

1. What is meant by the solar System
2. What is a planet? and why so called
3. How many kinds of planets are there
4. What is a primary planet
5. What is a secondary planet, moon
6. How many primary planets belong to the solar System.
7. Name the primary planets, beginning with that ^{nearest} ~~near~~ the sun
8. Name the primary planets in the contrary order, beginning with the most remote of the System.
9. How many moons has a planet
10. What are the superior planets and why so called
11. Inferior planets

11. How many motions has a planet?

12. What is the orbit of a planet?

13. What are the annual motions of the planets ^{primary} ~~beginning~~ with.

14. How are the ann. motions ascertained?

15. In what time are the diurnal motions performed?

16. How is this ascertained?

17. In what directions are the ann. motions performed?

18. How is this known?

19. In what directions are the diurnal motions performed?

20. How is this proved?

21. What is a direct motion?

22. What is a retrograde motion?

23. Whether are the retrograde motions real or apparent

24. Have all the planets a retrograde motion?

25. What is the cause of the retrograde motion?

26. How does it appear that the planets move round the sun?

27. Does the Earth move?

28. How can the Earth move and we not perceive it?

29. Do not we feel the earth and see every part of its surface, at rest, and do not the sun moon and stars all move round the earth from east to west in 24 hours?

30. Did the earth move on its axis from west to east would not a stone thrown perpendicularly upwards always fall to the westward of the mark? — bullet shot north and south

31. Would not ~~be~~ flying east
west be retained and considered in the
flight?

32. Do not the ~~same~~ ^{same} ~~principles~~ ^{principles}
maintain the ~~motion~~ ^{motion} of the ~~Earth~~ ^{Earth} and
Stability of the earth.

33. By what arguments is the motion
of the earth proved?

34. Cannot the ~~same~~ ^{same} ~~principles~~ ^{principles}
be applied with the same ease as a small
body with the same ease as a small

35. ~~What is the position of the earth's~~

36. What is the position of the earth's
axis during its annual motion?

37. What is the cause of the seasons?

38. What causes the different lengths
of days and nights?

36. What is the form of the orbits of
the planets?

37. How is it proved that the planets
move in Elliptic orbits round the Sun?

38. ~~Who~~ ^{Who} first discovered these.

39. At what time of the year is the
earth nearest the Sun
~~how far?~~

40. Why is not the weather there warmer?

41. Answer for all.

42. How many secondary planets are
there -

43. To which of the planets do the second
belong

44. What are the periods of the secondary
planets?

45. How is it proved that the moon
moves round the earth?

46. What is the period of revolution
of the moon?

47. What is the synodical revolution?

48. In what times are the periodical and
synodical revolutions of the moon
performed?

49. What is the cause of this difference?

50. How is it proved that the moon
has not light in her self?

51. How does it appear that the moon
receives all her light from the sun?

52. How can it be proved that the moon is
not a flat circular body?

53. In what time does the moon revolve
round her axis?

54. How is this proved? -

56. What is the length of the moon's
year?

57. New & full moon -

58. What is meant by the moon's
libration?

59. How many librations has the
moon?

60. What ^{is} the cause of the libration?

61. Mountain - atmosphere -
in habitants

62. How many kinds of eclipses are there?

63. What is the cause of an eclipse of the
sun?

64. ~~What does it happen~~
at that time of the moon's age does it happen?

65. What causes an eclipse of the moon?

66. When does it happen?
67. Why ~~are~~ do not eclipses of the sun and moon happen every month?
68. What is the ^{quasi} inclination of the moon's orbit to the plane of the ecliptic —
69. What are the nodes
70. What motion has the nodes?
71. * How is the length of the earth and moon's shadows ascertained
72. What are total, partial, central and annular eclipses? and ^{what} ^{causes} ^{respectively} causes
73. How is the quantity of an eclipse estimated
74. What is a Digit —
75. How many minutes are there in a Digit?

