

How to Take Good Specimen Photos with your Cell Phone

Choose an appropriate container for your specimen.

The better you can limit the earthworms movement the less time you will need to spend chasing it around with your camera.

You can easily make a good container by cutting a plastic cup. A white jar lid can also be really useful. Feel free to use your imagination. If they are really active a piece of plain glass on top of the container is ideal — it constrains the creature and you can still photograph through it. If you don't have a piece of glass handy, you can try stretching a piece of cling wrap over the container to achieve a similar effect, although plain glass is optically better.

Use a plain, clean background of neutral color.

We like white, so we use a white piece of PVC plastic, but black or grey are also fine. Avoid using colored backgrounds, as the color from the background can spill onto the creature and create an inaccurate appearance that is not ideal for science documentation. Reflective backgrounds are not great either.

Lighting: take your specimen where there is a lot of available light.

Outside or near a window is good. You may also want to use additional light. That might mean using a white card, silver card or just a plain old flashlight. You can make a white card by using just about anything (white cardboard, office paper). For a silver card, you can buy them from an art supply store, or just wrap some aluminum foil on a piece of cardboard. A pocket makeup mirror would also work fine.

Avoid using digital zoom.

Digital zoom only crops the picture, which loses information. If the creature is really small in the frame, try using a close-up lens attachment. You can find affordable ones easily on the internet that work with any phone. A lot of point-and-shoot cameras are also good at macro photography. Many of them have a "macro" setting often indicated by a little illustration of a flower.

<https://www.amazon.com/Best-Sellers-Cell-Phone-Lens-Attachments/zgbs/wireless/15124502011>

Get the specimen in focus and set the exposure.

Most smart phones will allow you lock the focus with your finger on the screen so it's not shifting focus as you follow the creature. Once the focus is locked, you can then focus easily by moving your camera. Some phones will let you set the exposure the same way, but not all. There are smart phone applications available, however, that give you more manual control over your smart phone camera

Think about depth of field.

Macro pictures often suffer from shallow depth of field, so you may not be able to get the whole creature in focus. You may want to try several pictures where the focus is in different places (head, body, legs, etc.).

Be mindful of reflections.

If the creature is shiny, it will have reflections on it. You may need to move the camera or your light to put the reflection in an inconspicuous place. If the creature is in water, be careful of reflections on the surface. Avoid reflection if you can, or find a way to put it in an inconspicuous place.

Take descriptive pictures.

Scientists look at certain physical characteristics for species identification that vary from creature to creature, so don't be afraid to try several angles (top, bottom, from the side).

Before you move onto the next specimen

thoroughly check and make sure you have the picture. Is it in focus? Can you see detail everywhere on its body? Zooming into the picture with your fingers can be really helpful for checking. And most importantly, don't forget: Have fun with it and keep going.

This document is based on The Smithsonian National Museum of Natural History's document titled " Cell Phone Specimen Photography Tips" from February 2019. The original document can be found here:

<https://naturalhistory.si.edu/sites/default/files/media/file/cellphonephotographytipsbiocubefeb2019.pdf>