

Usable Area

Abstract

In a planning office, blueprints are not only designed but it might be also necessary to extract relevant data from old blueprints, such as the usable area.

In this task, the students work as young technical assistants in a planning office and should determine the usable area of a flat. But what is the “usable area”? For the calculation it is helpful to decompose the area of the flat into simple geometric forms. Different decompositions exists and many approaches are possible.

At the end, the young assistants should hand in a/their definition of “usable area” and a commented protocol of the calculation to their boss.

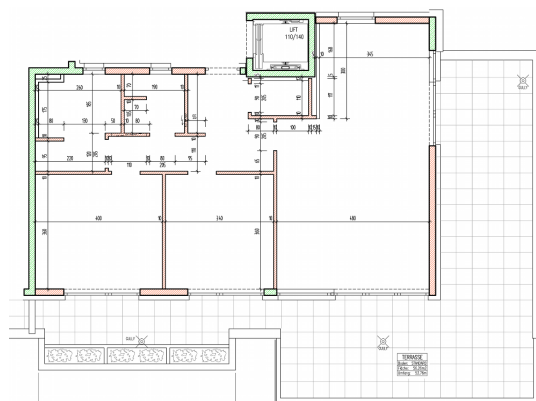


Fig. 1: Blueprint (mascil-Team Austria)

Tag

Discipline: Mathematics

Target group: Lower Secondary Education

Age range: 10–11

Duration: 100 min.

Inquiry-based learning:

- Exploring situations
- Planning investigations ✓
- Experimenting systematically ✓
- Interpreting and evaluating
- Communicating results ✓

World of Work:

- **Becoming a(n):** Technical assistant or secretary in a planning office
- **Context:** The workplace in this task is a planning office. The task focuses on recovering data from a blueprint. The single steps have to be documented to allow a fast checking.
- **Role:** The students adopt the role of a technical assistant or a secretary in a planning office.
- **Activity:** The students look-up what “usable area” means in the building context. To calculate the usable area, they decompose the area of the flat into simple geometric forms and label them. Then they calculate the areas, sum them up and present their results in a short report.
- **Product:** The product is the labelled blueprint and a short report or commented protocol for the boss of the planning office.

Problem

You are working in a planning division of a building company. The boss of your division asks you to find out what the “usable area” of an old flat is and gives you the attached blueprint of that flat. Unfortunately, there is no scale on the blueprint.

The boss needs a list with all rooms and their usable areas. Please make your steps visible.

Supplementary Material

- Blueprint
- Definition of “usable area” in Austria according to the Mietrechtsgesetz (Austrian Tenancy Act), § 17. (3):

Die Nutzfläche, die in Quadratmetern auszudrücken ist, ist die gesamte Bodenfläche einer Wohnung oder eines sonstigen Mietgegenstandes abzüglich der Wandstärken und der im Verlauf der Wände befindlichen Durchbrechungen (Ausnehmungen). Keller- und Dachbodenräume, soweit sie ihrer Ausstattung nach nicht für Wohn- oder Geschäftszwecke geeignet sind, sowie Treppen, offene Balkone und Terrassen sind bei der Berechnung der Nutzfläche nicht zu berücksichtigen [...].

The definition might be slightly different in other countries.

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