BRESSER 9619761 Microscope with Experiment Set Instruction Manual

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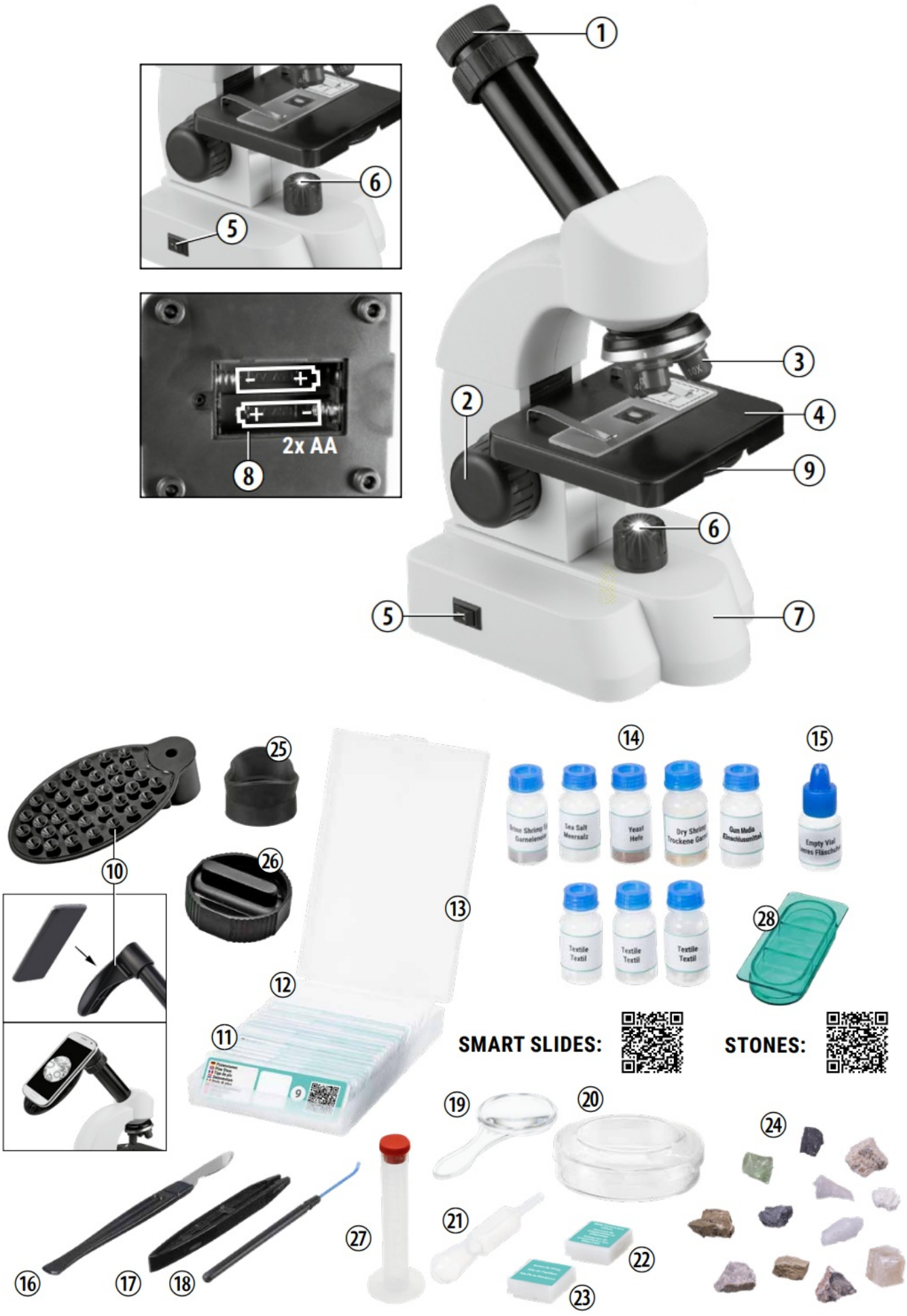
BRESSER 9619761 Microscope with Experiment Set

