Packaging

Abstract

A packaging engineer creates, among others, new designs for packaging satisfying various requirements. This includes aesthetic demands of the customer; the protection, the storage, and the transport of packaged goods; the possibilities of packaging (machine or manual packaging) but also a simple and inexpensive production.

For a specific order description (square base and given volume), the students should reason why their draft guarantees a cost-effective production. Based on a proposed blank, the customer can realise different packaging.

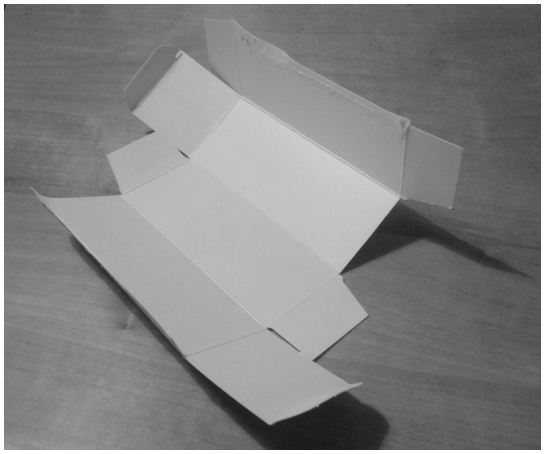

Fig. 1: Cardboard packaging (mascil-Team Austria)

Tag

Discipline: Mathematics

Target group: Lower Secondary Education

Age range: 12–13

Duration: 100 min.

Inquiry-based learning:

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

World of Work:

- **Becoming a(n):** Packaging engineer
- **Context:** The workplace in this task is a customer service of a packaging company. The task focuses on explaining a special form of a blank and regarding the customer's needs.
- **Role:** The students adopt the role of a packaging engineer and/or customer advisor.
- **Activity:** The students investigate different blanks and know the advantages of their recommendation. They calculate the parameters for a given volume and present their proposed box design.
- **Product:** The product is a presentation for a board meeting at the customer's company where the special design of the blank is promoted and the calculations are explained.

The project mascil has received funding from the European Union's Seventh Framework Programme (FP7/2007–2013)

Problem

You are working in a cardboard manufactory being responsible for the design of the cardboard boxes. A pharmaceutical company needs a box with a square base for a new drug. You send the following blank to the company. The lengths w and h can be freely adapted.

In the communication with company different questions arise:

- A square-based box may have different blanks. Explain why the following blank is commonly used in your manufactory. Are there other blanks? How would a "bad" blank look like?
- The volume of the box should be $150\,\text{cm}^3$. Find the lengths w and h so that the surface and consequently the material consumption are minimised.
- Think about factors, which might influence the choice of the lengths w and h?
- Present your results for the board meeting at the pharmaceutical company. Which recommendations do you have for the company?

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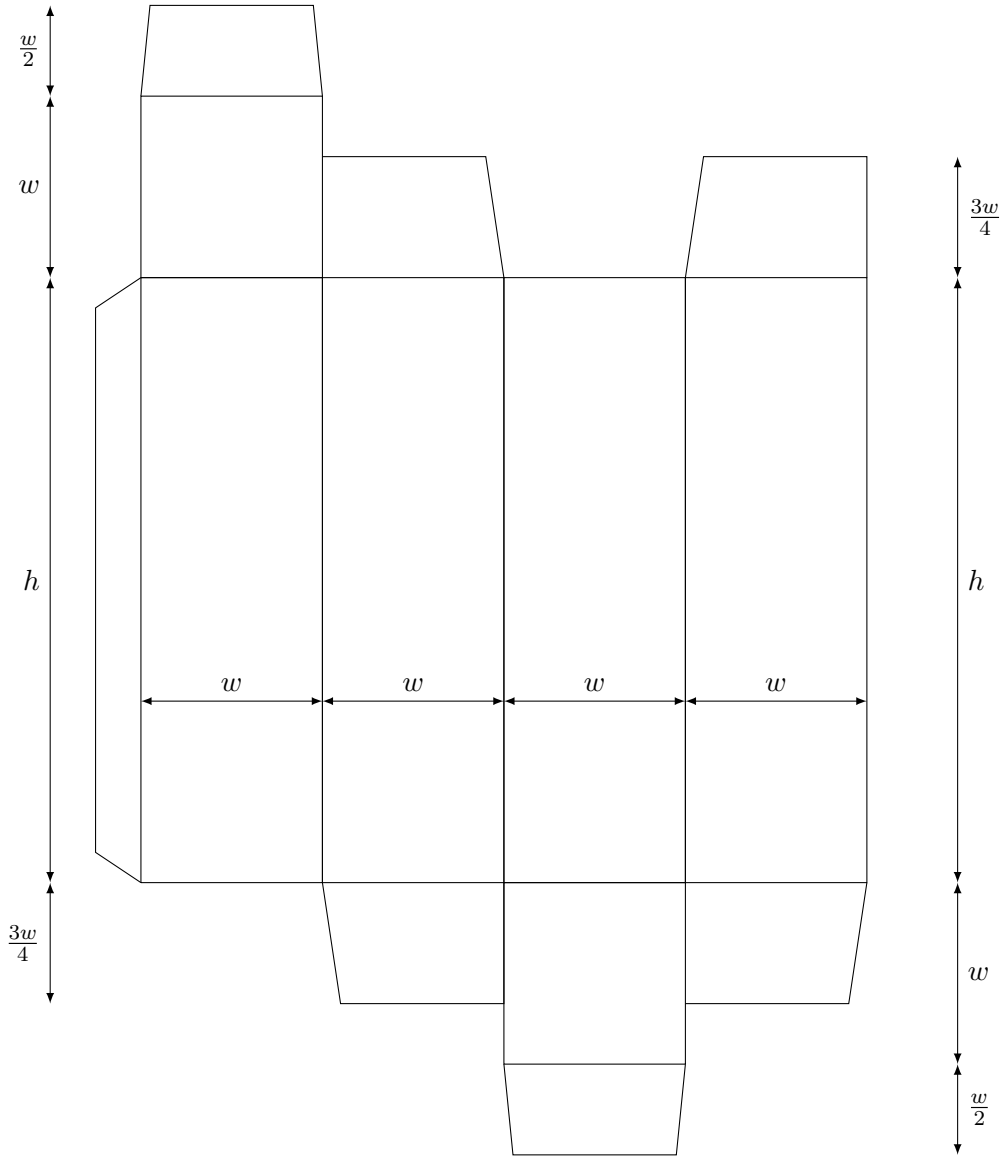
Supplementary Material



