

Distance Estimation Cheat Sheet

A practice and study reference for unknown-distance 3D

PRACTICE ONLY: NOT FOR THE COURSE

Leave this sheet at home on competition day wherever the rules forbid written notes or distance aids. Check your event's current rules.

- WA 3D: no written memoranda; no equipment used to estimate distance or angle (Book 4 Art. 19.6.2)
- IBO: no device, and no use of the body, bow or accessories, to calculate yardage (2026 Rules IV.C.1)
- ASA: no phone apps in any class, and target cards may carry no marks or notes. Unknown classes: naked eye and binoculars only; no ranging with the body, no "gapping techniques" to judge distance, no stepping off (Pro/Am Rules 2026)
- IFAA unsighted styles: external aiming or distance references count as unfair behaviour under the Code of Conduct (Executive Clarification #01, 2026)

TECHNIQUES TO PRACTISE

1 Known-size references

Learn the real size of things you meet on courses: a fence post, a door, a 3D animal you know. The same object looks half as tall at twice the distance. 3D animals come in many sizes, so the target itself can mislead you.

2 Split it in half

Pick the point halfway to the target, judge the nearer half, then double it. Many archers judge a short distance more reliably than a long one.

3 Bracket it

Ask how near the target could be and how far it could be, then take the middle. If the two ends are far apart, look again.

4 Count a unit you know

Picture a distance you know well, such as 10 m or 10 yd, laid along the ground, and count how many fit. Learn your unit on a measured range first.

5 Uphill and downhill

On a slope, the horizontal distance is shorter than the line-of-sight distance (see the table). Many archers aim for the horizontal distance; test what your setup needs on real slopes.

6 Light and terrain

Bright light and open ground can make a target look closer; shade, dark woods and partly hidden targets can make it look farther. Dips, gullies and water between you and the target are easy to misjudge.

7 Practise on known distances

Guess first, then check with a rangefinder or tape in practice. Write down the error and look for your own pattern: short in shade? long uphill?

GEOMETRY YOU CAN CHECK

Apparent size = real size ÷ distance: twice as far looks half as big.

Horizontal distance = line of sight × cos(angle)

SLOPE ANGLE	HORIZONTAL, % OF LINE OF SIGHT
10°	98%
20°	94%
30°	87%
40°	77%

Example: 30 yd along a 30° slope ≈ 26 yd horizontal.

1 yd = 0.914 m · 1 m = 1.094 yd

PRACTICE LOG: GUESS FIRST, THEN MEASURE

#	MY GUESS	ACTUAL	ERROR ±	LIGHT, SLOPE, TERRAIN
1				
2				
3				
4				
5				
6				
7				
8				

Unit: m / yd

