Activity title

Treasure Hunt

Time required

1 hour

Activity summary

Locating pirate treasure on a map using coordinates, vectors and angles

By the end of this activity, you will be able to:

Find directions on a map using coordinates, vectors and polar coordinates

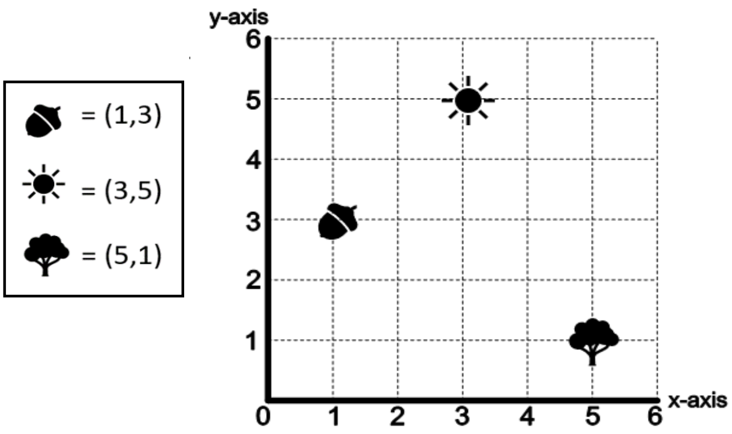
What equipment will you need?

- Ruler
- Pencil
- Eraser
- Protractor (360 degree)

How to do it

1. Example of finding a position using coordinates:

To find a position, always read the x-axis before the y-axis.
The x and y position is then written in brackets with a comma.



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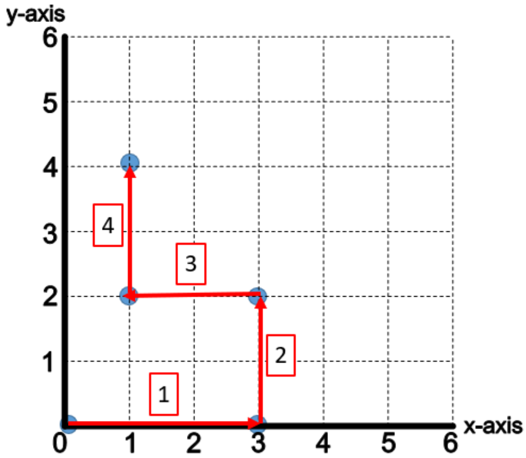
For more information about this, you could look at	
BBC Bitesize – What are Coordinates:	https://www.bbc.co.uk/bitesize/topics/zgthvcw/articles/z96k9qt
BBC Bitesize – How to plot coordinates:	https://www.bbc.co.uk/bitesize/topics/zdbc87h/articles/zvvmtv4

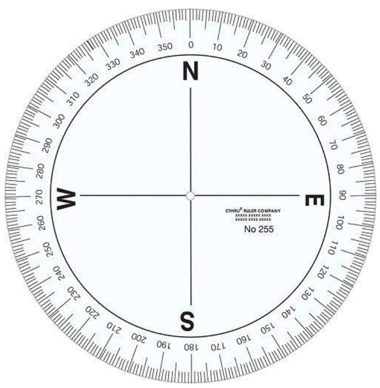
2. Example of finding a position using vector coordinates.

Starting from (0,0):

1. Move (3,0)
2. Move (0,2)
3. Move (-2,0)
4. Move (0,2)

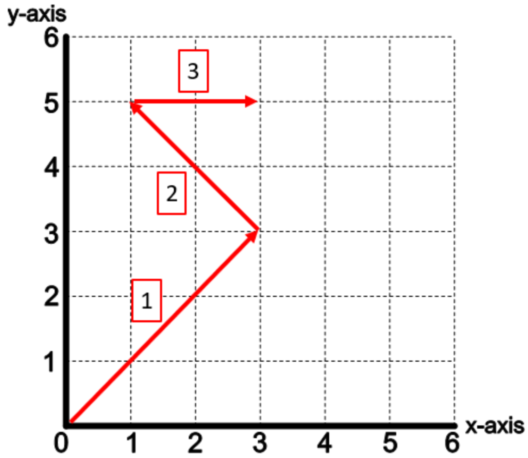


3. Example of finding a position using polar coordinates:



Using Angle and Distance:

