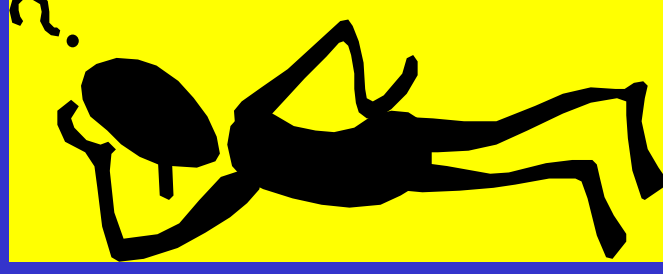


Need Help With POWER POINT?

NEED HELP?

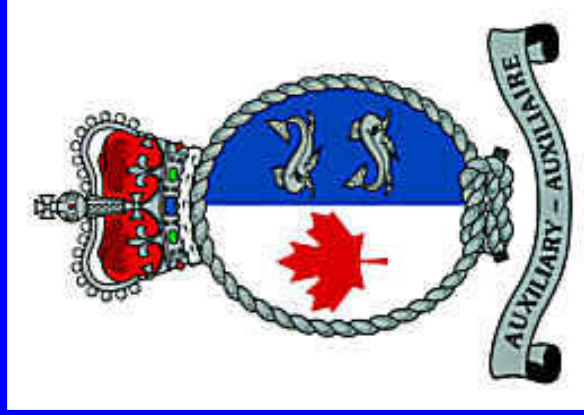
YES?

1. Hold down the CTRL Key and hit the A key at the same time.
2. This shows the **ARROW**
3. Move the **ARROW** over the word "Help" below, and click the left button (or hit **ENTER**)



**NO? Go ahead
Hit Space Bar or
Down Arrow ↓**

HELP



SURVIVAL NAVIGATION

This Version Compiled

By Jim Gram

With the Assistance of Don Limoges

January 2002

Canadian Coast Guard Auxiliary (Central and Arctic) Inc.

Click here for Instructor Information

Canadian Coast Guard Auxiliary
(Central & Arctic)

SURVIVAL NAVIGATION



TITLE PAGE

Canadian Coast Guard Auxiliary
(Central & Arctic)

