

Star Attractions Column – January 7, 2012

Cosmic Mike®, North Museum of Natural History and Science

Troubleshooting Common Telescope Frustrations

'tis the season for many to get excited about their newly received telescope only to far short. Unfortunately, many first-time telescope owners struggle with its basic operation, or their expectations are too high. Before you know it the telescope is collecting dust in a closet.

All of this can be avoided with the proper help and guidance. Who ya gonna call? Me! Cosmic Mike's Telescope Service to the rescue!

Before you call, though, here's a checklist of common problems to fix.

1. Finder scope not properly aligned. Have you located the moon in the finder scope and it doesn't appear in the telescope? That's an alignment issue. You should see the same object through both.

To align your finder scope, set up your telescope during the day. It's much easier to see what you're doing and adjust the finder scope during the daytime or at least during the evening twilight before actually observing.

Find an object like a stop sign or the top of a lamppost and move your scope until that object is visible in the scope. This may take a while, but you can use the tube of the scope as a sight line to get you close.

After you have that object in the main scope go back to the finder scope and adjust it accordingly. Modern finder scopes that display a red dot or red bulls-eye have dials or knobs that you turn to move the display marker. Center the display marker on the object.

If you have an old, traditional finder scope with non-illuminated crosshairs, I recommend getting a modern one.

2. Poor quality tripod. Inexpensive telescopes usually come with a very unstable, wobbly, poor quality tripod. If this is the case, even after getting the object centered in the finder scope and telescope, the object won't stay in your field of view – the width of your viewing window – as soon as let go because the tripod wiggles that much. The object will naturally move out of the field of view due to the rotation of the earth. If you experience this problem, the telescope is usually fine. You may need to purchase a better tripod.

3. Not the right eyepiece. Be aware of the differences between eyepieces – the little barrel that you insert into the telescope and actually look through for observing. It's good to have at least two, if not three, different sized eyepieces.

They are marked in millimeters (mm), which represents the eyepiece's focal length (the distance required for the image to be focused). Personally I have 25mm, 15mm, 10mm, and 7.5mm eyepieces, but different eyepieces work better for different telescopes.

When observing, start with the highest numbered eyepiece. It gives you the biggest field of view, making it easier to find the object of interest. It also, however, provides the lowest magnification and reveals the least amount of detail.

Once you have found the object, switch to a lower numbered eyepiece. As you do keep in mind your field of view will shrink, making it harder to find the object. The object will also move out of the field of view more quickly unless you're using a telescope that tracks the stars.

Also keep in mind that the goal of a telescope is to gather light. It's not all about magnification. You can actually have too much magnification and you'll lose detail.

4. Unrealistic expectations. Be realistic about what you can see with your telescope. The moon, Jupiter and Saturn are the best objects to look at for detail. When Mars is closer to Earth, some of the

planet's surface features can be seen. Venus and Mercury are just going to appear as a certain phase, much like the moon's phases.

Galaxies and nebulae are basically going to look like small fuzzy patches of light. Certain star clusters are spectacular, but most will appear like fuzz balls. Trained eyes can spot details within the fuzzy patches of light, but it takes a while to develop that skill.

Don't let the limited number of objects with superb detail discourage you. For me personally it's the excitement of being able to find the object myself and realize what it truly is, what's happening to it, and how far away it is: *I'm seeing a galaxy that is 2 million light-years away that will ultimately collide with our galaxy!* Nothing beats the sense of discovery and the thrill of seeing an object for the first time.

So if you're a struggling telescope owner, make it your New Year's resolution to take it for another test drive. Hopefully your interest in the night sky will continue to grow.

And if you need some help, please contact me. I would rather see a scope be used than see it collecting dust.

This is Cosmic Mike wishing you an astronomical day. Be sure to "Like" me on Facebook for celestial news and events.

Mike Smith is senior astronomy educator at the North Museum of Natural History and Science in Lancaster. Phone: (717) 291-4115. E-mail: cosmicmike@northmuseum.org