

## Lesson 6

## THE MOON AND THE STARS

## OBJECTIVES:

- \* To follow the Moon's motion in the night sky.
- \* To find the planets and brightest stars.

GRADES: 4 and up.

## SCHEDULING:

This activity should be started on a clear day, when the Moon is visible in the evening sky, near a bright star or planet. It should be repeated as often as possible, until your students are able to find all bright objects in the night sky.

Because they are so easy to find, this activity is most effective when Jupiter and/or Venus are in the sky.

## PREPARATION:

Using the SKY CALENDAR or ALMANAC, find out what bright stars and/or planets are near the Moon, on what night. Write a short "reminder" telling your students to look for the Moon, and what bright star or planet will be near it. Select the appropriate star chart(s).

## STUDENT SHEETS:

- \* Reminder (written by you)
- \* Star chart(s)
- \* Planets and Stars

## DISCUSSION:

- \* What can be seen in the night sky besides the Moon? (Accept all answers -- including "airplanes", "clouds", "the North

Star", etc.)

\* What is a planet? Have you ever seen one?

**ACTIVITY:**

Hand out the star charts and the Planets and Stars sheet. Explain how to use the star charts. (The ones included in this kit depict the Southern part of the sky.) Explain that the students will gradually learn to find more and more of the stars displayed on the chart.

If there are planets in the night sky, tell the students to find them, with the help of the Moon and your "reminder". Then, they should mark their location on the star chart and to write the date next to it. If Mars or Venus are visible, check their positions weekly. Your students should be able to notice a change in their positions after a few weeks.

Tell your students to draw the Moon right onto the star chart, taking care to place it correctly in relation to the bright stars. They should indicate the date next to it. This will be the evening equivalent of the daytime Moon position sheets.

Repeat this activity every time the Moon is near a bright planet or star, until they know all the bright objects in that part of the night sky.

When the Moon is near another object in the sky, it is called a conjunction. Conjunctions can be recorded in the Moon Calendar by writing the name of the star or planet at the bottom of the box. Make clear to your students that from now on, night-time sightings of the Moon should lead to a record of

the Moon's position with respect to stars and planets.

CONCLUSIONS:

After the activities in this lesson, your students should be able to understand the following concepts:

- \* The planets look like stars in the night sky.
- \* The Moon moves daily against the background of the stars and planets.

COMMENTS:

- \* A field trip to a planetarium is an excellent idea before (or after) starting this activity. Planetariums almost always have a show about "The Sky Tonight".
- \* If there are no planets visible with the naked eye in the night sky, you may consider early morning assignments.
- \* The Lawrence Hall of Science SKY CHALLENGER, is an excellent source of night-time observational activities. It consists of five different star charts, each one with a different suggested activity. All can be set to show the sky at any time, on any date.

## THE PLANETS

When Venus is in the evening sky, it is in the general direction of the sunset. People call it "the Evening Star" even though it is far brighter than any star. As it gets dark in the evening, Venus is the first to appear.

Jupiter -though not as bright as Venus- is also brighter than any star. When Jupiter is visible, it too appears in the sky before the stars as the sky darkens. However, it can be in the East, South, or West.

Saturn is yellowish and Mars is reddish. They are harder to find because they are dimmer.

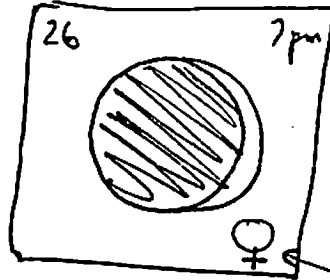
The planets move very slowly, so that they seem in pretty much the same place every night. Look for them every week, and see if you notice any change in their positions.

## CONJUNCTIONS

Draw the Moon (not too big!) at the right place on your chart, and write the date you saw it right next to it. Do this every evening, and you will see which way the Moon moves from day to day.

When the Moon appears very close to a planet or star in the sky, it is called a conjunction. If you see a conjunction, put the symbol for the planet, or the name of the star on your Moon Calendar. (See Figure 1.)