1. Move 45 degrees, 40mm
2. Move 315 degrees, 25mm
3. Move 90 degrees, 20mm



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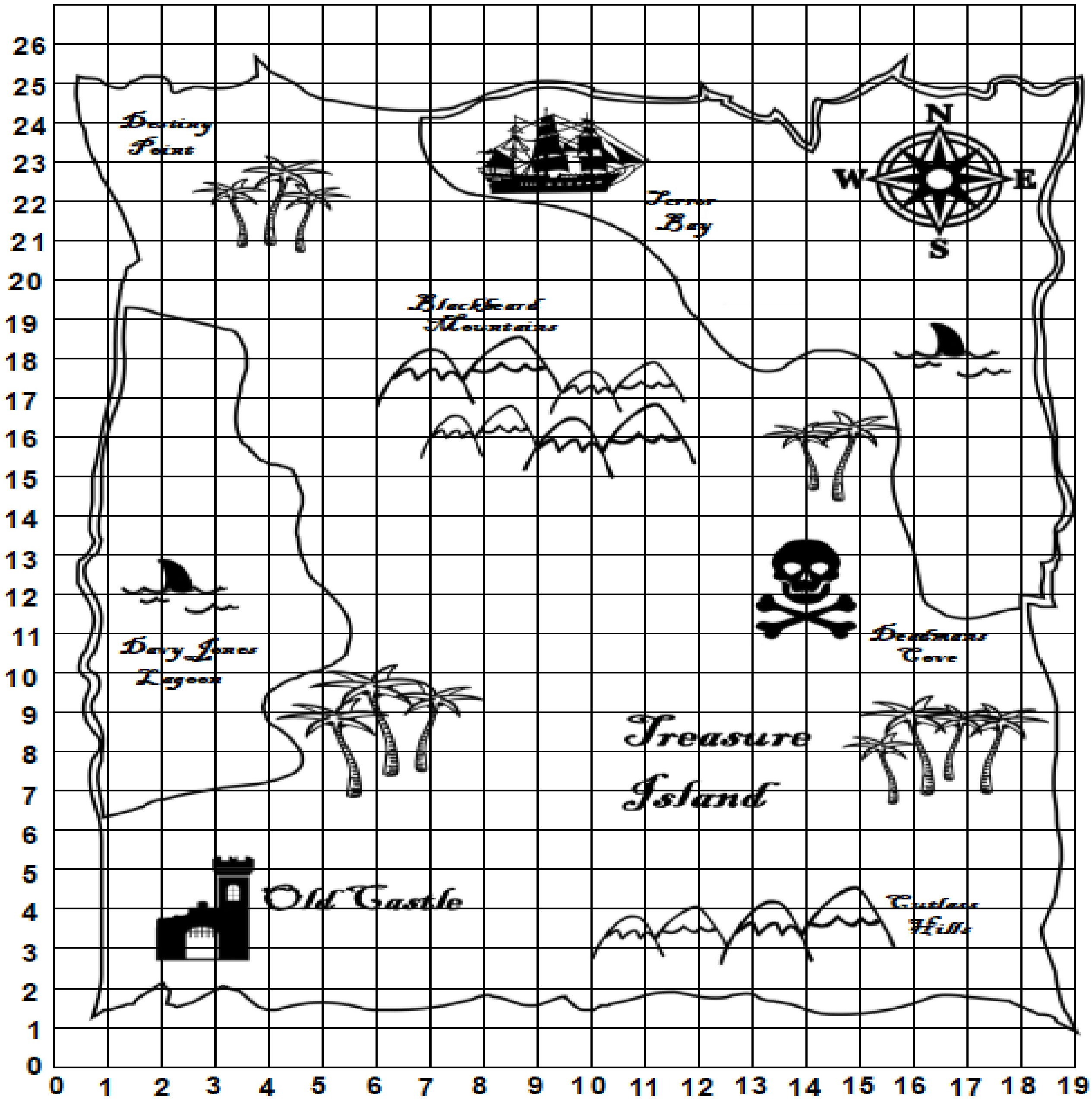
Now try this

Have a go at this one using **coordinates**:

1. Start your treasure hunt at position (0,0)
2. Walk to position (16,12). What place have you arrived at?
3. Walk to position (9,15). What place have you arrived at?
4. Walk to position (10,21). What place have you arrived at?
5. Walk to position (4,21). Now dig up the treasure! Where is it hidden?



