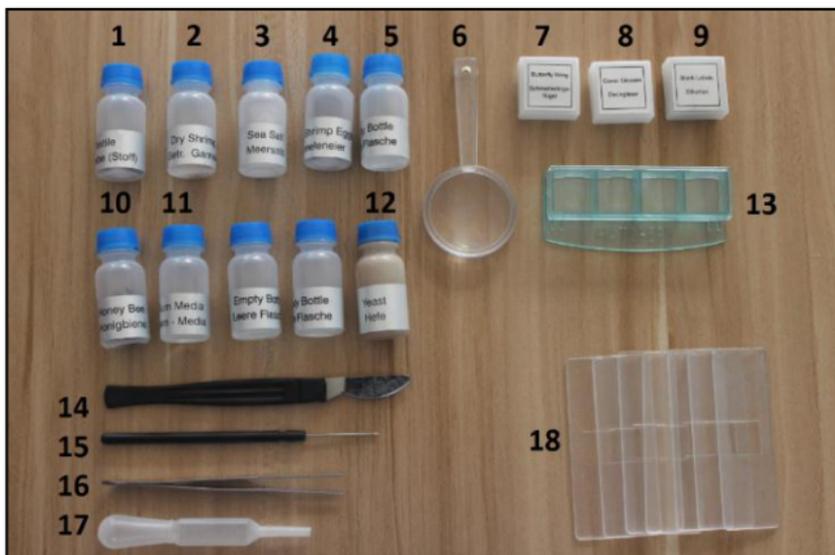


Omegon® Experiment Set

omegon

Chemicals and dangerous liquids should be kept from children! Do not eat or drink the chemicals. After use, please wash hands thoroughly. This kit contains sharp tools. Use only with adult supervision!

Congratulation on the purchase of the new **Omegon® Experiment Set**. This set includes the following items:



- | | | |
|--------------------|-------------------|------------------------|
| 1. Textile Sample; | 2. Dry Shrimp; | 3. Sea Salt; |
| 4. Shrimp Eggs; | 5. Empty bottle; | 6. Magnifier; |
| 7. Butterfly wing; | 8. Cover glasses; | 9. Blank labels; |
| 10. Honey Bee; | 11. Gum Media; | 12. Yeast; |
| 13. Hatchert; | 14. Scalpel; | 15. Dissecting needle; |
| 16. Tweezers; | 17. Pipette; | 18. Blank Slides. |

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There are two kinds of objects. Objects that reflect light (opaque) and objects that let the light go through (transparent). Opaque objects can be observed using a loupe while transparent objects by using a microscope.

Usually the magnifier can only produce a very small amount of magnification (3x to 10x) while a microscope reaches far more magnification (40x to 400x). For that reason the level of detail that can be seen is quite different. An object seen through a magnifier can be much more interesting when seen through a microscope. Below are some techniques that can be used to obtain the best of a sample.

Caution: Children should perform these preparations under adult supervision only!

Turning an opaque object into a transparent one

As mentioned before with a microscope one can see much more details as with a magnifier. To use a microscope one needs however a transparent object. An opaque object can be turned into a transparent one by cutting a slice (sample) so thin that the light can pass through.

The wax technique

For some soft objects a straight thin cut is difficult to do. There is a technique that allows to harden the object in order to get a thin slice (transparent). Start by melting a portion of candle wax in a pan. It should be enough to dip the sample in it. Grab the sample on one end and dip slowly so that the wax covers the sample. Then remove it slowly. Let it dry. The wax layer will get hard as it cools down. Now repeat the procedure to get another coat of wax on top of the previous one. Repeat again until you get about 3 to 4 layers of wax. The wax creates a hard surface and allows to cut a sample from the soft object. The sample can be placed on a sample holder and covered with a slide glass.

How to make preparations? There are two kinds of preparations – permanent and non-permanent.

Permanent preparations

These are done when a sample is to be repeatedly observed. The sample should be dried before set to the slide. A Fly's leg is dry and does not need to

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go through a dehydration process. But for example a sample of potato needs to be dried first.

Short term preparations

these are used when a sample is to be observed for a short time and then can be disposed. These are done for objects easy to find and prepare. Humid objects are usually easier to prepare and should be used for short term preparations. Place the sample on the object holder and put the cover glass on top of it.

There is a third option. For liquids (like water from a pond) just use the supplied pipette to get the sample and place a small drop on the blank slide. Let it dry and then observe it with the microscope.

Here are some experiments you can do

1. Sea Salt crystals

Use the supplied Sea Salt bottle. Put a few Sea Salt crystals on a blank slide. Observe through the microscope. You will see the crystals have a cubic shape and they all have about the same size and shape.

2. Onion epidermal sample

Onions consist of multiple layers on top of each other. There are two surfaces, the rough inner surface and the shine out surface. This is the surface that we are interested in. Remove the outer brownish skin from the onion and cut the onion in two halves (from top to root). Remove the first couple of layers to insure a fresh onion sample. Now you have a bowl shaped onion layer. Bend it outwards until it breaks. You will see a small transparent film holding the two halves. Peel it. This is the epidermal layer we are interested in. Cut a small portion of the epidermal layer and place it on the blank slide. To increase contrast we recommend putting a small drop of iodine on top. The iodine increases contrast. Now place the glass cover on top and let the Iodine flow on the sample surface. You are ready to use the sample. Please notice iodine is not included.

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3. Sea water shrimps

Sea shrimps are very particular animals. They live under extreme conditions in salt lakes. When the lake dries off the shrimp eggs can survive up to 10 years in a dormant state until better conditions come back. The eggs are very special and have a special protective coating that allows them to withstand hard environmental conditions. Once put back in sea water the eggs hatch. Shrimp larvae need to be fed to grow and turn into healthy shrimp adults. We have included a small bottle with yeast to feed the shrimps.

How to hatch the shrimp eggs? We need to create a saline solution (sea water media) so the eggs can hatch. Use a container able to hold at least ½ litre of water. Pour some rain water to the container. It should be a little more than half a litre because of evaporation. Let the water rest for 24 hours. Put the container inside home where the temperature is stable and not too cold. Place half of the supplied salt in the water and stir so it dilutes easily. Now place the eggs and stir. The eggs take approximately 3 days to hatch. Remember to keep the container inside in a mild temperature (25 degrees) and let it get some light (but not direct sun light). Mark the water level. Make sure if the water evaporates to refill the container to its original water level. You can use the supplied hatchery. Place some of the liquid into one of the compartments and observe. After three days the eggs hatch. It is time to take care of this new generation of shrimps. Use the pipette to observe the eggs and the larvae. It is interesting to see how these develop. Place a drop of water with some larvae on the blank slide and observe. Each day you will see some slight changes as their bodies develop from larvae into an adult form. A generation takes about 10 weeks to reach adulthood. They will keep on reproducing if the conditions are favourable.

How to feed the shrimps?

Shrimps are resistant but they need to be kept fed and in good environmental conditions. Too much food will kill them, too little too. Use the supplied yeast to feed the shrimps. It is enough to feed them just a little every two days. If the water starts to get dark move your shrimps to a new saline solution as mentioned before.

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