

Model "Units of Volume"

LABOTRIX VOLUME M4

PRODUCT PASSPORT

Kyiv

2026

1. Basic product information

- 1.1. Product name — "Units of Volume" model.
- 1.2. Trademark — Labotrix.
- 1.3. Model — Volume M4; full trade name — LABOTRIX VOLUME M4.
- 1.4. Manufacturer — Labotrix Group Limited, China.
- 1.5. Intended use: The model is intended for demonstration in elementary school mathematics lessons. It clearly demonstrates the concept of volume, its units of measurement, and the method for determining the volume of a rectangular parallelepiped, and also allows you to perform exercises on converting units of volume and solve problems based on geometric clarity and spatial imagination.
- 1.6. Design features: The base of the model is a transparent container in the shape of a cube with an edge of 100 mm, made of non-fragile plastic; a measuring scale is applied to its side faces. Four elements of different sizes and colors are placed inside the container one after another: a white block $100 \times 100 \times 90$ mm, a yellow block $100 \times 90 \times 10$ mm, a yellow bar $90 \times 10 \times 10$ mm and a small red cube $10 \times 10 \times 10$ mm; a grid with a step of 1×1 cm is applied to the surface of the elements for counting unit squares. When put together, all four elements fill the container completely, without gaps or overlaps - this is how the model clearly shows which parts make up a volume of 1000 cm^3 , and allows you to trace the transition from it to a single cubic centimeter. Each element is removed from the container separately for demonstration and comparison.

2. Technical specifications

- Brand — Labotrix
- Model — Volume M4
- The article number is LTX-VOLUME-M4
- Product type — demonstration model for studying volume
- The basis of the model is a transparent container with nested elements
- Container dimensions (millimeters) - $100 \times 100 \times 100$
- Container material - transparent, non-fragile plastic
- Grid on the faces of the assembled cube (centimeter) - 1×1 : the grid is applied to the surfaces of the nested elements that form the faces of the model, and it is visible through the transparent walls of the container, on the side faces of which a measuring scale is additionally applied
- Number of inserts (pieces) — 4
- White block dimensions (millimeters) — $100 \times 100 \times 90$
- Yellow block dimensions (millimeters) — $100 \times 90 \times 10$
- Dimensions of the yellow bar (millimeters) - $90 \times 10 \times 10$

- Detachable part for demonstration (centimeter) - $10 \times 1 \times 1$: the yellow bar together with the single red cube form a row of 10 single cubes, from which the red cube $1 \times 1 \times 1$ cm is detached separately
- Dimensions of a single red cube (millimeter) — $10 \times 10 \times 10$
- Grid on the surface of the elements (centimeter) — 1×1
- Volume of the assembled model (cubic centimeter) — 1000
- Volume of a unit cube (cubic centimeter) — 1
- Insert material is non-fragile plastic
- Power source — does not require
- Operating conditions — premises of an educational institution, air temperature from +5 to +40 °C, relative humidity from 40 to 60 % without condensate
- Language of marking and operating documentation — Ukrainian
- Product marking — trademark, model and a space for the inventory number
- Packaging — individual box of corrugated cardboard with the contents secured
- Documentation supplied — product passport with warranty card and operating manual
- Organization of work - suitable for both demonstration to the whole class and individual work of the student at the desk
- Method of storing components - inside a container
- Multiplicity of use - the design is designed for daily assembly and disassembly of elements during classes
- Service life (year) — 5
- Warranty period (month) — 12

3. Equipment

- Transparent container, $100 \times 100 \times 100$ mm — 1 pc.
- White block, $100 \times 100 \times 90$ mm — 1 pc.
- Yellow block, $100 \times 90 \times 10$ mm — 1 pc.
- Yellow bar, $90 \times 10 \times 10$ mm — 1 pc.
- Single red cube, $10 \times 10 \times 10$ mm — 1 pc.
- Product Passport and Warranty Card — 1 pcs
- Individual transport packaging — 1 pcs

The model is delivered assembled (all four elements are placed in a container) and does not require additional assembly. When stored, the elements are placed inside the container.

4. Safety measures

4.1. General requirements

- Before first use, read this passport and keep it together with the product and the document of purchase.

- The model is intended for educational work under the supervision of a teacher. Younger students should only work with the model under constant adult supervision.
- Inspect the unpacked model for mechanical damage. The container and all elements must be intact, without cracks or chips.
- Before working, make sure that all four elements can be removed from the container freely and can be put back in just as freely, without distortion.