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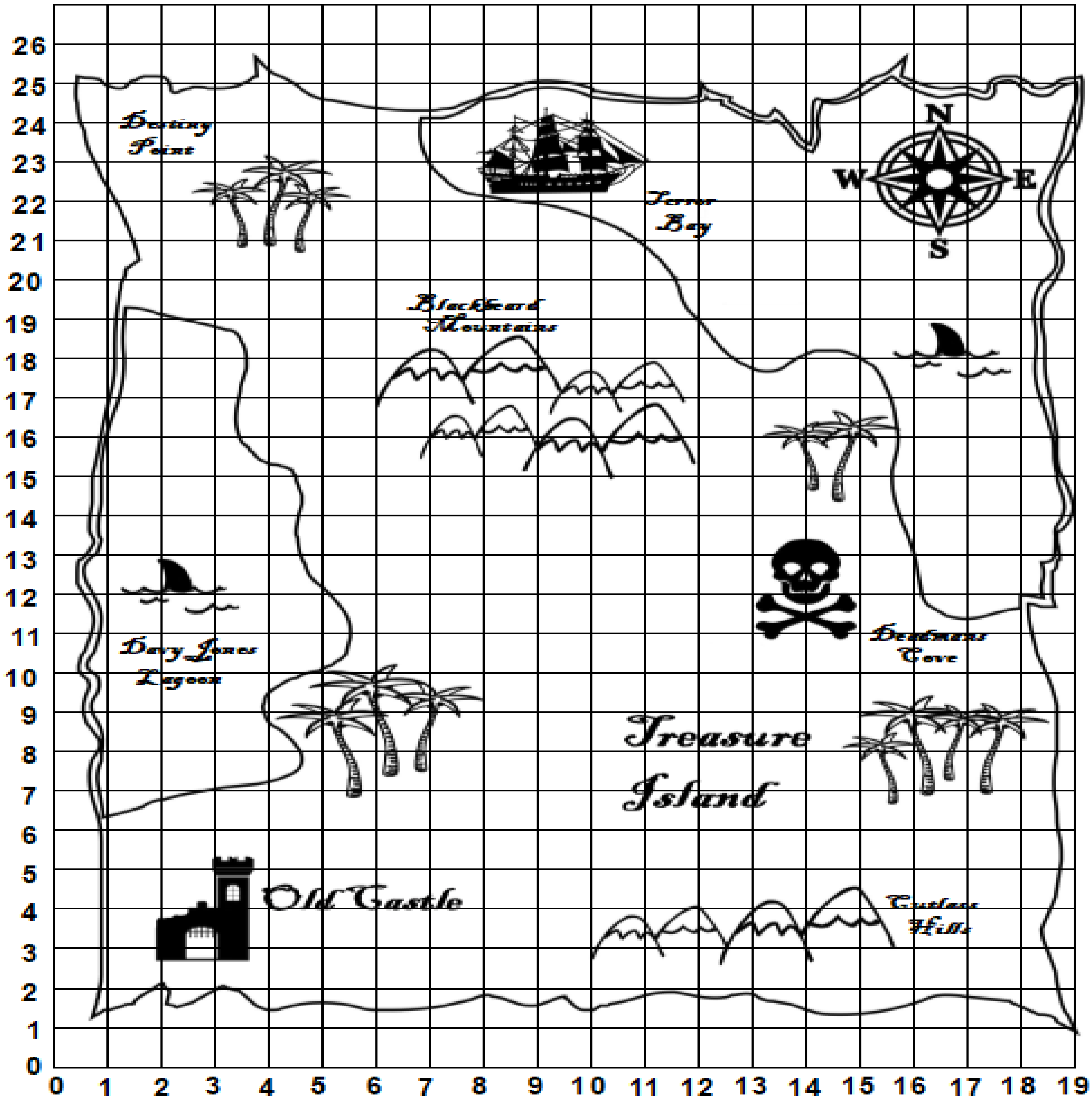
Have a go at this one using **vector coordinates**:

