GET KIDS INTO SURVEY®

Q&A
LONDON

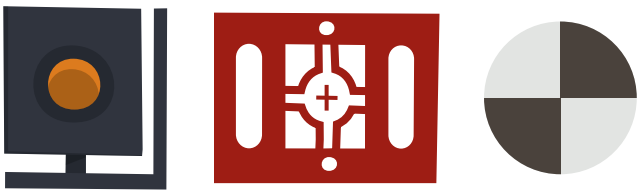
Q1: Did you know that without a surveyor, cities wouldn't be built? Can you spot all the surveyors in London?

A: Altogether, there are ten surveyors hard at work in this scene. You can often spot them by their hi-vis vests, which help to keep them safe while they're on site, as well as the technology they're using: scanners on tripods, radar devices fitted to boats, and imaging drones being piloted across the city! Surveyors help urban development in so many ways, working on all aspects of construction, maintenance and safety. In a city like London, with its complex underground transport system, criss-crossing road network, winding waterways and terrifically tall towers, the importance of surveyors cannot be underestimated!

Q2: There are 3 different types of survey targets around the city. What do you think they are used for and can you find them all?

A: These are tough to spot - if you managed to find all three, give yourself a high-five! Your searching powers are superhuman! There's one on the underground platform - the black and white circle just above the end of the red pipe. There's a red and white target by the green LSF truck, and there's one tucked away near the top of the building next to Big Ben!

These targets work with LiDAR - Light Detection And Ranging technology. Scanning devices send out beams of focused light, which bounce off the target and back to the device, allowing precise measurements to be made. Targets that are placed high up on tall buildings help surveyors to monitor the structures regularly to see if there is any change in their position.



Q3: Something has happened to the Queen's Guard's rifles. They are now GNSS units and collect data from dozens of satellites in space. Can you spot them?

A: The three guards are marching over by the Tower of London - and not only are they missing their rifles, it seems they haven't noticed the massive dragon perched on the wall above their fur-covered heads! It's a good job the Beefeater is more alert! The GNSS units carried by the Royal Guards can communicate with satellites in space, which send an exact location back to the device. This allows surveyors to know their precise whereabouts on Earth.

Maybe the guards could ask the GeoSquad for help with their dragon dilemma - they're hanging out nearby! Can you spot Miles, Setsuko, Kwame, and Maddison on her skateboard?

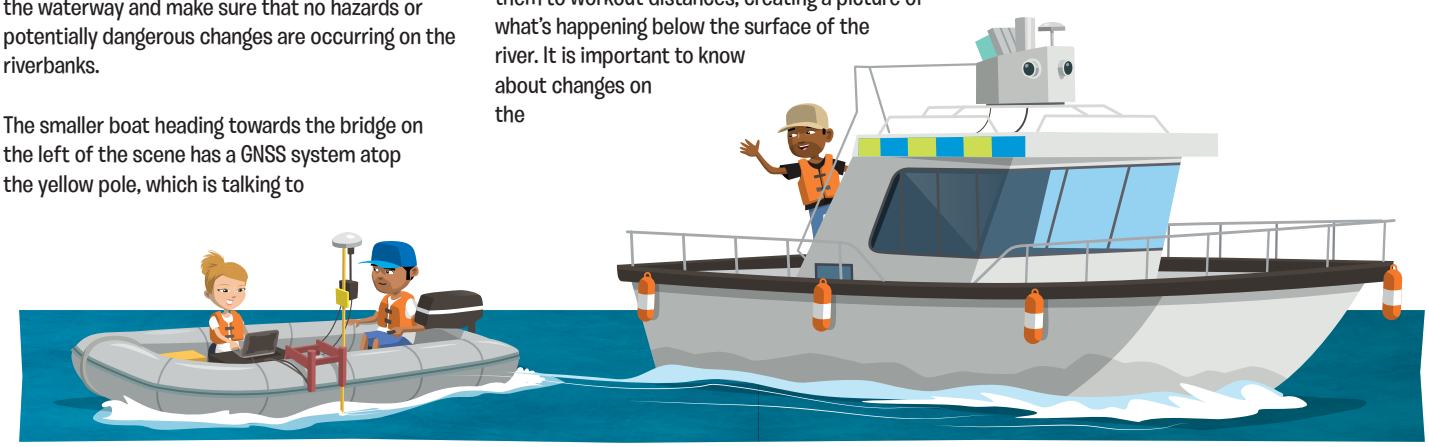
Q4: Surveyors use laser scanners to make 3D models. Can you spot the laser scanner that's being used to make a 3D model of the London souvenirs?

A: The two Murphy Survey beavers are using a laser scanner to make a 3D model of the London souvenir stand. Thankfully, the task seems to be keeping them very busy - hopefully they won't be distracted by the idea of damming up the River Thames! Those laser scanners record the reflection of thousands of light beams per second, and each one creates a data point that, when combined, makes a 3D model of the scanned object or area.They also have built-in cameras which overlay photographs over the measured points, making it easier for people to visualise the scanned space.

Q5: Hydrographic surveyors use GNSS, sonar and LiDAR technology in their work to locate features above and below water. Can you find the TWO teams performing hydrographic surveys?

A: There are two boats travelling down the Thames. The one to the right of the souvenir stand is using a laser scanner mounted on the top of the cabin to scan the banks of the river as it moves along. This data is important in helping to maintain the waterway and make sure that no hazards or potentially dangerous changes are occurring on the riverbanks.

The smaller boat heading towards the bridge on the left of the scene has a GNSS system atop the yellow pole, which is talking to satellites in space to understand its location. It also has a sonar scanner attached - its sensors sit below the surface of the water. This device uses sound waves to make measurements. It records the bounce-back time of radio waves and uses them to workout distances, creating a picture of what's happening below the surface of the river. It is important to know about changes on the riverbed, especially on a busy waterway like the Thames, where millions of people travel over, across and underneath each day!



Q6: Did you know surveyors use high-tech equipment to keep an eye on buildings in cities so that they don't collapse? This is called Monitoring. Can you spot the equipment used for it? (Clue: Look on the top of the buildings)

A: On top of the grey building behind the Tower of London and the Gherkin there is a total station, mounted inside a protective cage to deter would-be thieves. This hardworking piece of kit will be operating 24/7, and surveyors will perform regular checks on the data it collects to see if there are any movements or cracks appearing in the surrounding buildings, roads, and other structures. In this way, surveyors are able to keep our city and its inhabitants safe.

Q7: Did you know surveying is one of the few professions that allow you to fly Drones in the city? Can you spot the different ones in London?

A: There's a black and white drone flying over the big red bus on the left of the scene, and a Lidar USA drone is soaring through the sky in the top-middle of the image. Drones are unmanned vehicles - the pilots stay firmly on the ground, flying them via remote control.

Surveyors can attach scanners and/or cameras to drones and use them to take measurements and images from the air, the results of which can be used to make maps and 3D visualisations. This comes in handy for sites in built up areas like cities (where manned flying machines would be expensive to employ and potentially dangerous to pilot), as well as remote or extreme areas, such as mountains and volcanoes, glaciers and deserts, or anywhere else where a normal person might not want to venture!