76. How is a total eclipse of the moon with continuance, how is the quantity expressed in digits?
77. On what principles are eclipses calculated?
78. What is the chief use of observing eclipses?
79. * How is the longitude ascertained from an observation of an eclipse of the sun moon or one of Jupiter's satellites?
80. * On what principle is the longitude found by the lunar observations —
81. How is the Long: found by a true Precession?
82. From what principles is the Lat: found by means of two altitudes of the sun

and the intermediate time -

83. ² What is meant by the transit of a planet?
84. What transits can be seen from the earth.
85. Why is there not a transit every time the planet is in conjunction ^{at} the planet inferior conjunction?
86. ⁺ What is meant by the conjunctions, opposition, quadratures of a planet?
87. Inferior, Superior conjunction
88. What is the principal use of observing the transits of the two inferior planets?
89. What is the parallel of a heavenly body - ^{Pole} is called, in Longitude in Latitude -
90. ⁺ How is the parallel of the sun and moon ascertained

91. ⁺ How is the Distance of ^{the earth} a planet from the sun calculated from its Parallax?
92. Why is the transit better adapted to the purpose than that of mercury, which happens more frequently?
93. What is a comet?
94. ⁺ How many comets belong to the solar system?
95. In what direction do the comets move round the sun?
96. ⁺ What are the principal circumstances which distinguish a comet from a planet or fixed star?
97. ⁺ Perihelion, Aphelion &c. -
98. How can the periods of the comets be ascertained when they are seen for so short a time? -

99. Are not comets dangerous?

100. Is the tail of a comet flame?
+ ancient opinion respecting comets

101. What are the fixed stars, and why so called?

102. Into how many magnitudes are the stars divided?

103. What is a constellation.

104. What is the use of distinguishing the stars by magnitudes, constellations.

105. How many fixed stars are there?

106. How is it proved that the fixed stars shine by their own unborrowed light

107. What is the distance of the fixed stars from the sun or earth.

108. + No annual parallax.

109. What is meant by Physical Astronomy?

110. What is the law observed by all the planets of the Solar System?

111. Since Kepler discovered this law how comes it to pass that it is usually ascribed to Newton?

112. In what proportion does Gravity or attraction decrease relative to the distance from the center of the attracting body.

113. How is this proved?

114. How far does a body descend in a given time and what is the law of the acceleration?

115. Suppose a body moving freely from the surface of the earth towards the center what is the law of its motion and in what time would it reach the center

116. Suppose the earth a hollow sphere
and a body and a body from any point
in the inner surface, what would happen?

117. What is the center of Gravity of one
or more bodies?

118. The sun and earth move round their
common center of Gravity, what is the
distance of this point from the sun's center
and how is it ascertained?

119. Since ~~the~~ all the planets are attracted
by the sun, why do not they move
toward and at last fall into the sun?

120. What is the principal difference be-
tween the attractive and projective forces?

121. Can the projective force be proved?

121. If the earth and moon move round
their common center of Gravity, what
effect will this have on the distance of the
earth from the sun?

122. Why does not the increased attraction
of sun, on the planet in the perihelion
draw it down on the sun?

123. What is the cause of the tides?

124. Why does not the sun's attraction
which is much more powerful than
that of the moon occasion the tides?

125. What is meant by spring and
neap tides? and when do they
happen?

126. How does the moon produce a
tide on the opposite side of the earth?

127. How can a spring tide happen
at full moon when the sun and
moon attract in opposite directions

128. Why does not high water happen
when the moon is on the Meridian.

129. Why do not the spring tides happen
exactly at the time of the change
and full?

130. Why is there no tide in the Baltic
black sea &c —

131. Why do the tides rise to ^{se} smaller
height in the torrid zone?

132.

Celestial Globe

133. What are the principally circles
described on the celestial globe?

134. What is the Longitude of a heavenly
body?

135. What is the Lat. Decl. ^{or} Prop.
of a heavenly body.

136. On what circle is the Longitude
of the heavenly body counted, where
does it begin and end what is the
greatest Longitude —

137. On what circles are the Lat. Decl.
& Right. found, where do they begin,
and end what are the greatest Lat. Decl.
or Right

138. What are Azimuths, Amplitudes and
arcual distances of the ~~sun~~ & the

139. What are the volumes and why
so called?

140. What is the Analemma and its
use?

141.

Problems on the Celestial Globe

1. To find the sun's Longitude, Decl.: and Right ascension.
2. To find the sun's Azimuth, am. Pls. and Annular Distance.
3. To rectify the Globe.
4. To find the rising and setting of the sun.
5. To find the time of the rising and setting of a fixed Star.
6. To find the rising or setting of the moon or any of the planets.
7. Longitude Lat. Decl.: Right asc. of a fixed Star.
8. The Declination and Right Ascension of a

110
The Longitude being given to find its place
in the Globe

9. To find what on what Day of the
Year a Star will be on the Meridian
at any given hour