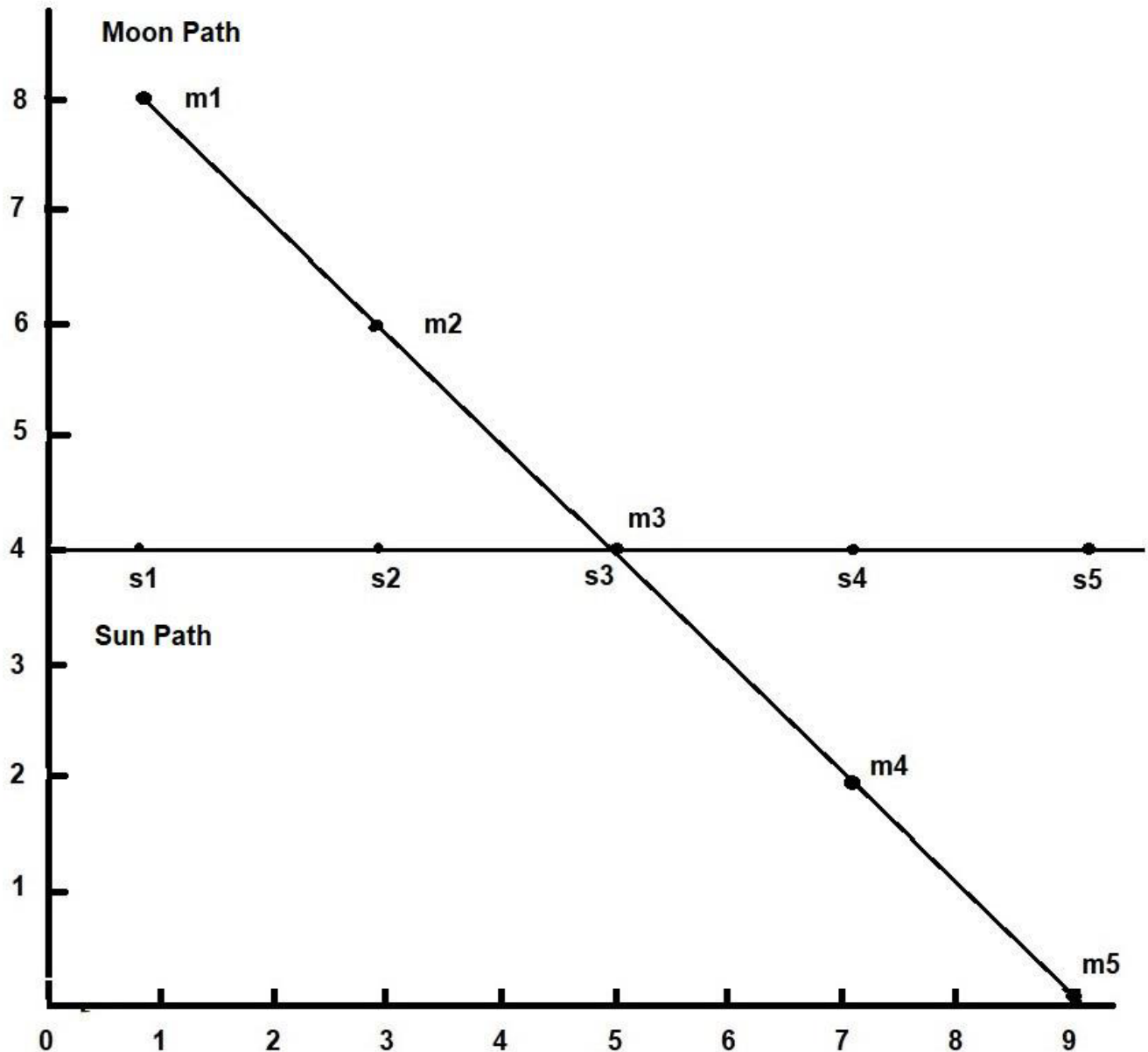




Modeling Sun-Moon Positions for Solar Eclipses: Student Sheets

Use the graph showing positions for the Sun and Moon. The lines represent the orbits of the Sun and Moon. Positions for the Sun are s1, s2, s3, s4 and s5. Positions for the Moon are m1, m2, m3, m4 and m5.



'Moon and Sun Paths' mathematical model graph. Credit: NASA



Name: _____ Date: _____ Class: _____

1. Model 1 - Total Eclipse

- a) Use two quarter sized disks. Place the disk representing the Sun on s1 of the Sun path, and the disk representing the Moon on m1 of the Moon path.
- b) Place the disk representing the Sun on s1 of the Sun path, and the disk representing the Moon on m1 of the Moon path.
- c) Move both disks simultaneously from s1 to s2 and m1 to m2.
- d) Then from s2 to s3 and m2 to m3.
- e) Then from s3 to s4 and m3 to m4.
- f) Then from point s4 to s5 and m4 to m5.
- g) **Record your observations at each point in the Data Table 1.**

Data Table 1		
Point	Does an eclipse occur? Total or Partial?	Reasoning
(s1, m1)		
(s2, m2)		
(s3, m3)		
(s4, m4)		
(s5, m5)		



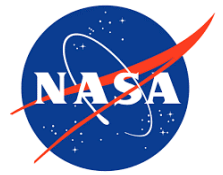
Name: _____ Date: _____ Class: _____

2. Model 2 - No eclipse

Sometimes, even though the path of the Moon crosses the path of the Sun in the sky, the Moon is either too early or too late to have them overlap. Use the quarter-sized disk for the Moon.

- a. Place the Sun at point: s1.
- b. Place the Moon at point: m2.
- c. Move both disks simultaneously from s1 to s2 and m2 to m3.
- d. Then from s2 to s3 and m3 to m4.
- e. Then from s3 to s4 and m4 to m5.
- f. **Record your observations at each point in Data Table 2.**

Data Table 2		
Point	Does an eclipse occur? Total or Partial?	Reasoning
(s1, m2)		
(s2, m3)		
(s3, m4)		
(s4, m5)		



Name: _____ Date: _____ Class: _____

3. What is the difference between a total and partial eclipse?

4. Why don't eclipses happen more often?