General Warnings

- **Choking hazard** — This product contains small parts that could be swallowed by children. This poses a choking hazard.
- **Risk of electric shock** — This device contains electronic components that operate via a power source (batteries). Only use the device as described in the manual, otherwise you run the risk of an electric shock.
- **Risk of fire/explosion** — Do not expose the device to high temperatures. Use only the recommended batteries. Do not short-circuit the device or batteries, or throw them into a fire. Excessive heat or improper handling could trigger a short-circuit, a fire or an explosion.
- **Risk of chemical burn** — Make sure you insert the batteries correctly. Empty or damaged batteries could cause burns if they come into contact with the skin. If necessary, wear adequate gloves for protection.
- Do not disassemble the device. In the event of a defect, please contact the Service Centre in your country.
- Tools with sharp edges are often used when working with this device. Because there is a risk of injury from such tools, store this device and all tools and accessories in a location that is out of the reach of children.

Parts overview



1. Zoom Eyepiece
2. Focus knob

3. Objective turret
4. Stage
5. On/off switch (illumination)
6. Electronic light source
7. Base with battery compartment
8. Battery compartment (2x AA)
9. Wheel with pinhole apertures / Filter wheel
10. Smartphone holder
11. 20 prepared slides with QR Code
12. 7 Blank slides
13. Slide carrying case
    - 8 Vials of specimens
    - Sea salt
    - Dry shrimp
    - Textil (Stoff/Gewebe)
    - Gum Media
14. 1 Empty vial
15. Scalpel
16. Tweezers
17. Dissecting needle
18. Magnifying glass
19. Petri dish
20. Pipette
21. 8 Slide covers and 8 adhesive labels
22. Prepared slide “Butterfly Wings”
23. 12 stones and QR Code
24. Eyecup for spectacle wearers
25. MicroCut
26. Measuring cup
27. Hatchery

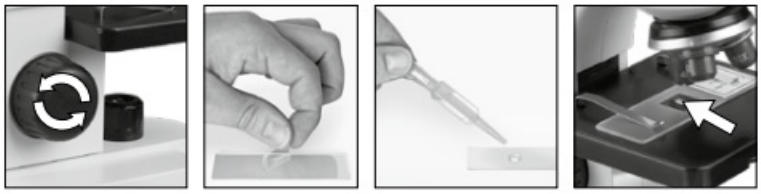
What is a microscope

A microscope contains two lens systems: the eyepiece and the objective. We’re presenting these systems as one lens each so that the concept is easier to understand. In reality, however, the eyepiece (1) and the objective in the turret (3) are made up of multiple lenses.
The lower lens (objective) produces a magnified image of the prepared specimen. The picture, which you can’t see, is magnified once more by the second lens (eyepiece, 1), which you can see as the ‘microscope picture’.

Assembly and location

Before you start, choose an ideal location for using your microscope. It’s important that you choose a spot with enough light for normal observation. Furthermore, it is recommended that you place the microscope on a stable surface, because a shaky surface will not lead to satisfactory results.

Normal observation



For normal observation, place the microscope in a bright location (near a window or desk lamp, for example). Turn the focus knob (2) to the up-per stop, and set the objective turret (3) to the lowest magnification. Now, turn on the light using the switch on the microscope base. You'll find further tips about the light source in the next section. Now, place a pre-pared slide under the clips on the stage (4), directly under the objective (1). When you take a look through the eyepiece, you can see the magni-fied specimen. At this point, you still might see a slightly fuzzy picture. Adjust the image sharpness by slowly turning the focus knob (2). You can now select a higher magnification by turning the objective turret and selecting a different objective. When you do so, note that the sharpness of the picture must be adjusted again for the higher magnification. Also, the higher the magnification, the more light you will need for good illumination of the picture. The wheel with pinhole apertures (9) below the microscope stage (4) will help you in viewing very bright or clear-sighted preparations. Turn the wheel (9) till the best contrast is achieved.

