

# Tides

PLAYA PALENQUE AT HIGH TIDE



PLAYA PALENQUE AT LOW TIDE



# What are Ocean Tides?

- the periodic rise and fall of the ocean's surface



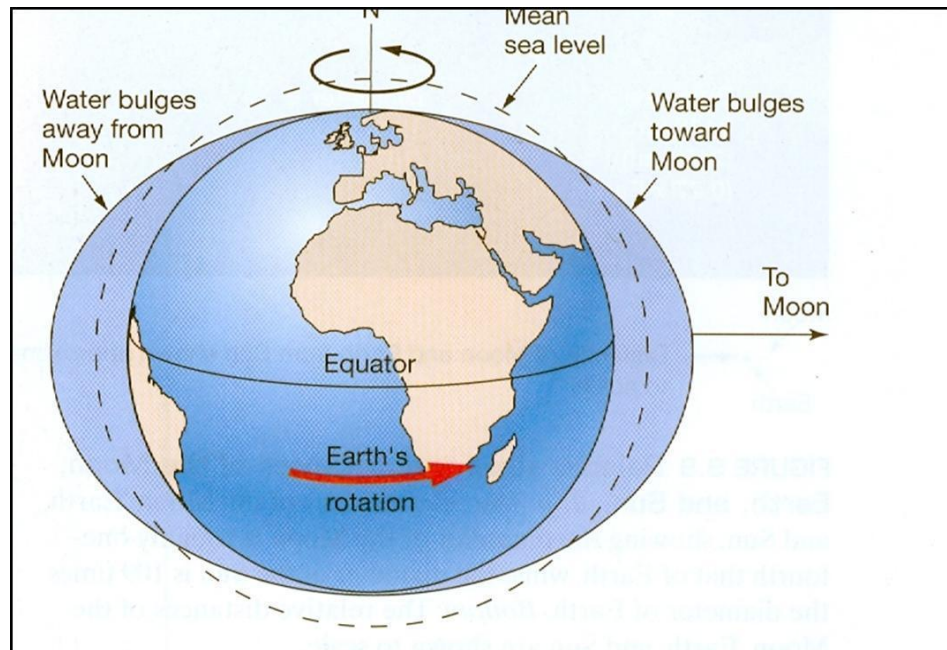
[Link to example of ocean tides](#)