# Conjunctions



Moon is near Venus

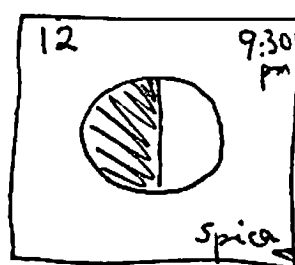
## Planet symbols

♀ Venus

♃ Jupiter

♂ Mars

♄ Saturn



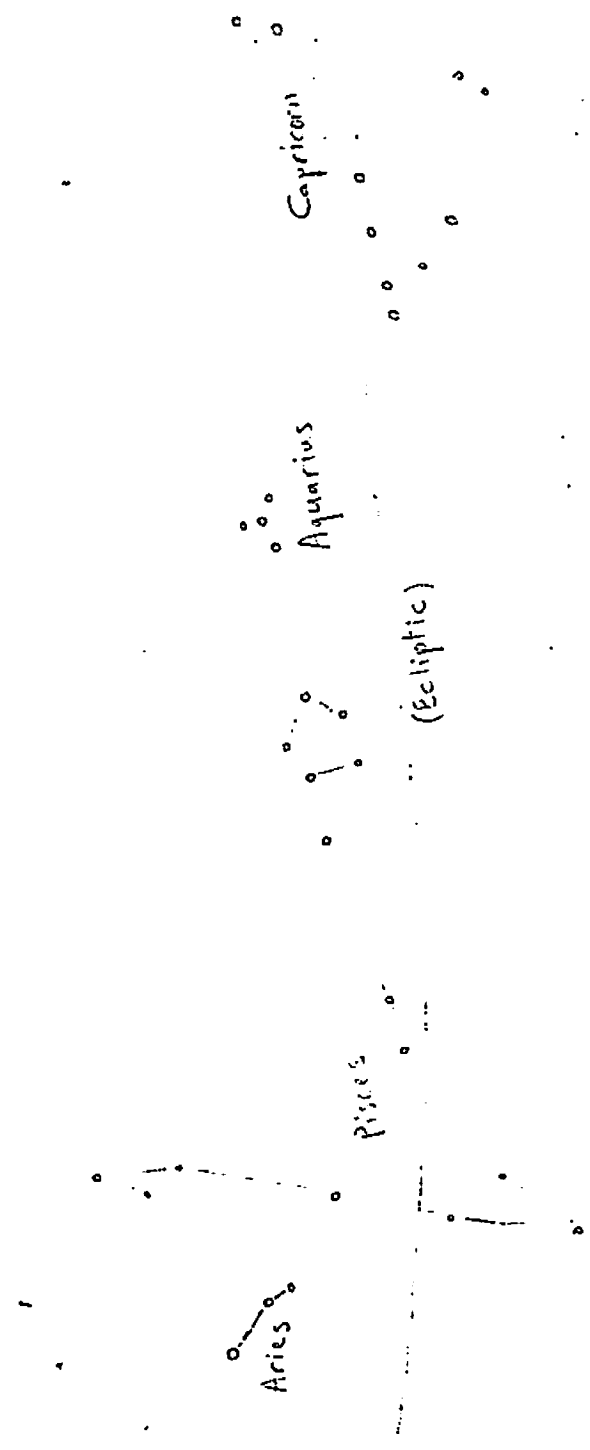
Moon is near Spica

## THE STAR CHARTS

Only some of the stars in the sky are represented on the chart. To find them:

