

Primulas are one of the first spring flowers to appear in this area. I was thrilled to see them this morning. Most people I know are excited about the spring, and hoping that the snow will not come back, and that the cold conditions will wait for next Winter. It seems miraculous and surprising when you spot a flower in an area where there are still dead leaves from the previous autumn, and when there are patches of ice still around. So, how is it that plants know when to grow? The science behind it is interesting. During the autumn, a hormone that brings on dormancy(1) builds up(2) in the plant. It makes the plant 'sleep' during the coldest months, so the plant is protected from winter damage. The cold of the winter slowly destroys this hormone, and produces a growth hormone which builds up in the plant. Trees and bushes store food in their roots. The warmer temperatures of spring help this food to flow up to the buds. But what about light? We all know that it is essential(3) for plant growth. You could say that plants have an internal clock. They have genes that tell them when they are exposed to the light or to the dark. Proteins are activated by light, specifically red light which is found in full sun light. So the plant produces these during the day, and the process is turned off when the red light stops. That's why, if you look at a fast growing plant in the morning, and then again in the evening, sometimes you can see that it has grown. We are similar to plants, not by the way we grow, but by mental activity and feelings. When we are in the sun, our brain produces serotonin which makes us feel happy and energetic. Also, our skin produces vitamin D which protects us from some cancers, and maintains serotonin. As the light fades, our brains produce melatonin which starts our sleep cycle. So, now that there is more daylight, our bodies are ready to get active, just like plants. We have been sleepy all winter long; it's time for some light, and some growth.

1. a. It is best to transplant trees when they are dormant.  
b. The volcano is dormant; it hasn't been active for 100 years.
2. a. There was a build up of rubbish in the river, so the council cleaned it.  
b. I could feel that the tension in the room was building up, so I left.
3. a. Clean water and good food are essential for basic health.  
b. It's essential that you listen to him.