# What causes tides to occur?

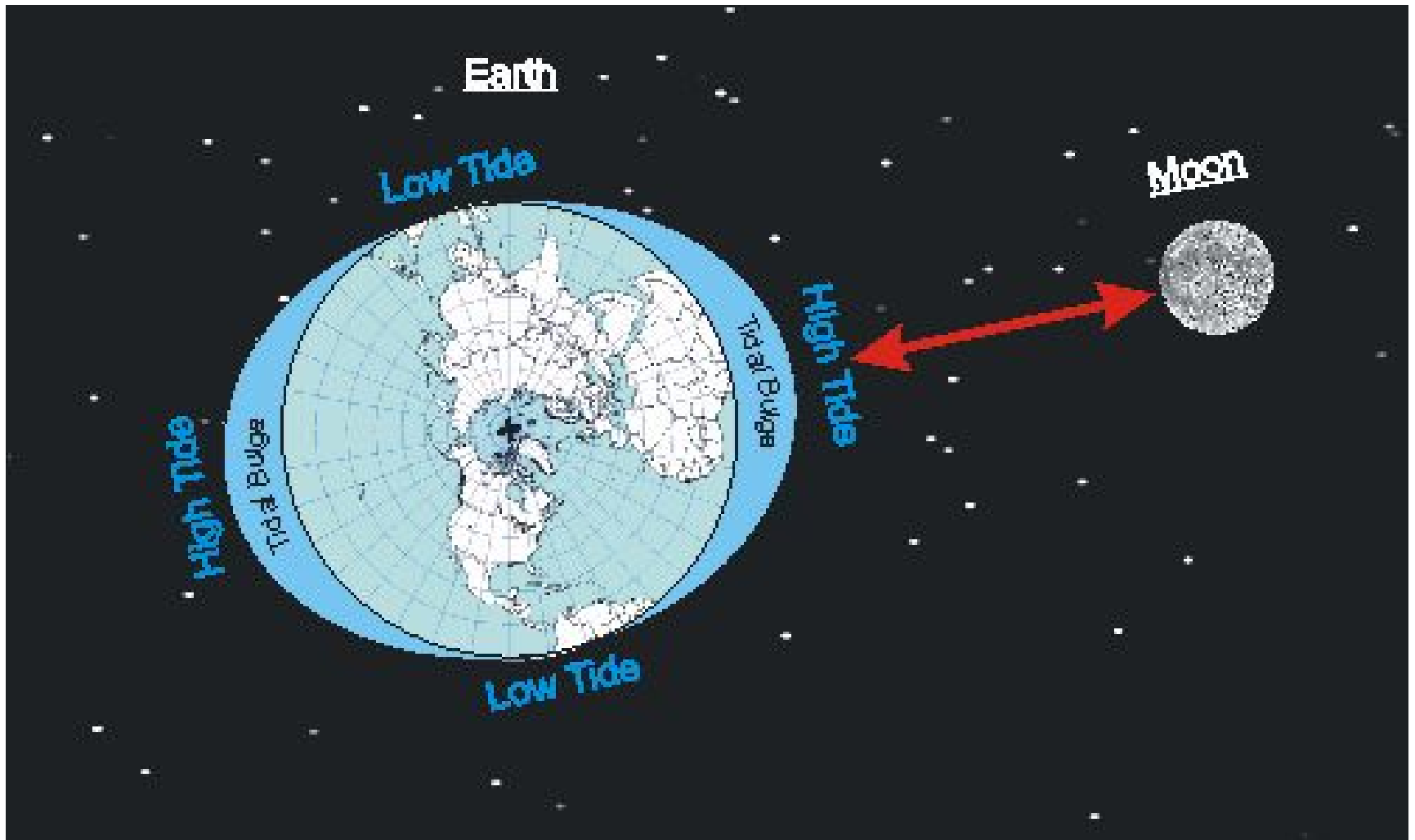
- caused by the gravitational pulls of the Moon and (to a lesser extent) Sun, as well as the rotation of the Earth.

[animation what tides look like from space](#)

