

CREATIVE SESSION 1

# AMPHIDROMIC SYSTEM

## ABOUT AMPHIDROMIC SYSTEMS

**Tides are made by huge waves flowing around our oceans; when a trough passes we experience low tide and six hours later a peak brings high tide. The reason these waves keep coming every day, for hundreds and thousands of years, is because they travel in great circles around ocean and sea basins (anti-clockwise in the northern hemisphere and clockwise in the southern hemisphere).**

These tide waves are made by Amphidromic Systems, named from the Latin words *amphi* (around) and *dromic* (running). In essence, these are bodies of energy shaped by the gravitational pull from the moon and set in motion by the spinning of earth on its axis. A simple way to imagine one is to think of a disc tilted at an angle and spinning around a central point once every 12 hours 25 minutes (the time between high tides).

In every sea or ocean, there will be a peak in the tide wave for every Amphidromic System. For example, in the North Sea there are three amphidromes making a continuous tide wave flowing anti-clockwise around the sea, down the coast of Britain and up the coast of Europe with three peaks spread out twelve and a half hours apart. To better visualise how these Amphidromic Systems make the tide rise and fall, you can make this model yourself, spinning the disc to simulate how high tide travels around the Atlantic ocean.

**Tip: if you want to see how Amphidromic Systems merge seamlessly, print Page 4 twice and make two 'Amphidromes'. Put the high points together and twist them at the same rate; you will see that their heights stay the same.**

## INSTRUCTIONS

### Step 1

Cut out the white from Page 4 so you have three pieces. Start by wrapping the long strip into a circle; your left hand will be holding the end saying 'Low Tide' and this should go up to the line saying 'Stick up to here'. You can either glue or celotape where they overlap.

### Step 2

The long strip should look like a bracelet. Now fold the little tabs inwards and slide the circle saying 'Bottom' into the bracelet, with the blue facing down. Glue or celotape the tabs to the bottom.

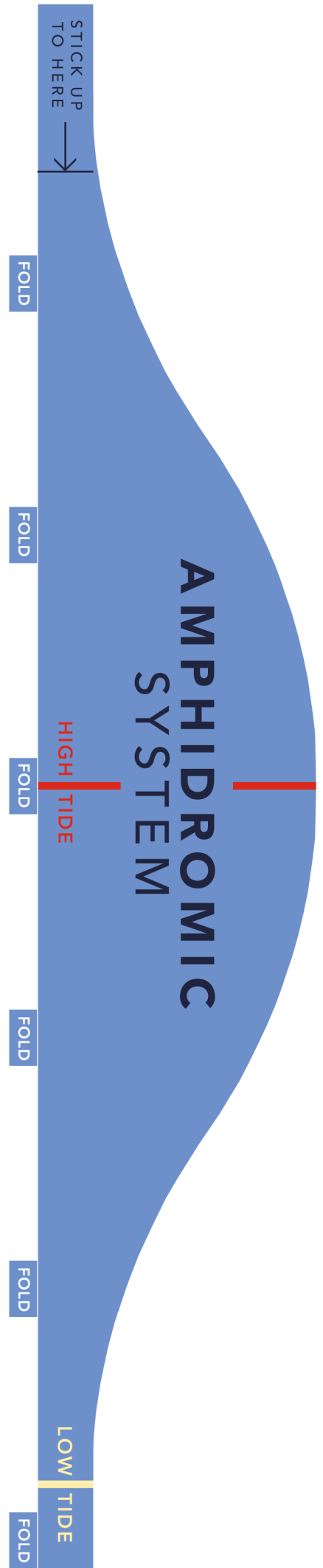
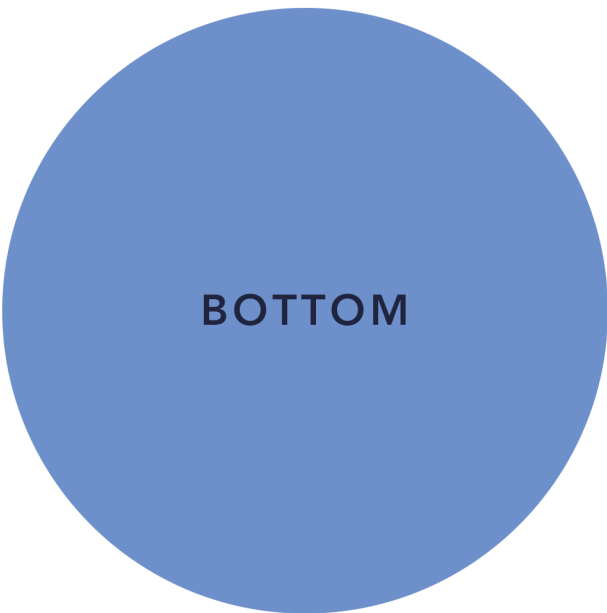
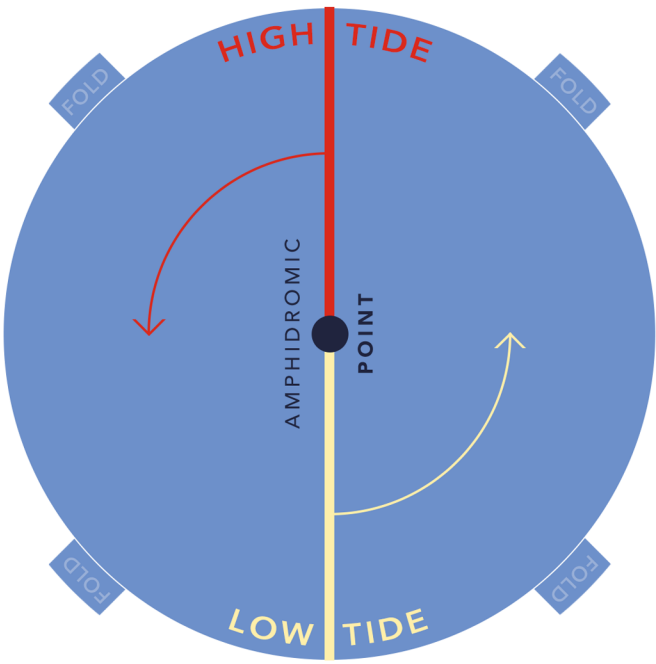
### Step 3

