>
What it's about ... <i>You have to climb the mountain avoiding accidents.</i>	Aims of the game ... <i>To be the first to reach the top.</i>
Rules How to start ... How to make a move ...	

Now each person should draw a rough design for the board on a separate sheet of paper.

Use pencil, so that you can easily make changes.



Draw any other bits you will need, as well.

Write down some rules for your game on a spare piece of paper.

Now try playing the game in your group.

As you play, you will probably think of

- new rules,
- changes to the board,
- ideas for new pieces.

Make a note of all these new ideas.

I can't write rules . . .

Well, you say them out loud and I'll write down what you say.

This game is boring. How can we make it more exciting?

Why don't we give each player *three* counters.

I'll write that down.

Yes, then each player has to get their team up the mountain first.

I know, suppose a team is 'roped' together, so the counters must stay close.

Shall we change the board as well?

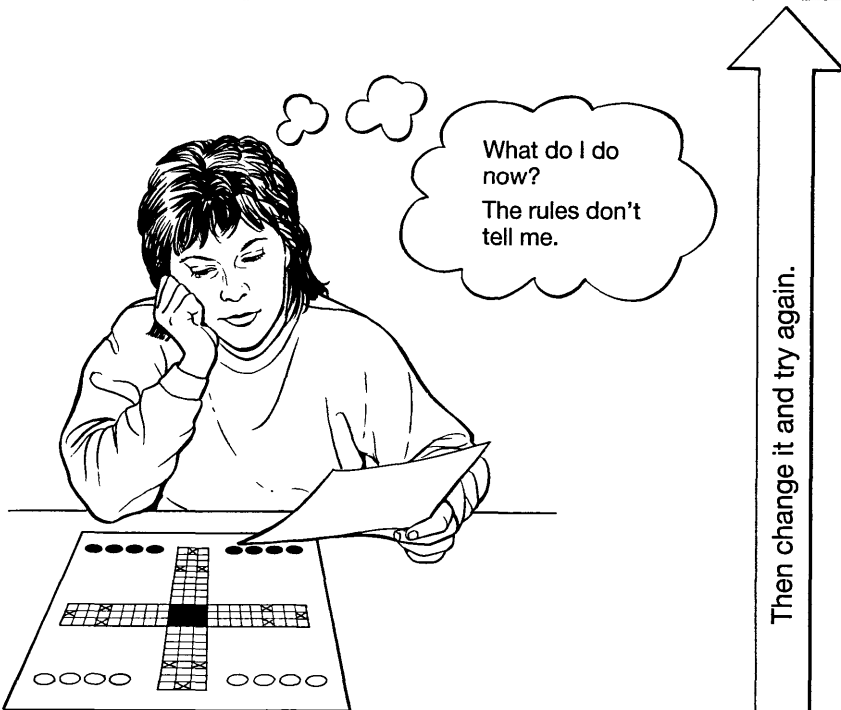


Other people have got to be able to play your game by just reading your rules.

Each person should try to write out a good copy of them on the bottom of their 'Rough plan' sheet.

Testing and improving your plan

When you think your game might work,
 either try it out in your group, *using your rules* to tell you how to play it.
 or give your game to another group and watch them play it.



Think carefully as the game is played.
 Is there anything wrong with

- the rules
 - the board
 - the other pieces
- ?

YES

NO

Then turn over.

Getting everything ready

Before you begin to make your game, you will need to collect things like

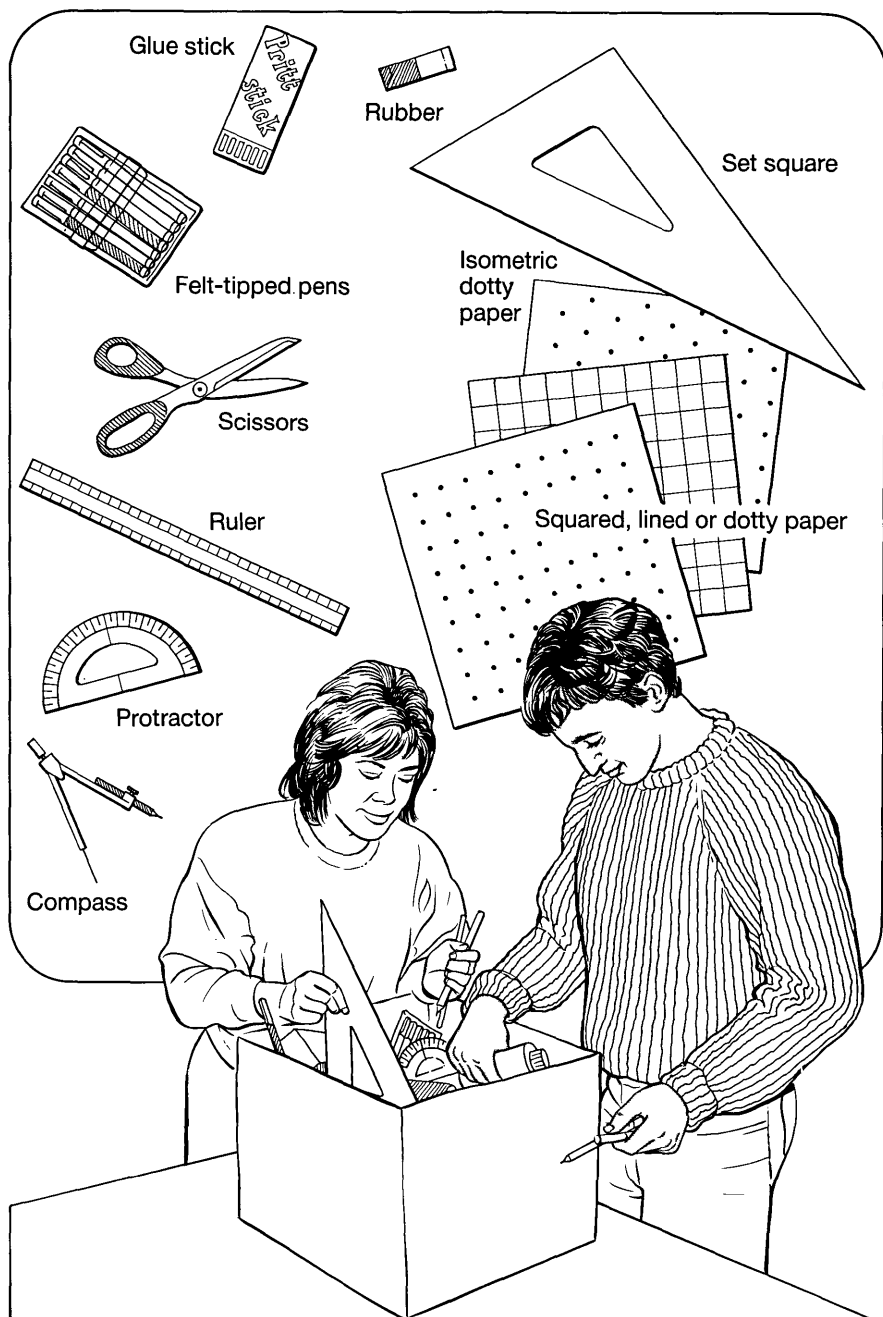
scissors, glue, counters, card, special paper,
an envelope to put bits in . . .

