Considering Geometrical Representations of Seasonal Differences in Shadow Plots

during the Day

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| TABLE V.10  Seasonal Differences in Shadow Plots | | | |
| Sketch of set up | Evidence | Powerful Idea | Relevant Vocabulary |
|  |  | The shortest length of a shadow cast by a gnomon occurs when the Sun is at its apparent maximum angular altitude. | Gnomon  Angular altitude |
|  |  | The Sun’s apparent maximum angular altitude (α, alpha) can be estimated by measuring the height of the gnomon, H, and length of the shadow, L, drawing a careful ray diagram, and measuring with a protractor or finding the angle for which the tangent is equal to H/L. | Protractor  tangent |
|  |  | The angle β (beta) is formed by the rays of the Sun and a gnomon. This angle can be estimated by measuring β on a careful ray diagram with a protractor or estimated by finding the angle for which the tangent is (L/H). |  |

A screenshot of a cell phone

Description automatically generated

Ray diagram of sun, gnomon and shadow