- Video clip: Laufer GmbH
- Blueprint

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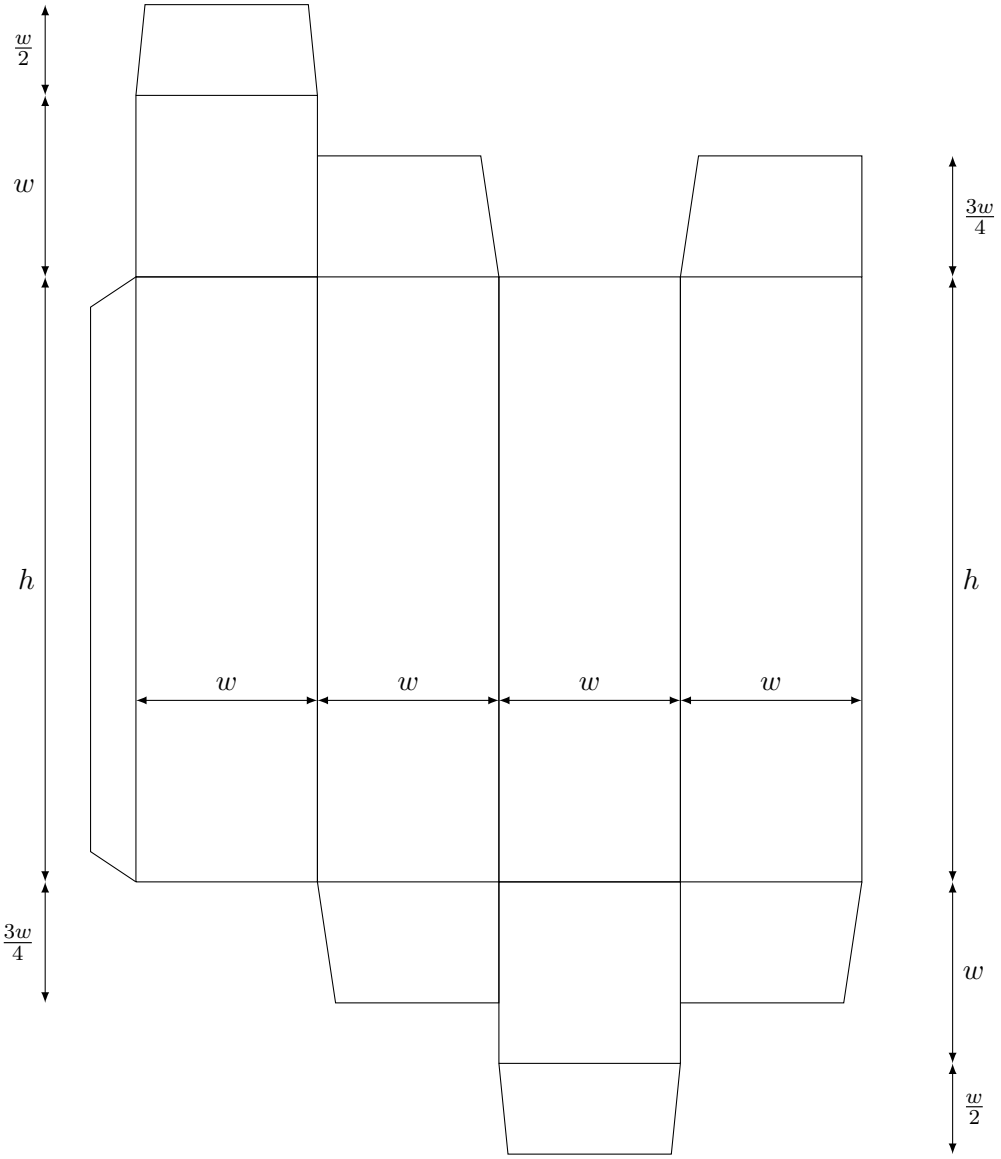

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