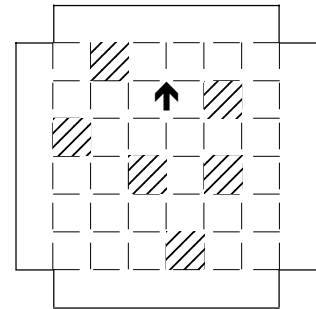


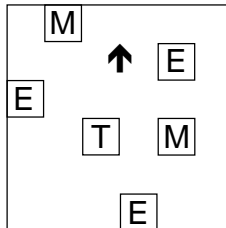
This apparent jumble of letters, written in a square grid contains a message which is 24 letters long and which has had none of its letters changed. They have just been re-arranged in a particular way, and some other letters have been added to fill up the grid. We may consider the message to be 'buried' in the grid.

The first word of the message is MEET but, in this case, even knowing that, is of no help in finding any other words. So, how was it done or, more to the point, how do we recover the original message?

To make sense of this jumble we need to make a 'Window Reader'. A drawing of the particular one we need is shown on the right. It first needs to be copied on 1 cm squared paper. Then it is cut out around the outside edges and each of the six shaded squares is cut out. These form the 'windows' through which the correct letters are seen. The arrow is needed to keep track of the position of the reader as it is turned around. The four strips outside the size of the grid (6 by 6) are only there to make the reader easier to handle.

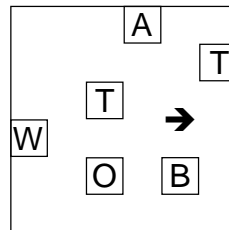


Having made the Window Reader, place it over the square grid at the top, fitting it exactly to the corners and with the arrow pointing upwards. You should then be seeing this:-



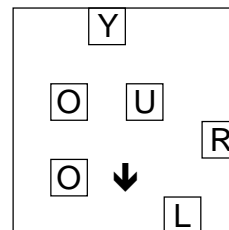
Copy down the letters which are showing, starting at the top row and reading each row from left to right. This gives:-
MEETME
as the start of the message.

To continue, we give the Window Reader a quarter-turn clockwise and replace it on the grid with the arrow pointing to the right, which will then show this:-



and gives:-
ATTWOB
as the next part of the message.

Another quarter-turn clockwise of the Window Reader, so the arrow is pointing downward, reveals:-



and gives:-
YOUROL
as the third part of the message.

The last position of the Window Reader will have the arrow pointing to the left and uncover **DHOUSE** to make the total message:-

MEETMEATTWOBYOUROLHOUSE

which can be divided into words to read:-

MEET ME AT TWO BY OUR OLD HOUSE

Exercise 4

Use the Window Reader to recover the messages 1 to 8 on the next sheet.

Cryptology

Buried Messages ~ 2

1

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

2

A	B	O	O	T	Y
A	R	T	H	E	F
W	W	M	A	Y	O
A	H	A	U	R	T
S	O	N	Y	N	O
I	M	E	E	U	N

3

A	M	T	O	I	L
N	F	O	R	E	L
E	I	D	O	N	I
S	E	T	D	A	N
A	O	T	R	A	P
I	B	Y	T	N	R

4

H	E	R	N	O	T
A	S	I	K	S	O
C	N	W	A	R	N
Y	E	A	O	P	M
W	E	O	P	U	N
O	R	N	E	I	T

5

S	T	L	A	B	E
A	M	G	O	H	C
E	S	K	T	I	N
W	O	A	D	T	A
A	R	I	E	L	O
D	B	Y	T	T	E

6

O	F	P	T	A	N
F	A	N	T	I	E
N	L	N	A	N	T
E	L	D	A	O	N
C	O	M	F	Y	E
A	P	K	U	F	I

7

I	W	G	O	T	E
S	A	D	R	A	R
T	E	N	N	E	R
E	G	C	I	H	T
V	T	W	O	A	D
B	E	E	F	O	R

8

G	G	D	C	F	L
O	C	T	H	O	R
T	E	E	S	M	I
T	D	O	S	S	E
O	A	H	R	I	D
P	I	N	E	R	L

Exercise 5

The same Window Reader is used as before, but not in the same regular way.

In the grids 9 to 16 the starting positions are not necessarily with the arrow pointing up. Also the quarter-turns may have been made in the anti-clockwise direction. The Reader may even have been used turned over.

Try to recover the original messages.

9

M	O	H	T	H	E
C	H	I	A	U	O
T	E	F	L	E	D
I	R	W	G	H	P
U	M	N	O	D	E
R	A	N	O	E	N

10

M	E	S	A	Y	B
U	O	T	S	O	N
S	A	T	N	H	U
O	A	T	R	E	D
M	A	R	Y	M	A
D	E	E	Y	E	D

11

D	R	I	U	D	E
O	C	H	O	O	T
K	S	T	S	A	D
H	T	E	E	N	A
S	F	I	A	S	E
R	U	B	B	E	R

12

F	O	G	T	A	N
O	F	C	L	E	D
N	N	A	T	Y	E
L	P	O	L	I	O
B	A	R	S	O	W
I	W	A	S	N	O

13

T	R	I	O	E	N
N	S	H	O	E	D
L	I	N	E	E	C
Y	A	P	P	I	E
E	D	A	M	T	M
R	O	E	E	G	G

14

A	B	E	C	O	D
I	F	L	I	E	K
M	N	I	A	M	N
S	L	A	D	D	T
W	T	T	R	O	D
A	S	H	E	A	N

15

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

16

C	L	A	M	B	N	O	W	N
T	O	I	S	H	E	L	L	R
A	T	I	O	N	M	N	A	D
O	B	E	F	A	N	D	E	R
S	H	A	N	Y	I	O	D	E
A	N	S	M	R	A	I	N	S

Whilst a message can certainly be hidden by means of a grid and a Window Reader, it obviously cannot be sent in that form. It is in fact sent, just as all messages are sent, in a long string of letters divided up into blocks of five. The person receiving the message has to write it on a grid of the correct size before using the Window Reader. Starting with this message:-