Make a list of the things you will need.

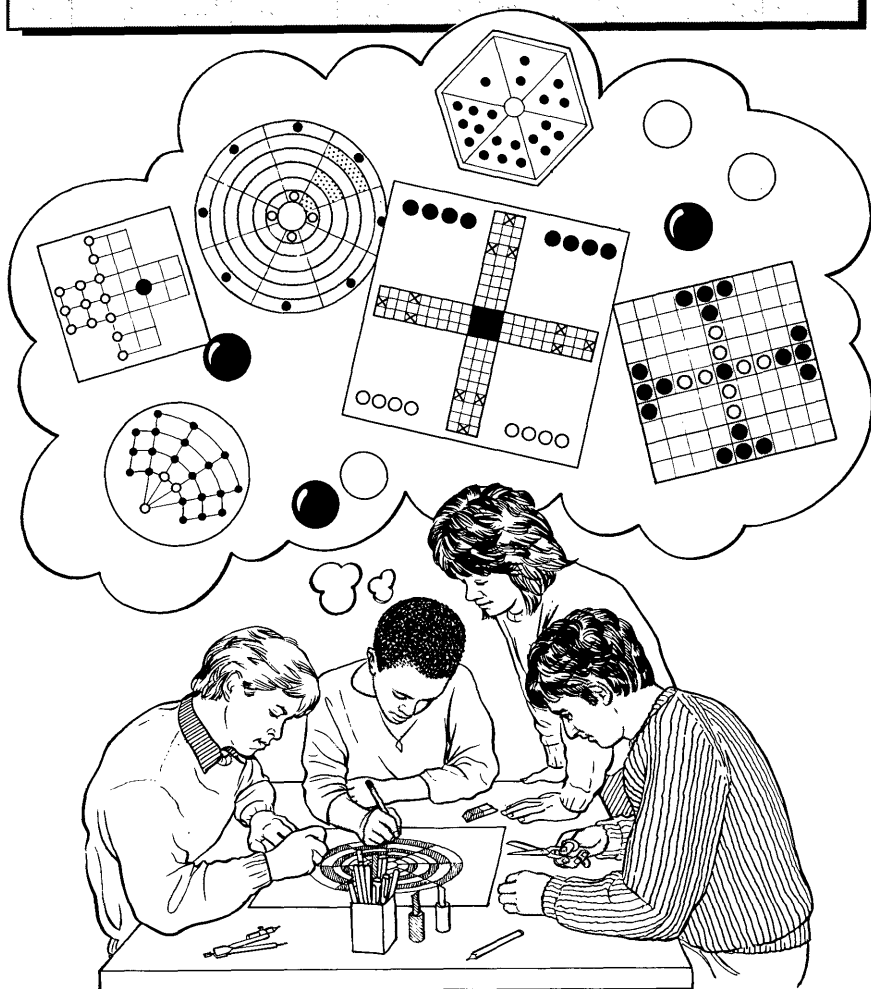
Make sure that everyone knows what they must bring,
especially your teacher!

The following page
may help.

<u>What we need</u>	<u>Where from</u>	<u>Who will get it</u>
Felt pens	home	John
Counters	stock cupboard	Teacher
Scissors		
Glue		
Cardboard		
Isometric paper		
Playing Cards	home	Kathy
used matches	home	everyone
Ruler	home	Rajiv
Compass		
Dice	shops	Barbara (on her way home)



Stage 3 Making your game



In this stage, your group will be involved in

- Making the board,
- Collecting and making any extra bits,
- Writing the final version of the rules.

Making the board

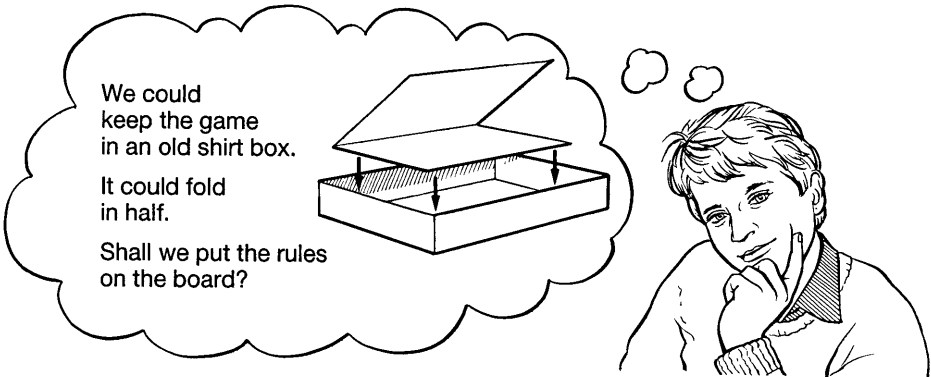
You now have to make a large, neat, final version of your board.

Before you start, discuss these three questions:

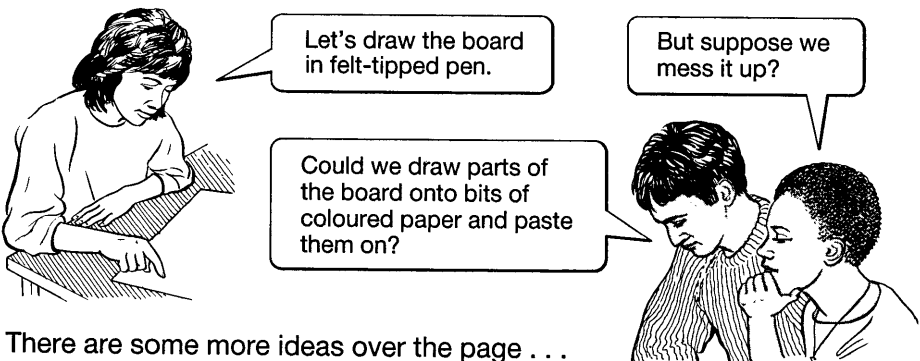
What shape will your board be?



How big will your board need to be?



How will you make your board?



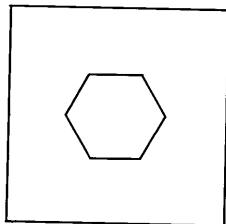
There are some more ideas over the page . . .

STAGE 3

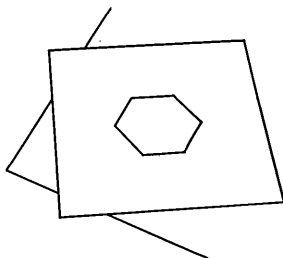
Here are some ideas which may help you make your board.

If your board contains a lot of shapes all the same, try making a template from tracing paper . . .

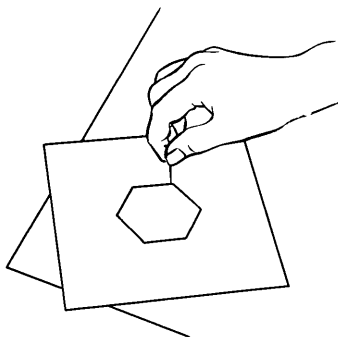
1. Draw the shape accurately on tracing paper.



