Finding Treasure

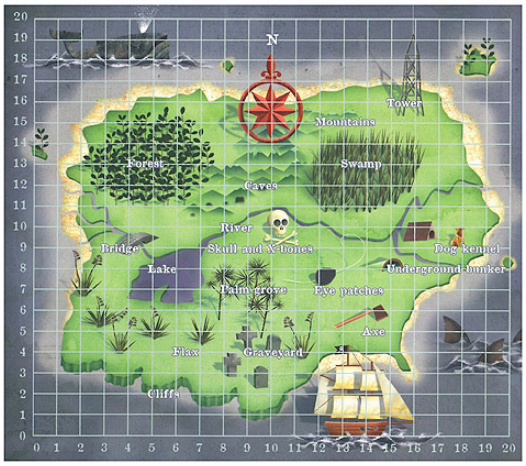
Annotation

Rongomai understands and can competently use bearings, compass directions, and grid references using the x and y axes, to navigate a map. He uses a compass to find degrees and bearings, appropriately applies his understanding angles, converts kilometres to a scale on a map and accurately measures diagonals. He explains what he has done using geometric language in a clear and precise way.

Problem: Finding Treasure

The teacher gives this card to the student.

1. Land at (18,8) and head west for 3km then south 3km, then west another 2km.
2. Now turn 45° to your right and travel another 2km.
3. Turn right 45° again and go another 2km.
4. Now travel on bearing 270° for 4km and relax.
5. Lastly, go 10km on bearing 060° to find the treasure.

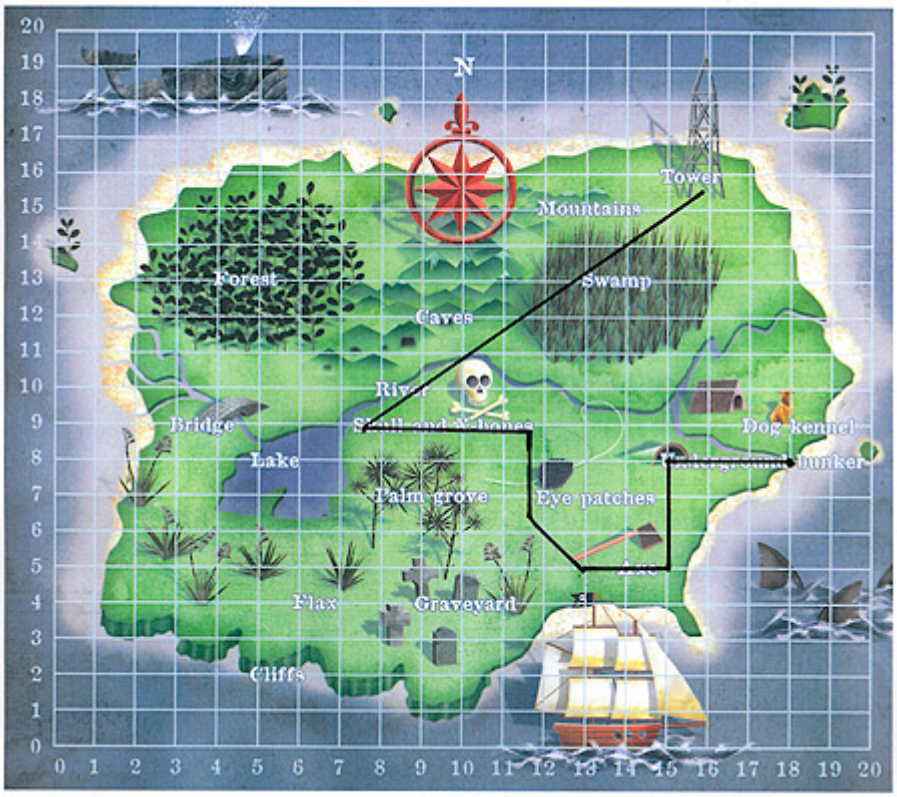


The teacher poses this problem.

Follow the instructions to find the treasure.

Student response

Rongomai correctly locates the treasure at the tower.



Teacher: Tell me how you worked it out.

Rongomai: I started at (18,8) which is 18 along the x-axis (horizontal one) and 8 up the vertical y-axis.
North is straight up on this map, the red compass symbol tells you that. Travelling west and south is easy because you just follow the grid and count the squares.
It says that the scale on the map is 1km to each square. So, to get distance correct for the other directions I made myself a paper ruler using the map squares to make marks then I labelled them kilometres.
A bearing is a direction clockwise from north, so 270° is the same as west, and 060° is 60° to the right of north. I used a protractor to measure the 60° angle.
As you can see I continued following the directions carefully. I ended up at the tower. I think that's where the treasure is.