

LINEAR MEASUREMENT

Dealing with sloping ground

Care of Tapes

- **Note: Set aside and label a steel tape to BS 4484 as a 'standard tape' to be used only for checking other (working) tapes**
- check (working) tapes against 'standard tape' each week and after repair.
- clean steel (or plastics) tape before winding into case
- clean and lightly oil steel tape at end of working day

Measuring

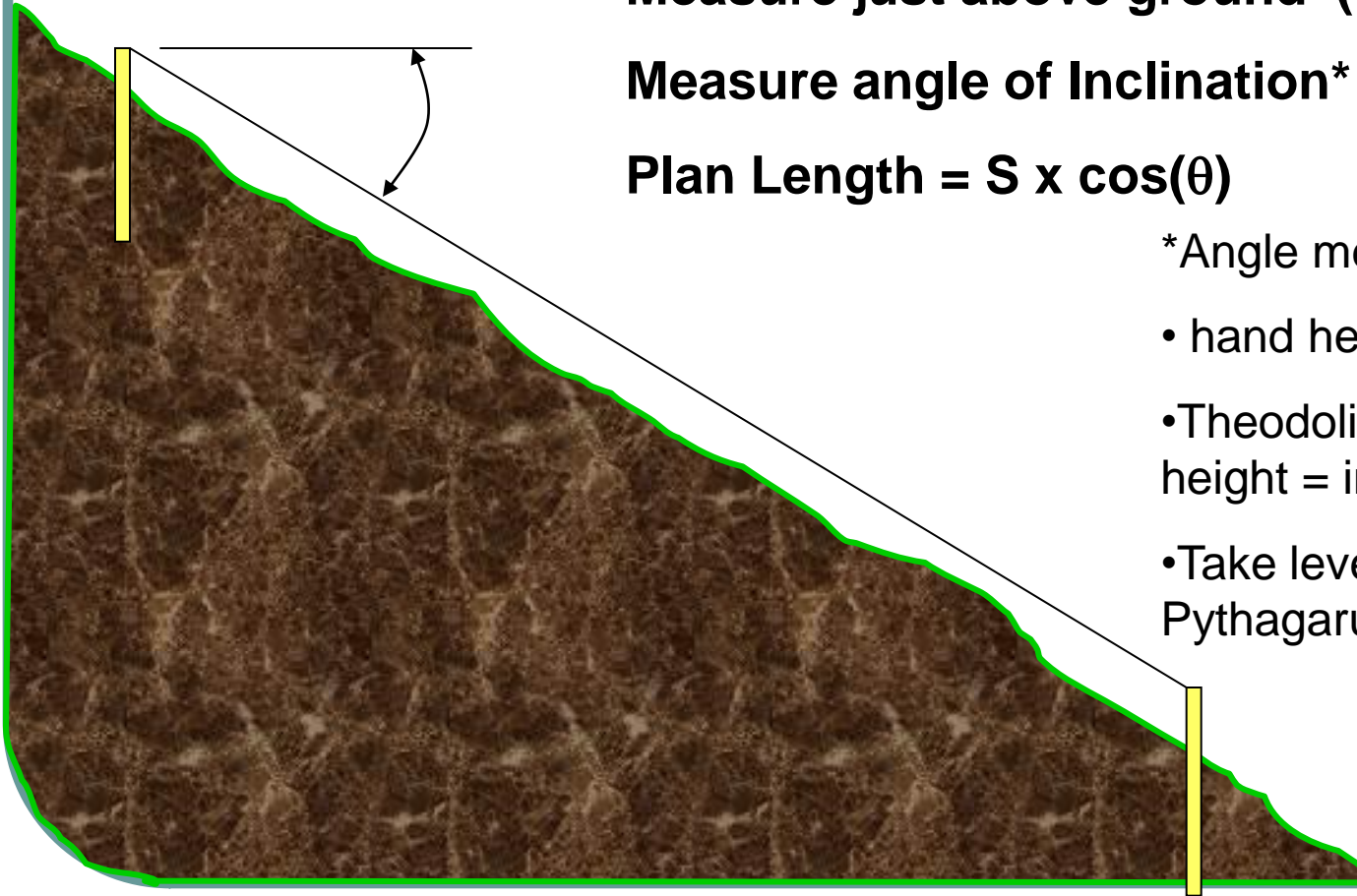
Measure just above ground (S)

Measure angle of Inclination* (θ)

Plan Length = $S \times \cos(\theta)$

*Angle measured by:

- hand held Inclinometer
- Theodolite (ensure target height = instrument height)
- Take levels and use Pythagoras

