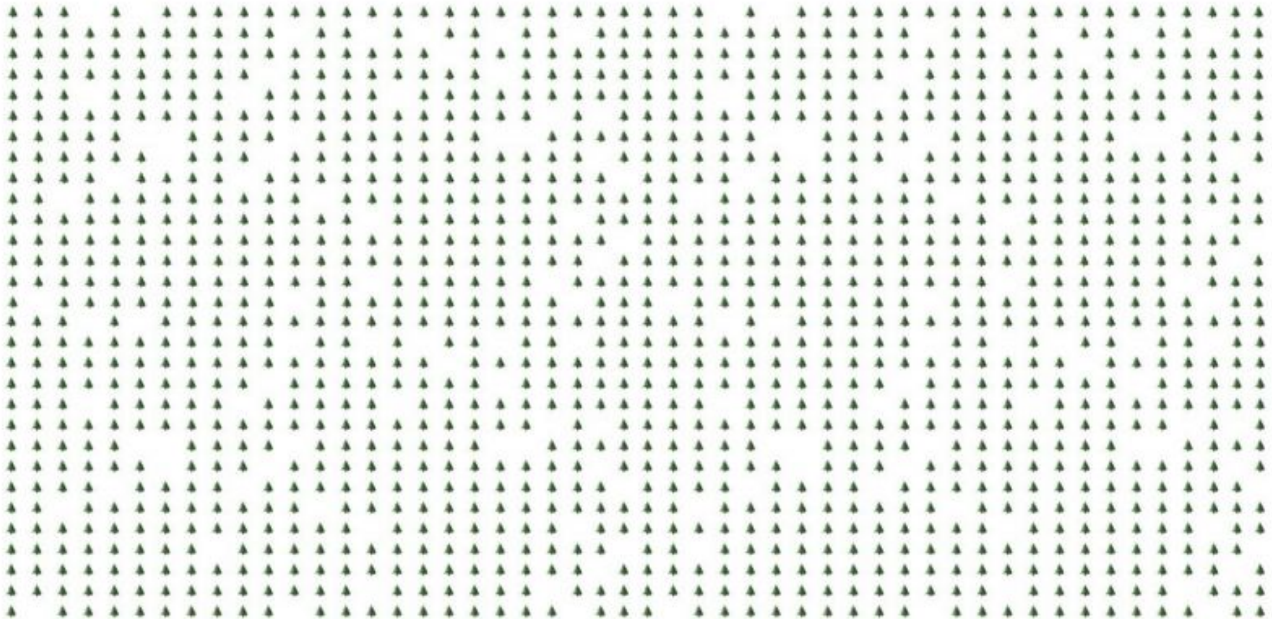


Santa Cruz Sampling

Take all of this in with the context of the island. Santa Cruz is 381 square miles; it hosts the largest population in the archipelago with approximately 12,000 inhabitants, most of whom live in Puerto Ayora. The tourism industry is thriving in Puerto Ayora, and one of the highest sought-after jobs is as a tour provider or naturalist tour guide.



Task: Isabella, a native tour guide, wants to know what percent of Santa Cruz is reserved as a national park. She was given a diagram that represents the amount of land reserved symbolized by trees below. Isabella knows it would take too long to count, one by one.



1. What method could Isabella use to estimate the percentage of trees (land reserved for the national park)? Explain your method fully. *Hint: Use the estimated number of trees and compare it to the area of the whole island of Santa Cruz.*

2. Use your method to estimate the percentage of trees (land reserved for the national park).

Santa Cruz Sampling

Teacher Key

1. What method could Isabella use to estimate the percentage of trees (land reserved for the national park)? Explain your method fully. *Hint: Use the estimated number of trees and compare it to the area of the whole island of Santa Cruz.*

Answer: There are many methods to estimate the percentage of the trees. A list is provided below. There is a sample solution on the additional PDF on T2T-I.

2. Use your method to estimate the percentage of trees (land reserved for the national park).

Answer: Approximately 90%. The more representative samples are chosen and averaged out, the closer the student will get to 90%.

Multiple Solutions from [MARS](#)

There are many ways of completing this task, but solutions should include the following:

- Students should describe an appropriate sampling technique which takes into account the different proportions of trees and the gaps in between.
- Students should check their figures for the number trees by counting the number of trees in at least two sample areas.
- If there is a big variation in the number of trees in two areas then students should count the number of trees a third or subsequent sample area to get an answer closer to the true percentage.
- Each sample should cover a distinctly different area of the island (that is two sample areas should not be next to each other); a random sampling would work best.
- Each sample should cover the same sized area.
- Students may calculate the average number of trees for their chosen samples, then divide by the total area of trees. After, the student will take the average of these percentages to obtain an estimate.