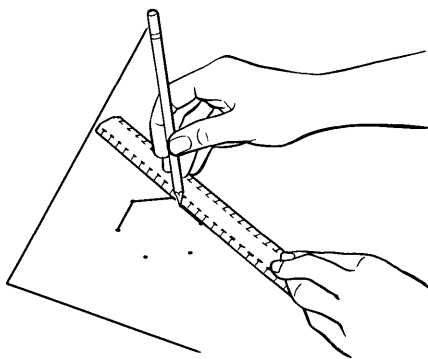
2. Place the tracing paper on the cardboard base.



3. Prick through with a pin.

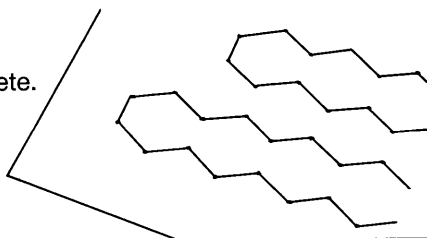


4. Lift off the tracing paper and draw between pin pricks.



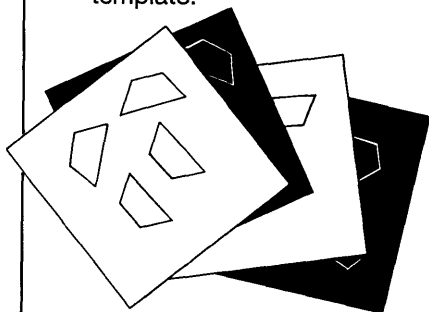
5. Re-position the tracing paper on the base and repeat . . .

. . . until the design is complete.

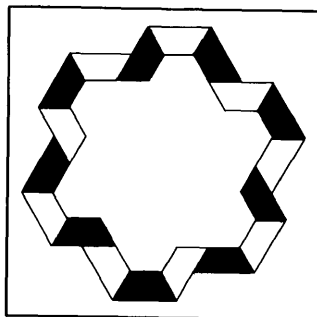


You could also try making a mosaic board.

1. Draw parts of your board on pieces of coloured paper, using a template.

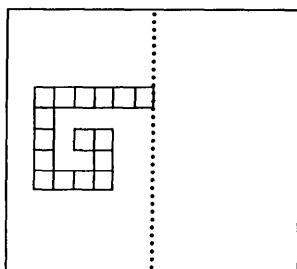


2. Cut these pieces out and paste them into place.



If your board has some kind of symmetry . . .

1. Draw part of your board and trace it.

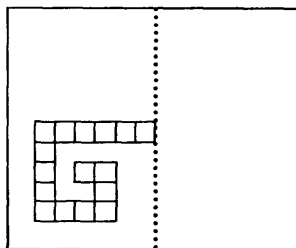
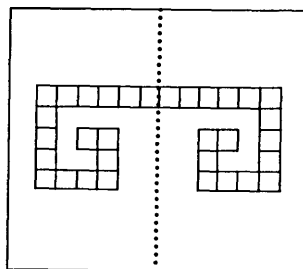


2. Turn your tracing paper over.

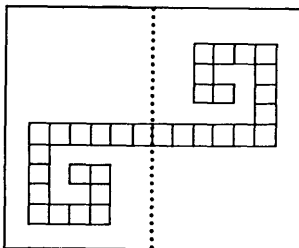


OR

3. Prick through the tracing paper with a pin, and finish the board.



2. Turn your tracing paper round.

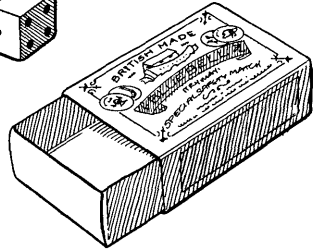
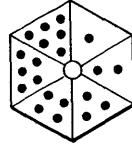


Collecting and making any extra bits

Do you need

- spinners?
- counters?
- dice?
- special cards?
- other bits and pieces?
- something to put bits in?

You may need to buy things like dice, but why not make your own counters or spinners or . . .



Writing the final version of the rules

Play the game just once more, to give your rules a final check. Make sure they are *clear* and *complete*.

What happens now?

It's simple, all you have to do is . . .



Well, why don't the rules say so?

Now write out a neat version of your rules.

You may be able to use a typewriter or word processor.

All finished! Now it is time to go public!

Stage 4 Testing and evaluating



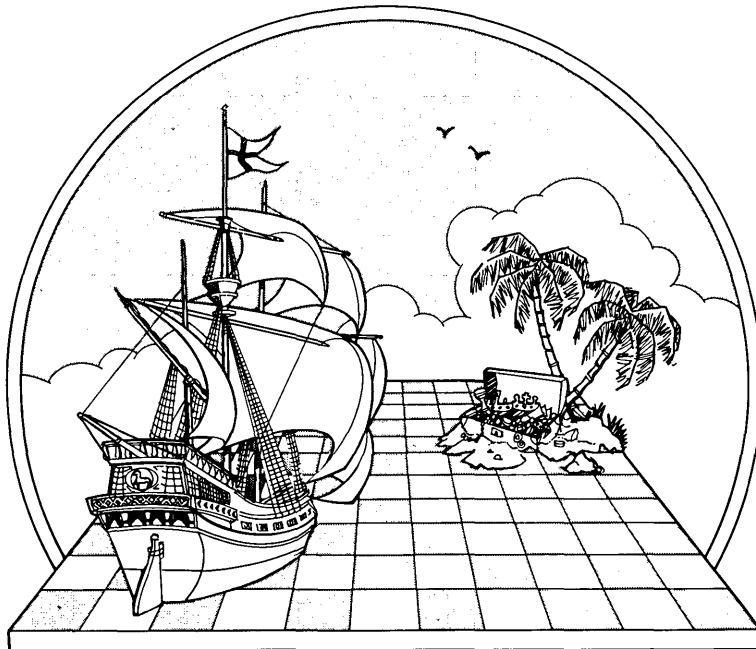
When several games are finished, swap your game with one from another group.

You will then

- test *their* game to see how well it works,
- see what the other group thinks of *your* game.

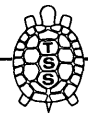
NUMERACY ▶ THROUGH ▶ PROBLEM ▶ SOLVING

Design a Board Game



Shell Centre for Mathematical Education

Joint Matriculation Board



MASTERS FOR PHOTOCOPYING

Masters for Photocopying

Except where indicated, these Masters are designed to produce single-sided, reusable worksheets. Masters for consumable sheets are labelled (c). Masters for double-sided sheets are labelled *.

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Comments

Name of the game _____

Filled in by _____

While you are playing, write down some good and bad features of it.

Good points	Bad points

Play the game a few times.

Make a note of the result on the back of this sheet.

About how long did each game take? minutes

After you have played, say how you could improve the game.