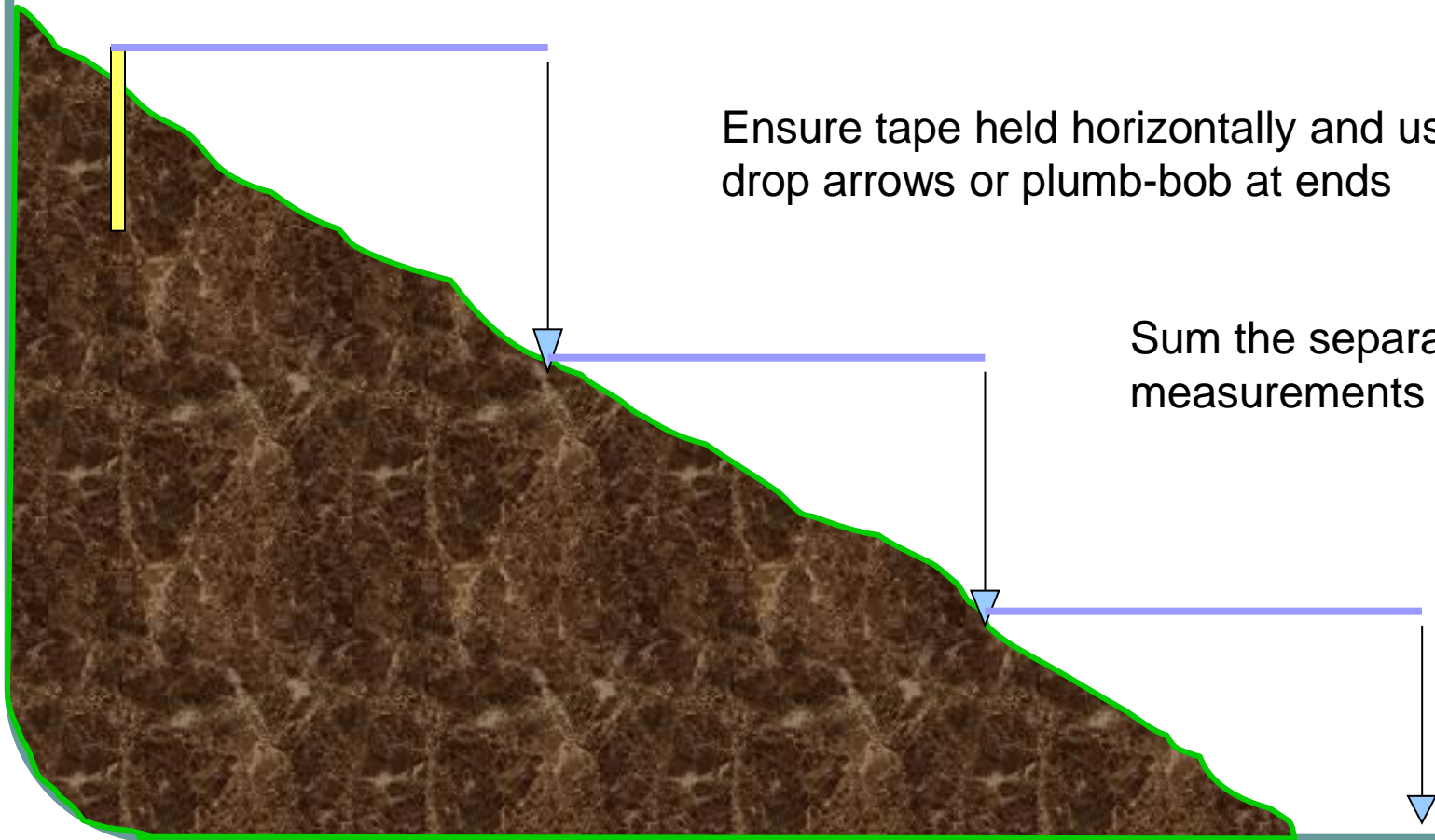


Measuring -2

Possible to take plan length directly

Ensure tape held horizontally and use drop arrows or plumb-bob at ends

Sum the separate measurements



Setting out Linear distances

- Measure horizontally – use builders spirit level if necessary.
- Set pegs to similar levels between measuring points
- Measure along slope and correct for slope distance
- Slope Distance = Plan Length / $\cos(\theta)$
- Note that a 10m plan length will have a slope length of 10.055m for a mere 6° slope.
- For visualization a 6° slope will fall/rise 1m over 10m

Reading the Tape

- Ensure Readings are correct by following, with eye, numbers along tape until the next integer (e.g. 4m to 5m)
- Ensure you know where the Zero of the tape is.
- Do not assume you can hook the tape buckle over a station nail and still be at zero reading!
- Try to use the 1m mark as zero and compensate at the other end.
- Keep tape well tensioned.

Tape zero marks

