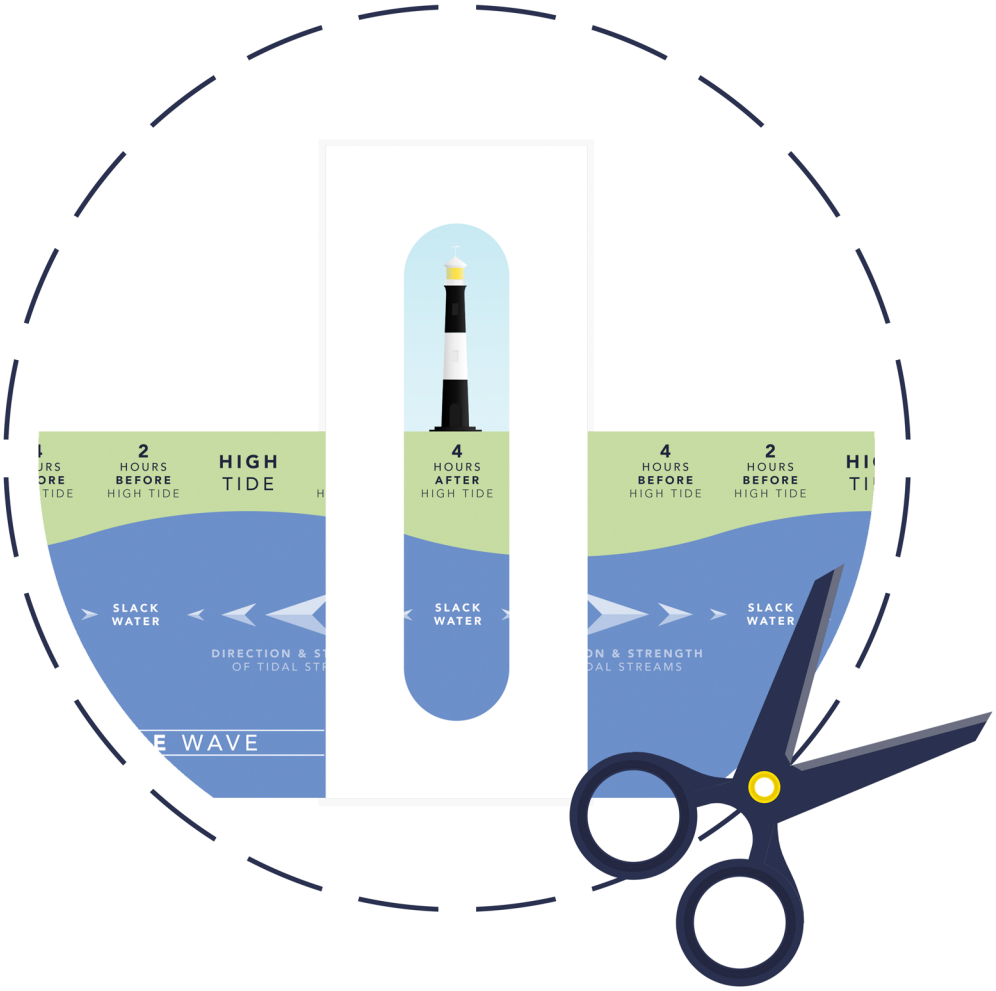


CREATIVE SESSION 2

TIDAL STREAMS

ABOUT TIDAL STREAMS

Tidal streams are currents that flow both ways along the coast. They are made by tide waves flowing along the coast and their job is to move water away from where the tide is falling towards where the tide is rising.

The most important concept to understand is that when we talk of tide waves travelling along the coast, we are referring to energy in the wave moving in a single direction. While this is happening, water particles within the wave move both directions – these are the tidal streams. A simple way to visualise how this works is to imagine a tsunami; when a 'tidal wave' is approaching land, water often drains from the beach because the trough has arrived first and currents are being pulled back towards the peak. But when it arrives, currents are pushed along with the wave and water surges up the beach. Tide waves and tidal streams interact with this same pushing and pulling motion, but it happens parallel to the shore, as you will see once you have assenbled your model.

At high tide on an open coast, streams usually flow the same way the tide wave is travelling, and at low tide water flows the opposite way. The time that streams change direction is called slack water and this happens at set hours before and after high tide. The time of slack is unique to each place, but on an open coast it is usually 2 or 3 hours before high tide when streams start flowing in the direction of the tide wave. They then turn around at 3 or 4 hours after high tide and start flowing the opposite direction until 2 or 3 hours before the next high tide, repeating the cycle. Instead of streams simply switching 'on' or 'off' at slack water, the transition is fluid with a gradual speeding up for 3 hours after slack water and then a slowing down for 3 hours towards the next slack, when they change direction and repeat the cycle the opposite way.