Looking at other games

Filled in by _____

Think of a board game that you like.

What is it called?

Why do you like it?

Is there anything you would change?

Think of a board game you don't like.

What is it called?

Why don't you like it?







What could you do to improve it?







The Great Horse Race

Turn to pages 4 and 5 of your Student's Booklet.

The 'Great Horse Race' is being played.

The scores on the first six throws of the dice are shown below:

Throw 1   Throw 2   Throw 3  

Throw 4   Throw 5   Throw 6  

1. On a copy of this grid, mark the positions of the horses after the six throws.

[illegible]

2. Suppose you want to win the game.
 - (a) Which horse would you not choose?
Explain your answer.
 - (b) Which horse would you choose?
Explain your answer.
 - (c) Do you think the game is fair?
Explain your answer.

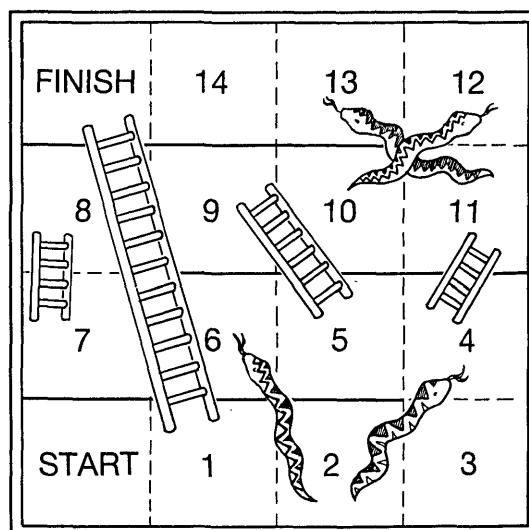
Snakes and Ladders

Read the following description of a game, and answer the questions which follow.

This is a game for 2 players.
You will need a coin and two counters.

Rules

- Take it in turns to toss the coin.
If it is heads, move your counter 2 places forward.
If it is tails, move your counter 1 place forward.
- If you reach the foot of a ladder, you *must* go up it.
If you reach the head of a snake, you *must* go down it.
- The winner is the first player to reach 'FINISH'.



- Suppose you start by tossing a head, then a tail, then a head.
Where is your counter now?
- List and describe all the *faults* you notice with the *board*.
- Using 3 snakes and 3 ladders, design a good game on a copy of this blank board.

FINISH	14	13	12
8	9	10	11
7	6	5	4
START	1	2	3

Blank boards for 'Snakes and Ladders'

FINISH	14	13	12
8	9	10	11
7	6	5	4
START	1	2	3

FINISH	14	13	12
8	9	10	11
7	6	5	4
START	1	2	3

FINISH	14	13	12
8	9	10	11
7	6	5	4
START	1	2	3

FINISH	14	13	12
8	9	10	11
7	6	5	4
START	1	2	3

FINISH	14	13	12
8	9	10	11
7	6	5	4
START	1	2	3

FINISH	14	13	12
8	9	10	11
7	6	5	4
START	1	2	3

What aim could your game have?

Here are some ideas:

- To score the most points
- To collect the most money
- To reach the top of the mountain first

Write down some ideas for different aims.

What special features could your game have?

Your game could have something that makes it just that bit special.

Maybe it could have ...

- A spinner instead of a dice
- Cards which you pick up
- Counters with special shapes

Write down some different ideas of your own.

Brainstorming sheet

Filled in by _____

What could the theme be?

Your game could be about many things.

- A gold robbery
- An escape
- A trip round the world
- A murder mystery
- A school day
- Pop music
- A shopping spree

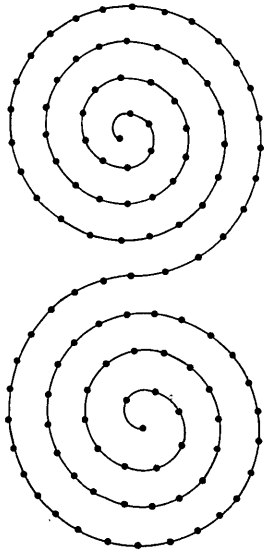
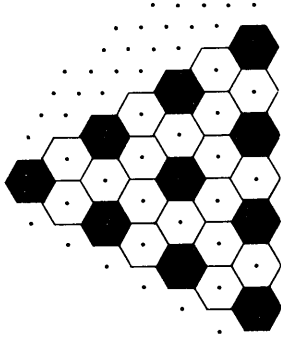
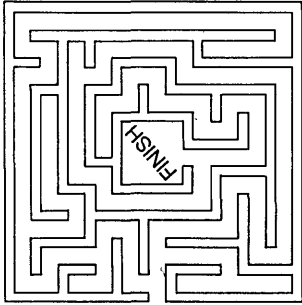
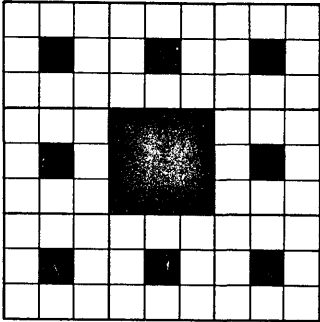
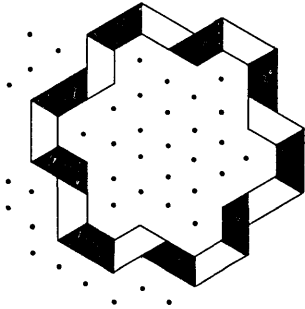
Now write down some more ideas of your own ...

Brainstorming sheet (*continued*)

What could the board look like? . . .

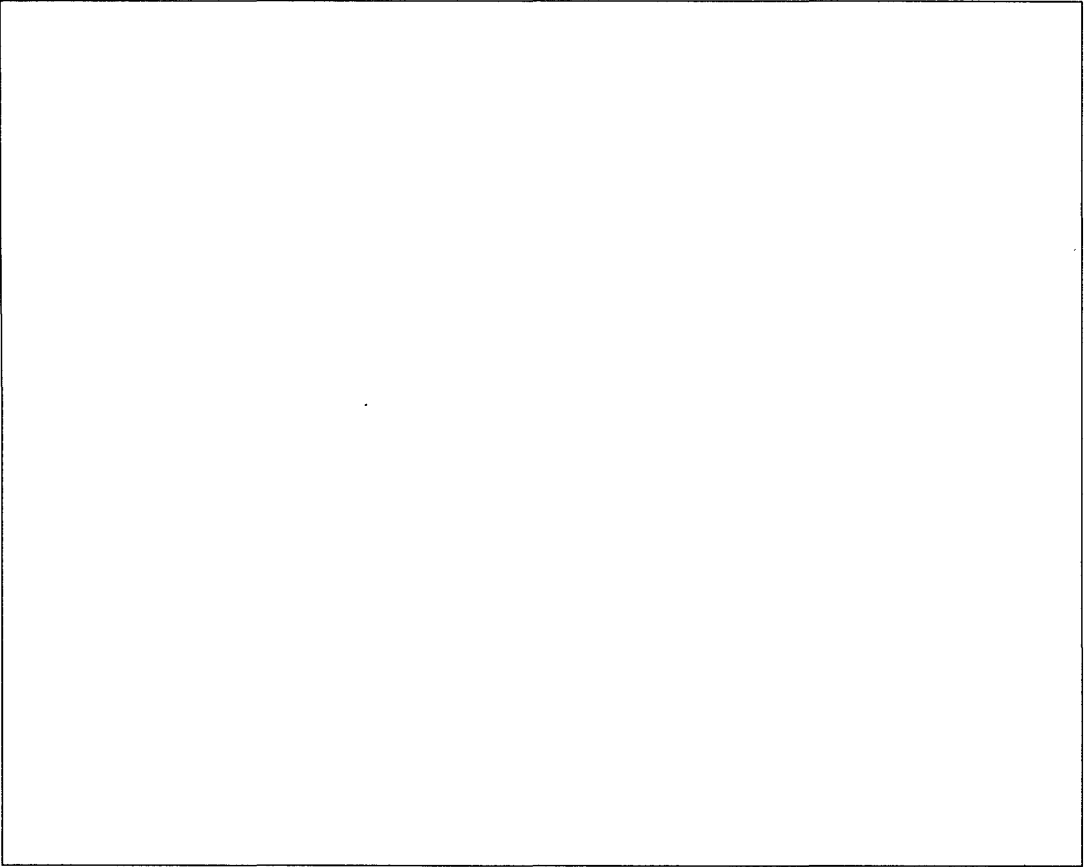
Make your board look as interesting as possible.

