



TASK 1:

X,Y MARKS THE SPOT

(GEOGRAPHY OBJECTIVES - LOCATIONAL KNOWLEDGE / GEOGRAPHICAL KNOWLEDGE AND FIELDWORK -- LITERACY LINKS - RETRIEVE, RECORD AND PRESENT INFORMATION FROM NON-FICTION)

Every good treasure hunt comes with a map that's been marked with a target, and yours is no different... except that it's 2020, and your map wasn't found in a bottle, floating at sea, dropped by an old, crusty pirate! Your map is online, and instead of an 'X', it was marked with a

series of numbers - a code that points to the exact location of the gold!

However, it'd be no treasure hunt at all if we just told you the numbers! Instead, it's your job to solve a series of problems, each of which will reveal a number to add to your secret code. There's **sixteen** digits to find in total, all related to measures, mapping and historical dates, so let's get started! You can fill the digits in on this grid as you go:

1	2		3	4	5	6	7	8				9	10		11	12	13	14	15	16
		.							,		-			.						

- The first digit of the longest span of the Brooklyn Bridge (_86.3m)
- The second digit of the Empire State Building's postal code - it's so busy it has its very own! (1_118)
- The second digit of the year that New York's position as capital of the United States of America ended (1_90)
- The fourth digit of the year that the Chrysler building was completed and named the world's tallest structure (193_)
- The second digit of the year that Hog Island disappeared during a hurricane known as the 'Midnight Storm' (1_93)
- The second digit of the weight of the steel used in the Statue of Liberty (2_0,000lbs)
- The date of the month that New York's 'Moving Day' fell on before WW2 (_ of May)
- The second digit of the size of the American Museum of Natural History in Manhattan (1_0,000 m2)
- The second digit in the number of New York City Subway stations (4_2)
- The second digit in the total area of Central Park (8_3 acres)
- The second digit of the capacity of the Madison Square Garden arena (2_,789)
- The third digit of the number of steps to climb as part of the 'Vessel' art visitor attraction (25_0)
- The first digit of the height of the highest subway station in NYC: Smith-Ninth Streets Station (_7.5 feet)
- The third digit of the highest-numbered east-west street in Manhattan (22_th Street)
- The last digit of the year that the oldest building in New York, the Wyckoff House, was built (165_)
- The first digit of the length of the East River (_6 miles)



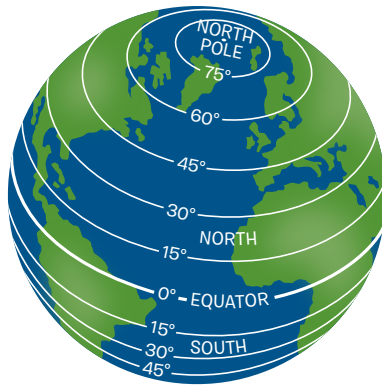
TASK 2:

COORDINATING YOUR SEARCH

(GEOGRAPHY OBJECTIVES - LOCATIONAL KNOWLEDGE / GEOGRAPHICAL KNOWLEDGE AND FIELDWORK)

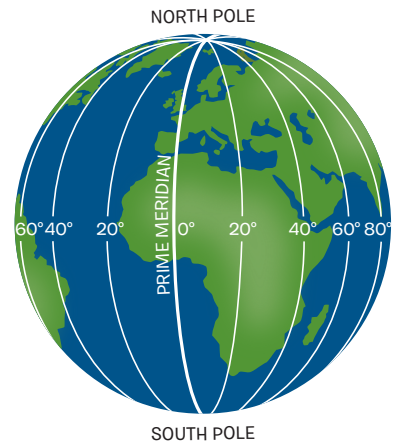
So, you've worked out the secret code - but what does it mean? And what are you supposed to do with it? Well, that code links to a very specific spot somewhere in New York, and it uses a system called

decimal degrees to do so. This is the same way that GPS systems mark locations across the globe. It works by splitting the surface of the earth into smaller and smaller sections, letting you be more and more specific about where you are looking. These segments are based on the lines of longitude and latitude.



Lines of **latitude** run horizontally from east to west across the globe. The longest is called the Equator, which runs around the centre of the globe. Its coordinate number is '0'. As the lines head north, they increase by degrees - all the way up to +90°: the position of the North Pole. The same happens going south, all the way down to -90° at the South Pole.

The lines of **longitude** stretch from pole to pole vertically. The central 0° line is called the Prime Meridian; it cuts through Greenwich in London - hence Greenwich Mean Time (GMT). It increases in degrees to +90° to the east, and decreases to -90° in the far west.

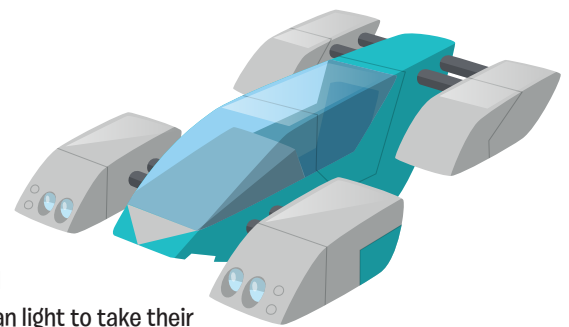


These sections can be sub-divided many times, making smaller grids out of larger grid sections, until the grid squares become very small. This allows map users to narrow their specific location to a highly precise spot. For example, if you searched for the decimal degrees code 53.463073, -2.291344, you'd end up right on the centre spot in Manchester United's football stadium!

If you went to 34.101673, -118.340843, you'd be standing on Mickey Mouse's star on the Hollywood Walk of Fame! And if you search for the special code that you found, you'll end up at a place where there is a haul of gold worth over **200 BILLION DOLLARS!**

...However. If you're planning to go and retrieve your prize, there's a few things you should know. The gold is kept in a vault buried 80 feet below ground (and 50 feet below sea level). It weighs over 6000 tons - that's about the same as 900 elephants! It is also guarded by a door bolted with a metal cylinder that weighs half as much as a house, and it's monitored by cameras, motions sensors and armed guards 24 hours a day!

Good luck!



TASK 3:

TRAVELLING IN(TO) THE FUTURE

(GEOGRAPHY OBJECTIVES - GEOGRAPHICAL KNOWLEDGE AND FIELDWORK / D&T OBJECTIVES - DESIGN, MAKE, EVALUATE AND TECHNICAL KNOWLEDGE)

Now that you've explored some of the architectural and geographical history of New York through the treasure hunt, it's time to take a look into the future. Most of the streets in Manhattan are laid out in a grid pattern, thanks to the hard work of land surveyors! The problem is, those streets get **very** busy. There are over 13,000 yellow cabs in operation there alone! As those roads get more clogged, a better solution might have to be found. That's where you and your imagination come in!

In the Get Kids into Survey Exploration Poster you can see vehicles using LiDAR scanners to collect visual data and map locations in 3D. There are also sonar devices being used for the same purpose, only

these use sound waves rather than light to take their measurements. That same technology is being combined with data from GPS systems (like those you learned about in the treasure hunt) in **self-driving** vehicles. Do you think it might be possible, then, that at some point in the future, the Manhattan grid might be populated with self-driving vehicles that use the same kind of technology that geo-surveyors do, but that don't require roads?

Flying cars were once the stuff of science fiction, but with technology leaping forwards and cities becoming ever busier, the idea of using the space above our heads as a transport lane seems more and more possible. For this final task, take a leap into the future and design your own flying autonomous vehicle for New York City, in the year 2090!