STEM CARIB 2026 • UCCI

Cayman Navigators: Sun, Shadows, and the Secrets of the North Star

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STAGE 1 • THE HORIZON

How Does the Fisherman Find Home?

The Setting Sun is Due West

In our tropical waters, sunset always marks the West with brilliant clarity.

Face the Sun to Lock Your Compass

North is right. South is left. East is straight behind you.

Tracking the Sun: Sunrise to Sunset

STAGE 2 • EAST TO WEST



SUNRISE • EAST

Earth Spins West to East

Because our planet turns, the sun appears to climb in the East and sink in the West.

Shadows Move Opposite

Morning sun in the East casts shadows West. Evening sun casts shadows pointing East.

Midday in the Tropics

At noon, the sun is almost straight overhead. Watching your shadow move tells you the time!



SUNSET • WEST

The Star That Never Moves: Polaris

STAGE 3 • NIGHT NAVIGATION



The Axle in the Sky

Polaris sits directly above Earth's North Pole. While all other stars wheel across the night, Polaris stands still.

The Spinning Chair Test

Look straight up at the ceiling dot while spinning: everything turns except the center point above your head!

Tip: Open Stellarium-Web to fast-forward time from dusk to dawn.

The Latitude Secret

GEOMETRY OF THE SKY

0°

The Equator

Polaris sits right on the waterline horizon.

19°

Grand Cayman

Two stacked fists held out at arm's length!

90°

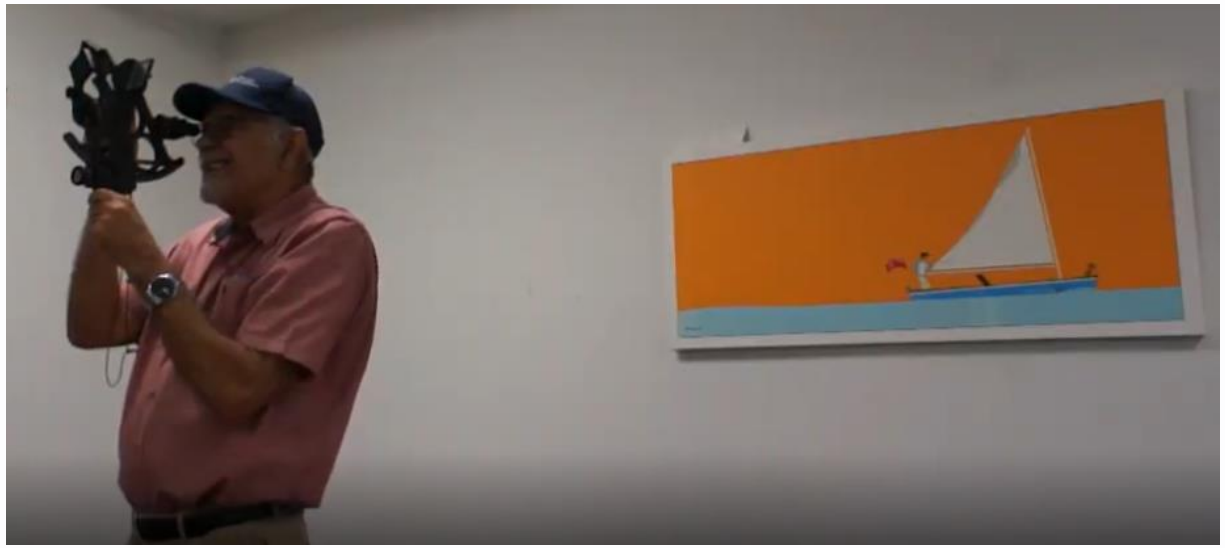
The North Pole

Polaris shines directly above your head.

The Captain's Pocket Angle Meter: The Sextant

STAGE 4 • INSTRUMENTS





Split Mirror View

Brings the image of the star down to touch the sea horizon.

Exact Angle Reading

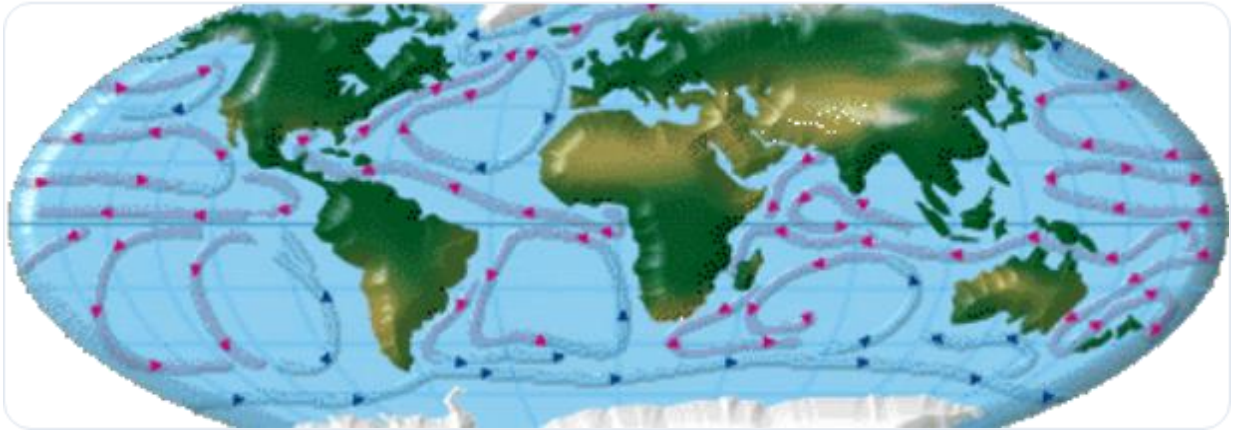
If the dial says 19°, the ship knows it is on the Cayman line of latitude!

Zero Electricity Needed

Pure brass, mirrors, and precision geometry.

The Atlantic Trade Winds & Ocean Currents





1. Sail South to Cape Verde

Avoid headwinds by dropping south until you hit the easterly trade winds.

2. Catch the Windward Highway

Turn due west and let prevailing winds and currents push your hull across the ocean.

3. Latitude Sailing

Keep Polaris at the exact same height nightly until the islands appear!

Make Your Own Cayman Sundial!

HANDS-ON BUILD (8 MINS)



1. Cut from the edge to the marked spot

2,3,4. Fold the whole sheet along the lines, secured with glue or tape

5. Line up the compass rose with North and read the time!

Testing Time: Sun or Kahoot!

FINAL 5 MINUTES

Sunny? Go Outside!

Step into the UCCI courtyard. Aim your True North arrow using our compass. Watch the shadow fall right onto the exact minute!

Cloudy? Kahoot Battle!

5 lightning questions to crown our Master Cayman Navigator. Grab your tablets or team up!
https://play.kahoot.it/v2/lobby?quizId=d65da9ee-e8eb-4349-b3d2-74f0ae4fa993