Exploring UV Light with THE UNDERFOOT

A Science Experiment for
Hamster Pups of All Ages

By Basie the hamster & Emily S. Whitten



Hi, science friends!

I'm glad you're here, because I have a secret to share! Last April, H.A.M. team members hid three secrets in the map of our burrow's location (near the Paw Tonic River and Contented Moon Lake). Over a whole year later, Luciana has finally authorized me to tell you how to find them. Ready? Here's how you do it!

First, you will need a UV light. Do you know what a UV light is?

A UV light is also sometimes called "ultraviolet light" or a "black light." It is a light source that emits long-wave ("ultraviolet A") light, and very little of the visible light you would see coming from a regular light bulb. These lights emit a dim violet glow.

Do you know what UV lights are used for?

UV lights allow us to see "fluorescence," a colored glow. Sometimes fluorescence occurs naturally in minerals and living things, like mushyrooms, some of which are also bioluminescent! (Gosh, I love glowing things!) Sometimes, doctors can use UV lights to identify infections or diseases (eek!). The Giants-That-Were used UV lights to tell if oil paintings, antiques, and bank notes were real. Sometimes they marked these things with invisible ink they could only see with UV lights.

H.A.M. learned how to make invisible ink from a recipe we found in The Archives, and that's how three different team members hid secrets in our map. This is why you'll need to make a UV light to discover them!

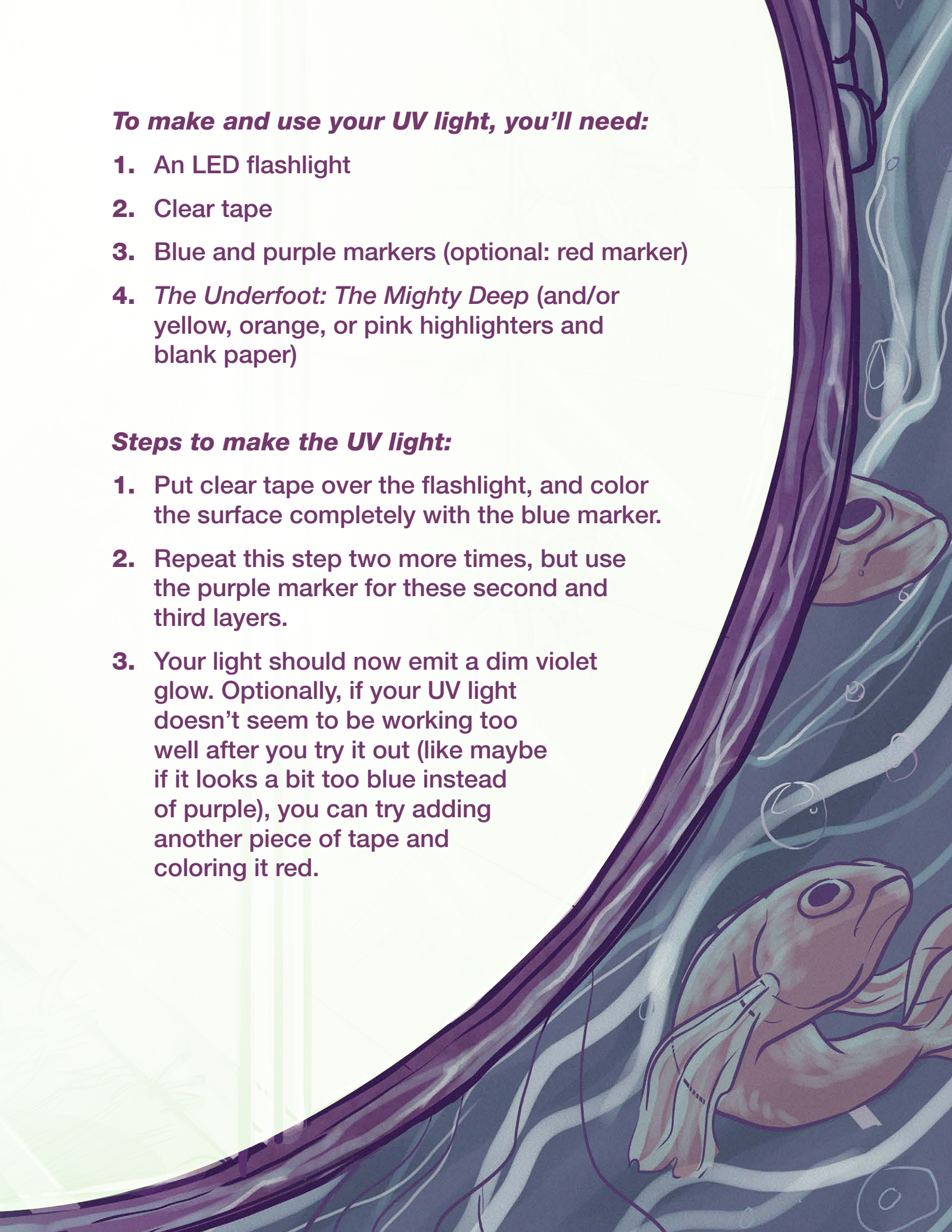
But don't worry! It's not hard, and I'll help you figure it out.

To make and use your UV light, you'll need:

1. An LED flashlight
2. Clear tape
3. Blue and purple markers (optional: red marker)
4. *The Underfoot: The Mighty Deep* (and/or yellow, orange, or pink highlighters and blank paper)

Steps to make the UV light:

1. Put clear tape over the flashlight, and color the surface completely with the blue marker.
2. Repeat this step two more times, but use the purple marker for these second and third layers.
3. Your light should now emit a dim violet glow. Optionally, if your UV light doesn't seem to be working too well after you try it out (like maybe if it looks a bit too blue instead of purple), you can try adding another piece of tape and coloring it red.



How to test and use the UV light:

1. If you have yellow, orange, or pink highlighters, use them on blank paper to draw a design.
2. Take your paper and your copy of *The Underfoot* with the H.A.M. map on pages 4 and 5 into a very dark room.
3. Shine your light over the highlighter design. Do you see it glow? Your light is working!
4. Shine your light slowly all over your H.A.M. area map, and see if you can find the three secrets!

Tips and extra fun!

1. If you are having trouble finding the secrets, sometimes they show up even better when you shine the light beam straight down onto the page, and sometimes they show up even better when you look at the page you're shining your UV light on through a cellie phone camera screen held at about a 45-degree angle.
2. While you have the cellie out, take the best pictures you can of the secret messages.
3. Have your grown-up share your pictures on Twitter or Instagram with the hashtag #TheUnderfoot, so everyone can see your successful science experiment. Also, share your theories on which of the H.A.M. members wrote each of the messages!

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