Here are some ideas for different board shapes:



Or you could have a race-track, a map, a plan of a house or . . .

Now sketch some ideas of your own in the space below.
Use a separate sheet of paper if you need more room.
Ask your teacher for lined or dotted paper if you need any.



Rough plan

Names _____

Our game is called . . .	
Who it's for . . .	What you need in order to play . . .
What it's about . . .	Aims of the game . . .

Rules

How to start . . .

How to make a move . . .

Other rules . . .

Deep Sea Diving

One group have been discussing their plans for a board game.

Here are some of the things they have decided:

Our game will be about deep sea divers looking for treasure in a sunken shipwreck.

The game will be for 3 players.



The winner will be the first to bring the treasure to the surface.

You need to throw a dice to move around the board.



There are sharks and other dangers which make the task more difficult.

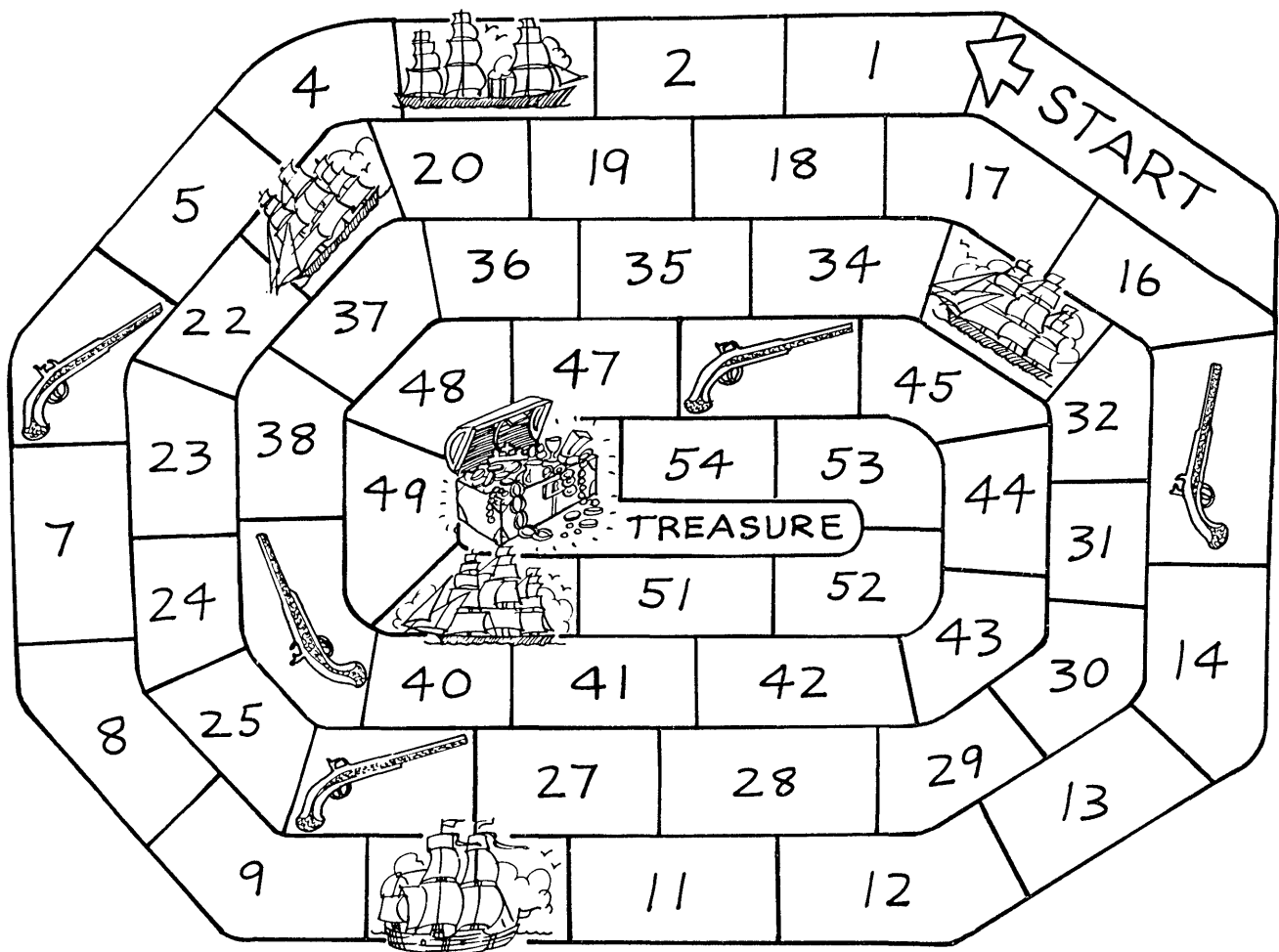
Your task is to design a board for this game.

Try to make your design interesting and fair.

(You do *not* need to draw it accurately.)

Treasure

The board drawn below was designed by a group of students, but they haven't written any rules.



Answer sheet for 'Treasure'

Fill in the 'Rough Plan' sheet shown below, so that a young child could understand how to play this game.

Rough plan

Names _____

Our game is called . . .

Who it's for . . .

What you need in order to play . . .

What it's about . . .

Aims of the game . . .

Rules

How to start . . .

How to make a move . . .

Other rules . . . Make sure you explain what happens if you land on a gun or a ship.