INSTRUCTIONS

Step 1

Cut out the two tide waves from Page 5. Start by joining them together, lining up the 'Low Tide' edge to the line marked 'Stick to here'. You can either glue or celotape where they overlap.

Step 2

Wrap the long tide wave 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'. Glue or celotape where they overlap.

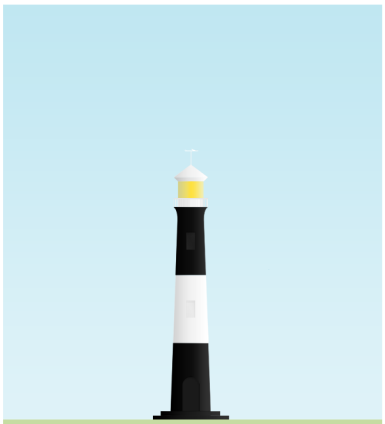
Step 3

Cut out the Lighthouse strip on Page 4 and lay it flat, starting by folding Fold 1 inwards. Now hold it upright and insert the tide wave so it sits within the fold.

Step 4

Make Fold 2 at the top and glue or celotape the part saying 'Stick to back' to the back of the model. This should hold everything in place. Now turn the tide wave to show how it makes high and low tide, noting how the direction and strength of streams changes depending on what part of the wave is passing.

Please take note the timings for this tide wave are with slack water around 2 hours before high tide and 4 hours after high tide. The precise times of slack water are unique to each place and they are usually between 2/4 hours either side of high tide on an open coast.