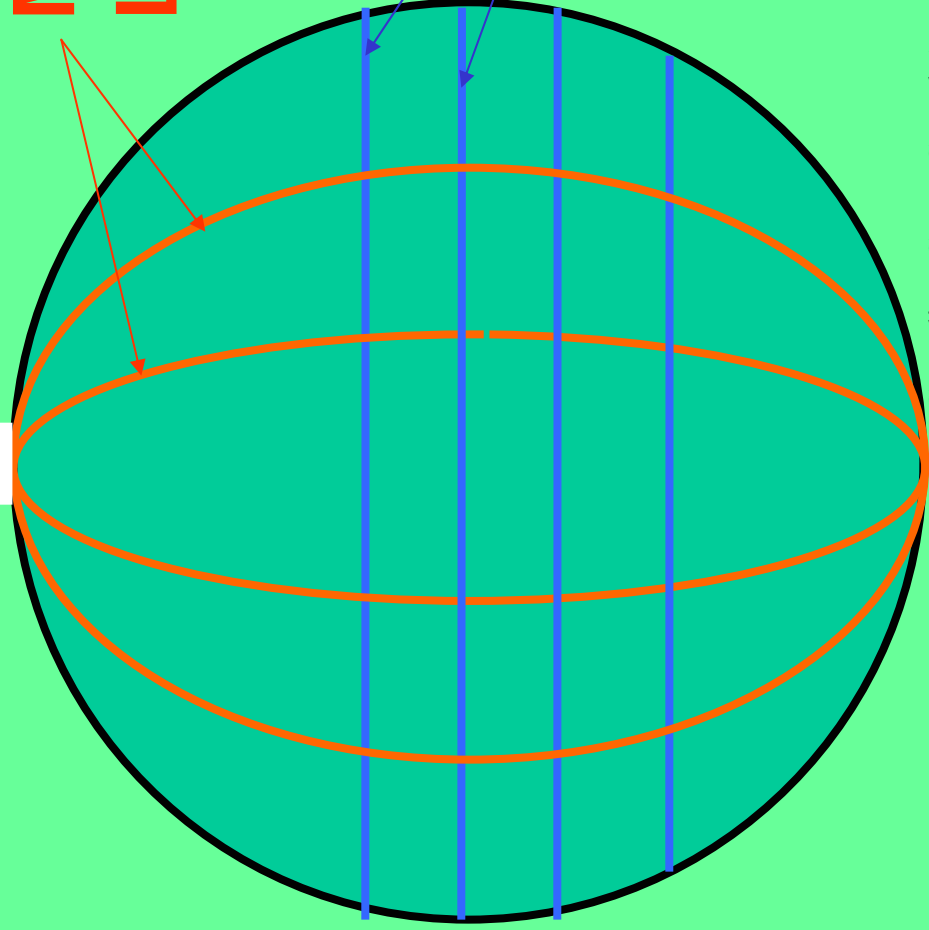


THE EARTH

N

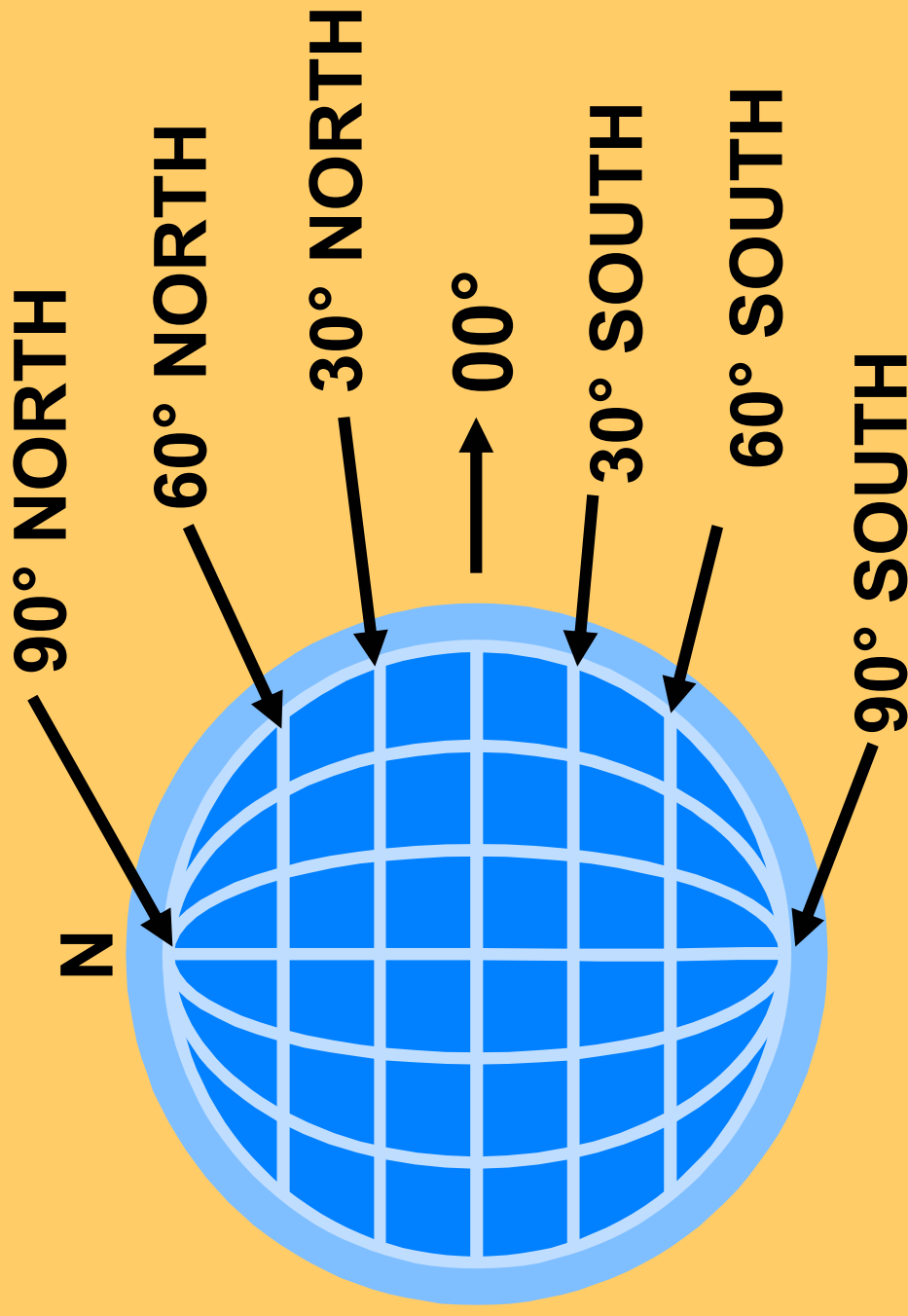
**MERIDIANS OF
LONGITUDE**

**PARALLELS OF
LATITUDE**