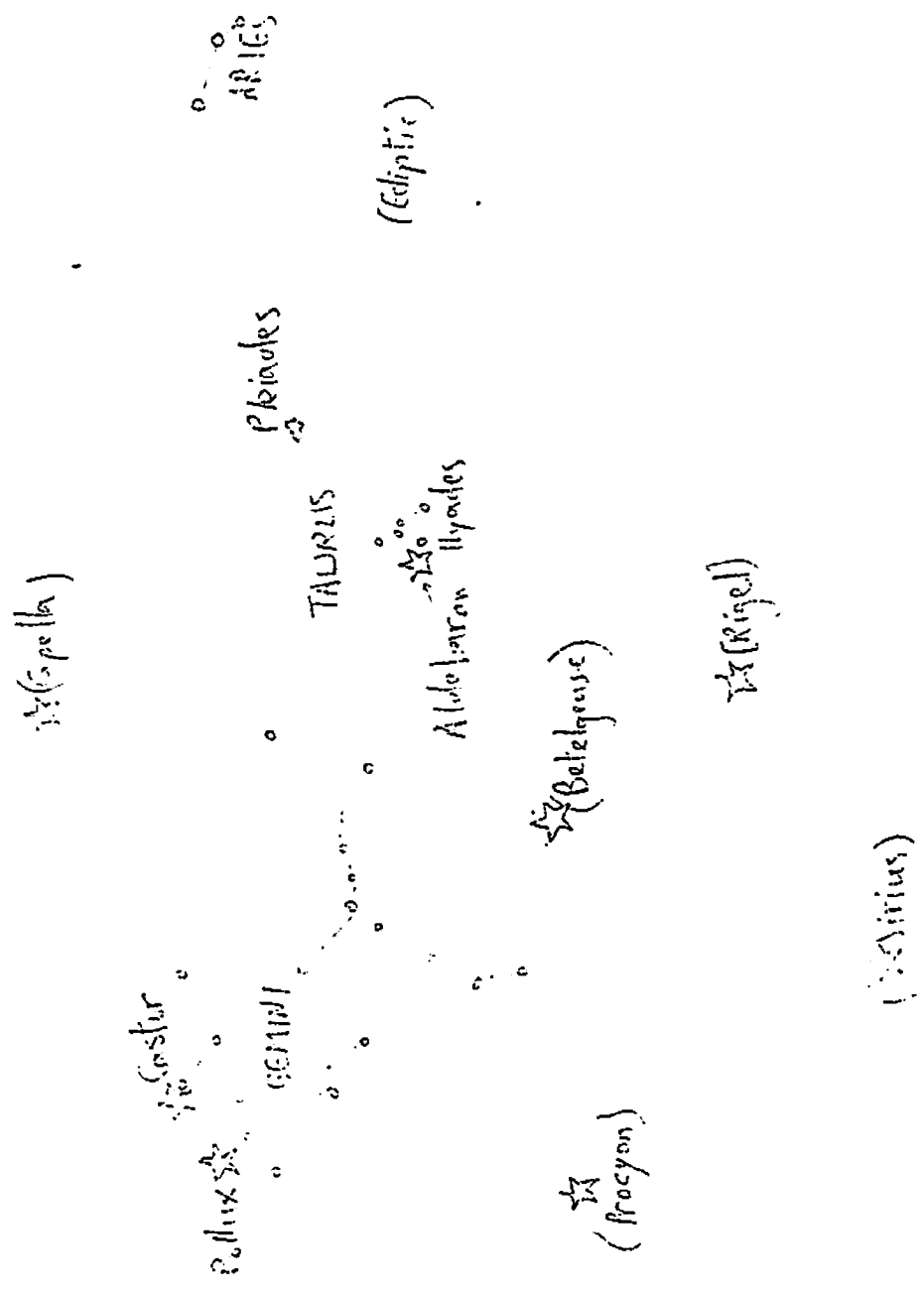
- \* Face South.
- \* Hold the chart over your head.
- \* Look for the brightest stars and try to match them to the ones on the chart.
- \* Use the bright stars as a guide to the faint ones.

# ZODIAC CONSTELLATIONS (FALL)



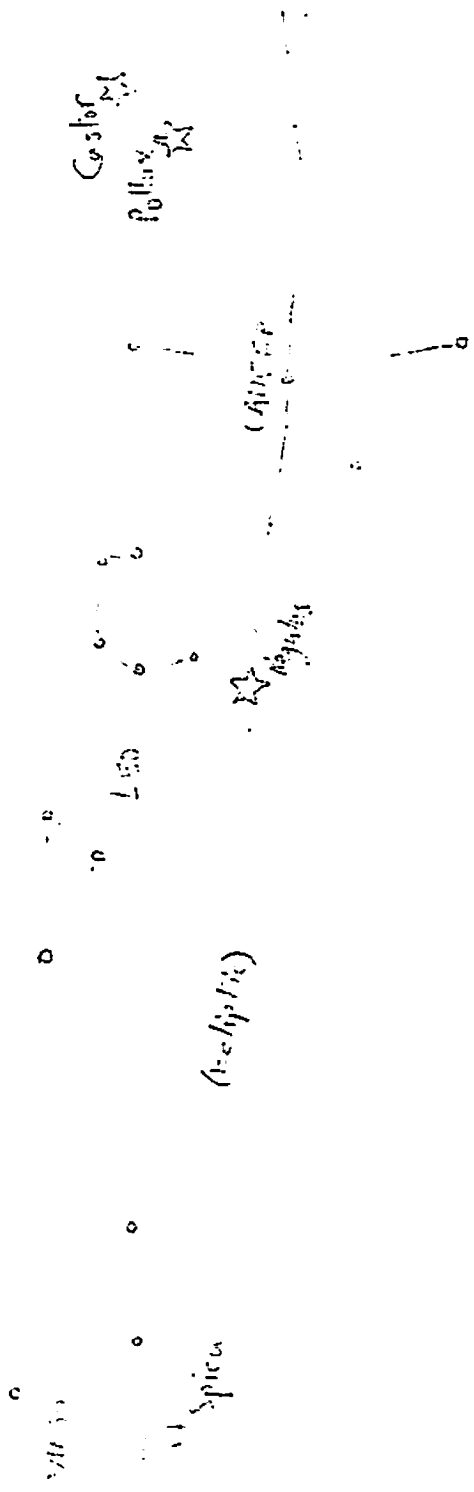
(Fall)

# ZODIAC CONSTELLATIONS (WINTER)





♄ (Mars)



# Zodiac Constellations (Spring)