Diagram/Illustration



# Facts about the Tide Cycle

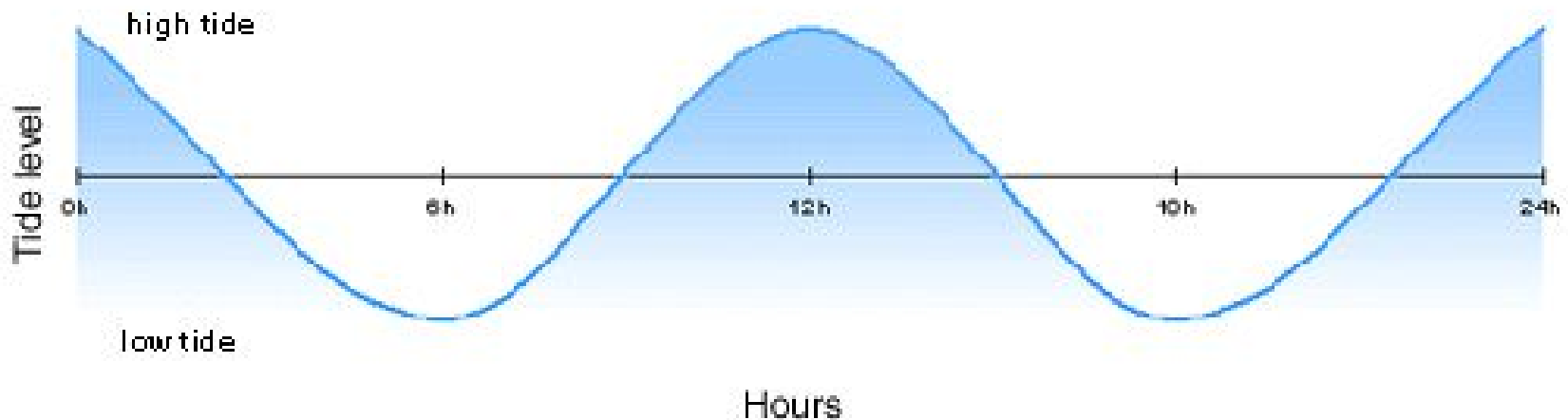


# How long is a tide cycle?

- about 24 hours
- actual length is 24 hours, 50 minutes

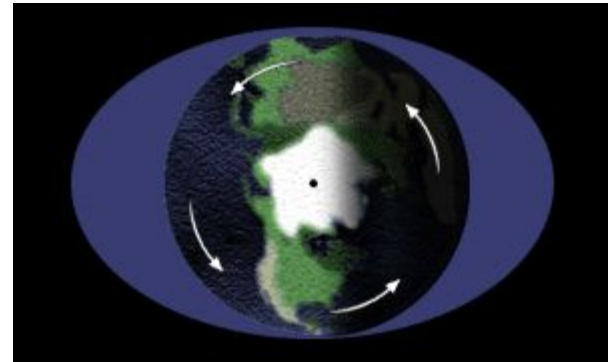
[http://oceanservice.noaa.gov/education/kits/tides/media/supp\\_tide05.html](http://oceanservice.noaa.gov/education/kits/tides/media/supp_tide05.html)

Change in water level at one point on earth over a 24 hour period



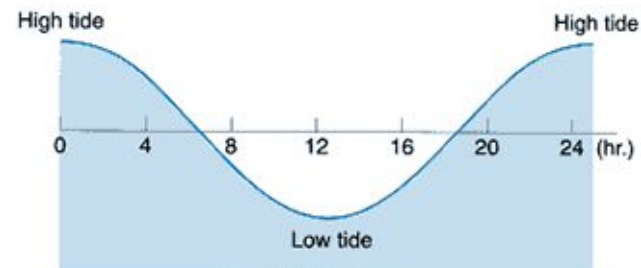
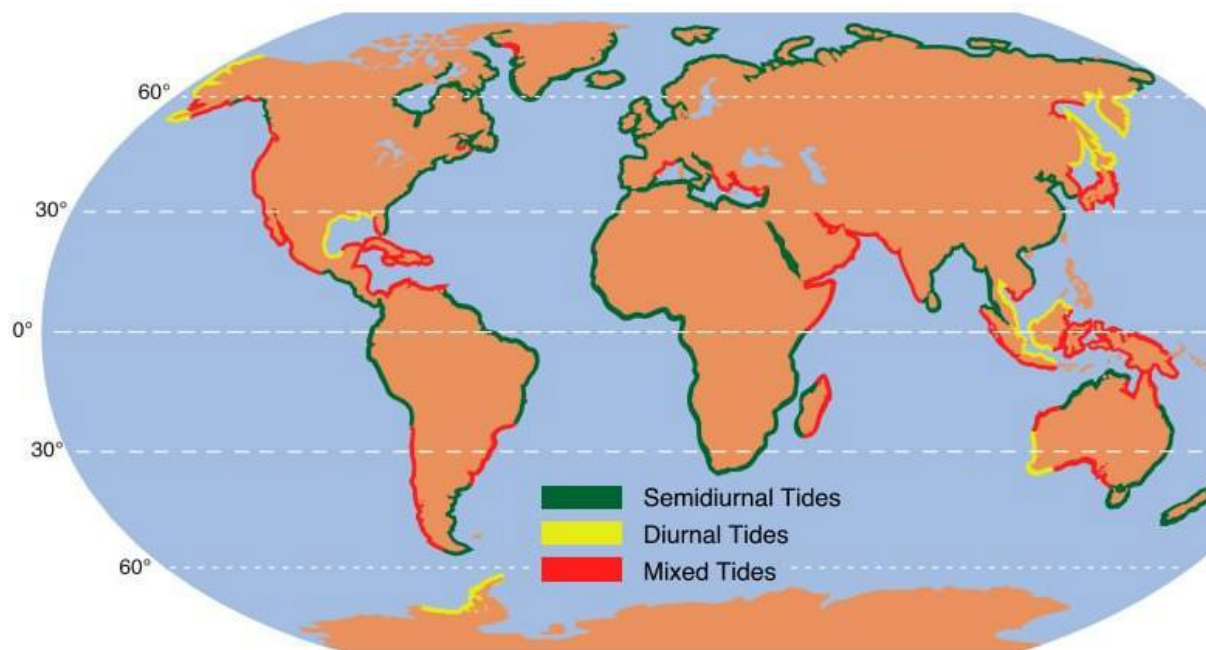
# How often do tides occur?

