

The Hand Spectroscope

AstroMedia 
Cardboard kits for hands-on science

Shows the spectrum of light and measures the wavelengths of spectral lines

With diffraction grating 900 lines / mm, nanometre scale and magnifying lens. Accuracy: 5 nanometres

Made in Germany

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Cardboard kit for a fully functional hand spectroscope

Contents: 1 casing (printed cardboard), 1 diffraction grating (900 lines / mm), 1 magnifying lens (focal distance $f = +120$ mm), 1 film with nanometre scale (750 to 440 nm) and light slot (0.3 mm).

Assembly Instructions:

You will need just about an hour and the following tools: a pair of scissors, a sharp cutter knife, a blunt knife for grooving the flaps, some adhesive tape and a solvent-containing all-purpose glue. Assembly is carried out in 12 easy steps, which are also marked on the casing by the corresponding numbers.

Step 1: Cut out all parts, fold back along the dotted lines. Only the one line (eyepiece protection, the one with little dots) is bent forwards.

Step 2: Cut out the rectangular eyepiece and glue the lens by its rim onto the white circle. **Caution:** Avoid getting glue on the lens! (Replacement lens: O*M No. 6, available from AstroMedia*)

Step 3: Assemble the casing by gluing the long flap underneath the opposite side.

Step 4: Bend the supporting piece over the back opening of the casing and glue it behind the opposite flaps.

Step 5: Glue the film with the scales and the light gap onto the two long, narrow flaps and the support of the casing. You should be able to read the scales correctly from the inside (test by looking through the lens).

Step 6+7: Bend down both flaps at the narrow sides of the casing and glue them onto the film. This will prevent light entering here.

Step 8+9: Glue the light slot tube together giving it a square diameter and then glue it over the light slot onto the casing.

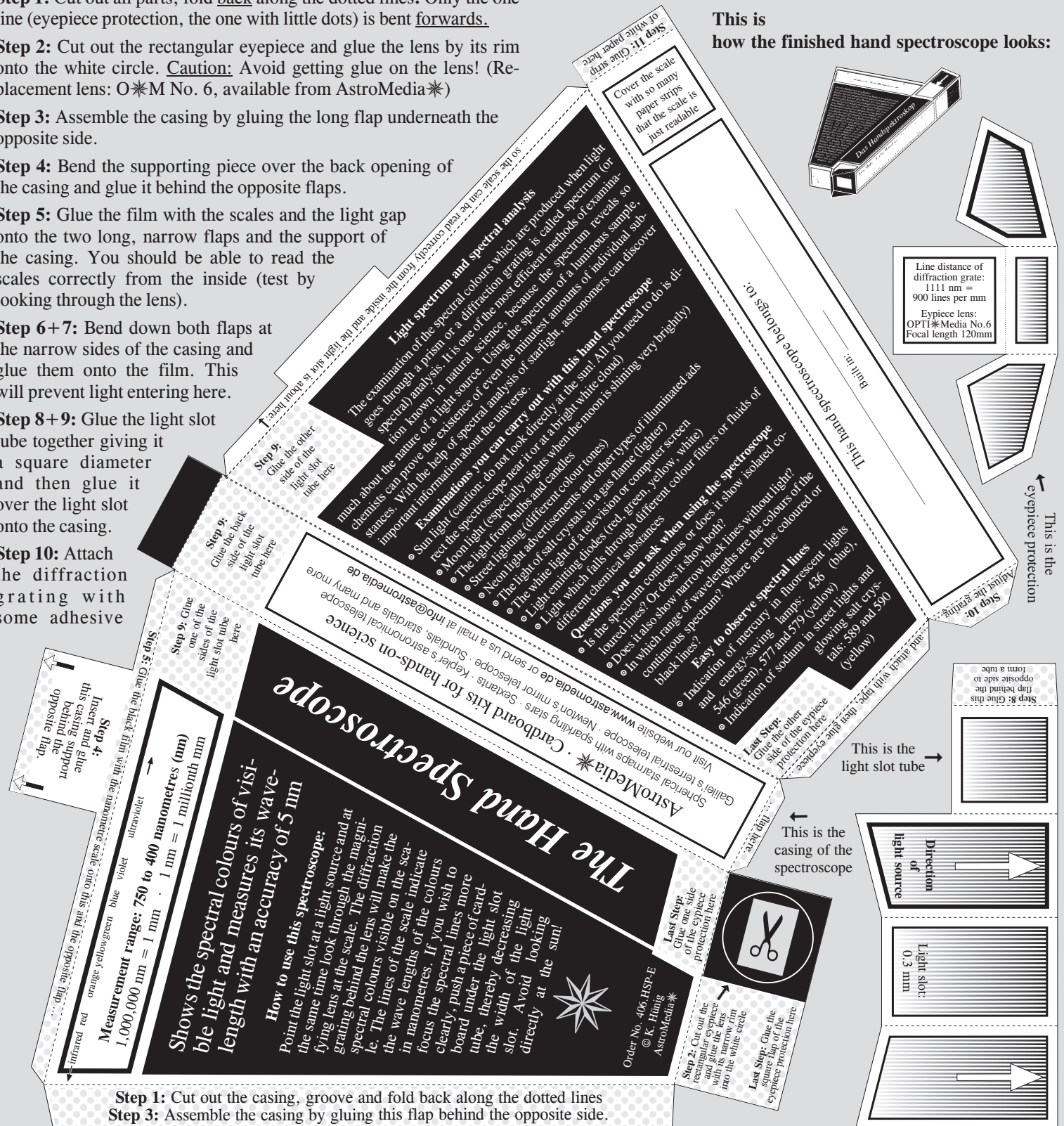
Step 10: Attach the diffraction grating with some adhesive

tape onto the inside of the eyepiece flap (it is not important which side of the film is turned down), close the flap temporarily without glue and point the light gap at a bright light source. When the spectrum appears before the scale you can glue the flap, otherwise you must read-just the grating film.

Step 11: To disperse the light which shines through the nanometre scale you can glue a strip of thin white paper (20 x 70 mm) onto the small flap beside the scale and then adhere it to the other end with adhesive tape. Another 2 to 3 strips are placed on top, but in such a way that they can be easily removed if more light is needed.

Last Step: Glue the eyepiece protection around the eyepiece.

This is how the finished hand spectroscope looks:



Step 1: Cut out the casing, groove and fold back along the dotted lines
Step 3: Assemble the casing by gluing this flap behind the opposite side.