1. Start your treasure hunt at position (0,0).
2. Move (7,7). What feature have you arrived at?
3. Move (7,4). What feature have you arrived at?
4. Move (-3,4). What place have you arrived at?
5. Move (-6,-2) Now dig up the treasure! Where is it hidden?



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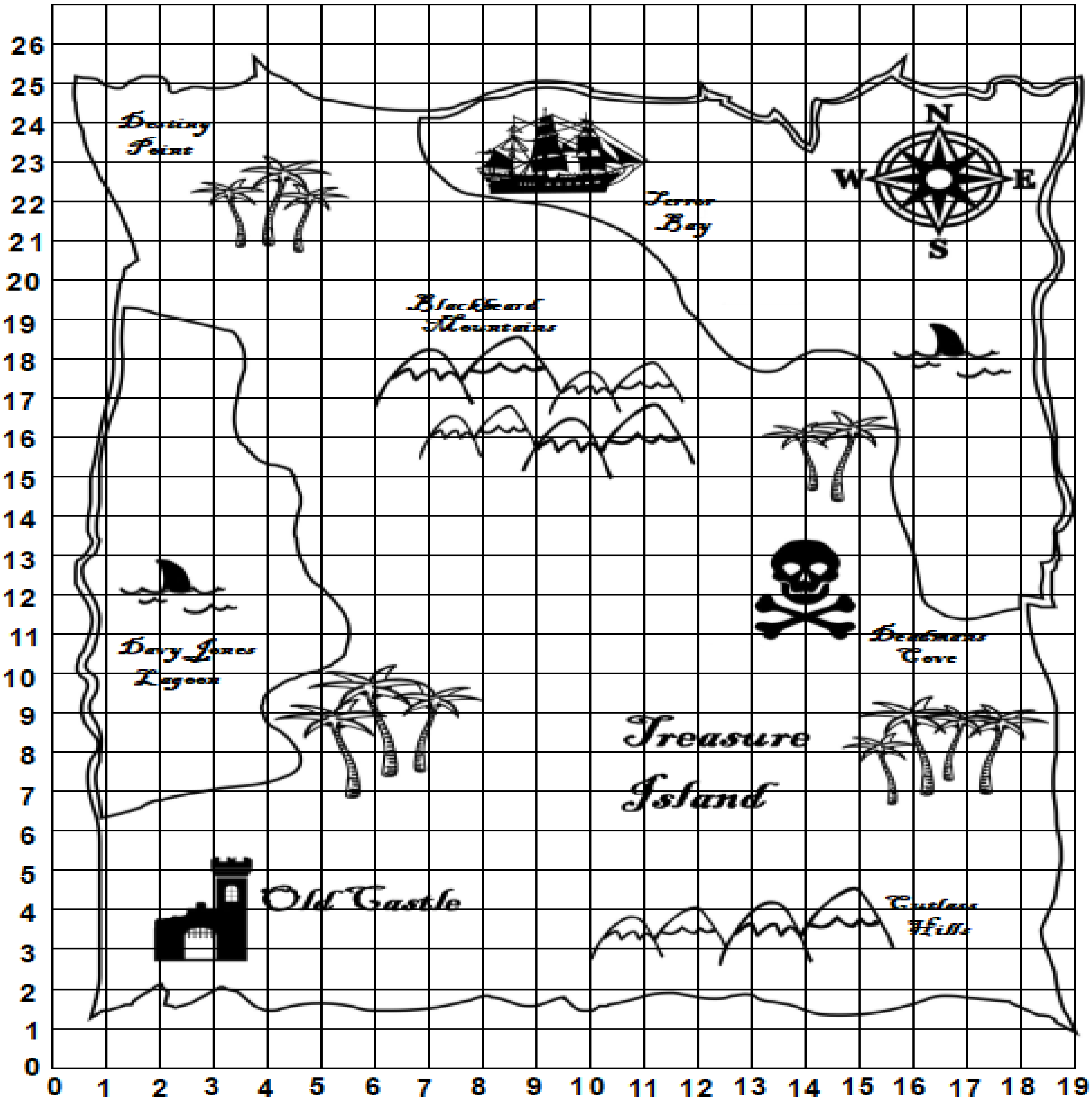
Now have a go at this one using **polar coordinates:**

