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Problem Posing Pro-Forma using photographs.

Assumption

A numerical or maths problem has multiple solutions or none, it is framed as an open-ended question. There is no clear path to the answer – students cannot easily use a formula. Within the problem, students are often given too much information or not enough.

1. Activity Name: What is the height of the arch? Can you estimate the height of the arch and how could you calculate it?

2. Expected duration of activity: 30 min

3. What EQF level is the activity (approximately)? EQF level 2-4, for secondary school students and 9th graders

4. What is the topic? measurement, geometry, proportion, units, estimation

5. What are the Learning Outcomes? Explore method to calculate the height of the arch. Calculate using different tools.

6. Prerequisite/prior knowledge assumed. Knowledge of units of measurement, calculating with proportion.

7. In what ways does the problem, or the way the problem is delivered to the students:
   - encourage critical way of investigating and thinking? No guidance is given so students are free to explore different methods to work out the process of solving this problem. Approximation of the answer can be given at the end.
   - encourage analysis? When the students get the answer, they should be able to estimate is the answer reasonable.
   - allow students to be creative? Using a photograph (and Geogebra) allows student opportunity to explore what methods could be used.
   - allow independent learning? can be done individually
   - allow for co-operative learning? Working in a group would allow students to share ideas how to solve the problem
   - allow students time to think? There is no time limit to work this out.
   - have a relevant or interesting context? A fun picture from a real place Trinity College.
   - allow for multiple ways of solving or investigating the challenge? There could be different ways to solve the height of the arch. Students can use Geogebra to solve the problem. Or if picture is printed student can use some other way.

8. Resources or materials required? photograph, Geogebra, measuring tools

9. What technology is required in the delivery of the problem? Distribute the picture via Geogebra or on paper.

10. What technology might potentially be required in the solving of the problem? Computer and Geogebra

11. Suggestions for delivery

    Share the link to Geogebra material with students.

    https://ggbm.at/zaumvcua