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Latitude Numbers?

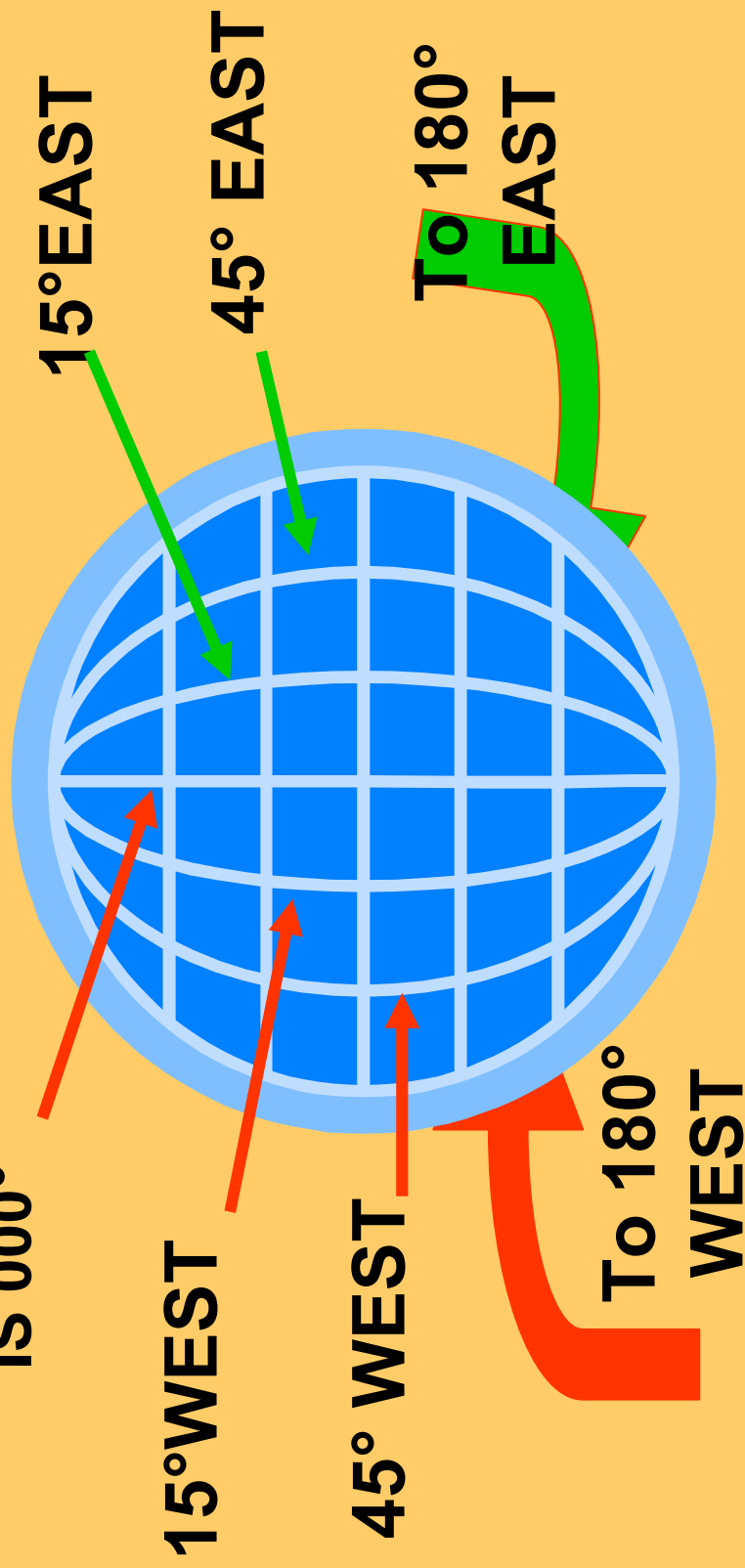


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(Central & Arctic)

