

<p>Finding Planets Earth & Sky</p>

Name: _____

Introduction

In this activity you will investigate where planets appear in the sky and attempt to view some with the small telescopes on the roof.

Pre-test

1. Do you think planets can appear anywhere in the sky? If you say no, say where you think they can appear.

2. Do you think the same planets are always visible in the sky?

Finding planets

In order to find planets for viewing, you will use *Sky & Telescope* magazine: the TA will point out where these are in the warm room. Each magazine has a fold-out section with a sky chart similar in use to a planisphere: hold it above you and orient the compass directions appropriately. There are lines representing celestial coordinates, with the celestial equator labeled. The path of the Sun through the sky, which is called the *ecliptic*, is also shown and labeled. There will be a note somewhere specifying the times during the month that the chart is valid.

1. Look for any planets on the sky chart in the current issue. List all that you can find:

2. Look through several past issues of *Sky & Telescope*. Are the same planets always visible?

You've already seen that on any given month there are some stars that can't be seen from any place on Earth. Depending on the time of year, different stars are blocked by the Sun as seen from the Earth. The constellations that the Sun appears to travel through are called the Zodiac. The following constellations are in the Zodiac: Aries, Taurus, Gemini, Cancer, Leo, Virgo, Libra, Scorpius, Sagittarius, Capricornus, Aquarius, and Pisces.

3. Using the past issues, write down the constellations in which each planet is found:

4. What do you notice about these constellations?

The path of the Sun against the stars is called the *ecliptic*, so-called because eclipses occur there. The ecliptic appears as a great circle around the celestial sphere, similar to but inclined with regard to the celestial equator; it is marked on the sky charts in the magazines. The physical meaning of the ecliptic is that it is the plane of the Earth's orbit around the Sun. The inclination of the ecliptic to the celestial equator reflects the inclination of the Earth's rotational axis to its orbital plane.

Viewing planets

If you have Venus, Mars, Jupiter, or Saturn listed under question 1., go out on the roof and find them in the sky (use the chart!). Planets generally appear as bright, untwinkling stars in the sky.

The small telescopes will be set up, and you should be familiar with their use from earlier activities. Use the finderscope and a low power (long focal length) eyepiece to center on a planet, then switch to shorter focal length eyepieces for higher magnification.

5. Draw what you see in the eyepiece when viewing each planet. Note any colors you can see. Also, write down the telescope and eyepiece combination you used.

Post-test

1. Do you think planets can appear anywhere in the sky? If you say no, say where you think they can appear.

2. Do you think the same planets are always visible in the sky?