- As the Earth rotates there are times of high tides and low tides on different parts of the Earth
- 2 high tides and 2 low tides occur on most places on Earth daily (every 12.5 hours)

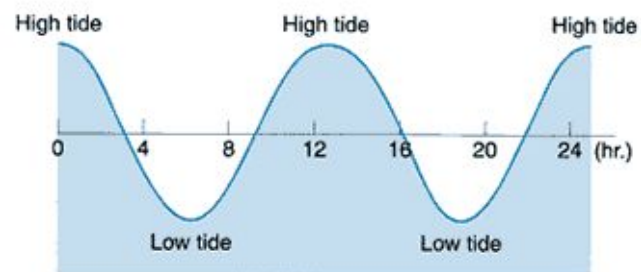


# Is it the same all over the world?

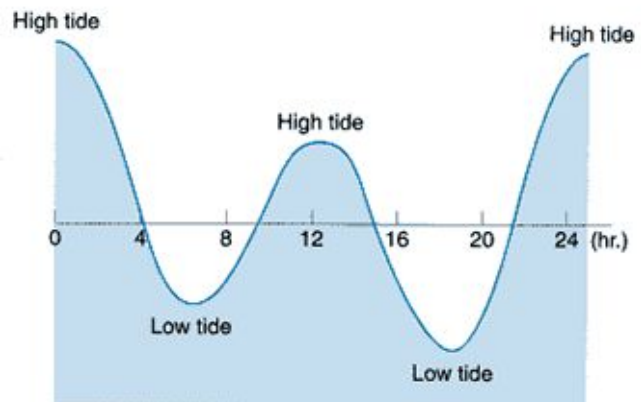
No, different locations can experience tides differently.



Diurnal tide



Semidiurnal tide

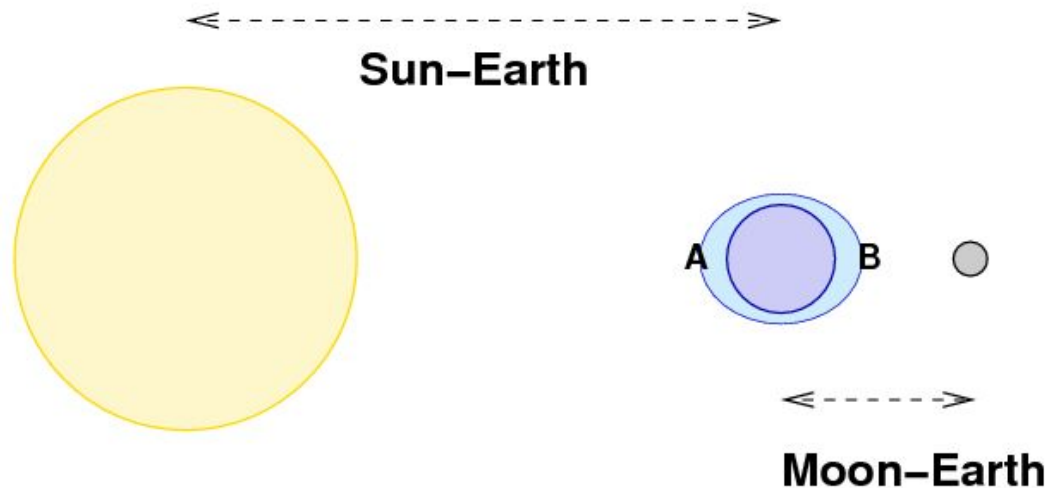


Mixed tide

# Why is the Moon more important than the Sun when causing ocean tides?

Simple! It is closer to Earth so its gravitational pull is greater.

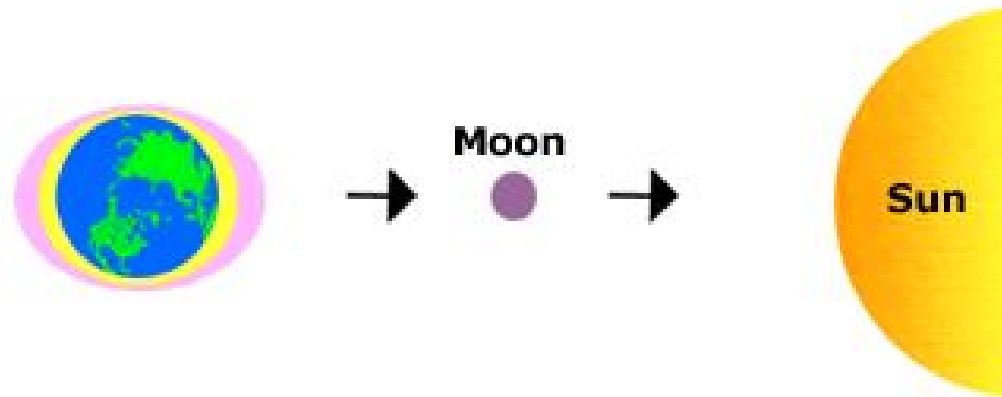
The Sun may be larger but it is very far away.





