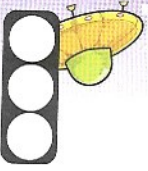


639 Plot simple co-ordinates and apply where appropriate.

Strand Shape and Space
Strand Unit 2D Shapes



A (0,5)	B (2,0)	C (5,0)	D (8,5)	E (10,1)
F (10,9)	G (8,5)	H (5,10)	I (2,10)	J (0,5)

Fish

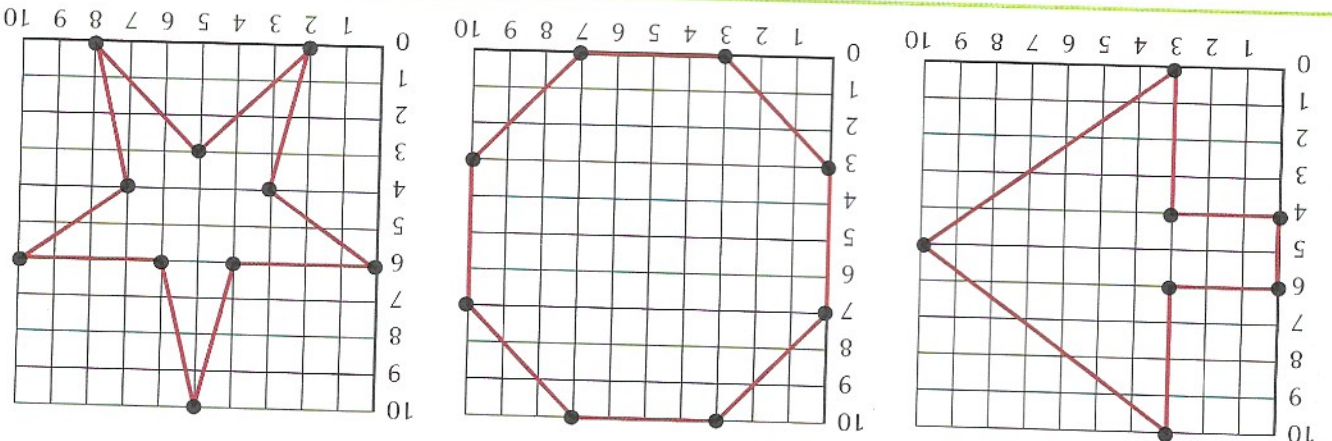
A (5,10)	B (1,1)	C (10,5)	D (1,9)	E (5,0)
F (9,9)	G (0,5)	H (9,1)	I (5,10)	

8-sided star

A (2,0)	B (2,6)	C (1,6)	D (0,8)	E (3,10)	F (4,9)	G (6,9)
H (7,10)	I (10,8)	J (9,6)	K (8,6)	L (8,0)	M (2,0)	

T-shirt

C Mark each of these sets of co-ordinates on grids and join them in A-B-C order.



B What are the co-ordinates of each vertex of each shape?

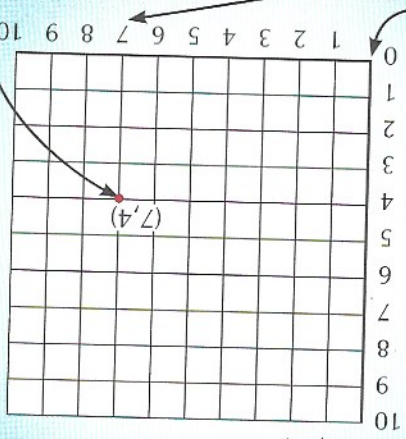


A Warm-up. Listen to your teacher.

My goal is to read and draw diagrams using co-ordinates.



