

**Mississippi
High School**

Starry Night Lesson Plans

In order of relevance

EARTH SCIENCE

11. Describe the structure and gravitational interaction of our planetary system. (E, P)	B1-B2	C1-C4	D1-D3	I2	G3		
a. Investigate the sizes and spacing of the planets in our solar system.	B2	I2					
b. Define gravity and calculate gravitational pull.	C2	D3	I2	G3			
c. Determine the relationship between the moon's pull of gravity and the Earth's tides.	A3						
12. Explain the orderly and predictable motion of celestial bodies. (E, P)	A1-A5	C2	D1-D3	E1-E4	F3	B1	I2
a. Investigate comets.	D2	D3					
b. Explore the concept of red and blue shift.	I3	H1-H3					

ASTRONOMY

1. Discuss the history of astronomy. (E, P)							
a. Recognize observations that significantly contributed to the understanding of the solar system prior to the telescope's development.	E1-E4	C2	D2	D3	F1	F2	
b. Explain how the invention of the telescope impacted the development of modern astronomy.	C1	G2	H1-H3	I1-I3			
c. Trace the development of models to predict planetary motion (Ptolemy, Copernicus, Kepler and Newton).	C2	G3					
d. Explore theories of the universe's origin.	H1-H3	G4					
2. Investigate the technologies and instruments (optical telescopes, radio telescopes, space probes, artificial satellites, etc.) used in ground and space based astronomy. (E)	I1-I3	G5					
a. Differentiate between various methods of observation.	F1-F3	G6	E1-E4	I1-I3			
b. Explore the methods used in determining the characteristics of our solar system's components (spectra, probes, Doppler, etc.).	C1	G7	F2	I1-I3			
3. Investigate Newton's Universal Gravitation Law and Kepler's Laws. (E, P)	C2	G8	I2				
a. Describe the structure and gravitational interactions of a planetary system according to Newton's Laws of Motion and Gravitation.	C2	G9					
b. Utilize the Universal Gravitational constant to calculate the orbital velocity in a two body system.	C2	G10					
c. Describe the motion and interactions of a planetary system according to Kepler's Laws.	C2	G11					
d. Calculate period, distance from the sun, and/or velocity of a planet using Kepler's Laws.	C2	G12					

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ASTRONOMY (continued)

4. Investigate and compare data about celestial bodies in our solar system. (E)	C1-C4	G13	F1-F3	A1-A5	I2
a. Explore the motion of celestial bodies (planetary rotation and revolution, comets, asteroids, moons, sun, etc.)	C1-C4	G14	A1-A5	I2	
b. Compare and contrast internal and surface components of celestial bodies.	C1	G15	G2	F1	
c. Track the Earth's moon over an extended period of time.	A3	G16			
d. Examine current theories, proposals and supporting data of celestial bodies in our solar system.	F1-F3	G17	C1-C4	D1-D3	I2
e. Describe the origin, composition and structure of asteroids, meteors and comets.	D1-D3	G18			
5. Investigate the sun, other stars and star systems. (E)	F1-F3	G19	H1-H3		
a. Discuss star classification (by size and magnitude) and types of stars.	G2	G20			
b. Examine the origin and demise of stars.	G2	G21	G3		
c. Research the composition, energy production and solar-magnetic activity of stars.	F1-F3	G22			
d. Measure distance using triangulation and parallax methods.	G1	G23			
e. Describe star systems visible from earth.	G1-G3	G24	H2	I3	
6. Describe the universe in terms of its diverse components and their relationships. (E)	All Starry Night lesson plans; G25				
a. Identify types of galaxies, proximity of galaxies, the name of Earth's galaxy, etc.	H1-H3	G26			
b. Research recent reports on the structure of the universe.	H1-H3	G27			
c. Examine components of the celestial sphere.	E1-E4	G28			