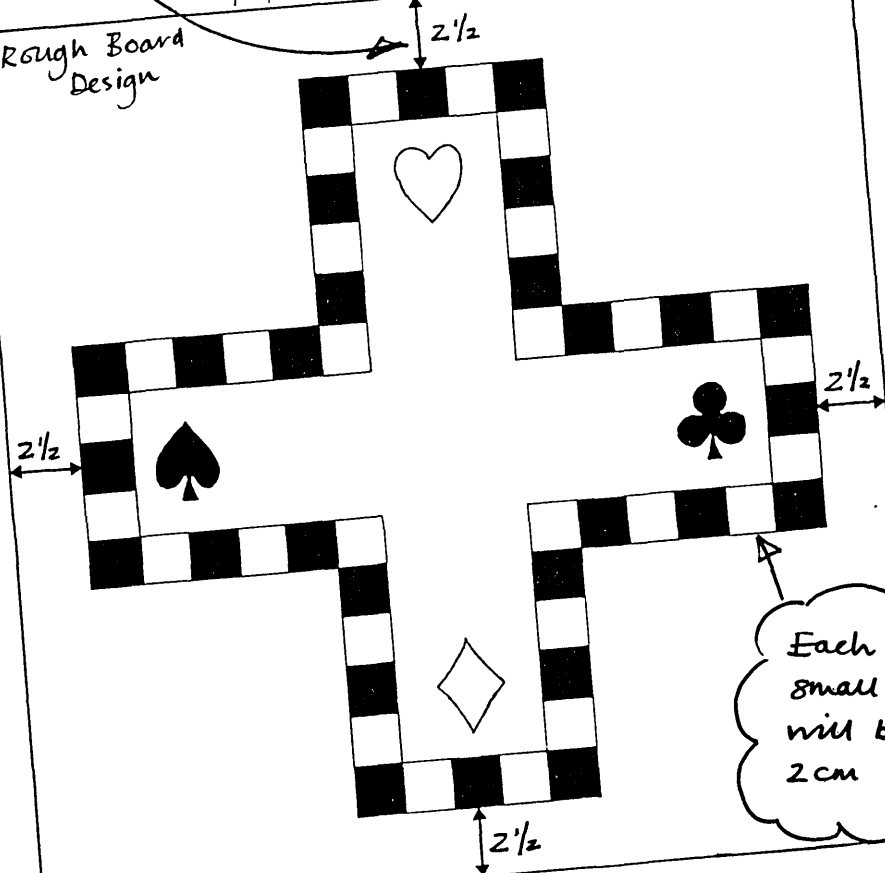
Chasing Packs

Here is part of a rough plan for a game called 'Chasing Packs'.

We will draw the board on a large square sheet of cardboard

There will be $2\frac{1}{2}$ cm between the track and the edge of the board

Rough Board Design



Each of these small squares will be 2 cm by 2 cm

Rough plan

Names Philip Smith Cotette Beaujui

Our game is called ... Chasing Packs

Who it's for ...

Four Players

What you need in order to play ...

Board, pack of playing cards.

6 counters for each player

What it's about ...

The players chase each other round the board and try to capture each others cards

Aims of the game ...

To win the most cards

Rules

How to start ...

Start by dealing out all 52 cards

Each player places one counter on the board

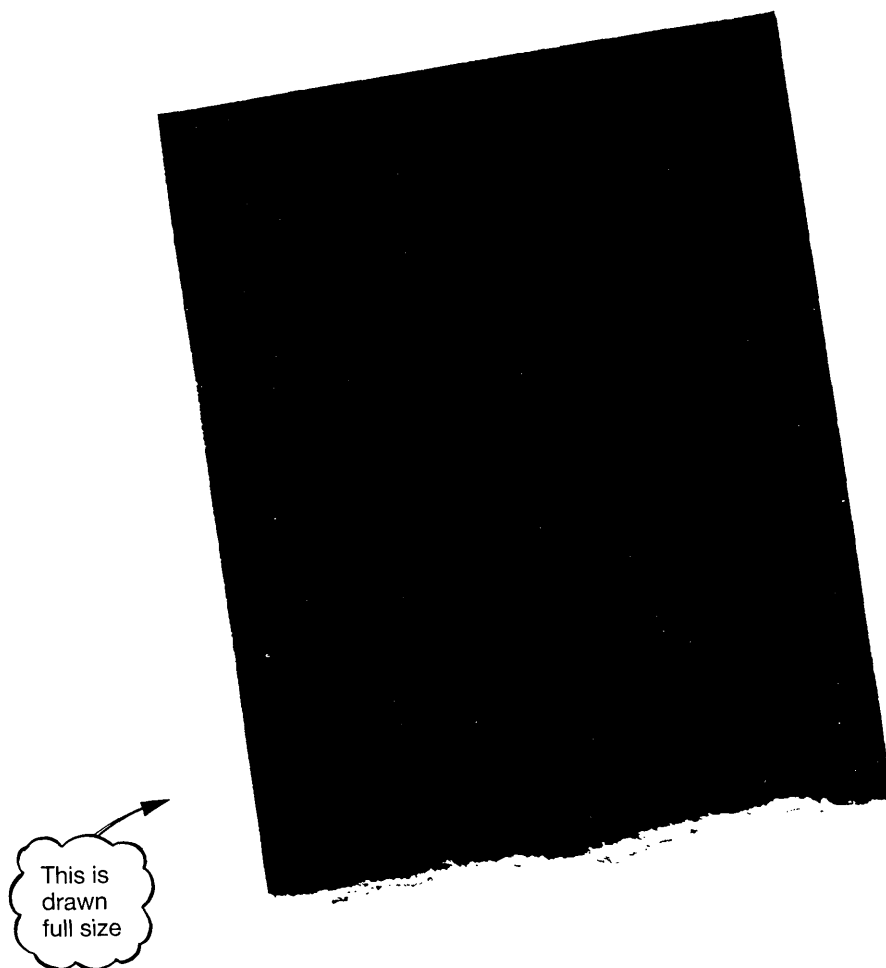
How to make ...

Chasing Packs

Two students are about to make this game.

1. How many counters will be needed altogether?
2. They are going to make a full-size version of the board. Work out how big the large cardboard base should be, (use the measurements on the rough plan).

