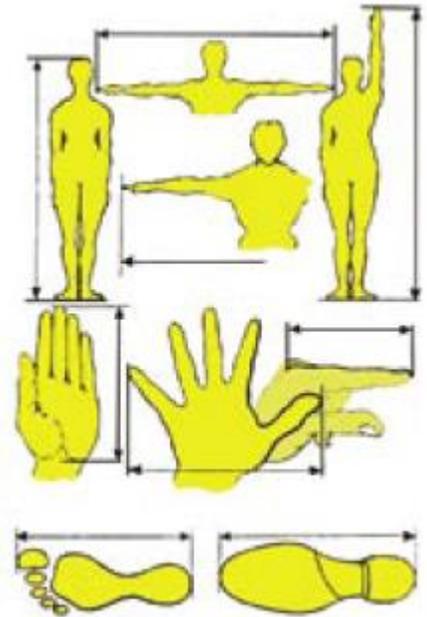


# Estimation

Baden-Powell pointed out the importance of estimation for scouts, from being able to adjust a hike route, to crossing a river, to planning a pioneering project.

## Measurements

The first thing you need to do is know about different measurements of everyone in your patrol. If you know how long your average pace is, or whose shoes are closest to a foot long, or how long is the span of your arms, you can use these to measure things. With a measuring tape, measure everyone's average pace, their arm spans, and hand spans. Keep a mental note of these. Also, practice pacing certain distances, eg 50m or 100m, to see how many paces it takes each of you.



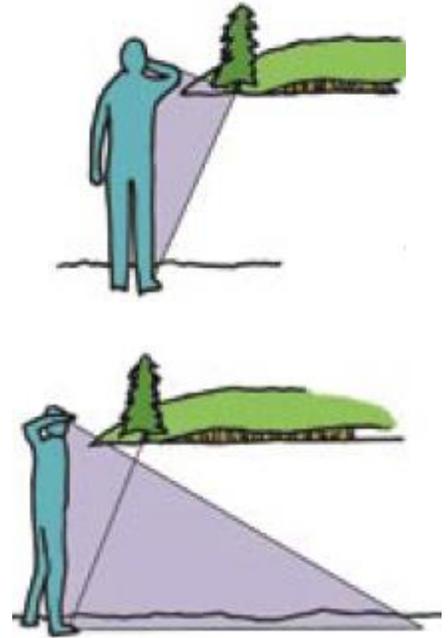
## Height

The main method to judge height is by using a pencil or a small straight stick. Hold the stick or pencil out in front of you and line it up with the object, a tree or building, with the top of pencil aligned with the top of the object. Then, rotate it 90° and have someone, starting at the base of the object, pace out slowly – counting their steps – until they reach the end of the pencil as you see it. Convert their pacing into a measurement in metres, this then is the estimated height.



## Length

The 'Napoleon Method' is a way of measure distance, usually shorter distances such as the width of a river. Stand on the bank of the river facing the other side, and hold your hand above your eyes, like your saluting. From your perspective, bring your hand down until it appears to touch the opposite bank. Now turn 90°, and have someone stand at point where your hand appears to touch the ground. The distance between you is the width of the river.



## Speed of a river

Measure out a section of river, at least a few metres long, and mark it. Have one scout stand at one end and another stand at the other. A third scout has a stopwatch (most phones have stopwatch features or digital watches have timers). The first scout drops a large stick in the river, and the second calls out when it passes them. The third scout times how long it takes. Do this several times and record the results. To calculate the speed, divide the distance by the time; for example if a stick travelled across 10m in 20 seconds, it is moving at 0.5 m/sec or 1.8km/hr; or if a stick floats along 12m in 32seconds, it's travelling at 0.37 m/sec or 1.35 km/hr. Get the average of each time you measure the speed.

