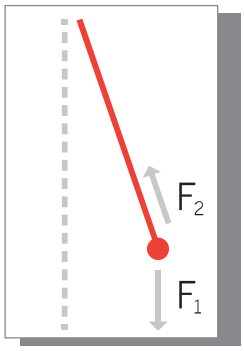
ACTIVITY FORCES & HARRISONS TIMEKEEPERS
LOCATION FLAMSTEED HOUSE

GALLERY TIME AND LONGITUDE///

Pendulum clocks are not found in most modern homes today. They were, however used by astronomers and the general public for over 200 years. The pendulum diagram below has two force vectors labelled.

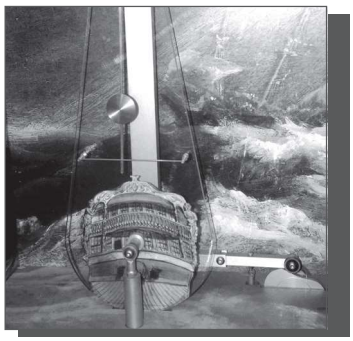


Can you name the forces acting on the pendulum bob?///

F_1

F_2

Go to the interactive shown in this picture and press the button. Listen to the "tick-tock" of the clock. The period changes as the boat rocks – this led to inaccurate timekeeping, and poor current location calculations. Explore the story of longitude around you.



When stationary on land, what force will slow the pendulum down and eventually stop it?///

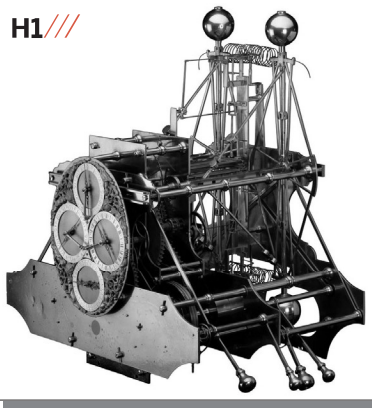
(Think of how brakes on a car or bike work)

John Harrison, the famous clockmaker found a number of ways to counteract this force. Can you identify two ways he did this in his clocks (H1, H2, H3, H4) and learn more about them using the interactives?///

1 These are commonly used to dampen or reduce the bumps you feel while travelling in a car.

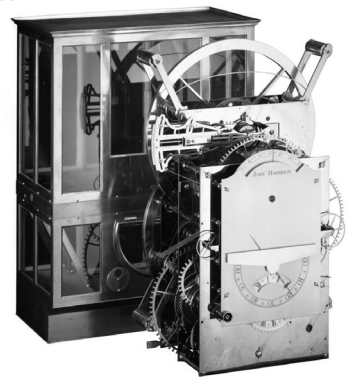
2 This is in every thermostat in devices for heating like kettles and central heating. It is an invention by John Harrison. *(HINT Look at the repeating animation next to H3)*

H1///

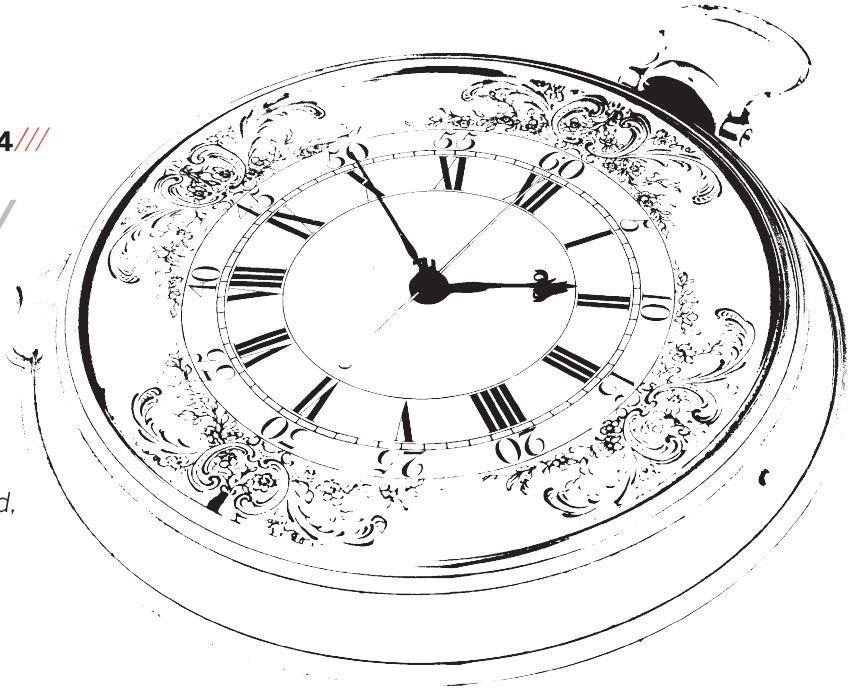


H2///

H3///



H4///



H4 is John Harrison's ultimate triumph. It won him the rest of the Longitude Prize fund, was portable and was not affected by the large wave motions at sea.

What other (astronomical) method of finding longitude at sea was used alongside Harrison's timekeepers?///

(HINT Find the panel nearest the largest 90 degree instrument in the gallery).

In the 21st century we have used our skills in timekeeping and space exploration combined to tell our position accurately. What do we use?///