Observation

(electronic light source)

For observation with the electronic light source (6) you need to insert 2 AA batteries 1.5 V, in the battery compartment (8) on the base of the microscope (7). The battery compartment is opened using a Phillips screwdriver. Insert the batteries with the correct polarity (+/- indication). Put the battery cover first into the small opening so that the lid fits perfectly. Now you can tighten the screw. The lighting is switched on when you turn the switch on the microscope base.
Now you can observe in the same way as described in the previous section.

TIP:
The higher the magnification you use the more light is required for a good illumination of the picture. Therefore, always start your experiments with a low magnification.

Condition and prepare viewed objects

Condition

This microscope features transmitted light, so that transparent species can be examined. If opaque specimens are being examined, the light from below goes through the specimen, lens and eyepiece to the eye and is magnified en route (direct light principle). Some small water organisms, plant parts and animal components are transparent by nature, but many others require pretreatment — that is, you need to make a thinnest possible slice of the object by hand cutting or using a microtome, and then examine this sample.

Creation of thin preparation cuts

Specimens should be sliced as thin as possible. A little wax or paraffin is needed to achieve the best results. Put the wax into a heat-safe bowl and heat it over a flame until the wax is melted. You can use a candle flame to melt

the wax.

DANGER!
Be exremely carfeful when dealing with hot wax, as there is a danger of being burned.

Then, dip the specimen several times in the liquid wax. Allow the wax that encases the specimen to harden. Use a MicroCut or other small knife or scalpel to make very thin slices of the object in its wax casing.

DANGER!
Be extremely careful when using the MicroCut, knife or scalpel. These instruments are very sharp and pose a risk of injury.

Place the slices on a glass slide and cover them with another slide before attempting to view them with the microscope.

Creation of your own preparation
Put the object to be observed on a glass slide and cover the object with a drop of distilled water using the pipette (21).
Set a cover glass (available at a well-stocked hobby shop) perpendicular to the edge of the water drop, so that the water runs along the edge of the cover glass. Now lower now the cover glass slowly over the water drop.

Experiments

What you need to know

Caution!
When using your experiment set, wear an apron (or old clothing) and rub-ber gloves! Always carry out your experiments under the guidance and with the help of an adult!

Your experiment set includes numerous accessories that help you carry out different experiments. You can use all the parts independently of the microscope that you use for your research. Use the following web link to find interesting experiments you can try out. **http://www.bresser.de/downloads**

Smart Slides:
https://www.bresser.de/c/de/support/ratgeber/mikroskopie/smart-slides
You can do them with the individual parts of your experiment set.

Prepared Slides
The prepared slides contain a QR code. Read a QR code on your smartphone to learn more about the specimen.

Shrimp eggs
These are special eggs that are capable of survival even when they are dried out. As a result, they are particularly ideal for raising brine shrimp. You can find out how in the appendix to these instructions.

Sea salt
You can observe the sea salt using your microscope. Salt is a crystal that looks very interesting through a microscope. Apart from that, you will also need the sea salt to make a salt solution, in which you will hatch your brine shrimp.

Yeast
The yeast in your experiment set is included as feed for the brine shrimp. If you feed them regularly, you will be able to watch how they grow.

Prepared slides “Textile“ (material/fabric), “Dry Shrimp” and “Butterfly Wings”
Different prepared slides that you can investigate using your microscope.

Empty vial
You can keep a sample in the empty vial (e.g. leaves, and, etc.)

Slide covers
You use the slide covers to cover specimens that you have placed on a slide in order to observe with a microscope.

Adhesive labels
You can use these labels to identify your permanent prepared specimens. You can also use them to label the empty vials.

Slides
You place the specimen on a slide. After you have covered it with some water or gum media, you can place a cover slip on top. Then you place the slide under the clips on the microscope.

Scalpel
The scalpel is a sharp knife that you can use to slice specimens/samples.

Tweezers
These are a type of pincers that you can use to pick up smaller objects.

Dissecting needle
A dissecting needle can be used for many things. You can use it to scratch the surface of a specimen, to fix objects in place or to stir liquids.