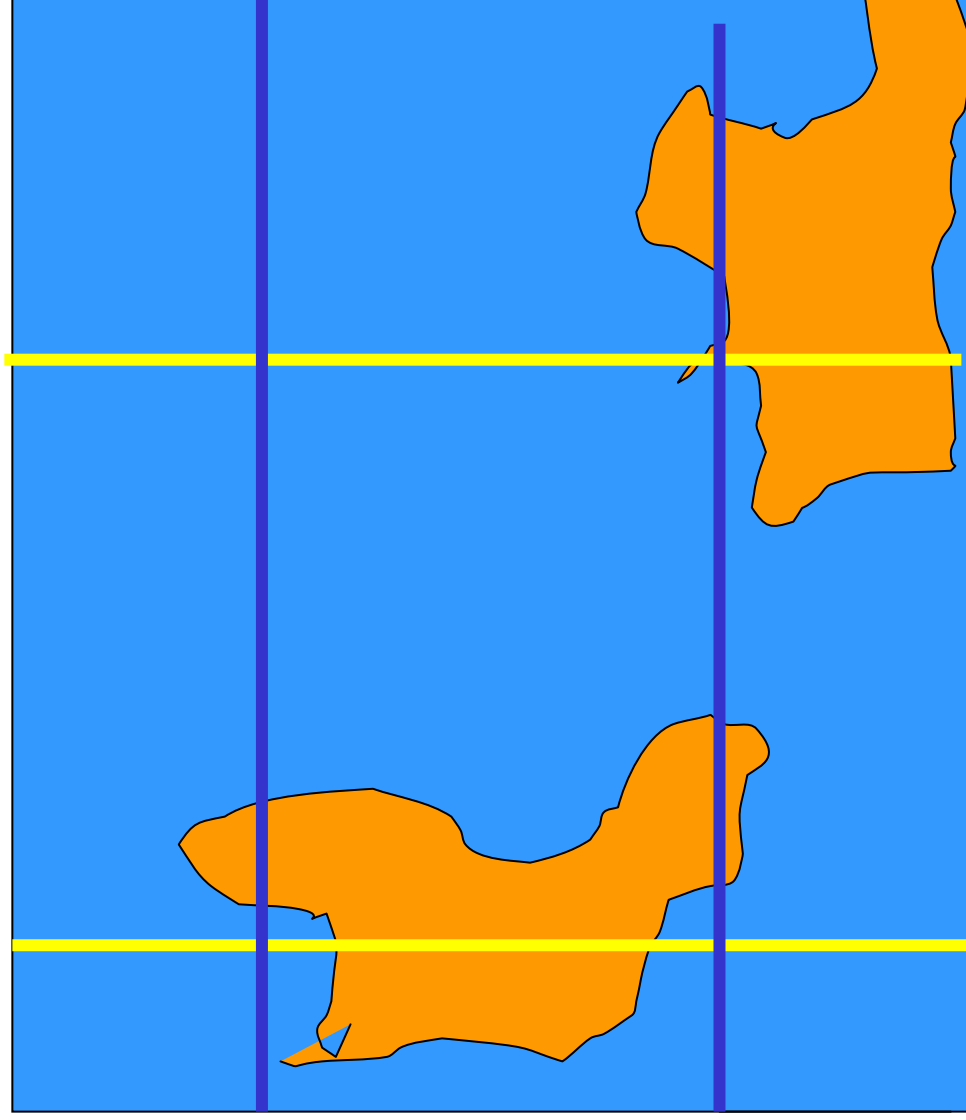
Longitude Numbers?

