

HOW TALL IS IT ANYWAY?

Summary: You and your partners will estimate the height of hard-to-measure objects using a clinometer and trigonometry.

Group Members: _____

Instructions/record measurements:

1) Partner measures distance from ground to your eye level in metres.

Partner A: _____ Partner B: _____ Partner C: _____

2) Partner measures your distance from the school. (Write in Table A as *Distance 1*)

3) Partner reports the clinometer reading. (Write in Table A as *Angle 1*).

Now switch. You measure your partner's distance from the school and find the clinometer reading. Partners must use different distances.

4) Step forward or back 10 to 20 paces and repeat step #2 and #3. (Write in Table A as *Distance 2* and *Angle 2*).

5) Now, measure some other object (e.g. tree, lamp, portable). Repeat the same procedure as you did with the wall. Measure *Distance 1* and find *Angle 1*. Move forward or back 10 to 20 paces and repeat steps #2 & #3 to find *Distance 2* and *Angle 2*. Remember to switch and measure for your partner.

TABLE A

	School	Object #2
DISTANCE 1		
ANGLE 1 (Clinometer Reading)		
DISTANCE 2		
ANGLE 2 (Clinometer Reading)		

6) In Table B below, sketch a diagram representing the problems, label all objects and measurements, set up the trig statements and solve for the height of the objects. (Remember to account for your eye height in your calculation and label it in your diagram)

TABLE B

	School	Object #2
D I S T A N C E 1	Diagram:	Diagram:
	Trig statement:	Trig statement:
	Height:	Height:
D I S T A N C E 2	Diagram:	Diagram:
	Trig statement:	Trig statement:
	Height:	Height:

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Questions to answer:

- 1) What happened to the angle of elevation as the distance from the object increased?

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- 2) How close were your answers for the height using the two distances on the same object? What do you think may have contributed to the difference in your answers?

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- 3) Did you and your partners arrive at the same heights for the two objects? Describe any differences and what you think accounts for those differences.

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- 4) Name one career/occupation where this method of finding height could be applied. Justify your choice.

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