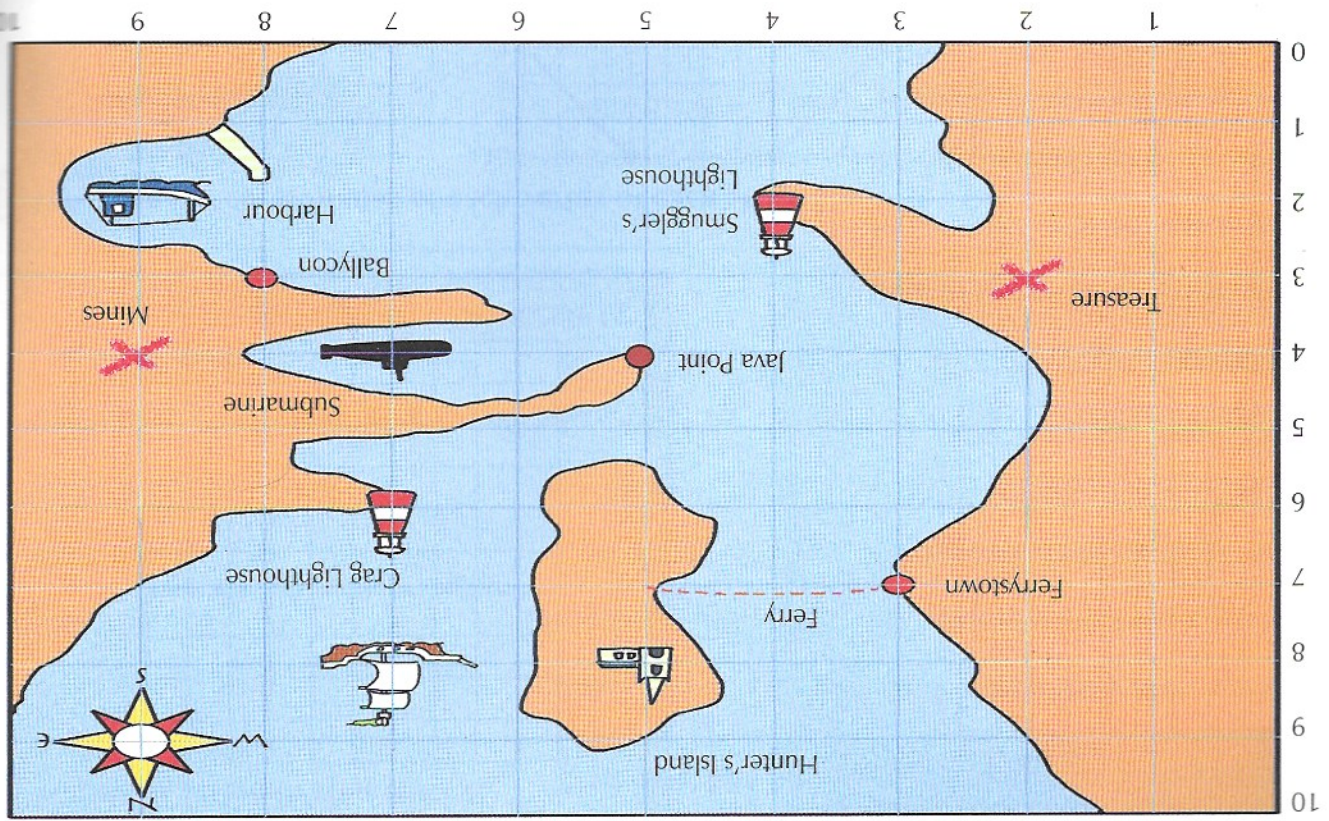
Finding your co-ordinates
Where is (7, 4)?
Start at 0. Move 7 to the right, then up 4





Challenge Yourself
 Draw a map on a 10 x 10 grid like the one above. The map should have the features below. Make up names for the features such as 'Misty Mountain'.
 1. A mountain 2. A hill 3. A town 4. A village 5. A quarry
 6. A castle 7. A road 8. A lake 9. A river 10. A graveyard
 You can add other features if you wish.
 Compose 3 questions based on your map.

- Study the map. What are the co-ordinates of each of these places?
 (a) The church on Hunter's Island (b) The mines (c) Smuggler's Lighthouse
 (d) The trawler in the harbour (e) Ballycon (f) Java Point (g) The treasure
 (h) Ferrystown (i) The submarine (j) Crag Lighthouse
- What are the co-ordinates of the points the ferry sails between?
- What town is due east of the treasure?
- A pirate ship entered the area at co-ordinates (3,10). Trace its course on the map.
 (3,10) (8,9) (6,5) (3,5) (3,4)
- In what direction was the pirate ship sailing between (6,5) and (3,5)?
- Between which points was the pirate ship sailing south?



Rows and columns of a grid can be used to encode secret messages.

A	B	C	D	E		(1,1)	(1,2)	(1,3)	(1,4)	(1,5)
F	G	H	I/J	K		(2,1)	(2,2)	(2,3)	(2,4)	(2,5)
L	M	N	O	P		(3,1)	(3,2)	(3,3)	(3,4)	(3,5)
Q	R	S	T	U		(4,1)	(4,2)	(4,3)	(4,4)	(4,5)
V	W	X	Y	Z		(5,1)	(5,2)	(5,3)	(5,4)	(5,5)

Each box contains one letter, except for the box with I/J.

The row is named first; then the column: A is (1,1), B is (1,2), C is (1,3) etc.

You can put a word into code by listing the co-ordinates of each letter, e.g. DOG: (1,4)(3,4)(2,2)

The co-ordinates (5,5)(1,5)(1,2)(4,2)(1,1) stand for ZEBRA.

If the box (2,4) is in the code, you have to figure out whether it is an I or a J.

E.g. (4,4)(2,4)(2,2)(1,5)(4,2) is either TIGER or TJGER. TJGER is not a word, so the word must be TIGER

1. Put these words into code.

- (a) FOX (b) PONY (c) EAGLE (d) DONKEY (e) GIRAFFE (f) ELEPHANT

2. Encode this proverb.

'A candle loses nothing by lighting another candle.'

3. Decode this Chinese proverb.

(4,4)(1,5)(1,1)(1,3)(2,3)(1,5)(4,2)(4,3) (3,4)(3,5)(1,5)(3,3) (4,4)(2,3)(1,5)
 (1,4)(3,4)(3,4)(4,2). (5,4)(3,4)(4,5) (1,5)(3,3)(4,4)(1,5)(4,2) (1,2)(5,4)
 (5,4)(3,4)(4,5)(4,2)(4,3)(1,5)(3,1)(2,1).



B More secure codes

1. Draw a 5 x 5 grid. Think of a long word or name, e.g. Confucius.

Put the letters of this word into the grid. Do not repeat any letter.					Fill the grid with the remaining letters of the alphabet in alphabetical order.				
C	O	N	F	U	C	O	N	F	U
I	S				I	S			

2. The last box will have 2 letters. Put your message into code using the new grid.

Example: SNAKE: (2,2)(1,3)(2,3)(3,5)(3,1)

To decode the message, the decoder must have both the word that created the grid, CONFUCIUS, and the numbers.