GREENWICH

IS 000°



A CHART IS A GRID

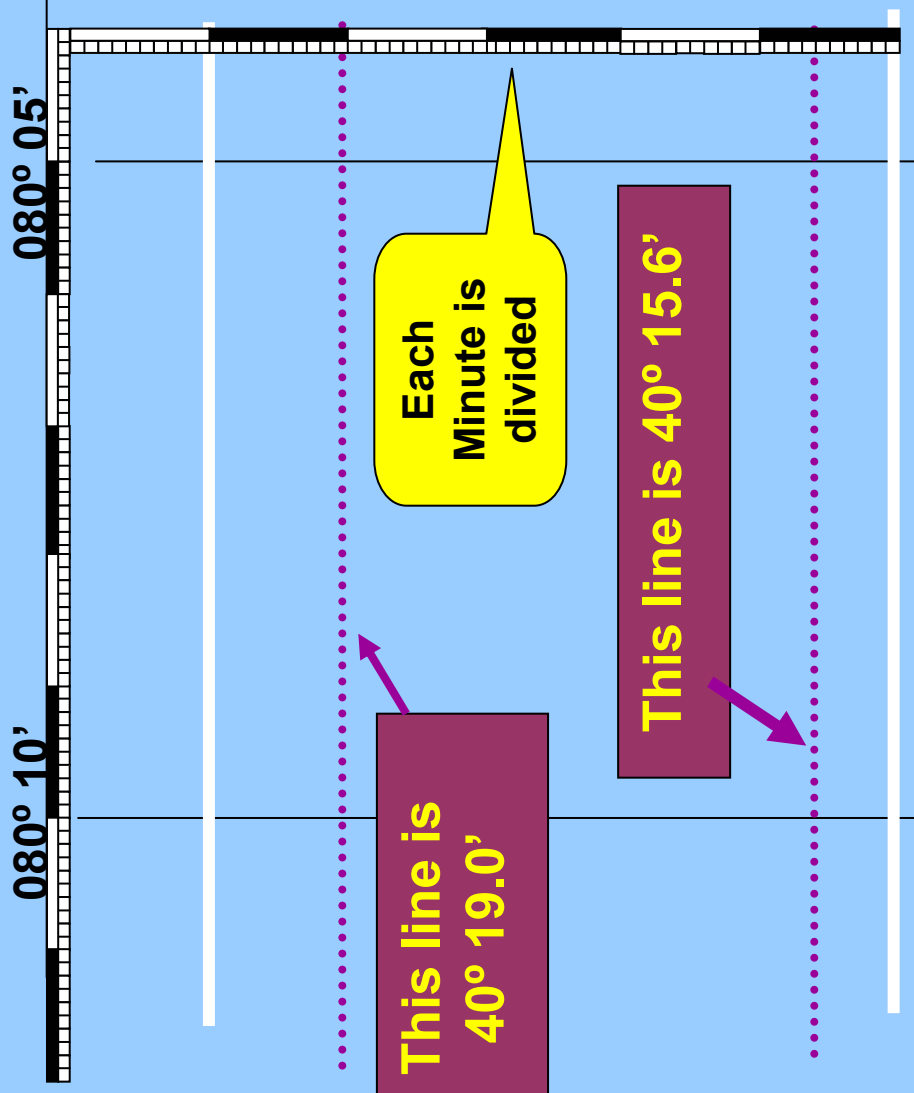


**And MAJOR
lines
(meridians)
of Longitude**

**With MAJOR
lines
(parallels) of
Latitude**