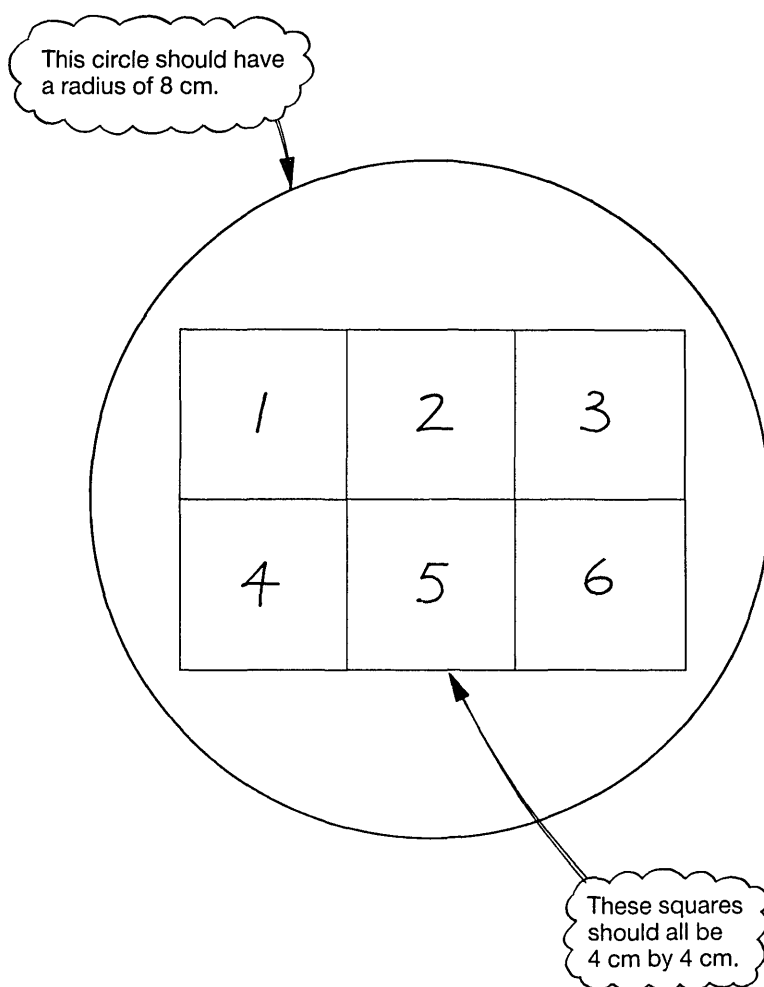
The students have found this scrap of black paper



3. They could cut out the black squares on the board from it and then paste them on.
How many 2 cm by 2 cm squares can be cut from this piece?
(Find the *largest* number you can make).

Chuck-a-Luck

A group of students have designed a board for a game called 'Chuck-a-Luck'. Draw the board full size, as accurately as you can. Make sure you follow the instructions in the bubbles.



Evaluating your own game

Name of the game _____

Filled in by _____

Read through the **Comments** sheets.

1. What did other people say about your game?

Tick the points you agree with.

2. These are the good points of the game:

3. These are weak points of the game:

Turn over

Evaluating your own game (*continued*)

4. I could improve it by changing the rules like this

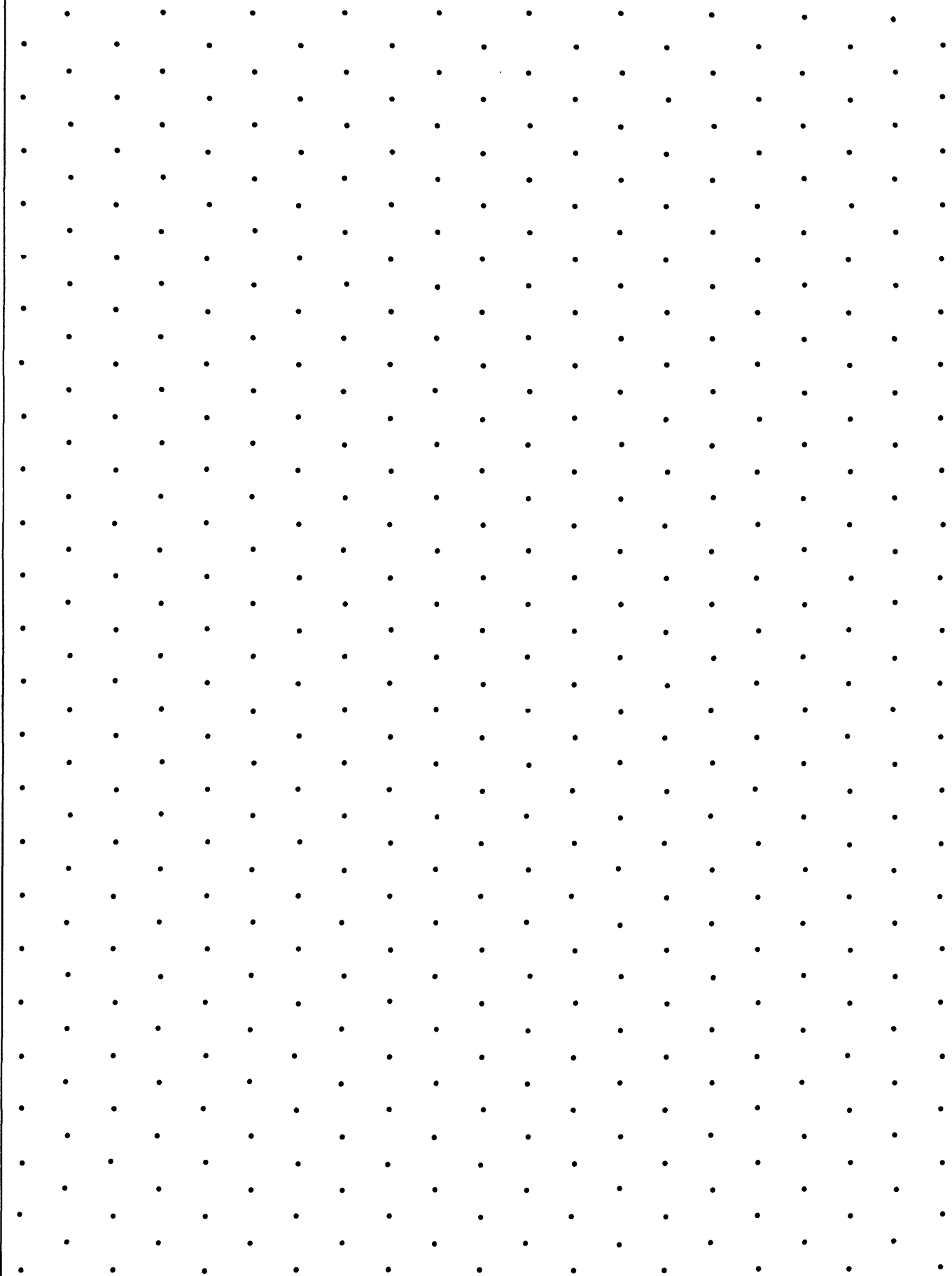
5. I could improve it by changing the board like this

