Abundance of H and He

For molecularHydrogen, $\mu = 2$ so the escape temperature for the **Earth** is **280 K**

This explains why the Earth has not retained its atmospheric molecular hydrogen.

(In fact, when the solar system was forming, the inner Solar System was too hot to retain lighter elements, such as H and He; these are absent from all terrestrial planet atmospheres. See SSP2 lectures on formation of the solar system.)

For, e.g. molecular Nitrogen, $\mu = 28$ so the escape temperature for the Earth is **3920 K**

So the Earth's atmosphere *can* retain its molecular nitrogen.

Plugging in the numbers for the Jovian planets, for molecular **Hydrogen**; these escape temperatures are so high that the planets will *not* have lost their atmospheric hydrogen.

Planet	Radius (Earth=1)	Mass (Earth=1)	T_{esc}
Jupiter	11.209	317.8	7939 K
Saturn	9.449	95.16	2820 K
Uranus	4.007	14.53	1015 K
Neptune	3.883	17.15	1237 K