

EXMOOR'S HUGE TIDES!



These pictures show Lynmouth harbour at low and high tide. The sea will go from one to the other in just over 6 hours!



The sea at Minehead can rise and fall as much as 12.5m. That's the same height as 3 double decker buses stacked on top of each other!

Measure a member of your group or find someone who knows how tall they are. Once you know their height work out how many times they would have to stand on top of each other to reach 12.5 meters high. That's how much the water can rise in around 6 hours!

HOW TIDES WORK - PART I

The earth does one complete rotation each day.

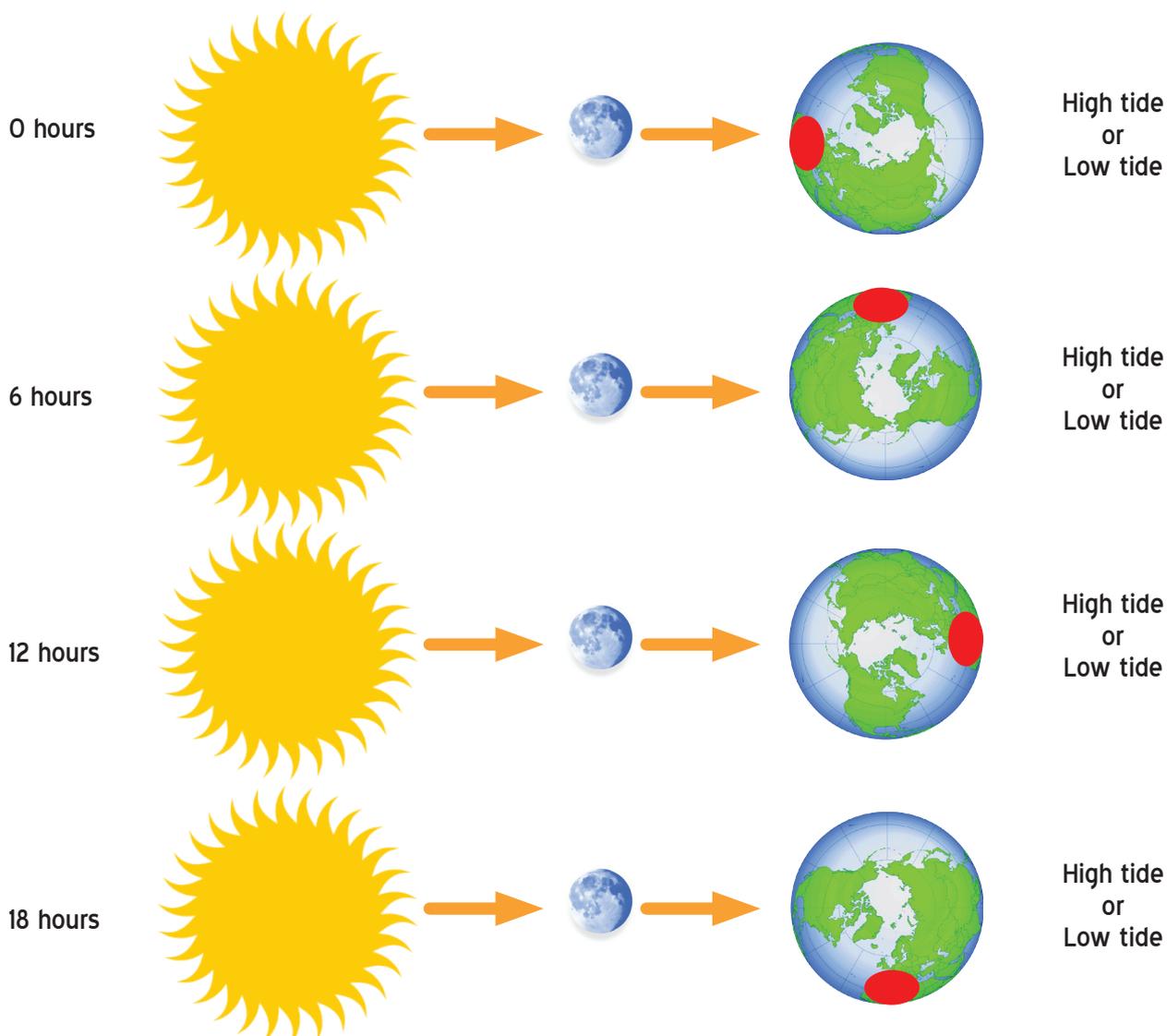
The red dots show where you are on the earth. When the sun and moon are in line with the red dot there is a high tide. After around six hours (one quarter of a day) the red dot moves as the earth spins. It is no longer in line with the sun and the moon, so there

is a low tide. After another six hours the red dot is back in line on the opposite side to where it started and so there is a high tide. Another six hours on and the dot is not in line, so the tide is low again.