4.2. Safety when working with a transparent container and elements

- The container is made of transparent plastic: protect it from drops and strong impacts that may leave cracks or make the surface cloudy.
- Remove and insert the elements carefully, without excessive force and without knocking the elements against each other.
- Do not pull or twist the container by holding it by a corner or edge - distribute the force evenly over the entire surface.
- Do not place heavy objects on the container or use it as a stand or step.

4.3. Protection against injury and loss of parts

- The small red cube is a small part that could get into a child's airways. Do not leave the model unattended in the presence of children under three years of age.
- Do not use excessive force when removing items from the container, as this may damage or deform the container.
- After work, immediately put all four elements back into the container so that none of them get lost.

4.4. It is strictly forbidden

- Throw the container and model elements or drop them from a height.
- Saw, drill, or otherwise mechanically process model elements.
- Do not heat the container near heating appliances or leave it in direct sunlight for a long time.
- Use chemical solvents or abrasives to clean transparent surfaces.
- Store the model in damp or dusty places without packaging.

5. Preparation for work

- 5.1. Unpack the model and check the completeness of all elements according to section 3 of this passport.
- 5.2. Inspect the container for cracks, scratches, or deformations - the transparent surface should be uniformly clean, without cloudiness.
- 5.3. Wipe the container and all elements with a dry, soft cloth to remove any dust that may have accumulated during storage.
- 5.4. Check that each of the four elements can be removed freely from the container and inserted back into the container without jamming or distortion.

5.5. Place the model on a flat, stable surface where it will not tip over or fall during demonstration.

6. Procedure

6.1. Demonstration of volume and its units

- Show students the assembled container and explain that its volume is 1000 cubic centimeters, or 1 liter.
- Remove the small red cube from the container and explain that its volume is one cubic centimeter (1 cm^3)—a unit of volume.
- Take out the remaining elements one by one and stack them side by side, counting from the grid on their surface how many unit cubes each contains; sum up that all four elements together make up the same 1000 cm^3 as the full container.

6.2. Volume unit conversion

- Place a yellow block in front of the students and, using the grid on its surface, count how many unit cubes it contains.
- Compare the yellow block with the yellow block and the white block: show how the smaller elements stack up into larger ones, and calculate the volume of each according to the grid.
- Write the ratio on the board: $1 \text{ dm}^3 = 1000 \text{ cm}^3 = 1 \text{ liter}$.

6.3. Calculating the volume of a rectangular parallelepiped

- Choose one of the elements, for example the yellow block, and remember its length, width, and height.
- Calculate the volume as the product of three dimensions and verify the result by counting the unit grid squares on the surface of the element.
- Repeat the calculations for other elements so that students can see the dependence of volume on the length, width, and height of a rectangular parallelepiped.

6.4. Problem solving

- Have students solve simple problems converting units of volume, using the model elements as a visual aid.
- Give the task to estimate the volume of the element by its appearance and the grid on the surface, and then check by counting.
- Demonstrate how to arrange items in ascending or descending order of volume.

6.5. Completion of work

- Assemble all four elements and check them for damage.
- If necessary, wipe the container and elements with a dry, soft cloth.
- Place the items back into the container in order from largest to smallest and place the model in its storage location.

7. Care, maintenance and possible malfunctions

7.1. Cleaning

- Wipe the container and elements with a dry, soft microfiber cloth.
- For stubborn dirt, lightly dampen a cloth with water and neutral detergent, wipe the surface, and wipe dry immediately.
- Do not use solvents, alcohol, acetone, or abrasives - they can scratch or cloud transparent surfaces.
- Do not immerse the container and elements in water or wash them under a strong jet of water.

7.2. Periodic control

- Once a month, check the condition of the container for cracks, scratches, or clouding of the clear plastic.
- Make sure that all four elements can be removed from the container freely and inserted back without distortion.
- Inspect items for chips, deformations, or loss of color.
- If significant damage is found, stop using the model and contact an authorized service center.

7.3. Possible malfunctions and ways to eliminate them

Symptom	Possible cause	User actions
The container is cloudy or has scratches on it.	Cleaning with abrasives, prolonged storage in the sun	Wipe with a soft cloth; minor scratches do not affect functionality
The item is difficult to remove from the container or difficult to put back in.	Dust accumulation on the container walls or on the element, deformation of the element from heat	Wipe the container and element with a dry cloth; if there is significant deformation, contact a service center.
Elements do not fill the container completely	One of the elements is missing, the elements are placed in the wrong order	Check completeness according to section 3; arrange the items in order from largest to smallest
Lost small red cube or other item	Improper storage, loss during demonstration	Order a replacement for the lost item from an authorized service center

8. Storage and transportation conditions

- Store the model in its original packaging in a dry, well-ventilated area at a temperature not lower than +5 °C and not higher than +40 °C and a relative humidity not higher than 80% without condensation.
- Store the container horizontally on a flat surface with all items inside.
- Protect the model from direct sunlight, which can cause the transparent plastic to cloud and the colored elements to deform.
- Avoid storing near heat sources (radiators, heaters) and in damp places (garages, basements without drainage).
- Transport the model in its original or similar rigid packaging, protecting it from shock and vibration.
- The storage period before commissioning is unlimited provided that the stated requirements are observed.