1. Start your treasure hunt at position (0,0)
2. Walk on a bearing and distance of 75 degrees and115mm.
   What feature have you arrived at?
3. Walk on a bearing and distance of 330 degrees and 120mm.
   What feature have you arrived at?
4. Walk on a bearing and distance of 50 degrees and 60mm.
   What place have you arrived at?
5. Walk on a bearing and distance of 0 degrees and 30mm.
   Now dig up the treasure! Where is it hidden?



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You could also
• Starting from datum (0,0) give directions to other features on the treasure map • If map grids are of a scale 10mm = 0.5km, work out the distance travelled to find the treasure
Further activities you could carry out
Have a go at drawing your own treasure map and giving directions to the treasure.

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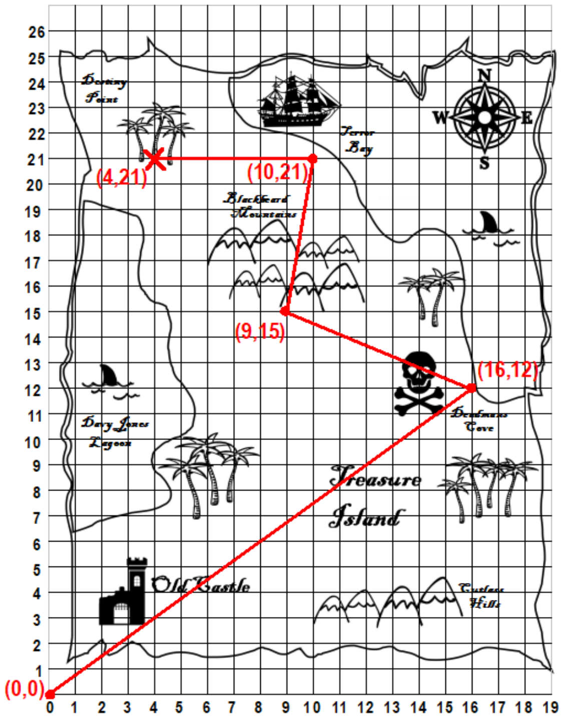
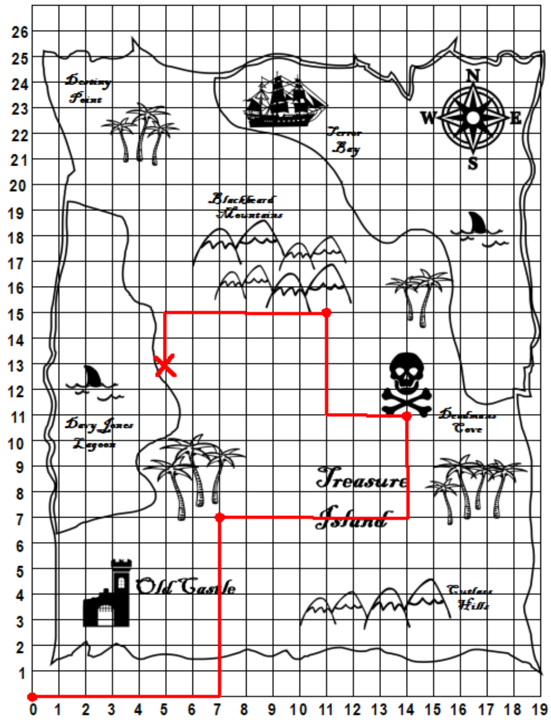
What results were expected?

Using coordinates:



Using vector coordinates:



Using polar coordinates: