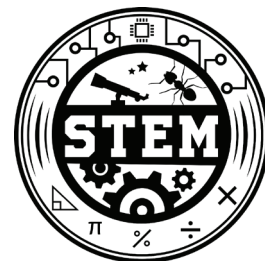


Kids

50mm Newtonian Telescope

#22014

ACTIVITY GUIDE



Welcome to your telescope adventure! The Celestron Kids 50mm Newtonian is more than a tool for looking at stars and planets—it's made for exploring, experimenting, and learning together. These fun, hands-on activities are perfect for kids and grown-ups to do as a team. Grab your telescope and get ready to see the world in a whole new way!

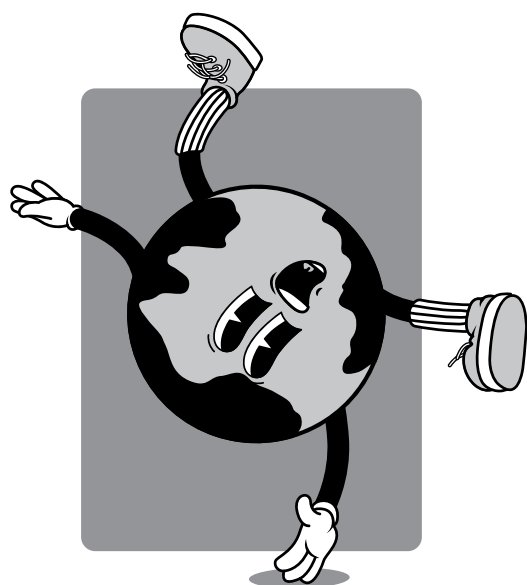


SOLAR WARNING

- Always use your telescope with adult supervision.
- Never look directly at the Sun with the naked eye or with a telescope unless you have the proper solar filter. Permanent and irreversible eye damage may result.
- Never use your telescope to project an image of the Sun onto any surface. Internal heat build-up can damage the telescope and any accessories attached to it.
- Never use an eyepiece solar filter or a Herschel wedge. Internal heat build-up inside the telescope can cause these devices to crack or break, allowing unfiltered sunlight to pass through to the eye.
- Do not leave the telescope unsupervised, especially when children are present or when adults unfamiliar with the correct operating procedures of your telescope are present.

OPTICS & ENGINEERING ACTIVITY – INDOOR

1 UPSIDE-DOWN WORLD



WHAT TO DO

Write a word like "SPACE" or your name on a piece of paper and tape it to a wall or place it far across the room. Look at it through your telescope. Is it flipped or upside-down? Try turning the telescope or changing your viewing angle—does the image change? Can you "fix" it by rotating the paper instead?

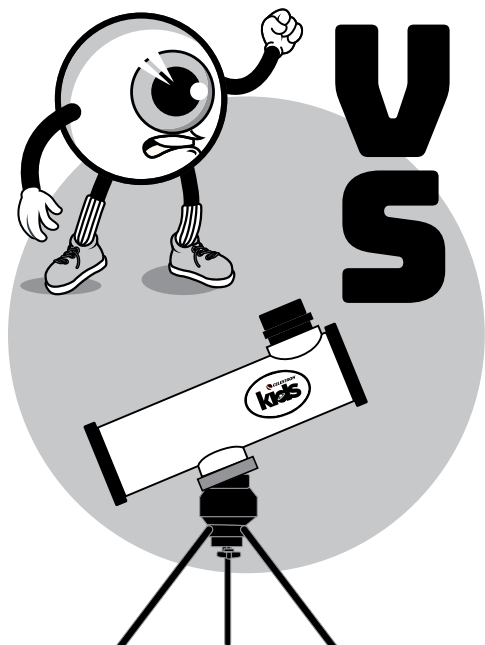
TRY THIS

Look at a digital clock through your telescope. Which way are the numbers flipped? Are they upside down, reversed left-to-right, or both? Now, find another household object and guess how it will look before you look—were you right?

LOOK IT UP!

Why does the Newtonian telescope design flip the image? (Remember, in space, there's no up or down—so astronomers don't mind!)

2 YOUR EYE VS. THE TELESCOPE



WHAT TO DO

During the day, point your telescope at a land-based object that's far away—a tree, a birdhouse, a car license plate, or a stop sign.



Important: NEVER point your telescope at or near the Sun. Even a quick glance can seriously damage your eyes. To stay safe, turn your back to the Sun before you choose your object and pick something low to the ground.

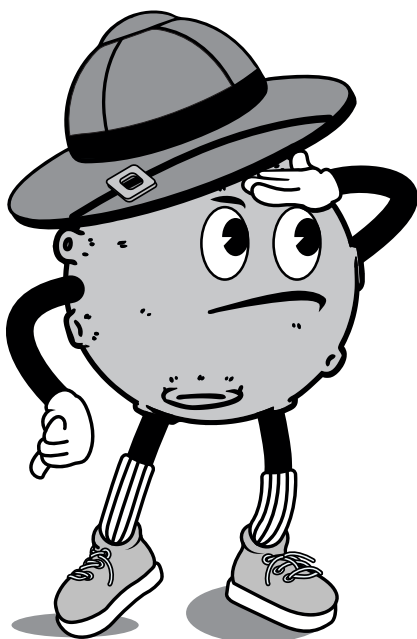
TRY THIS

Describe or draw what you see. (Remember, the view may be flipped like we learned about in Activity 1.) What tiny details can you see with the telescope that your eyes alone can't?

LOOK IT UP!

How does a telescope appear to bring far things closer?

