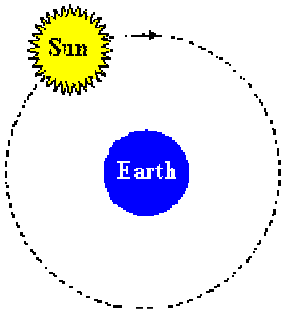
AIM 2: What are the models of the night sky?

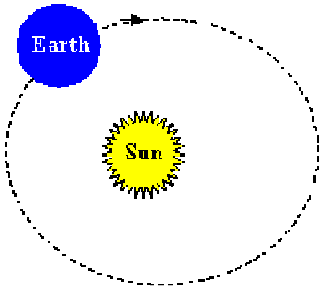
HW

- **Read "Models of the Night Sky" p214&215**
- **Do all questions on Part A&B-1 on p215&216**

In the geocentric model the Sun rotates around earth.



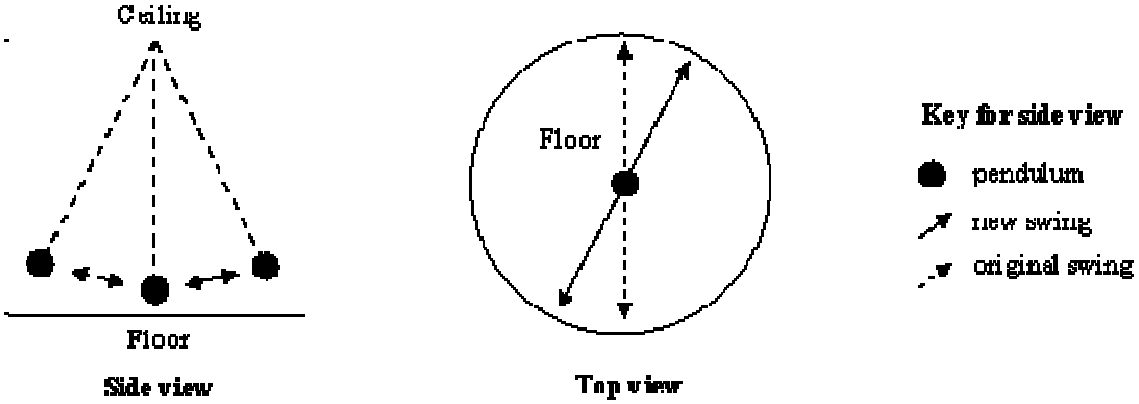
In the heliocentric model the Earth rotates around the Sun.



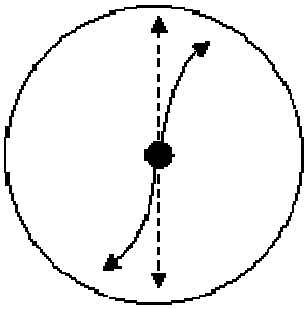
- Earth rotates from west to east at the rate of 15^{o} per hour.
- Earth revolves around the sun once per year.
- Earth takes 365 1/4 days to revolve around the sun therefore Earth covers approximately 1^{o} per day.

The proof for the rotation of Earth was discovered by a French scientist named Jean-Bernard-Leon Foucault in 1851.

He suspended a long pendulum and set it swinging. He noticed that the direction of the sing moved clockwise with time. He interpreted this motion as the rotation of Earth under the pendulum.



The Coriolis force makes the ball deflects to the right (in the northern hemisphere) therefore each movement results in a clockwise movement of the swing.

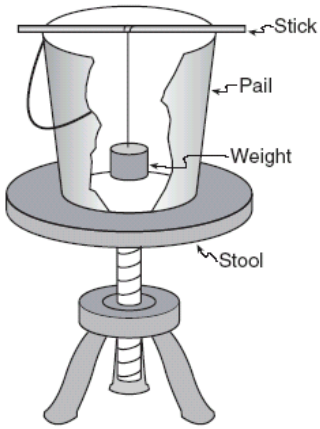


Top view

TEST YOUR UNDERSTANDING

1/07

4 The diagram below shows the equipment used to demonstrate a Foucault pendulum.



In the demonstration, a student swings the weight hanging in the pail and then spins the stool. The stool represents

(1) the revolving Earth (2) the rotating Earth (3) the Coriolis effect (4) convection currents

6/07

1 The best evidence that Earth spins on its axis is the motion of

(1) tectonic plates (2) Polaris (3) a wind vane (4) a Foucault pendulum

1/06

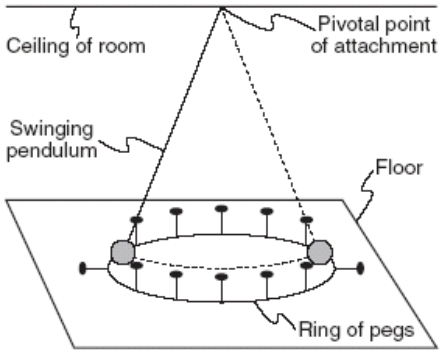
3 A Foucault pendulum appears to change its direction of swing due to the

(1) tilt of Earth's axis (2) spin of Earth on its axis

(3) deflection of Earth's planetary winds (4) movement of Earth in its orbit around the Sun

6/06

8 The diagram below represents a swinging Foucault pendulum.



This pendulum will show an apparent change in the direction of its swing due to Earth's

(1) curved surface (2) tilted axis (3) rotation (4) revolution

8/06

1 A Foucault pendulum appears to change its direction of swing over a period of several hours because of Earth's

(1) rotation (2) revolution (3) tilted axis (4) gravity

1/04

3 The best evidence that Earth rotates is provided by the

(1) location of mid-oceanic ridge volcanoes and the distribution of index fossils

(2) movement of Foucault pendulums and the Coriolis effect on air movement

(3) pattern of changing seasons and the depth of meteor impacts

(4) rate of uranium-238 decay and changes in atmospheric composition

8 Which observable change would occur in New York State if Earth's rate of rotation were one-half its present rate?

(1) The Sun would rise in the southwest each day.

(2) The length of a day would be longer.

(3) The time needed to complete a cycle of Moon phases would be greater.

(4) The seasonal changes would not occur.

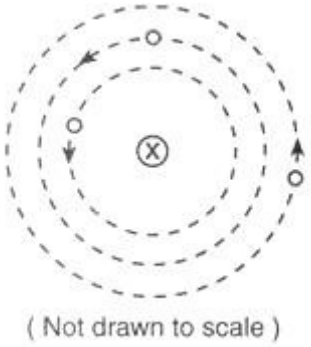
6/04

1 The motion of a Foucault pendulum provides evidence of

(1) the Sun's rotation (2) the Sun's revolution (3) Earth's rotation (4) Earth's revolution 5

6/02

8 The diagram below represents a simple geocentric model. Which object is represented by the letter X



(1) Earth (2) Sun (3) Moon (4) Polaris

8/02

4 The best evidence that Earth spins on its axis is provided by

(1) variations in atmospheric density (2) apparent shifts in the swing of a Foucault pendulum

(3) changes in the position of sunspots on the Sun (4) eclipses of the Moon

6/01

28 The apparent shift in the direction of swing of a Foucault pendulum is caused by Earth's

(1) revolution (2) rotation (3) spherical shape (4) tilted axis