



Q&A

FORESTRY



Q1: What does Bengal Cat have in his hand, and what is he doing?

A: That fancy yellow pole is actually a metal detector! Bengal Cat is looking for the iron pins that are set into the ground during land surveys. These mark the boundaries between pieces of land - that could be the land on which individual houses are built, or the boundaries between countries!



Q2: Why do you think it would be important to mark the line between your parents' land and your neighbor's land?

A: Knowing where your land ends and another person's property starts is an important part of land ownership - even in the middle of the forest! If you happened to live next to this forest and surveyors like Bengal Cat hadn't found and marked the boundary line of your land, then a forestry team could come along and chop down trees in your garden by mistake - even the one with your tree house in it!



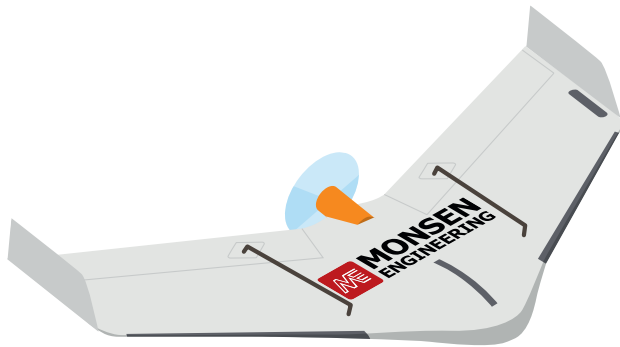
Q3: Find the woman in a turquoise jacket looking through a yellow laser rangefinder. What do you think she's up to?

It might look like she's doing a spot of alien watching, but she's actually using a laser rangefinder to measure the height of a tree. Technology like this can help us check the growth of trees, and if for any reason the tree needed to be cut down, the measurements could be used to establish a safe area around the tree, so that people don't get hurt when it falls.



Q4: Count up all the orange flags. How many can you spot, and what do you think they're for?

A: There are five flags in a row, marking the edge of a path. Surveyors will use these hi-vis helpers to mark out boundaries and pathways for things like cables or level changes. They even write information on the flags, including special codes that they can note down in a log book to reference later. All of this helps surveyors to keep track of the features of the area that they are surveying.



Q5: Spot the white drone. How do you think drones might help us to create a map?

A: The drone has a camera attached to its belly, pointed down at the ground. As the drone flies above the survey area, the camera takes lots and lots of high-resolution photographs. These pictures are combined with measurements taken on the ground to make a detailed map. While drones are used for jobs like this nowadays, in the past, pilots would have flown planes over survey areas while a photographer hung out of the side taking pictures! Thankfully, drones are controlled remotely by a pilot on the ground - much safer!

Q6: Find Captain Alice in her rather fetching hat! What is she doing and why?

A: Captain Alice is a cartographer - someone who takes measurements from surveys and uses them to make maps of the land. She is showing the surveyor the boundary lines of the forest, so that he can make sure the forestry workers do not cut down the wrong trees! However, by the look of the surveyor, Captain Alice's help might have come too late! I wonder where he can find a very large tub of super glue!?



Q7: Why is it important to know the exact locations of certain things, like trees, rocks and river banks?

A: It's important to know the exact location of natural features because they have a habit of moving around! Rivers can erode and change shape. Trees can lean, and might even fall eventually. Rocks can get shifted around by weather and water, and plant life is growing and shifting all the time. To make sure that all these changes don't have a negative effect on the environment, surveyors won't just survey an area once - they will go back multiple times, comparing new results with previous surveys.

Q8: The people onboard the boat are measuring the depth of the river. Can you think of three reasons why this would be important?



A: A surveyor who takes measurements in, beneath and around water is called a hydrographic surveyor. They measure, describe and map underwater features. Their job is important for many reasons, including:

- they monitor the rate of river bed erosion (how quickly the river bed is being broken up and washed away)
- they gather information to help them understand rain fall, and the impact of flooding in different areas of the river
- they keep habitats and areas where people live and work safe by predicting changes in the river and taking steps to avoid any harmful impact.

Q9: Using the compass, work out the direction in which the boat is facing. Why is this important for map reading?

A: It is facing East - South East. Being able to use a compass is hugely important for travellers - especially mariners (those who travel on the water!) because it enables them to find out their direction and heading, even if bad weather obscures their usual astronomical pointers, like the North Star. A magnetic needle inside the compass always points towards the north pole.

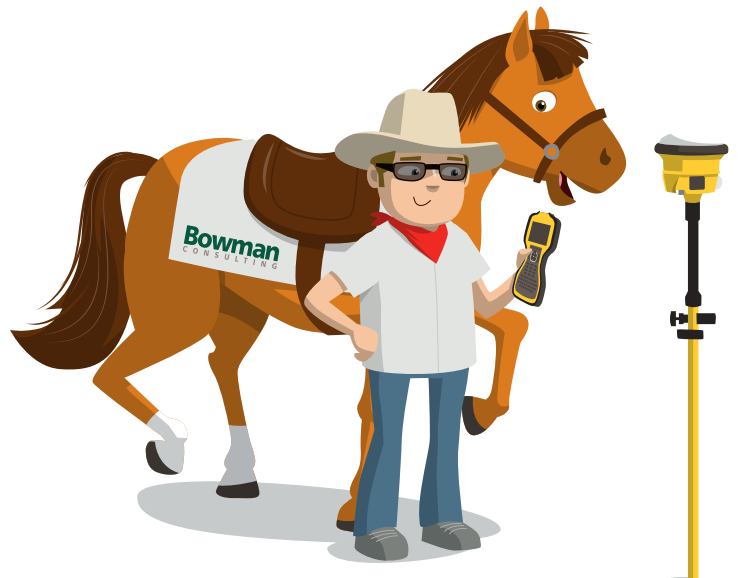


Q10: Find the surveyor measuring the girth of a tree. What might she use her results for?

A: The forester can use her results to determine the age of the tree. The most accurate method of measuring a tree's age is to count the rings in the trunk, but of course, you'd need to cut down the tree to do this, and no-one should cut down a healthy tree just to find out how old it is! Therefore, measuring the circumference of the tree can be a useful, quick and simple way of measuring and recording growth and estimating age, without damaging the tree itself.

Q11: Can you spot the elusive Bigfoot? He's made a friend! What is she doing?

A: The GNSS/GPS technology in the laser scanner communicates directly with satellites in space, which send an exact location back to the surveyor, so that they know exactly where they are on Earth. This is similar to the GPS technology in mobile phone that help users find their way around. Now, thanks to survey tech, we know exactly where Bigfoot is!



Q12: Find the orange horse standing next to the GPS antenna. Why is he not under any trees?

A: The GPS antenna needs to communicate directly with the satellite in the sky. If there is any interference, the signal will be lost - that's why it's important for the equipment to be out in the open.