Therefore there are TWO tides in a day. A tidal cycle has one low and one high tide.

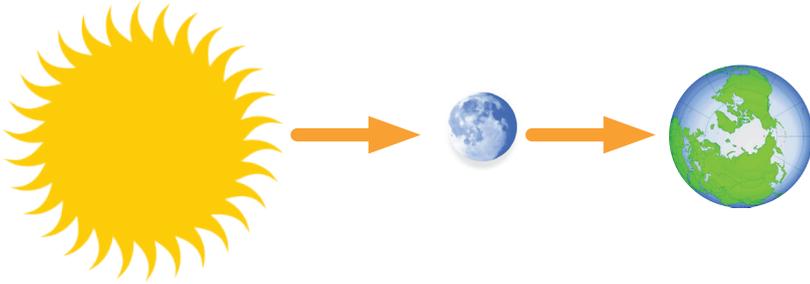
This is not the same all around the world. Some places only have one low and one high tide per day and others have hardly any tide at all!

Based on the information above look at the diagrams below and decide if the position of the sun, moon and red dot will give a high or a low tide. You can circle the right answer.



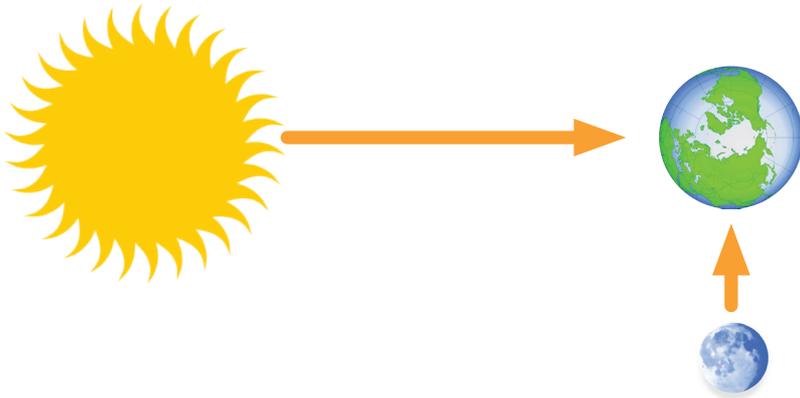
HOW TIDES WORK - PART II

Tides have a big impact on what can and cannot live on the shore. On the Exmoor coast, the sea will rise and fall vertically over the shore twice a day. It is the position of the sun and the moon that cause the tide to move different amounts each day. As the sun, the moon and the earth are always moving the tides move differently each day.



Spring Tide

When the sun and moon are in line, they both pull the sea in the same direction so the water moves a long way. This is a **SPRING TIDE** (nothing to do with the seasons).



Neap Tide

The moon is sometimes at a right angle to the earth. This means the sun and moon pull the sea in different directions and the water doesn't get moved as much. This is a **NEAP TIDE**.

Tide times

The best time to explore the shore is during low tide, when the water is lowest. To understand when to visit and to see the tidal height, look at tide tables which you can get from the internet. Here are some example tide times for Lynmouth in Devon. Sheet 23 includes more information about tide tables.

Day	Time	m
1	04:03	2.8
	10:34	7.5
	16:47	3.0
	23:14	7.1

Day	Time	m
2	04:31	9.2
	10:38	0.9
	16:55	9.7
	23:02	0.5

Quiz Time!

- Q1. How much time is there between high and low tide (to the nearest hour)?
- Q2. Which day would be Neap Tides and which would be Spring Tides?
- Q3. What position would the sun and moon be in to get neap tides?
- Q4. What position would the sun and moon be in for Spring tides?
- Q5. When would be the best time to go rockpooling? Remember, low tide during the day is the best time.