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TO LOCATE LATITUDE



$40^{\circ} 20'$

Find the
Major
lines of
Latitude

$40^{\circ} 15'$

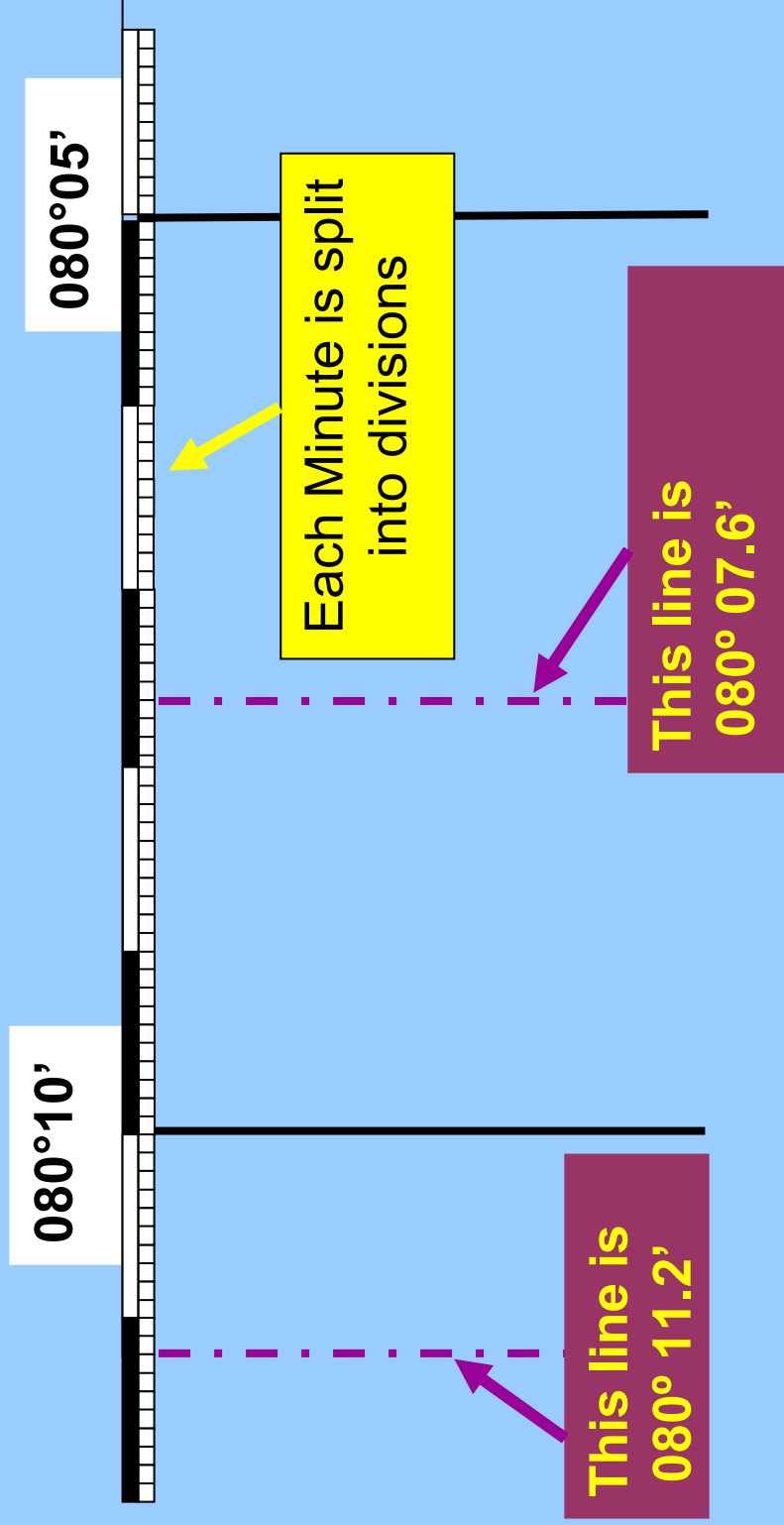