TOSAS ATTO TRAPR RMAYL CLEEK SOIMK NUASK

We know that we are using a 6 by 6 grid drawn on 1 cm squared-paper, and we fill this in, writing one row at a time from left to right. As there are only 35 letters in the message we leave the last square blank. The completed grid looks like this:-

T	O	S	A	S	A
T	T	T	O	T	R
A	P	R	R	M	A
Y	L	C	L	E	E
K	S	O	I	M	K
N	U	A	S	K	

Next we need to find out just how the Window Reader is placed. For this message turn the reader over and start with the arrow pointing downwards. Moves are then made clockwise. The four groups to be found are:-

ARMYMU STRESI
STALLA TTACKS

which can be read as:-

ARMY MUST RESIST ALL ATTACKS

To avoid any confusion that might arise in talking about this it is helpful to realise that there are two messages involved. One is the real message (ARMY MUST ...) and the other is the message which is actually sent (TOSAS ATTO ...), which we will refer to as the sent-message.

Exercise 6

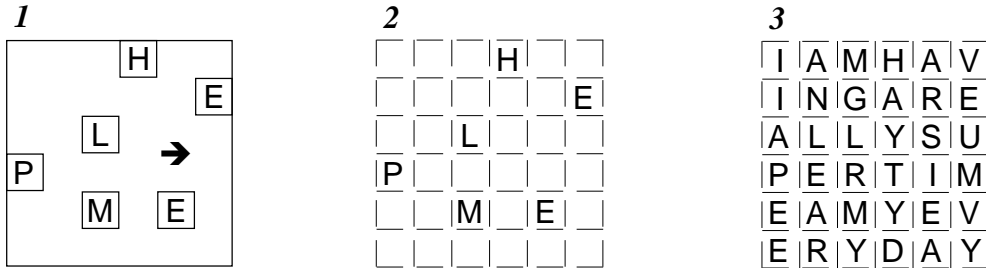
Find the real message in each of these sent messages by writing it out on a 6 by 6 grid and using your Window Reader. The first placing of the reader, whether it needs to be turned over, and the direction of the quarter-turns will have to be found by experiment.

1. ODAFT ERSAT ARWTI TRADE NROAT CANYO URSNK
2. PIGSS OOTHE INDRE EAARY IIFSH ORNCN OHNGO
3. BIERF OURNO WTIBO OISDA LSLRT DANYB OTHCE
4. ISMOK EAPEL TMAOB NRAID RNTDE ANYGO ATSBY
5. IFCOS HOANY TOHAF NJIUL ISEVE OLYNR MEODE
6. STOWA DRESS REYUW STCIN TUOOE OLELP BOYRN
7. WHIRR AWOEI BEOUT IOSDS RTALE LOCAD BYHER
8. BEGDO ANDIM NBEUA NEEDA ENDSA ALOYO FWREN

Deeper Deceptions

Burying the real message inside the sent-message is particularly good if the sent-message can be made to look like a genuine message in its own right. If that can be done then it may not even be realised that it is carrying a secret message. This sort of disguise is only possible when the real message does not fill the grid (in fact it needs to be very short) and there is room to put in any other letters we please so that the completed sent-message reads properly.

Suppose we wished to send the plea HELP ME (as the real message) but wanted to disguise it by burying it inside another, innocent looking, message. First of all we would use the Window Reader to get the real message in the correct squares on the grid. This is shown in **1**. This would leave several blank cells as in **2**. These can then be filled up with any letters we choose that make sense. One attempt is shown in **3**.



Then the sent-message would be:-

I AM HAVING A REALLY SUPER TIME AMY EVERY DAY

It is quite difficult to do this and, usually, the sent-message reads a little oddly and gives itself away as being the carrier of something deeper. Apart from telegrams, one place where such messages can appear openly without attracting too much suspicion is in the Personal Column of a newspaper where strangely worded messages are often seen. In fact, the Personal Columns of *The Times* are known to have been used for this purpose for many years. Though it must be said that the secrets known to have been passed were concerned with the private lives of individuals rather than the affairs of government and spies.

Exercise 7

Recover each of the real messages in these sent-messages which appeared in succession in the Personal Column of one (imaginary) newspaper. Use a 6 by 6 grid and the same Window Reader as before. All punctuation and spaces are ignored when filling in the grid.

It all started when he said:-

Her every kiss fun. Now cup is always full. Sam

To which she suggested:-

Let Sam ask about sky wheel. See me. Every love.

So he said:-

Amy is to have new pens as Tommy broke others.

But she needed to know more and asked:-

My son is downed by bite. I am not happy in East.

And he told her:-

You ask if mood not envied by most knaves? Yes!

Let us hope that it all worked out alright!

To make: cut out around the outside edge and then cut out the six shaded squares