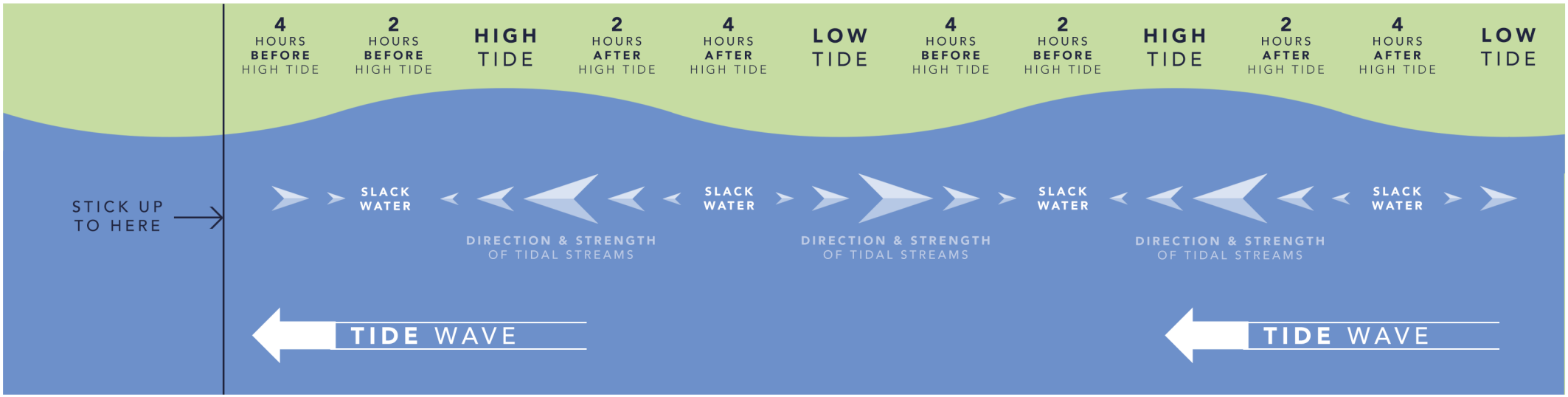


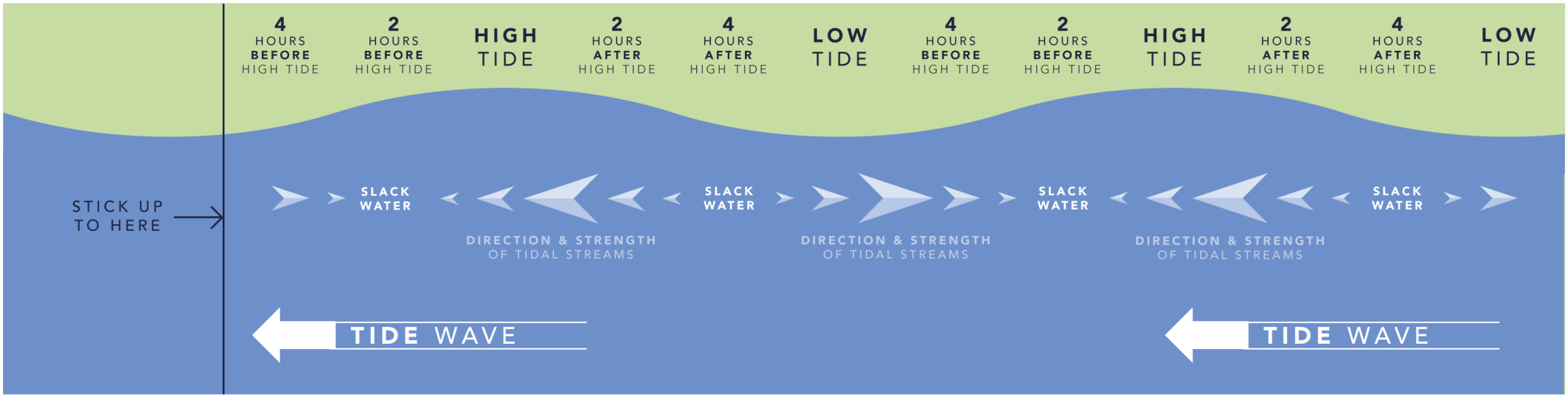
FOLD 1

CUT OUT THIS WINDOW

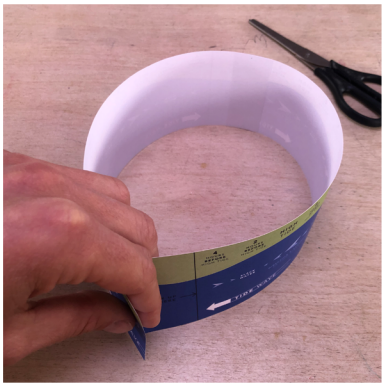
FOLD 2

STICK TO BACK

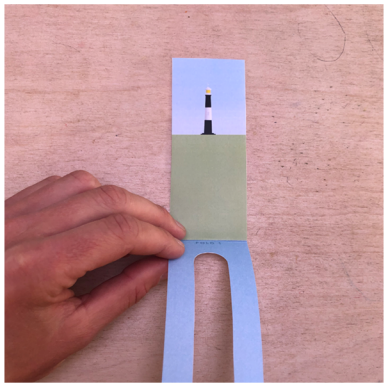

4 HOURS BEFORE HIGH TIDE
2 HOURS BEFORE HIGH TIDE
HIGH TIDE
2 HOURS AFTER HIGH TIDE
4 HOURS AFTER HIGH TIDE
LOW TIDE
4 HOURS BEFORE HIGH TIDE
2 HOURS BEFORE HIGH TIDE
HIGH TIDE
2 HOURS AFTER HIGH TIDE
4 HOURS AFTER HIGH TIDE
LOW TIDE
STICK UP TO HERE
SLACK WATER
SLACK WATER
SLACK WATER
SLACK WATER
DIRECTION & STRENGTH OF TIDAL STREAMS
DIRECTION & STRENGTH OF TIDAL STREAMS
DIRECTION & STRENGTH OF TIDAL STREAMS
TIDE WAVE
TIDE WAVE


4 HOURS BEFORE HIGH TIDE
2 HOURS BEFORE HIGH TIDE
HIGH TIDE
2 HOURS AFTER HIGH TIDE
4 HOURS AFTER HIGH TIDE
LOW TIDE
4 HOURS BEFORE HIGH TIDE
2 HOURS BEFORE HIGH TIDE
HIGH TIDE
2 HOURS AFTER HIGH TIDE
4 HOURS AFTER HIGH TIDE
LOW TIDE
STICK UP TO HERE
SLACK WATER
SLACK WATER
SLACK WATER
SLACK WATER
DIRECTION & STRENGTH OF TIDAL STREAMS
DIRECTION & STRENGTH OF TIDAL STREAMS
DIRECTION & STRENGTH OF TIDAL STREAMS
TIDE WAVE
TIDE WAVE

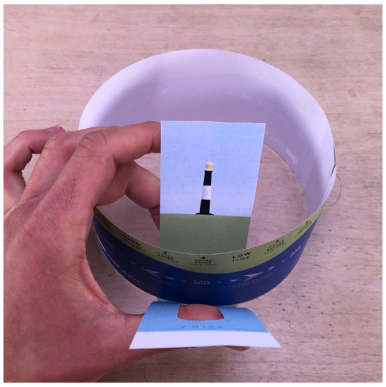
STEP **2**



STEP **3**



STEP **3**



Share photos of your model!
Tag us on social media @tideschool