

Earth and Moon – Partners in Motion Teacher Background Information (SC040500)

This unit addresses an area fraught with misconceptions—many of which extend through adulthood. It is essential to build slowly. In terms of benchmarks, it is probably the first time that students are expected to master material that they cannot feel and touch. Do not underestimate the potential that students will consider astronomy a sort of *science fiction*.

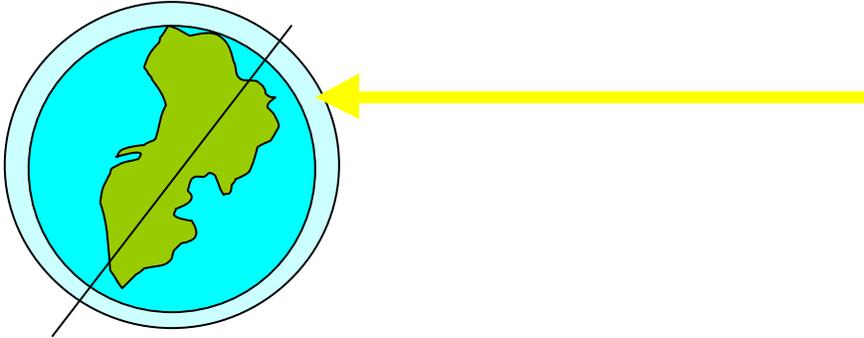
A second temptation in this unit is to look at historical ideas as *wrong* or *unintelligent* rather than naïve. When students understand that the concepts of Aristotle and early peoples were simply interpretations based on observations, they are more likely to admit their own misconceptions.

This unit includes a continuing at-home observation; copies of the observation sheet are included on each Student Page. You may wish to run all of these copies at the start, depending upon your facilities. The unit also depends to a great extent on parent support, since moon observations must be done at home. It would be ideal to have a student/parent night to demonstrate the observation techniques together (such as at an open house) but if this is impossible, give parents a lot of notice. Support them by putting clear directions in your newsletter and by making help available. Remember, some students may not have much parent cooperation at home, so you will have to make allowances and find other ways to make them part of the action.

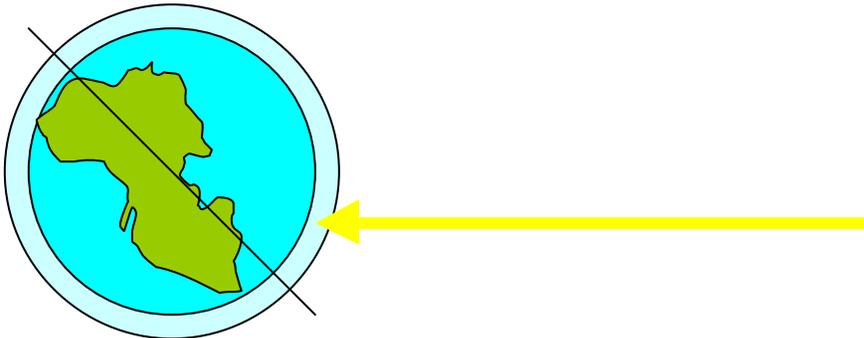
The unit must be planned to cover a full moon. It is ideal if Lesson 6 is done at the full moon, because moonrise will occur at about 6 to 7 pm. However, it can be done with a gibbous moon. (A crescent moon will rise or set at about midnight, and at the point of observation may be so high in the sky that the technique will not work.)

Make liberal use of NASA resources on the web. They provide better photos than you can purchase, and your color printer will be less expensive than color copying.

The Reason for the Seasons



Summer in Michigan, showing Earth's axis tilted toward the sun.



Winter in Michigan, showing the Earth's axis tilted away from the sun.



January 2002

New York, New York

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5
		Sun Rise: 7:20am Sun Set: 4:38pm	Sun Rise: 7:20am Sun Set: 4:39pm	Sun Rise: 7:20am Sun Set: 4:39pm	Sun Rise: 7:20am Sun Set: 4:40pm	Sun Rise: 7:20am Sun Set: 4:41pm
6	7	8	9	10	11	12
Sun Rise: 7:20am Sun Set: 4:42pm	Sun Rise: 7:20am Sun Set: 4:43pm	Sun Rise: 7:20am Sun Set: 4:44pm	Sun Rise: 7:20am Sun Set: 4:45pm	Sun Rise: 7:19am Sun Set: 4:46pm	Sun Rise: 7:19am Sun Set: 4:47pm	Sun Rise: 7:19am Sun Set: 4:48pm
13	14	15	16	17	18	19
Sun Rise: 7:19am Sun Set: 4:49pm	Sun Rise: 7:18am Sun Set: 4:50pm	Sun Rise: 7:18am Sun Set: 4:51pm	Sun Rise: 7:18am Sun Set: 4:53pm	Sun Rise: 7:17am Sun Set: 4:54pm	Sun Rise: 7:17am Sun Set: 4:55pm	Sun Rise: 7:16am Sun Set: 4:56pm
20	21	22	23	24	25	26
Sun Rise: 7:16am Sun Set: 4:57pm	Sun Rise: 7:15am Sun Set: 4:58pm	Sun Rise: 7:14am Sun Set: 5:00pm	Sun Rise: 7:14am Sun Set: 5:01pm	Sun Rise: 7:13am Sun Set: 5:02pm	Sun Rise: 7:12am Sun Set: 5:03pm	Sun Rise: 7:11am Sun Set: 5:04pm
27	28	29	30	31		
Sun Rise: 7:11am Sun Set: 5:06pm	Sun Rise: 7:10am Sun Set: 5:07pm	Sun Rise: 7:09am Sun Set: 5:08pm	Sun Rise: 7:08am Sun Set: 5:09pm	Sun Rise: 7:07am Sun Set: 5:11pm		

Standard Time for entire month.
 Courtesy of www.sunrisesunset.com