

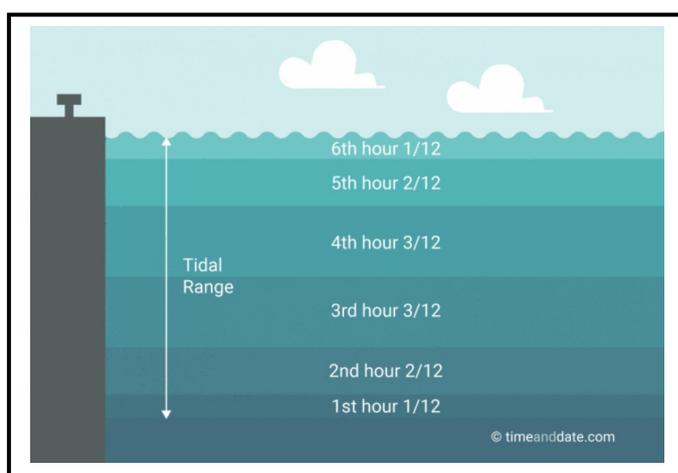
Learning about Tidal Flows

- Tidal Treats and Retreats



Tides occur every day all around the world, where in most parts there are two high and two low tides per day. Although tide tables list each day's high and low tide heights and times, tidal charts provide information on each tide every hour (ignoring the left over 24min) providing the hourly tidal depth and flow from low to high tide.

This is important for boat navigation in major ports, for shipping in shallow waters, fishermen, as well as launching or retrieving boats on a slipway on a tidal shore. It is also useful to know the time and flow of tides when at the seashore, particularly when exploring rockpools in the inter-tidal zones.



Without a tidal chart, the 'rule of twelfths' can be used which provides an approximation of the increase in the water level over 6 hours between low and high tide. For example, the tidal flow is based on the first hour = 1/12 of the tide coming in, the second hour = 2/12, third hour — 3/12, fourth hour — 3/12, fifth hour — 2/12, and the sixth hour — 1/12.

This illustration shows that the flow of water flow is largest during the 3rd and 4th hour of the tide coming in. Therefore when going to the seashore to explore rockpools, it is always best to head down before low tide. If you head down when the tide is going out, this means you can follow the tide as it retreats to low tide, giving you more time to explore before the tide turns and starts to flow back in.

Another fun way to remember the rule of 12^{ths} and the flow of tides is that this is also the ratio for ingredients to make tidal treat biscuits.

Number of hours from low to high tide	1	2	3	4	5	6
Rule of 12 ^{ths} in relation to the tide coming in per hour	1/12	2/12	3/12	3/12	2/12	1/12
Ingredients for tidal treat biscuits	BUTTER	CASTOR SUGAR	PLAIN FLOUR	PLAIN FLOUR	CASTOR SUGAR	BUTTER

TIDAL TREATS – BAKE SOME COOKIES TO REMEMBER THE RULE OF 12th's AND THE FLOW OF THE TIDES

YOU WILL NEED:

A mixing bowl
Butter
Castor sugar
Plain flour
A rolling pin
Some water
4 teaspoons
A baking tray
Cinnamon; or peanut butter; or chocolate.
Preheat the oven to 180 degrees

RECIPE:

The mixing bowl is the 'bay' and the ingredients are going to 'tide' into it.
Stick 1 teaspoon in the butter
Stick 1 teaspoon in the castor sugar
Stick 1 teaspoon in the flour
Stick 1 teaspoon in the water
DO NOT MIX UP THESE SPOONS!

AND NOW FOR THE TWELVE TIDAL STEPS:

If the ingredients were put in to a bowl at the same time it takes for the tide to come in, it would take six hours to make these treats. Since no-one should have to wait that long for a home baked cookie - lets speed things up.

STEP 1 place 1 teaspoon of butter in the 'bay'

STEP 2 place 2 teaspoons of castor sugar in the 'bay'

STEP 3 place 3 teaspoons of plain flour in the 'bay'

This will be enough for one large cookie - but that might not be enough (they are VERY tasty) so you had better make another one.

STEP 4 place 3 teaspoons of plain flour in the 'bay'

STEP 5 place 2 teaspoons of castor sugar in the 'bay'

STEP 6 place 1 teaspoons of butter in the 'bay'

Go through the 6 'tide steps' *once for each two large cookies you need.*

With clean hands, mush everything together until it feels like crumbly sand.

Dig a hole in the 'sand'

Using the teaspoon, place some water into the hole to make a small 'rock pool'

Mix it up well with your hands.

Keep adding teaspoons of water until the mixture is like plasticine. Divide the lump into as many 'biscuit-balls' as you wanted. Flatten, and roll the balls thinly (if you do not make them thin they are more chewy than crunchy when they are baked!)

Place the rolled 'biscuits' on a non-stick or greased tray.

Pop them into the oven (preheated to 180 degrees for 10 minutes)

When they are nice and brown take them out, and leave to cool before you touch them.

The biscuits are more likely to break when they are hot, and you are more likely to burn yourself when they are hot. So, go get yourself a big glass of cold milk and wait!

If you like cinnamon you could sprinkle some on top, or try peanut butter, or place a square of chocolate on each biscuit and let it melt!

ENJOY THE BEACH... AND THE BISCUITS.