

# Ultra-Macro Photography with the Newton Nm1 Field Microscope

By **Todd Vorenkamp**

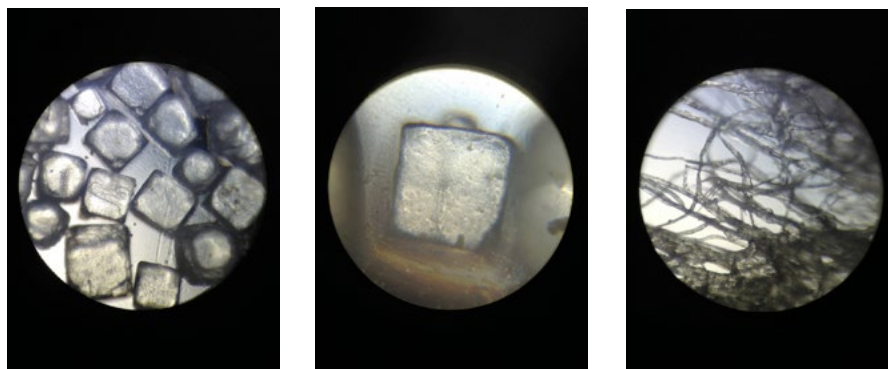
When photographers begin to explore the world of photography, many often crave lenses with longer focal lengths to reach further from where they are standing into the world of telephoto. Others start to see the world in smaller and smaller ways and purchase specially built macro lenses, close-up filters, and extension tubes.

The lens is amazing in its ability to open new worlds to our own eyes. Many of us have been awed by the photos from ground and space-based telescopes, looking deep into the night sky at the wonders of the universe. Others have been inspired by the inward, intimate views of powerful macro lenses and microscopes.

Thanks to digital-capture technology, it's easier than ever to combine telescopes and microscopes with cameras and other image-capture devices.

What if you want to take macro photography a step further—further than what the best macro lenses and extension tubes can provide? You need a microscope.

B&H Photo offers hundreds of microscope options for those looking to explore inner space, and many of them are adaptable to cameras. Sitting near the middle of the microscope price range is the unique Newton Nm1 Portable Field Microscope.



*Newton Nm1 macro photos, from left to right: salt crystals (10x), salt crystals (40x), paper towel*

The Newton Nm1 features a unique, compact design that makes it look completely different from other microscopes, including its field-microscope brethren. This device was designed so that scientists and medical professionals could travel to remote field sites and bring a highly portable and durable precision instrument, with capabilities rivaling traditional “bench” microscopes, along with them to assist in their field work of diagnosing tropical diseases.

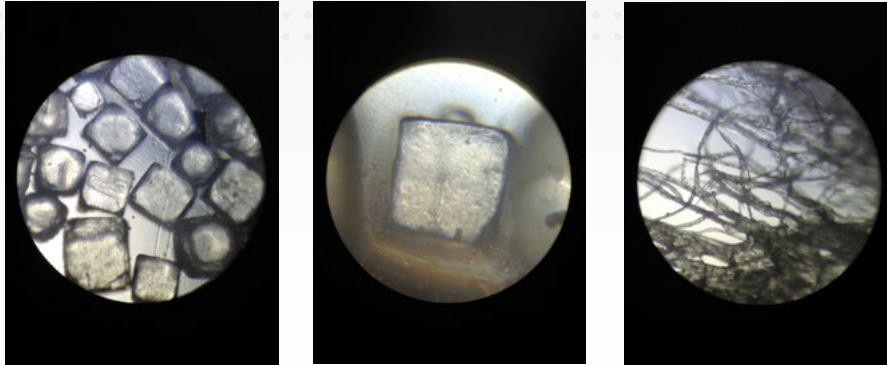
At first glance, this Newton Nm1 looks like something you might find in a department store toy section with other “educational” toys. It looks nothing like a traditional microscope, and its plastic shell speaks of something less than high-tech. However, do not judge the Nm1 by your first impression of its outward appearance. Remember, this instrument was designed to cope in deserts and jungles. So, underneath its rubberized exterior is an aluminum-alloy chassis that provides the rigidity needed for the optical alignment of its high-quality, multi-coated, laser-aligned German-made Schott glass lenses and precision mirrors.

