

Math 10 - Trigonometry Project

Objective: To find the heights of structures using a hypsometer and the trigonometry learned in the unit.

Materials: metre stick, hypsometer, pencil, and paper.

Final Product for Hand-In: Each **pair** will hand in a good copy of their three diagrams, and clear, in depth answers to all of the questions with all work shown and complete sentences. (use other copy of handout for rough copy, if needed). Use neat printing and a ruler for lines. Make sure each partner's name is on the project. **NO TWO GROUPS SHOULD FIND THE HEIGHT OF THE SAME THING.**

The Situation: The school must report the heights of the outside of the school in all different areas, as well as the heights of any surrounding structures to the earthquake committee. You have been hired by the school to find the heights of structures that are too tall to measure by hand using your trigonometry skills. You must find the height of three structures for the earthquake committee.

Tasks:

1. Go outside and work together with your partner to get all of the raw data necessary to find the heights of three different structures.
2. Draw neat, clear, informative diagrams of your height measurements using a ruler. These should include a right triangle and all relevant measurements necessary to find the height of the structure.
3. Under each diagram, clearly show your work step by step, and find the height of each structure to the nearest tenth of a meter. End this off with a clear complete sentence that identifies and describes the location of the structure, and what the height is.
4. For each of the three structures, also find the distance from your eye to the top of the structure to the nearest tenth. Show all work and give a complete sentence answer for each.
5. Name one occupation in which a hypsometer would be a valuable tool, and explain why. Give an example of how the hypsometer could be used to aid the worker.

Self and Partner Evaluation		Name: _____				
		Partner's Name: _____				
On a scale of 0-4, with 4 being the highest, give a rating that supports the amount of work done on the project as well as the overall effort put into the part each person worked on. Below the rating, you must give two or more sentences to substantiate the score.						
Ideally, if you shared the project work equally, and you each did the absolute best you could, you could both earn a score of 4.						
Self Evaluation:	Circle a score:	0	1	2	3	4
Reasons:						
Partner Evaluation:	Circle a score:	0	1	2	3	4
Reasons:						

TRIGONOMETRY PROJECT

NAMES: _____

Project Assessment Rubric: used by partners together, and by the teacher TOTAL: /27

	3 marks	2 marks	1 mark	0 marks
Task #2 1 st	Diagrams are neat, clear, ruler used, right triangle present, all other info present	Ruler not used in all places, or any other minor problems	Major errors such as missing info, incorrectly placed info, messy diagrams	Not completed
Task #2 2 nd	Diagrams are neat, clear, ruler used, right triangle present, all other info present	Ruler not used in all places, or any other minor problems	Major errors such as missing info, incorrectly placed info, messy diagrams	Not completed
Task #2 3 rd	Diagrams are neat, clear, ruler used, right triangle present, all other info present	Ruler not used in all places, or any other minor problems	Major errors such as missing info, incorrectly placed info, messy diagrams	Not completed
Task #3 1 st	All work presented clearly and accurately, answer rounded correctly with units, clear complete sentence	Minor problems such as not all work shown, rounding errors, no units, or lack of sentence, messy	Major errors such as incorrect answer, no work shown, or combination of minor errors, very messy	Not completed
Task #3 2 nd	All work presented clearly and accurately, answer rounded correctly with units, clear complete sentence	Minor problems such as not all work shown, rounding errors, no units, or lack of sentence, messy	Major errors such as incorrect answer, no work shown, or combination of minor errors, very messy	Not completed
Task #3 3 rd	All work presented clearly and accurately, answer rounded correctly with units, clear complete sentence	Minor problems such as not all work shown, rounding errors, no units, or lack of sentence, messy	Major errors such as incorrect answer, no work shown, or combination of minor errors, very messy	Not completed
Task #4 1 st		All work presented clearly and accurately, answer rounded correctly with units, clear complete sentence	Minor problems such as not all work shown, rounding errors, no units, or lack of sentence, messy	Major errors such as incorrect answer, no work shown
Task #4 2 nd		All work presented clearly and accurately, answer rounded correctly with units, clear complete sentence	Minor problems such as not all work shown, rounding errors, no units, or lack of sentence, messy	Major errors such as incorrect answer, no work shown
Task #4 3 rd		All work presented clearly and accurately, answer rounded correctly with units, clear complete sentence	Minor problems such as not all work shown, rounding errors, no units, or lack of sentence, messy	Major errors such as incorrect answer, no work shown
Task #5	A job that could use a hypsometer is suggested, with a clear explanation why and a believable example	A job that could use a hypsometer is suggested, but explanation and/or example is unclear, or example not given	A job is suggested, but no clear support as to why that job would need a hypsometer	Not completed

Structure #1

Task #2: Diagram

Task #3: Find the height of the structure, to the nearest tenth. Show your work step-by-step.

Task #4: Find the distance from your eye to the top of the structure to the nearest tenth.

Structure #2

Task #2: Diagram

Task #3: Find the height of the structure, to the nearest tenth. Show your work step-by-step.

Task #4: Find the distance from your eye to the top of the structure to the nearest tenth.

Structure #3

Task #2: Diagram

Task #3: Find the height of the structure, to the nearest tenth. Show your work step-by-step.

Task #4: Find the distance from your eye to the top of the structure to the nearest tenth.

Task #5: Name one occupation in which a hypsometer would be a valuable tool, and explain why. Give an example of how the hypsometer could be used to aid the worker.