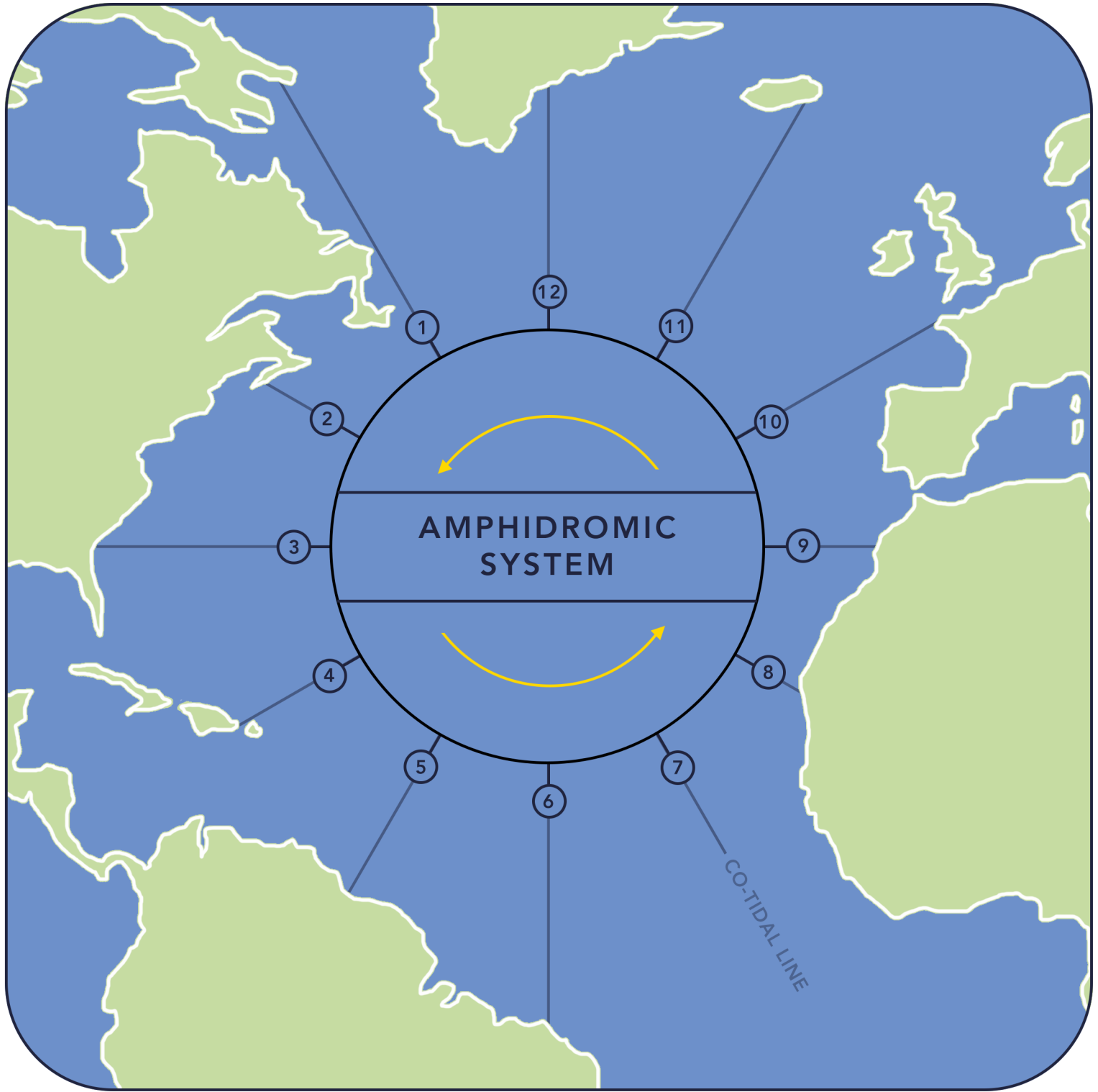
Place the remaining circle on top with high tide on the pieces lining up; glue or celotape at the folds. You now have an Amphidromic System!