# Are there special kinds of tides?

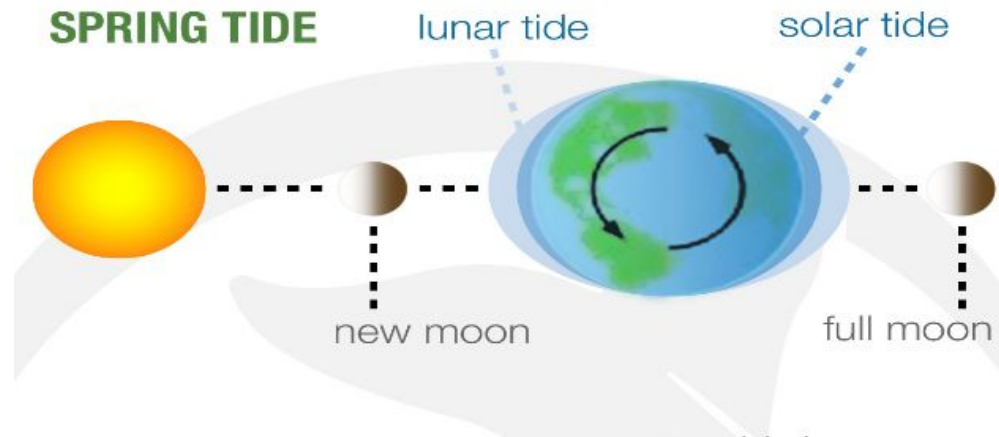
## Spring Tides



-  Solar Tides
-  Lunar Tides

# What are Spring Tides?

- tides that have the greatest difference between high and low tide
- occur during full moon and new moon phases



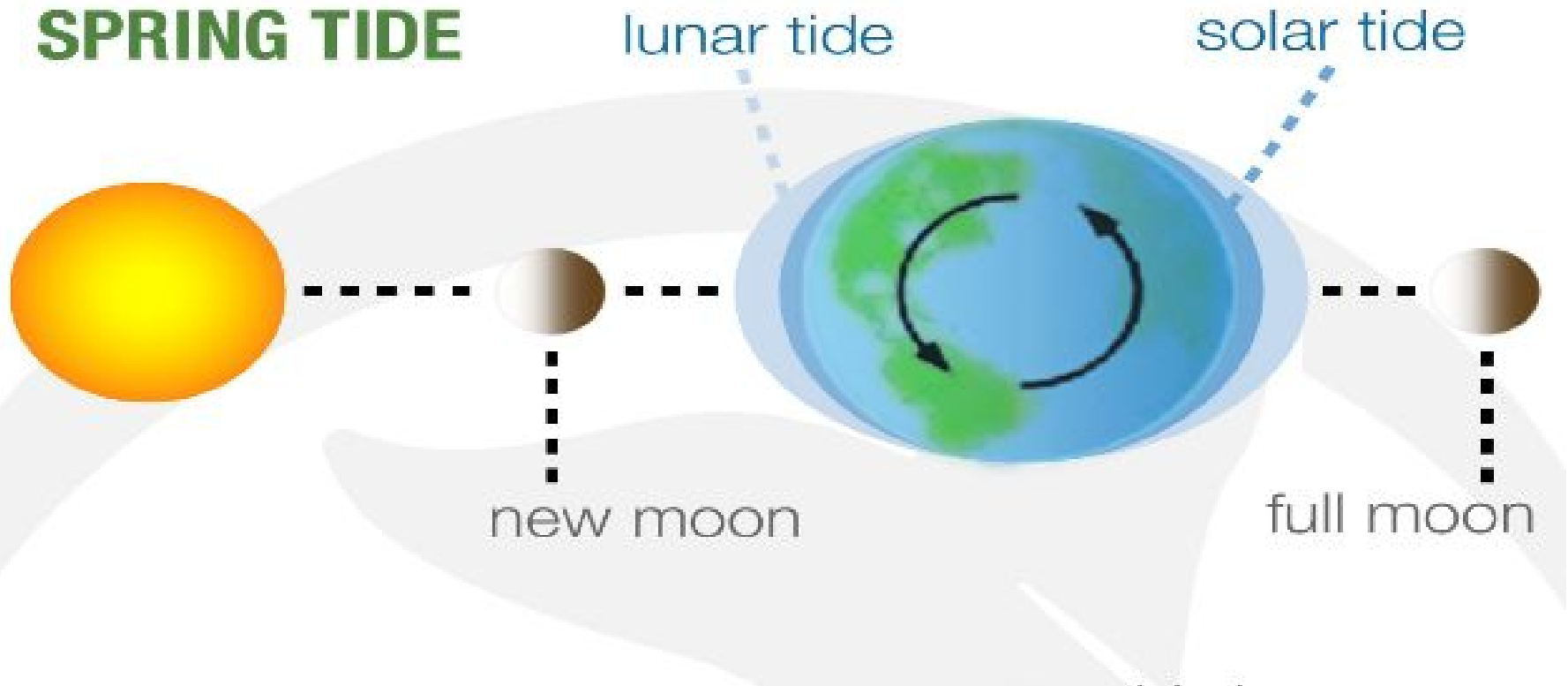
For a spring tide to occur, Earth, the moon and the sun must all be in a straight line, pulling very strongly on the parts on Earth aligned with the Sun and moon.