Pipette
You can use this instrument to soak up liquids in small amounts and squirt them out again. To soak up liquids, push the upper part (head) of the pipette together and put the opening on the lower part in the liquid. Let the head go and the pipette will fill with the liquid. When you want to release some of the liquid, simply push the head together again. The more carefully you press, the less liquid will come out of the opening.

Magnifying glass
With the magnifying glass, you can observe objects with 2 times the magnification.

Stones
12 stones and QR Code. Read the QR codes with your smartphone to learn more about the stones. To view the stones you need a reflected light microscope.

How do I make my own specimens

Take the object that you want to observe and place it on a glass slide. Then, add a few drops of distilled water on the object using a pipette. Now, place a cover slip vertically at the edge of the drop of water, so that the water runs along the edge of the coverslip. Then, slowly lower the cover slip over the water drops.

After use
To make your experiment set – and the enjoyment of it – last longer, you should make note of the following for after each use.

1. Clean the slide covers, slides and microscope instruments carefully with water and some soap.

   Caution!

   Slide covers, slides and instruments have sharp edges and are in some cases pointed. Make sure to always let adults help you when cleaning, so that you don't hurt yourself!

   Warning!

   The slide covers are particularly thin and could break. It is best to place them on a piece of paper on a hard surface for cleaning.
2. Close all the vials tightly after use. Some containers have liquids that evaporate very easily, and could dry up.

Smartphone holder

Attach the smartphone holder to the eyepiece. The suction cups must be clean and free from dust and dirt. A slight moistening is helpful. Now press your smartphone on the retaining plate and make sure that it is prop-erly secured. As a backup, you should secure it with the enclosed rubber strap. Smartphones with a rough surface will not hold as good as smartphones with a smooth surface. Now start the Camera app. The camera needs to rest just above the eyepiece. Center the smartphone exactly over the eyepiece, so the image can be seen precisely centered on your screen. In some cases you need to adjust with the zoom function to display the image fullscreen. A light shading at the edges is possible. Take the smartphone carefully off the holder after use.

NOTE:
Make sure that the smartphone can not slip out of the holder. Bresser GmbH assumes no liability for any damages caused by a dropped smartphone.

Troubleshooting

Error	Solution
No recognizable image	• Turn on light • Readjust focus

Notes on Cleaning

- Before cleaning the device, disconnect it from the power supply by removing the batteries.
- Only use a dry cloth to clean the exterior of the device. To avoid damaging the electronics, do not use any cleaning fluid.
- Protect the device from dust and moisture.
- The batteries should be removed from the unit if it has not been used for a long time.

EC Declaration of Conformity

Bresser GmbH has issued a ‘Declaration of Conformity in accordance with applicable guidelines and corresponding standards. The full text of the EU declaration of conformity is available at the following internet address: **www.bresser.de/download/9619761/CE/9619761_CE.pdf**

Disposal

Dispose of the packaging materials properly, according to their type, such as paper or cardboard. Contact your local waste-disposal service or environmental authority for information on the proper disposal. Do not dispose of electronic devices in the household garbage!As per Directive 2002/96/EC of the European Parliament on waste electrical and electronic equipment and its adaptation into German law, used electronic devices must be collected separately and recycled in an environmentally friendly manner. Empty, old batteries must be disposed of at battery collection points by the consumer. You can find out more information about the disposal of devices or batteries produced after 6 January 2006 from your local waste-disposal service or environmental authority. In accordance with the regulations concerning batteries and rechargeable batteries, disposing of them in normal household waste is explicitly forbidden. Please make sure to dispose of your used batteries as required by law — at a local collection point or in the retail market. Disposal in domestic waste violates the Battery Directive. Batteries that contain toxins are marked with a sign and a chemical symbol.

Warranty & Service

The regular guarantee period is 5 years and begins on the day of purchase. You can consult the full guarantee terms and details of our services at: **www.bresser.de/warranty_terms**.

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www.bresser.de/c/de/support/ratgeber/mikroskopie/smart-slides

STEINE/STONES/PIETRE/PIERRES/PIEDRAS/PEDRINHAS:
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References

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