

Model "Units of Area"

LABOTRIX AREA M3

PRODUCT PASSPORT

Kyiv

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Contents

1. Product Basics
 2. Technical specifications
 3. Equipment
 4. Safety precautions
 5. Preparation for work
 6. Procedure
 7. Care, maintenance and possible malfunctions
 8. Storage and transportation conditions
 9. Warranty obligations
 10. Product disposal
- Contacts
- WARRANTY CARD
- Service notes

1. Basic product information

- 1.1. Product name — The "Unit Area" model.
- 1.2. Trademark — Labotrix.
- 1.3. Model — Area M3; full trade name — LABOTRIX AREA M3.
- 1.4. Manufacturer — Labotrix Group Limited, China.
- 1.5. Intended use: The model is designed to prove and illustrate theorems about the areas of geometric figures in mathematics and geometry lessons. The set develops students' spatial perception and forms an understanding of the concept of area, the area of basic geometric figures and the properties of areas. The product is used as a demonstration and practical material in grades 5–8 when studying the areas of polygons, solving problems and proving geometric theorems.
- 1.6. Design features: The model consists of a square working base with a side of 14.7 cm, drawn on a grid of single squares, and a set of flat removable elements of two main types - squares and triangles of different sizes. All elements have the same thickness, which allows them to be laid out on the base grid side by side, applied to each other without skewing, traced contours and translated during finishing. Elements, as well as divisions on the base, can be marked with color coding or letter symbols for ease of work.

2. Technical specifications

- Brand — Labotrix
- Model — Area M3
- The article number is LTX-AREA-M3
- Product type — demonstration set for studying the areas of geometric shapes
- The main types of shapes are squares and triangles.
- The material of the figures is hard, shatterproof plastic.
- Shape thickness (millimeter) is the same for all elements
- The working base is square, with a grid of unit squares applied.
- The size of the side of the working base (centimeter) is 14.7
- Marking of elements - according to the packing list (grid, colors, letters)
- Power — not required
- Operating conditions — premises of an educational institution, air temperature from +5 to +40 °C, relative humidity from 40 to 60 % without condensate
- Purpose: demonstration and practical work in the classroom
- Method of application - frontal, group and individual work
- Language of marking and operating documentation — Ukrainian
- Product marking — trademark, model and a space for the inventory number
- Packaging - individual box or tray with fixing of elements and base
- Documentation supplied — product passport with warranty card and operating manual
- Ready to use - comes ready to use, no special assembly or setup required

- The versatility of the elements - suitable for use both on a base and separately: for overlapping and tracing contours on paper
- Service life (year) — 5
- Warranty period (month) — 12

3. Equipment

- Square base with markings for individual squares (side 14.7 cm) — 1 pc.
- Square shapes of various sizes - according to the packing list
- Right triangle shapes - according to the packing list
- Acute triangle shapes - according to the packing list
- Obtuse triangle shapes - according to the packing list
- Packaging (box or tray) — 1 pc.
- Passport and operating instructions - 1 set.

The exact list of figures, their sizes and quantity is given in the packing list. It is recommended to keep the factory packaging for storage throughout the entire service life of the set.

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 set is intended for educational work under the supervision of a teacher. Younger students and children should only work with the model under constant adult supervision.
- Inspect the unpacked set for mechanical damage. Figures with cracks, visible chips, burrs, or sharp edges are prohibited from use.
- Before working, make sure that all the shapes lie flat and have no deformations that would prevent them from fitting tightly together.

4.2. Protection against injury and loss of parts

- Small figures can become a choking hazard for young children. Do not leave the model unattended in the presence of children under three years of age.
- Do not drop or throw the figures from a height - they may crack and form sharp edges if they hit a hard object.
- Do not use the shapes as a ruler for cutting paper, as a lever, or as a stand for a pestle.
- After work, immediately place all the figures in the box - this way they will not get lost or lie on the floor, creating a slipping hazard.

4.3. Protection against material damage

- Immediately remove a figure with a visible fracture, crack, or sharp edge from use - it will give incorrect results when laying out and measuring.

- Do not leave the figures on the edge of the table or near heating devices - they will deform from the heat and no longer fit snugly.
- Protect the set from moisture and direct sunlight for long periods of time, which can deform the plastic.

4.4. It is strictly forbidden

- Change shapes from different sets or batches - their geometric parameters may not match, which distorts the results of stacking and measurement.
- Writing on the front surface of the figures with a pencil, pen, or permanent marker will prevent you from tracing the outline and spoil the appearance.
- Heat the figures, place them on a heating radiator, or leave them in direct sunlight for a long time.
- Do not use solvents, alcohol, acetone or abrasive cleaning agents - they will destroy the material.
- Store the kit in damp, dusty places without packaging or overloaded with heavy objects.