# Spring Tide Diagram/Illustration



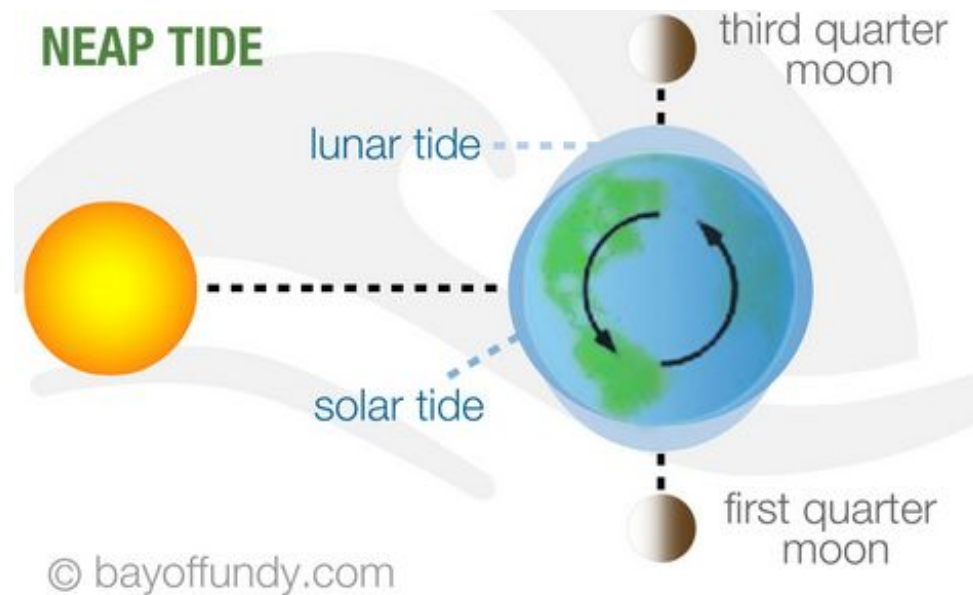
[http://ww2.valdosta.edu/~cbarnbau/astro\\_demos/tides/neap\\_sp.html](http://ww2.valdosta.edu/~cbarnbau/astro_demos/tides/neap_sp.html)