9. Warranty obligations

- 9.1. The warranty period of the product is 12 months from the date of sale specified in the warranty card.
- 9.2. The manufacturer guarantees that the product complies with the declared technical characteristics, provided that the rules for transportation, storage and operation set out in this passport are followed.
- 9.3. During the warranty period, product defects that have arisen due to the manufacturer's fault will be eliminated free of charge. The method of elimination (repair, component replacement or product replacement) is determined by the service center.
- 9.4. Warranty service is provided upon receipt of a correctly and completely filled out warranty card and a document confirming the fact and date of purchase.
- 9.5. The warranty does not apply to cases where the malfunction is caused by:
 - mechanical damage, in particular cracks, chips and deformation of the housing and of the components of the product;
 - violation of the operating, storage or transportation rules set out in this passport;
 - ingress of liquid or foreign objects into the product, and also the action of insects and animals;
 - independent disassembly, repair or modification of the product, in particular repair at unauthorized workshops;
 - use of the product other than for its intended purpose;
 - force majeure circumstances (fire, flood, earthquake, etc.).
- 9.6. The warranty does not apply to natural wear and tear of the coating and appearance of the product, as well as to consumables.

10. Product disposal

- The product is not electrical or electronic equipment, therefore the marking in the form of a crossed-out container does not apply to it.
- After the end of the service life, the product is disposed of according to the rules established at the institution that operated it, with prior separation by materials.
- Hand over the packaging elements (cardboard, polymer materials) to the corresponding streams of recyclable materials.

Contacts

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Conditions of use and storage of the product

The product is intended for educational work in general secondary education institutions and is used only under the control and supervision of a teaching staff member; the recommended age of students — from 10 years, that is, students of grade 5 and of higher grades. Keep the product in a dry, clean and ventilated room at a temperature from +5 to +40 °C and relative air humidity up to 80 % without condensation, separately from heat sources and out of direct sunlight, moisture and dust. Use the product exclusively for its intended purpose and do not allow drops, impacts or other mechanical damage. If you notice damage, a crack or any malfunction, stop working with the product immediately and inform the teacher or the responsible person of the educational institution; repairing the product on your own is prohibited.

WARRANTY CARD

Product name:	Model "Units of Volume"
Product model:	LABOTRIX VOLUME M4
Serial number:	
Date of sale:	
Warranty period:	12 months from the date of sale
Trading organization:	
Signature of the seller:	

The goods have been received in working order, without visible damage, complete, and have been checked in my presence. I have no claims regarding the quality of the goods; I have read and agree to the operating and warranty service conditions.

Full name of the buyer

Buyer's phone number Buyer's signature

Dear Customer!

Thank you for choosing Labotrix products. After-sales service of this product is provided in accordance with the regulations of the company and the legislation of the country of sale. So that we can serve you quickly and without unnecessary formalities, check that this warranty card is filled in correctly at the moment of purchase and keep it together with the payment document throughout the entire warranty period. When applying for repair, hand the product over to the seller or to the service center together with the filled-in card.

Procedure for applying

1. The right to free warranty service for the product is valid for 12 months from the date of sale specified in the warranty card. Within this period, components that have failed due to a manufacturing defect are repaired or replaced without payment from the buyer.
2. Before contacting, make sure that the malfunction is not caused by the reasons listed in section 9 of this passport, and if possible, use the table of possible malfunctions in section 7.3.
3. After the 12-month warranty period, repairs are carried out for a fee; the cost of work and spare parts is determined depending on the nature of the malfunction.

Grounds for refusal of warranty service

The company reserves the right to refuse free service or to perform the work on a paid basis if at least one of the following circumstances is established:

- absence of the warranty card, its incomplete or corrected completion, and also the absence of a document confirming the purchase;
- non-conformity of the serial number of the product with the number specified in the card, or damage to the factory marking;
- traces of independent disassembly, repair or modification of the product;
- damage caused by violation of the operating rules, connection to an unsuitable power source or external mechanical impact;
- damage as a result of force majeure circumstances.

Service Records

Date of entry	Description of the malfunction	Work performed	Position, signature, full name of the responsible person