Each
Minute is
divided

This line is
 $40^{\circ} 19.0'$

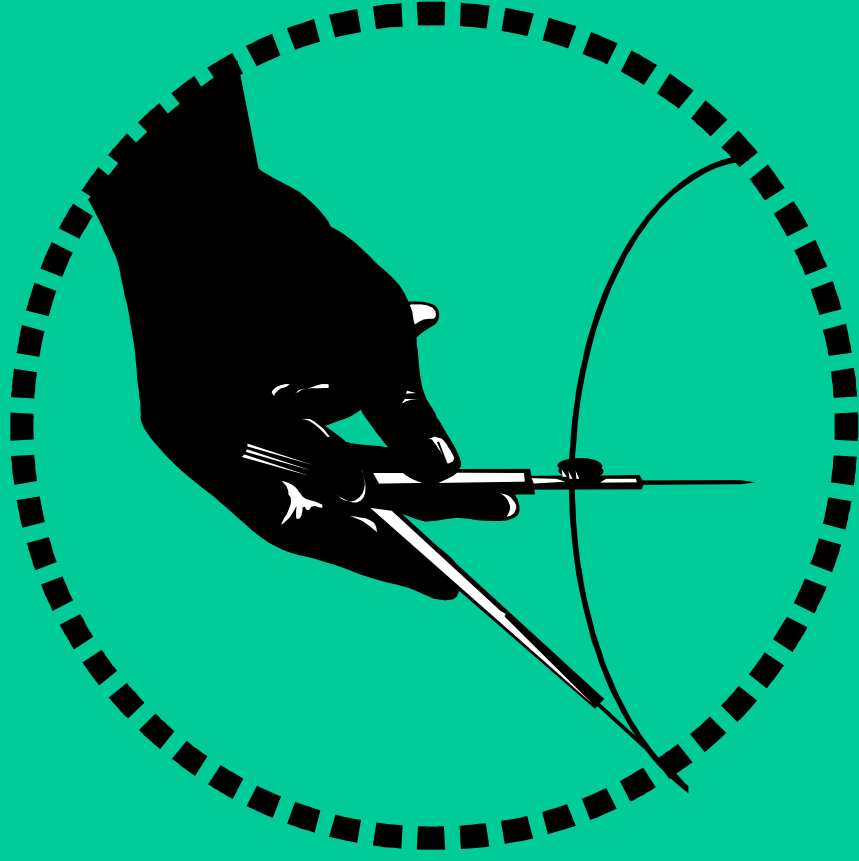
This line is $40^{\circ} 15.6'$

TO LOCATE LONGITUDE

Find the MAJOR labeled lines of Longitude

