

Activity 1: Create a Simple Telescope

Hello Young Inventor!

Did you know that Galileo built his own telescope using lenses? He did not invent it but he made it better! With it, he discovered moons around Jupiter, mountains on the moon, and more stars than anyone had ever seen before.

Now it is your turn to build a simple telescope and become a star explorer like Galileo!

What You Will Need:

- Two magnifying glasses (one small, one large)
- Two cardboard tubes (like from paper towels or toilet paper)
- Tape
- Markers or stickers for decoration
- A distant object to observe (a tree, a sign, or the moon!)

Step-by-Step Instructions:

1. Place the smaller magnifying glass at one end of the shorter cardboard tube.
2. Tape the larger magnifying glass at the end of the longer cardboard tube.
3. Slide the shorter tube inside the longer one so you can adjust the distance between the lenses.
4. Look through the small lens while pointing the other end at a faraway object. Adjust the tubes until the image becomes clear.
5. Try observing something far away does it look bigger?

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What to Look For:

- Can you read a sign from across the room?
- Does the image flip upside down or stay right side up?
- Can you see the moon or the top of a distant tree?

Galileo Fun Fact!

Galileo's improved telescope could magnify objects up to 20 times their size. That is how he became the first person to see the moons of Jupiter and the craters on the moon!

Safety Tip:

Never look at the sun through your telescope or any lenses. It can seriously harm your eyes.

Build and Decorate!

- Use markers, foil, or glow-in-the-dark stickers to decorate your telescope.
- Name your invention! Try Galileo's StarScope or MoonWatcher 2024.
- Add a strap or handle so you can carry your telescope on adventures.

Record Your Observations!

Make a simple chart in your notebook like this:

Object Viewed | What I Saw Through My Telescope

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A Tree | I saw branches and maybe a bird!

The Moon | It looked bumpy and bright!

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A Distant Sign | I could read the letters!

Turn Your Telescope into a Science Tool!

- Try comparing what you see with and without the telescope.
- Keep a Telescope Log to record what you observe each night.
- Pretend you are Galileo writing a letter to tell the world what you discovered!

Now you are an optical inventor, just like Galileo!