## SPRING TIDE



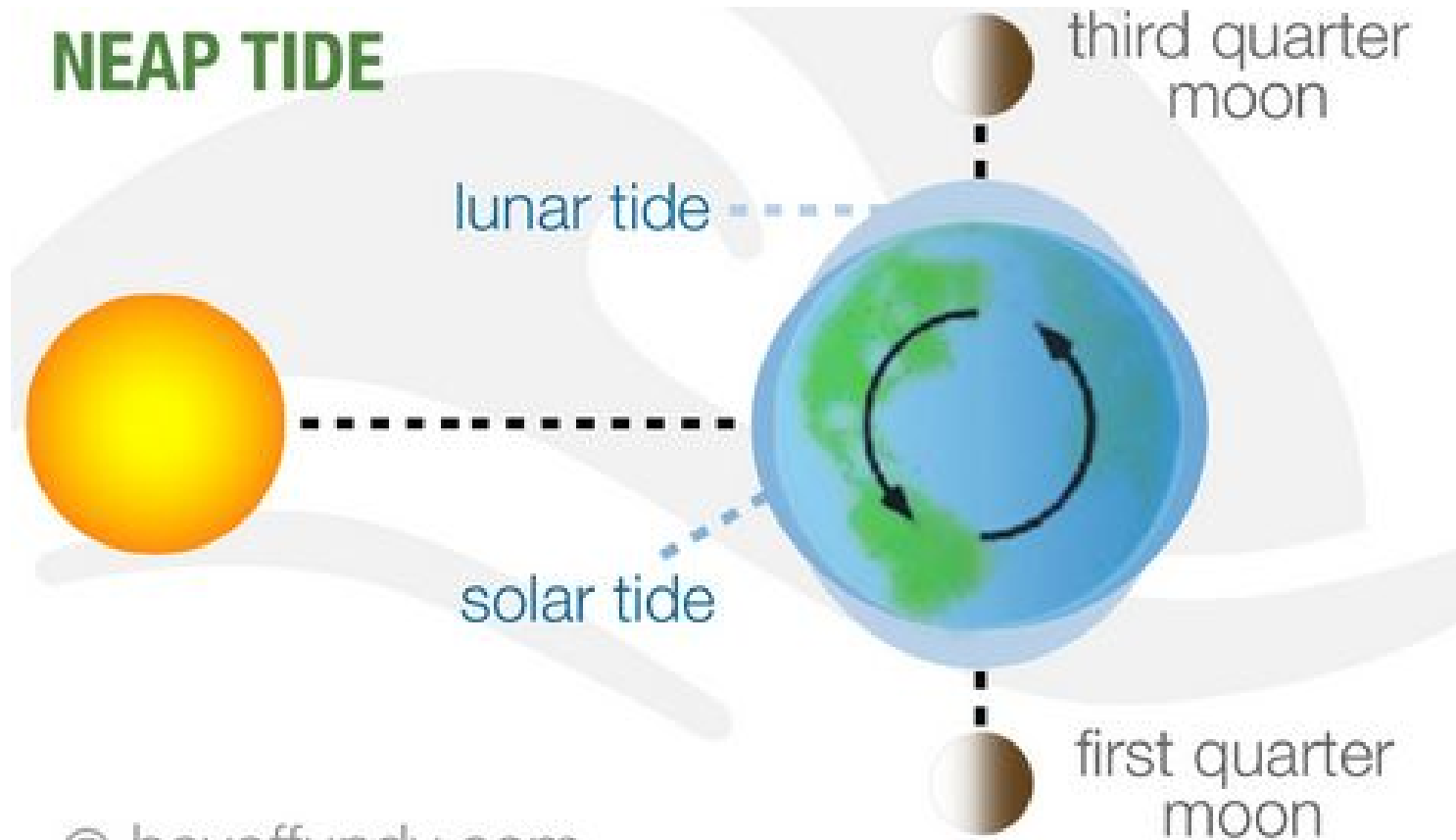
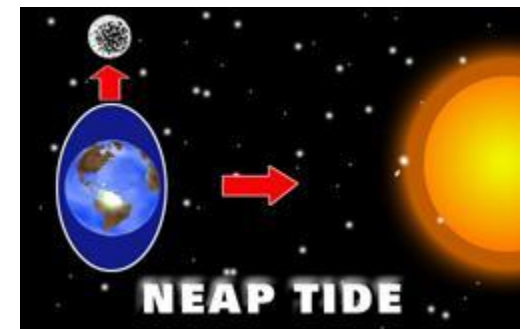
# What are Neap Tides?

