

# The Taylor Threshold

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Abstract: It was mentioned by Baz Taylor that life could have existing on the Moon. A threshold for the formation of life, given it has had enough time to evolve on any individual star is presented. In short, the star had to have evolved on long enough timescales to host life. If it evolves too fast, then no life will form, regardless of the chemicals present.

On the graph below, a temporary threshold is added to explain where stars would exist that have evolved too fast to host life. These would end up being the dead stars that are really small, and were formed in timeframes less than 5 billion years. Of course this is up to revision, the threshold is just a round about estimate. This means that if a star took only 410 million years to form, then no life will be on it, nor did it host life. If a star such as Mars took ~14 billion years to form, then regardless if there is no life on it currently, it most certainly had life. The Taylor Threshold is the black line underneath the majority of the stars that take more than 5 billion years to form. The yellow shaded area would be stars that did not have enough time to form life. As an additional note, life can repeatedly spring up from early life, but the majority of the time required for life to form from simple molecules happens over 95% of the star's evolution.

