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PHYSICS SHARING SESSION 4/2/03
KEPLER'S SECOND LAW

Setting Up the Thought: One cold day this winter I was thinking about the weather in New Zealand that day as one of my students is from New Zealand. We had already covered Kepler's 2nd Law: That the Earth sweeps out equal areas in equal intervals of time with the Sun. Or more simply, that the Earth moves faster in its orbit when closer to the Sun.
Also, my students already knew that the Earth is closer to the sun in the Winter months as the Northern Hemisphere is tilted away from the Sun in our Winter.

The New Thought (the revelation): If the Earth is closer to the sun during Northern Hemispheres winter months then according to Kepler's 2nd Law our Winters should be shorter than our Summers? But isn't there 3 months between each season?
Here are the facts:
Spring started on March 20, 2003 at 7PM CST and Fall starts on 9/23/03 at 4:47AM CST

March	**11 days**	**5 Hrs.**	**0 Minutes**
April	**30 days**		
May	**31 days**		
June	**30 days**		
July	**31 days**		
Aug.	**31 days**		
Sept.	**23 days**	**4 Hrs.**	**47 Minutes**
Total	**187 days**	**9 Hrs.**	**47 Minutes**

Fall starts on 9/23/03 at 4:47AM CST and Spring starts 3/20/04 at 12:49 AM CST

Sept.	**7 days**	**19 Hrs.**	**13 Minutes**
Oct.	**31 days**		
Nov.	**30 days**		
Dec.	**31 days**		
Jan.	**31 days**		
Feb.	**29 days**		
March	**20 days**	**0 Hrs.**	**49 Minutes**
Total	**179 days**	**20 Hrs.**	**2 Minutes**
DIFFERENCE:		**7 days**	**13 Hrs.** **47 Minutes**

Conclusion: From this spring to next fall is over a week longer than next fall back to spring again next year. Our summer months are over a week longer than our winter months because Earth is moving faster around the Sun in our winter months and slower around the Sun during our summer months.