- tides with very small differences between high and low tide
- occur at the 1st and 3rd Quarter moon phases



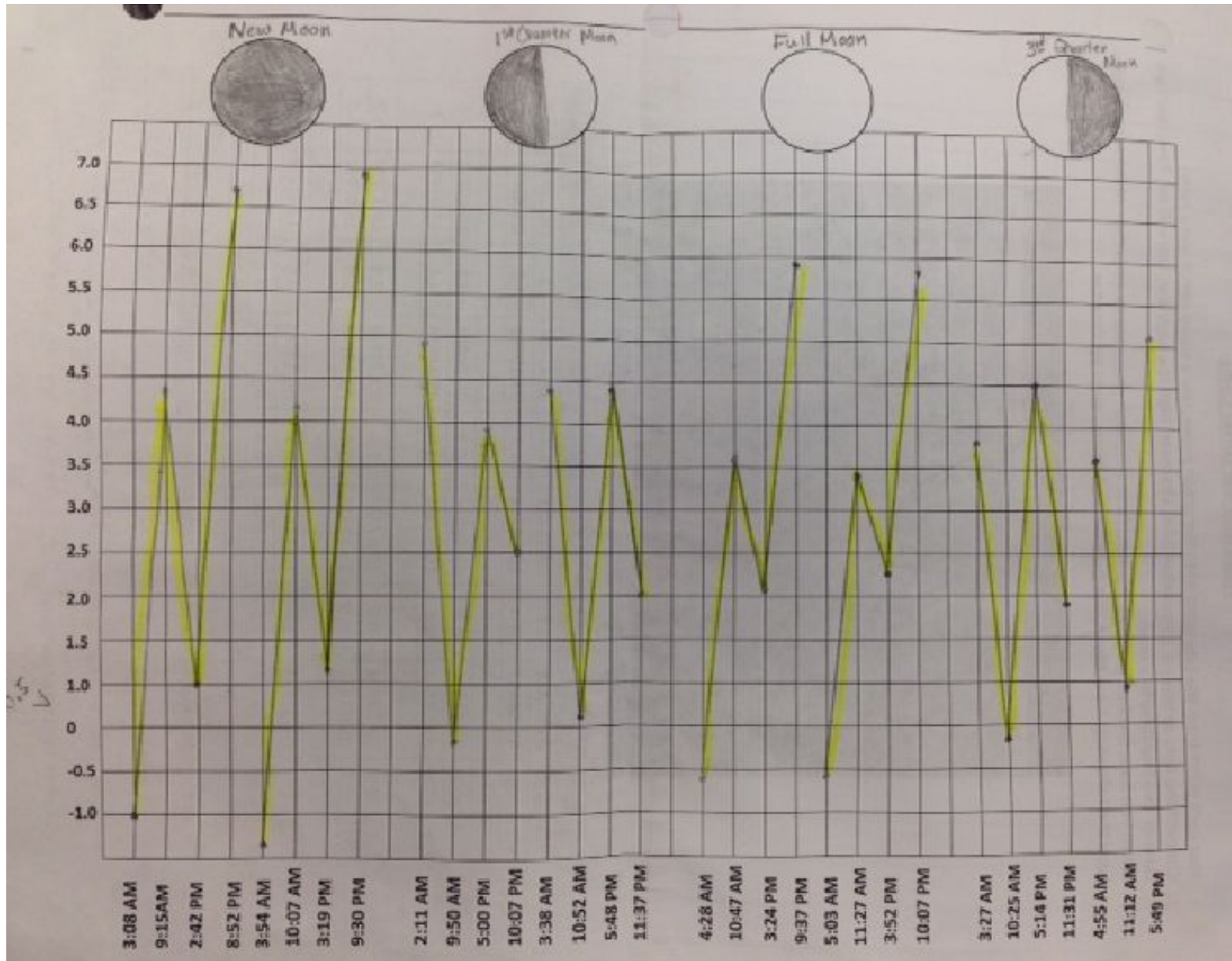
Neap tides happen when Earth, the moon and the sun form a **right angle** pulling more evenly on the ocean waters.

# Neap Tide Diagram/Illustration



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[http://ww2.valdosta.edu/~cbarnbau/astro\\_demos/tides/neap\\_sp.html](http://ww2.valdosta.edu/~cbarnbau/astro_demos/tides/neap_sp.html)



## [How Tides Work?](http://dusk.geo.orst.edu/oceans/PPT/TidalCycleV2.html)

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