6. Next time I design a board game, I will

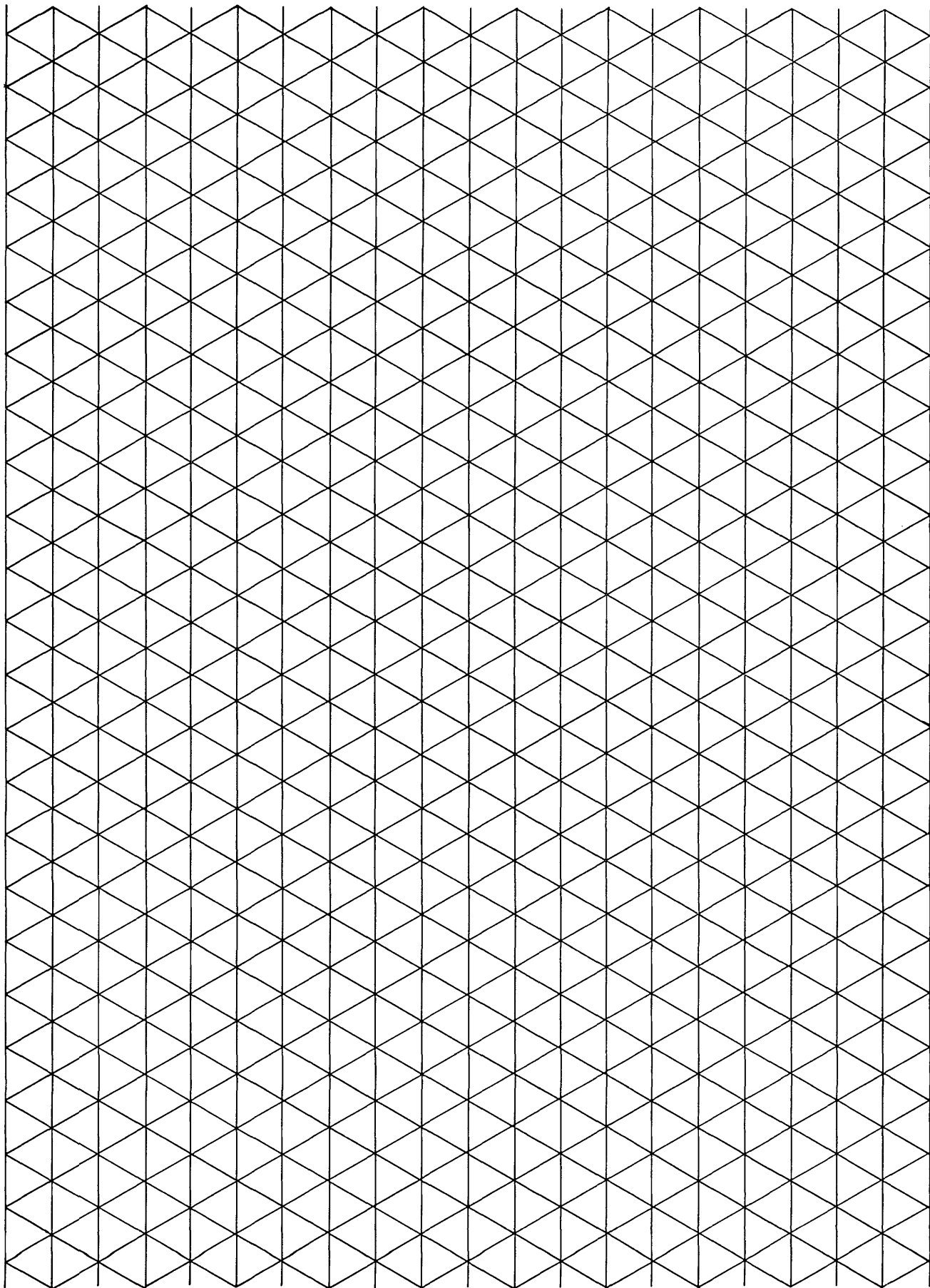
7. If a friend asked my advice about designing a board game, I'd say

8. Space for further points

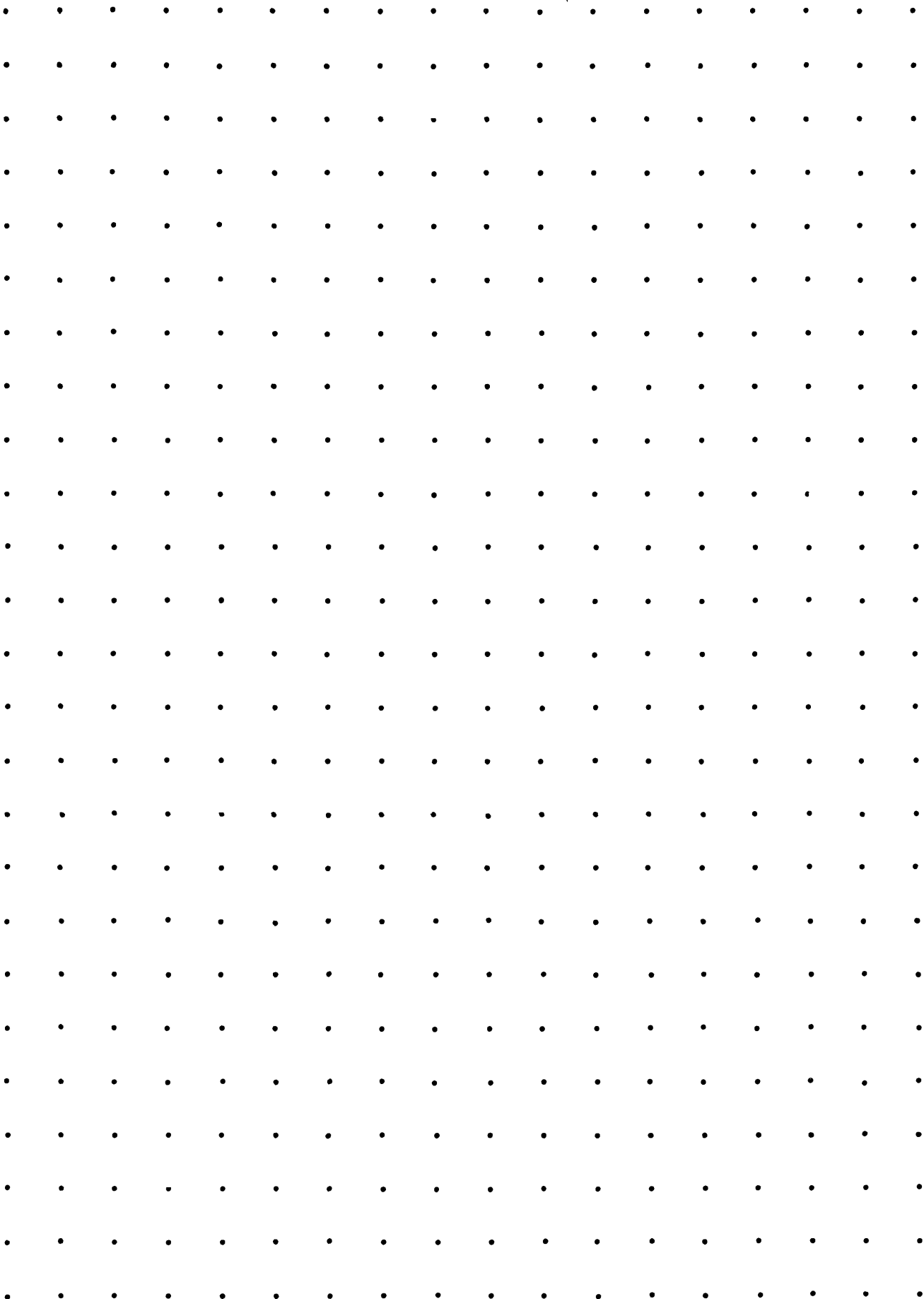
Isometric dotted paper



Isometric lined paper



Squared dotty paper



Squared lined paper