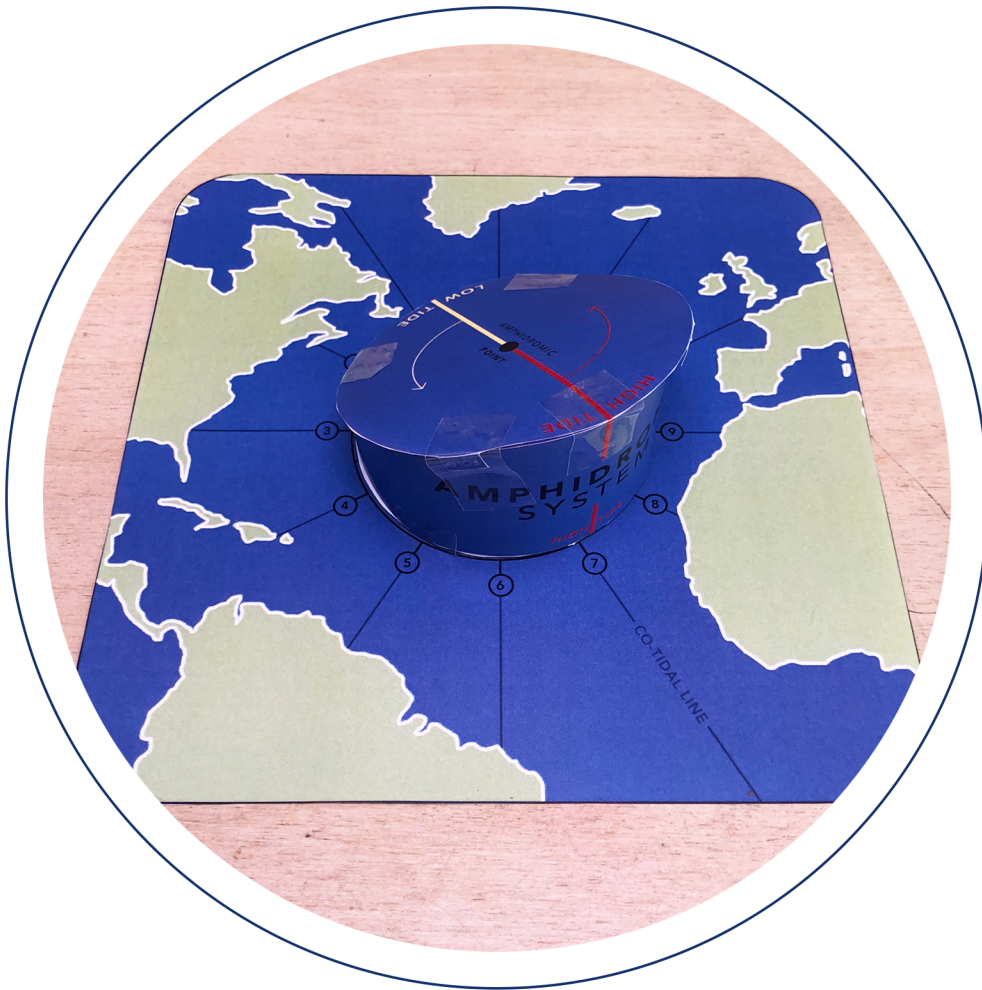
### Step 4

Cut out the map on Page 5 and sit the Amphidromic System in the middle. Spin it anti-clockwise to simulate how high tide moves around the North Atlantic; each number represents an hour the highest part of the Amphidromic System (high tide) takes to travel. For example, if it is high tide off Cape Finisterre in France at 10, it will be high tide in Iceland around 11.

**Please take note** this is a simplification of the timings to demonstrate the concept of how Amphidromic Systems work. In reality, the timings vary (depending on the depth) and the highest part of the amphidrome (high tide) passes each point approximately every 12 hours 25 minutes.



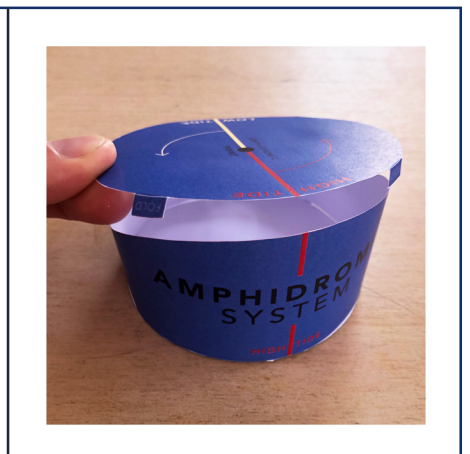




STEP 1

STEP 2

STEP 3



Share photos of your model!  
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