3 MOON EXPLORER



WHAT TO DO

Look at the Moon with your eyes. Then, look at it through your telescope.

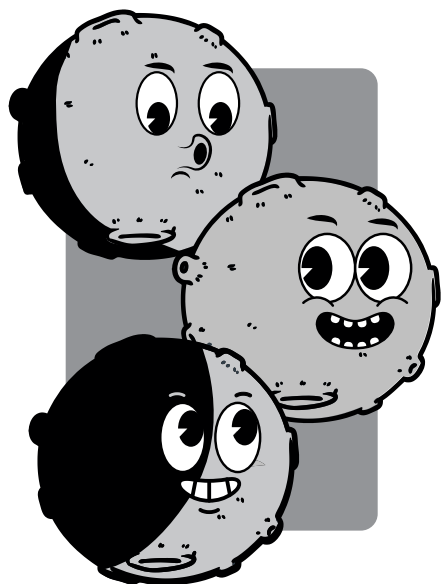
TRY THIS

Draw what you see both ways. How is the view different? Is it bigger? Brighter? Sharper? You might notice that the telescope's flipped view doesn't really matter when you're looking at objects in space.

LOOK IT UP!

How does a telescope gather more light than your eyes alone?

4 SPOT THE DETAILS



WHAT TO DO

Observe the Moon on different nights. Use your telescope for a closer look at the details.

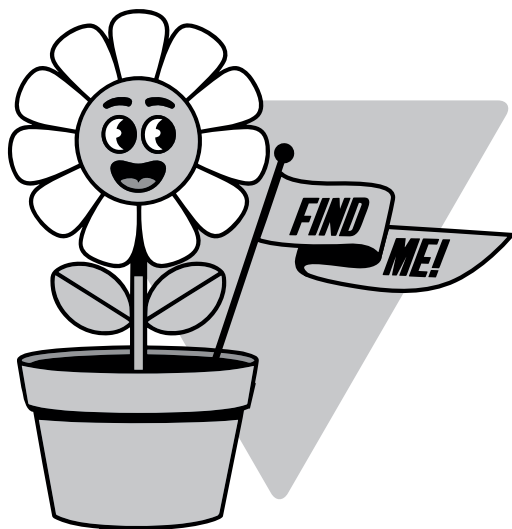
TRY THIS

Draw what the Moon looks like each time you observe it. Can you find craters, dark patches, or the curved line where light meets dark (called the “terminator”)?

LOOK IT UP!

Why does the Moon change shape in the night sky?

5 TELESCOPE TREASURE HUNT



WHAT TO DO

Turn observing into a game! One person hides paper flags, stuffed animals, or other household objects in the yard or house windows. The other uses the telescope to find them.

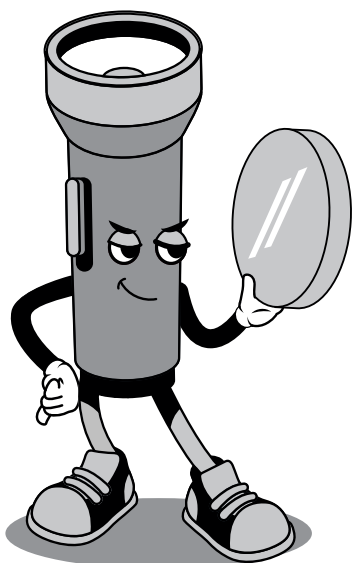
TRY THIS

Take turns hiding and searching.

LOOK IT UP!

How do telescopes help astronomers discover things that no one has seen before?

6 MIRROR DETECTIVE



WHAT TO DO

Remove the telescope's side panel and shine a flashlight inside. Look closely at the telescope's two mirrors.

- The **primary mirror** is the large, curved mirror at the back—it collects and focuses light
- The **secondary mirror** is the small, flat mirror near the top—it reflects light sideways into the eyepiece. Because the primary mirror is curved, it makes reflections look stretched or warped—like a funhouse mirror! The flat mirror gives a regular reflection.

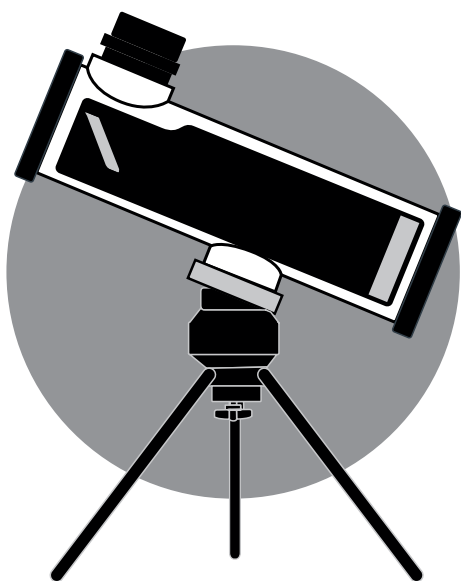
TRY THIS

Draw the light path that light travels through your telescope to your eye.

LOOK IT UP!

Why do Newtonian telescopes use mirrors instead of lenses?

? SEE-THROUGH SCIENCE



WHAT TO DO

Keep your telescope's side door closed and look at something. Then, open the side door and look again. Repeat the experiment in a bright environment and a dark environment to see the effects even more.

TRY THIS

What's different when you open the door or adjust the amount of outside light? Is the image dimmer or fuzzier when it's open?

LOOK IT UP!

How does stray light interfere with telescope views? And how do astronomers combat this "light pollution"?

Stay curious, telescope explorer!

Keep observing, asking questions, and learning more about the universe with your Celestron Kids telescope.