Week 6

This week, your students round up their study of the Moon with a "test" and an attempt at predicting the Moon's behavior in the next few weeks.

Continue the activities started in the previous weeks:

* Daily (until Lesson 17):
  - .Moon Calendar
  - .Moon position records (in relation to the Sun and/or the stars and planets)
* Once this week: .Sunset
  - .Noon shadow
* Research topics: the Moon, its craters, the Apollo program.

Lesson 16

THE MOON'S CYCLE

OBJECTIVES:

* To draw conclusions from the Moon Calendar and other records of Moon observations.

SCHEDULING:

This lesson will take one or two class periods.

PREPARATION:

If you have not kept a class Moon Calendar on the wall, collect the students' Moon Calendars. Compile the information gathered into one master calendar. Do not "edit" the data. On days where no observation was made, put a question mark. On days where the observations disagree, put the majority observation. There may be a day where you only have one observation, and it is inaccurate -- include it anyway. (Your students will be able to spot poor observations by noting that they do not fit in the patterns that emerge when looking at the "big picture" obtained from most of the data.)

Do the same with the daytime and nighttime records of Moon position.

STUDENT SHEET:

* Moon Questions

ACTIVITY:

Hand out copies of the Master Moon Calendar, other master Moon records, and the "Moon Questions" student sheet. Tell the students that they can use their own records and their memories

as well as the master records when answering the questions. Tell them the questions are very difficult and that most adults would not be able to answer all of them. Have the students write down their answers to the questions.

(If you are using these questions as a test, collect them and continue the next day. You will find that the most serious moon-stareers will also be the ones with the most correct answers. Do not be surprised if some students only get a few correct answers.)

Next, allow the students to discuss the answers with each other, and to modify or add to their written answers. Finally, have a class discussion of the questions.

CONCLUSIONS:

Some of the following conclusions should be possible:

* The Moon's cycle takes approximately 28 days.
* While the Moon's daily motion is from East to West across the Southern sky, its monthly motion against the background of the other celestial bodies is from West to East (i.e. from right to left).
* The Full Moon rises when the Sun sets, and sets when the Sun rises.
* The waxing crescent first appears in the West at sunset.
* Because of its month-long journey to the East, the Moon appears to move more slowly than the Sun. As a result, the Moon rises later each day.
* A waning crescent looks like a "c". You see it in the morning.

* A waxing half-moon looks like a capital "D". You see it in the evening.

MOON QUESTIONS

1. Does the Full Moon always appear to be the same size? If not, when does it appear larger or smaller?

2. Does the Moon always appear to be the same color? If not, what colors have you noticed? When do they happen?

3. On which side of the horizon does the Moon rise? set?

4. About what time does the Full Moon rise? set?

5. Sometimes you see a thin sliver of the Moon shining brightly, while the rest shines dimly. This is called "Earthshine" or "the old Moon in the New Moon's arms". What time of day is it when you see it? Where in the sky is it? What do you think causes it?

6. If you see the Moon at a certain time, and then again a few hours later, has it moved? and if so, which way?

7. If you see the Moon at a certain time one day, and again at the same time the next day, is it in the same place in the sky? and if not, which way did it move?

8. Each day, the Moon rises (later or earlier?) than the day before?

9. Which moves faster across the sky, the Sun or the Moon?

10. The Moon is never in the (East? South? West? North?)

11. Figure 1: Which drawings are impossible and why?

12. Figure 2: Which drawing is impossible? Which drawing takes place in the morning? in the evening?

13. Draw a First Quarter Moon. A Last Quarter Moon. Which one is called an "evening half moon"? a "morning half moon"? Why is a half moon usually called a quarter moon?

14. How many days are there between one Full Moon and the next?

Fig 1:

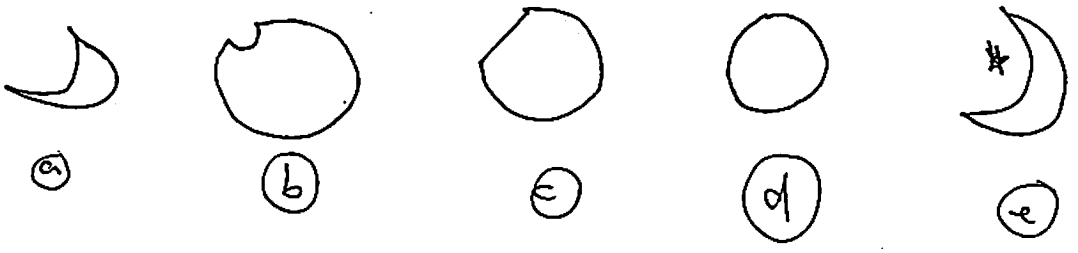

Fig 2: