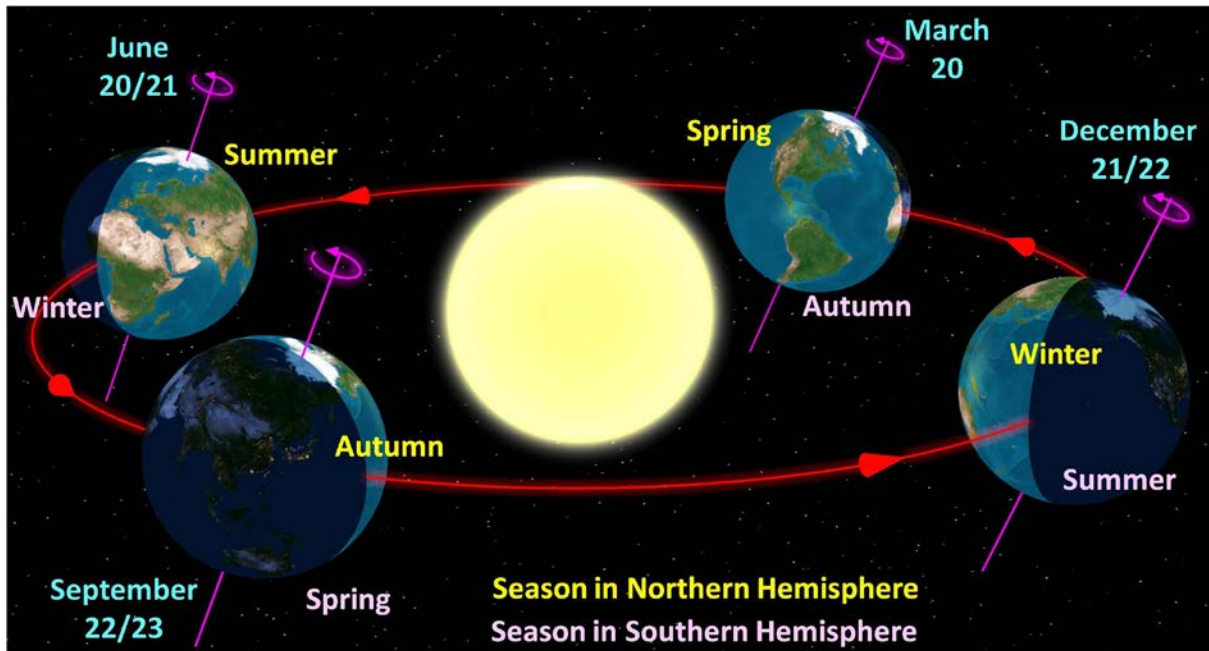


Why there is a leap year, is it because of Earth's rotation? What is one pattern we observe because of Earth's rotation?

Dear Avry,

A lot of natural rhythms are caused by Earth rotation. Most, day and night correspond to one Earth's rotation around itself. On the other hand, seasons occur because of Earth's rotation



around the sun. One year corresponds to the time that it takes for the Earth to rotate around the sun once. The changes between winter and summer occur, because the Earth is tilted with respect to the sun. In above picture, you can see how the north pole faces toward the sun in (northern) summer and away from the sun in (northern) winter. Now, here is the clue: Our calendar year has 365 days. But the Earth takes just a bit longer than 365 years to get around the sun. In fact, one seasonal cycle (one “tropical year”) corresponds to 365.24219 days, so about 6 hours longer than 365 days. After four times 365 days, our calendar is one day ahead of the seasonal cycle. Therefore, we need one extra “leap day” in February. Imagine that we didn't have leap years. After 400 years, instead of March, spring would begin one hundred days earlier, in December, and the height of summer would not be July – August but April – May. Note that 365.24219 is a tiny bit less than 1 day in four years. So in three out of 400 years, we have to skip a leap year to be on track with the Earth's rotation.