Knowing what’s inside, you should now have the impression that this is a serious optical device, and when you handle and view with the Nm1, you will be convinced that this is certainly not a toy. The Nm1 is a unique microscope of incredible sharpness and precision.

If you want to use the Nm1 for viewing slides, no additional accessories are required. If you want to make photos of what you see through the Nm1’s viewfinder—that’s easy, too. You don’t need to break the bank for expensive adapters and connectors, or, for that matter, an expensive camera. All you need is an iPhone that’s compatible with the adapters

sold separately by Newton. Suddenly, your iPhone 4 or iPhone 5 becomes your microscope photography partner and the iPhone's lens, combined with the Nm1, becomes one of the most powerful macro photography rigs you can assemble.

As a compact and portable field microscope, the Nm1 likely has few peers with the same precision, ruggedness, and ease of use. Its compact form factor and innovative design make it unique in the world of microscopes.



*Newton Nm1 macro photos, from left to right: reflective material, hot sauce, Lego® block.*

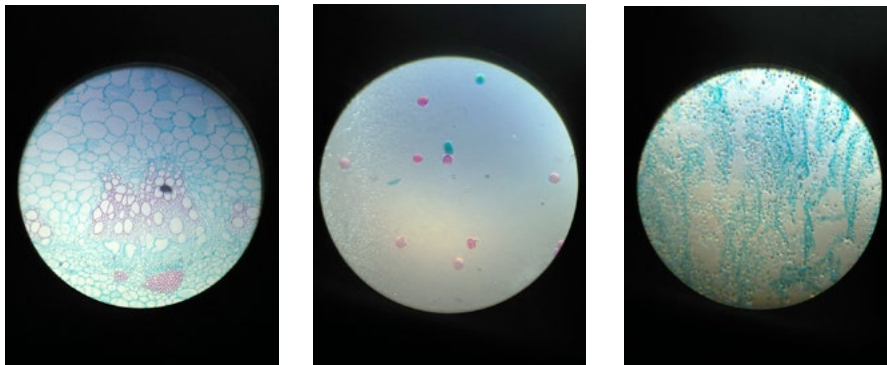
But, let's ask the Nm1 to do more than its designers engineered it to do. Let's see if we can use it for creative macro photography.

The Nm1 was designed to view prepared microscope slides and, as the only illumination source is the "overhead" variable-intensity LED light source, this limits the versatility of the Nm1 for the purposes of macro photography, since you cannot light the object from the bottom (where the lens is), but, in all fairness, most microscopes are designed around slide viewing—not for viewing larger three-dimensional objects. Also limiting its ability to be a multifaceted photography device is the extremely small focusing range. The Nm1 is designed to focus on a very narrow region around where a slide would lay across the lens.

Because of these limitations, finding things to photograph turned out to be a bit more of a challenge than anticipated. Salt crystals proved interesting. A drop of hot sauce showed the microscopic ingredients that must give it its kick. A torn edge of a paper towel showed an interesting fiber pattern, reminiscent of Superman's home world. A flake of retro-reflective material looked like fish eggs.

The Nm1 is designed to be handheld but it also features standard tripod mounts underneath for added stability. There is also a knob underneath that allows you to cycle through the different magnification options of two or three lenses (depending on what version you have). The tested Nm1 had a 10x and 40x lens. The overhead LED light source is mounted on an arm and powered by three AAA batteries (included).

The Nm1 comes with four prepared slides and a blank slide for instant viewing when you take it out of the box. B&H sells prepared slides from several different manufacturers that allow you to explore many different subjects, from insects to microscopic creatures.



*Newton Nm1 macro photos: The Newton Nm1's prepared slides*

Turning to a favorite photography subject, the Nm1's lens was focused on some transparent LEGO® bricks. The precision of the LEGO® molds is evident; looking through the Nm1, when you see the sharp edges of the LEGO® logo and copyright symbol.

If you need a field microscope, the Nm1 is an obvious high-quality option. It has to be a fantastic tool for microscopic medical slide viewing and its portable size makes it easy to pack for almost any adventure, from professional medical field work to microscopic exploration, during your next hike through the woods. But, in between trips out to the field, the creative types can grab a few blank slides—and some searching around your home might yield some creative extreme macro-photographic adventures.