5. Preparation for work

- 5.1. Unpack the set and compare its contents with the packing list. List the figures by type and size.
- 5.2. Inspect each figure for mechanical damage - the edges should be smooth, without chips, burrs, or cracks.
- 5.3. Wipe the figures with a dry soft cloth to remove dust after storage, then check the flatness of their surfaces.
- 5.4. Sort the shapes by type and size. If necessary, mark them with notes on the back to speed up the work in the lesson.
- 5.5. Place the square base on a flat surface of the demonstration table; if necessary, prepare an additional sheet of thick paper or Whatman paper for auxiliary constructions and notes.
- 5.6. If you plan to work in groups, divide the shapes into identical sets. If there are not enough, trace the necessary shapes on paper and cut out copies.

6. Procedure

6.1. Reception of the overlay

- One figure is placed on top of another to find out whether they are equal and whether the area of one is greater than the area of the other.
- Place the shapes tightly, corner to corner and side to side, to avoid gaps and inaccuracies.

6.2. Laying (paving) reception

- The figure is completely covered with single squares from the set without gaps or overlaps, or simply placed on a marked base and the cells under it are counted.
- The number of squares needed to do this shows the area of the figure in square units.
- The result does not depend on the order of stacking - only on the size of the figure.

6.3. Acceptance of addition and subtraction

- A new one is formed from several figures, taking them one after the other without distortion.
- On the contrary, the figure is mentally divided into parts whose areas are already known, and these areas are added.
- In this way, the area of a complex figure is found through the areas of simple ones.

6.4. Acceptance of translation

- Different shapes are made from the same set of parts by moving the parts without adding or removing them.
- The area does not change - this is what the proofs of area formulas are based on.
- By observing the translation, students understand why the formula remains the same.

6.5. Completion of work

- Arrange the shapes so that the whole class can see them; if necessary, trace the result on paper and show it to the class.
- Say each stage out loud and record it in your notebook - drawing, marking the sides, recording the calculations.
- At the end of the lesson, check the completeness of the list, put the figures in a box and place them in their storage place.

7. Care, maintenance and possible malfunctions

7.1. Cleaning

- Wipe the figures with a dry, soft cloth - microfiber is good for this.
- To remove dust, you can use them with slightly damp water, then wipe dry.
- Do not use solvents, alcohol, acetone, abrasive powders or chlorine-based products - they will destroy the surface and erase the markings.
- Do not wash the figures under running water or soak them - moisture will cause them to deform and stop fitting tightly.

7.2. Periodic control

- Once a month, check the condition of the figures for cracks, chips, deformations, and loss of markings.
- Check the straightness of the edges of each shape by placing them against a ruler or other flat surface.
- Stack several shapes tightly together — they should fit together without gaps or distortions.
- If significant damage is found, stop using the figure and contact an authorized service center.

7.3. Possible malfunctions and ways to eliminate them

Symptom	Possible cause	User actions
The shapes don't fit tightly together.	Edge deformation due to heating or moisture exposure	Place the figures in a horizontal position at room temperature for a few days.
The marking is faded or poorly visible.	Cleaning with abrasive or solvent	From now on, clean only with soap and water; recognize shapes by appearance and size
A visible crack or chip on the figure	Fall from a height, impact with a solid object	Stop using this figure; replace it at a service center.
Deformed or distorted figure	Long-term storage near a battery or in the sun	Place the figure on a flat surface at room temperature and normal humidity.
One of the figures is missing.	Inappropriate storage, settling in the classroom	Replace a lost piece at the service center; keep a record of the pieces after each lesson
The chips on the edge have formed sharp corners	Mechanical damage during transportation or falling	Carefully sand the edges with fine sandpaper, then rinse and dry.
The edges between the shapes no longer fit snugly	Dirt accumulation on the edges of shapes	Clean the edges with a dry, soft cloth; if necessary, moisten a cotton swab and gently wipe away any dried residue.

8. Storage and transportation conditions

- Store the kit in its original packaging in a dry, well-ventilated area at a temperature not lower than +5 and not higher than +40 °C and a relative humidity not higher than 80% without condensation.
- Place the shapes horizontally in sorted order, without placing them in a single stack without dividers - this way they don't get deformed or wiped.
- Protect the set from direct sunlight, which can cause the plastic to cloud and deform.
- Avoid storing near heat sources (radiators, heaters) and damp places (garages, basements without drainage).
- Do not place heavy objects on top of the set packaging - this may deform the figures.
- Transport the model in its original or similar rigid packaging, protecting it from shock, vibration and distortion.
- 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 Area"
Product model:	LABOTRIX AREA M3
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