

# Another View

Why send rovers all the way to other planets or moons when we have telescopes that can see them from a distance? While telescopes teach us a lot, we can learn more about something by changing our perspective. In this activity, imagine that an alien world is right outside your door. If you were an astronomer, how would you observe it, and what tools would you use?

## Materials

Pen or pencil

Paper

Binoculars or camera with a zoom feature (optional)

Electronic device with internet connection (optional)

## Directions

Observe the “alien world” outside your door from different points of view as if you were an astronomer using different tools. The windows of your home are “telescopes,” and your body will become a “rover” once you head outside. Let’s start exploring!

1. View #1: Observe through a “telescope”
  - a. **Find** two windows in your home that look outside at roughly the same area. *(If you do not have two windows looking outside at the same location, divide one window into two sections (top and bottom or left and right) to serve as your two windows.*
  - b. **Observe** through one window for 5 minutes (try setting a timer) and **record** your observations by writing or drawing what you notice. Think about:
    - i. Where do you see things?
    - ii. Do things change quickly in your view, like a busy street? Or do they change slowly, like a backyard full of plants?
    - iii. Are there any animals or plants? How many and what types?
    - iv. What about nonliving things, like cars, rocks, or buildings?
    - v. What small details do you notice?



- c. **Choose** one object you want to study closer. It could be a tree, a branch, a bush, or a crack in the sidewalk. **Observe** it for 5 more minutes and **record** what you notice or wonder about the object.
2. View #2: Observe from a different angle
    - a. **Go to** the second window that also looks outside and **observe** the outdoors for another 5 minutes.
    - b. **Record** your new observations on a new sheet of paper by drawing or writing what you notice. Think about:
      - i. Does it look exactly the same as the first view?
      - ii. Are there small or large differences in what you see?
      - iii. Even if you see the same objects, can you see anything different or more clearly now?
      - iv. Can you see anything that was blocked in the first view?
      - v. What can't you see from this view?
    - c. **Find** the object you choose to look closer at in your first view. **Observe** it for 5 more minutes and **record** any new things you notice or wonder about it.
    - d. *Optional:* **Look** through binoculars or a camera with a zoom. Does it help you see things a little better? What new details can you see?
  3. Reflecting on views 1 and 2
    - a. **Think** about what you could and could not see from the two different windows.
      - i. Were there things that blocked your view? **Record** how much of your view was blocked.
      - ii. Were there new things you saw when you changed your view?
      - iii. What might you be able to see or learn if you were able to be closer or look from a different angle?



4. View #3: Observe like a “rover”
  - a. **Think:** How might your observations change if you were actually outside, not just looking through the window?
  - b. **With an adult’s permission**, go outside to the location you observed earlier. **Walk around** and **observe** for 5 minutes.
  - c. **Record** your observations of your world by drawing or writing what you notice. Think about:
    - i. Do you see the same animals? Plants? Nonliving things?
    - ii. How about the areas you couldn’t see before? Can you see them now? Are there places that you can’t see now? Look back at your notes to remind yourself what you could and could not see.
  - d. **Find** the object you choose to look closer at. **Observe** it for 5 more minutes and **record** any new observations or questions about the object.
    - i. What small things or details do you notice that you couldn’t see before?
  - e. **Think:**
    - i. What did you learn by changing the way you looked at the area?
    - ii. What questions do you still have, and is there a way you could change your way of observing to answer them?
5. *Optional:* Observe like an “orbiter” or “satellite”
  - a. **With an adult’s permission** to go online, **find** your home using Google Earth or Google Maps in “satellite view.”
  - b. **Find** the places you observed in steps 1,2, and 4. Do you see the same things in this bird’s-eye view? What is different?
  - c. **Record** your observations by drawing or writing what you notice.
  - d. **Look** for shadows on the Google Earth or Maps view. What do they tell you about when the picture was taken? (Hint: Note the length and direction of the shadows).
6. **Compare** the observations you’ve made from each of the different viewpoints (first window, second window, outside, and optional satellite view). How are they different?



## Learn More:

Astronomers have learned an incredible amount about our Solar System from being able to view it up close. Until the 1970s, we could only see the outer planets like Uranus and Neptune from telescopes on or near Earth. But when the [Voyager missions](#) flew past them and sent close-up photographs back to Earth, incredible new details about these planets were revealed to us, including several new moons! Even nearby, our knowledge of our own Moon fundamentally changed when the [Apollo missions](#) landed people on its surface. Expecting to encounter steep, sharp mountains, astronauts instead found smoother, gently rolling terrain covered in a fine dust called *regolith*. Each new orbiter, lander, rover, manned mission, or simple fly-by takes us further in our quest to understand our Solar System—and beyond.