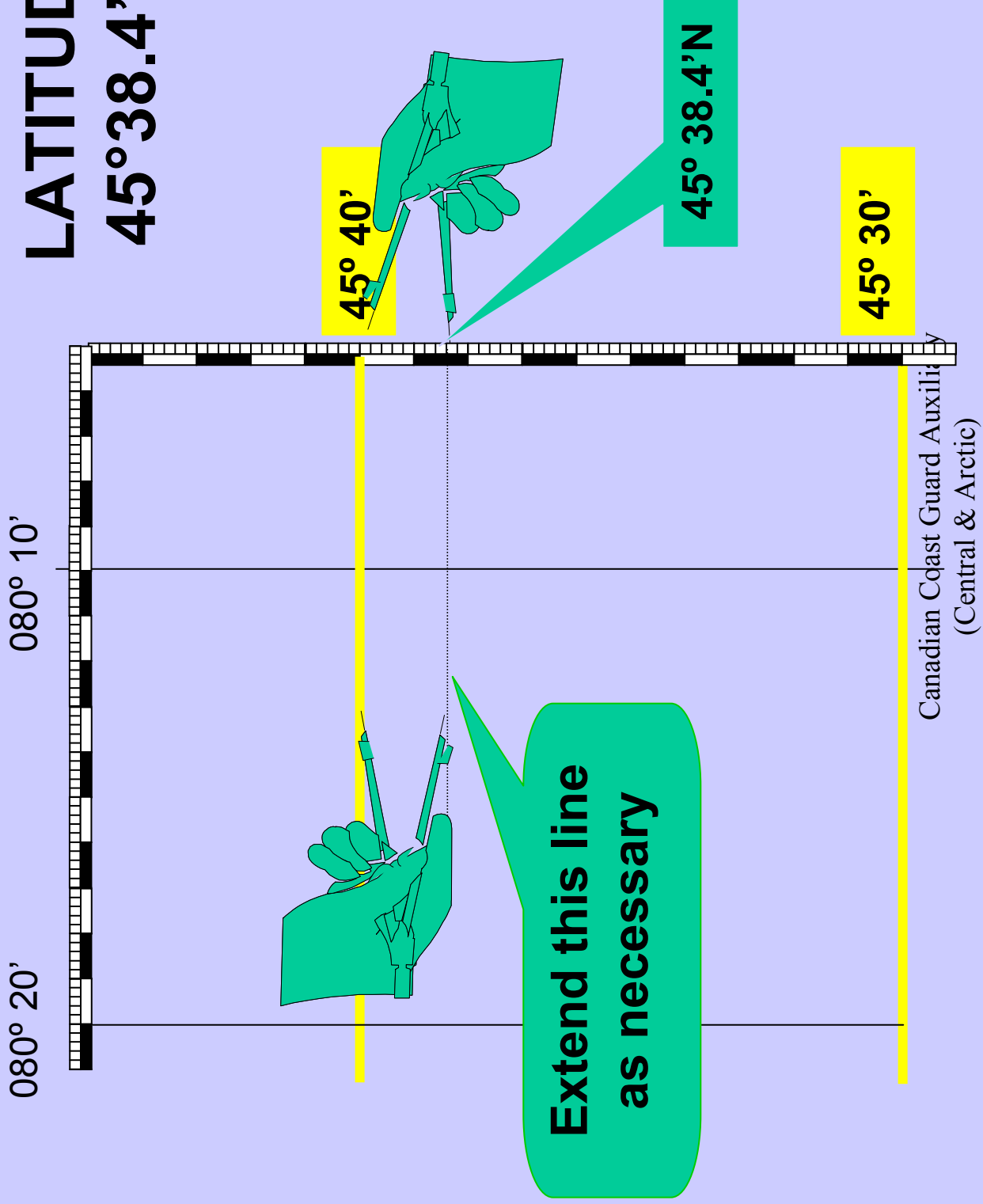


TO LOCATE A POSITION ON A CHART

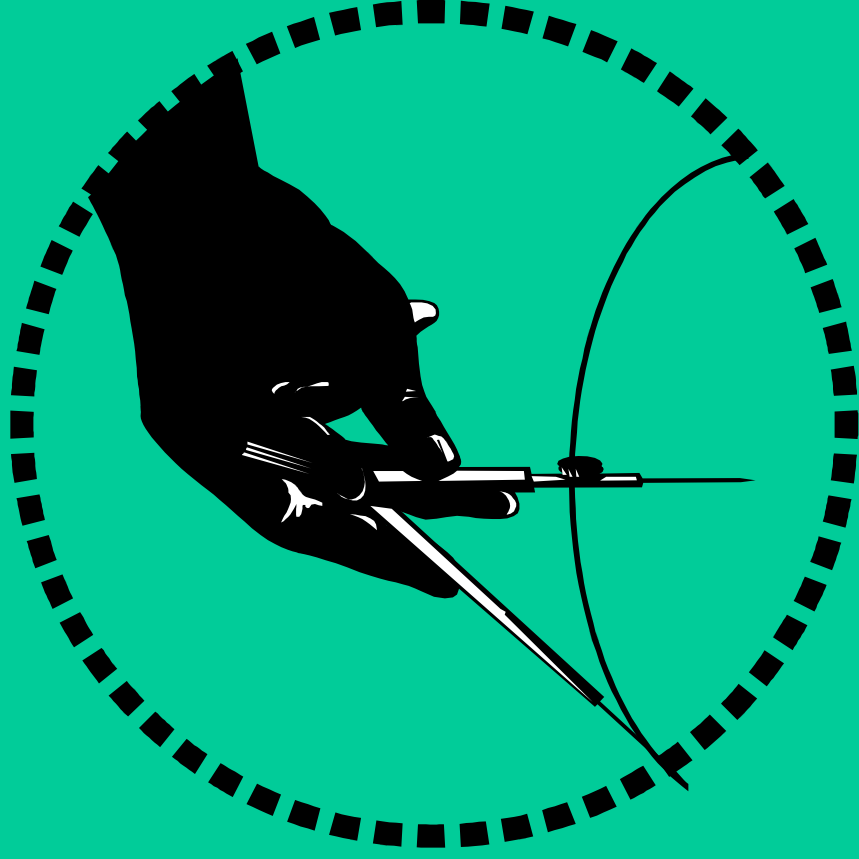


**Find
Latitude**

FIND LATITUDE 45°38.4'N



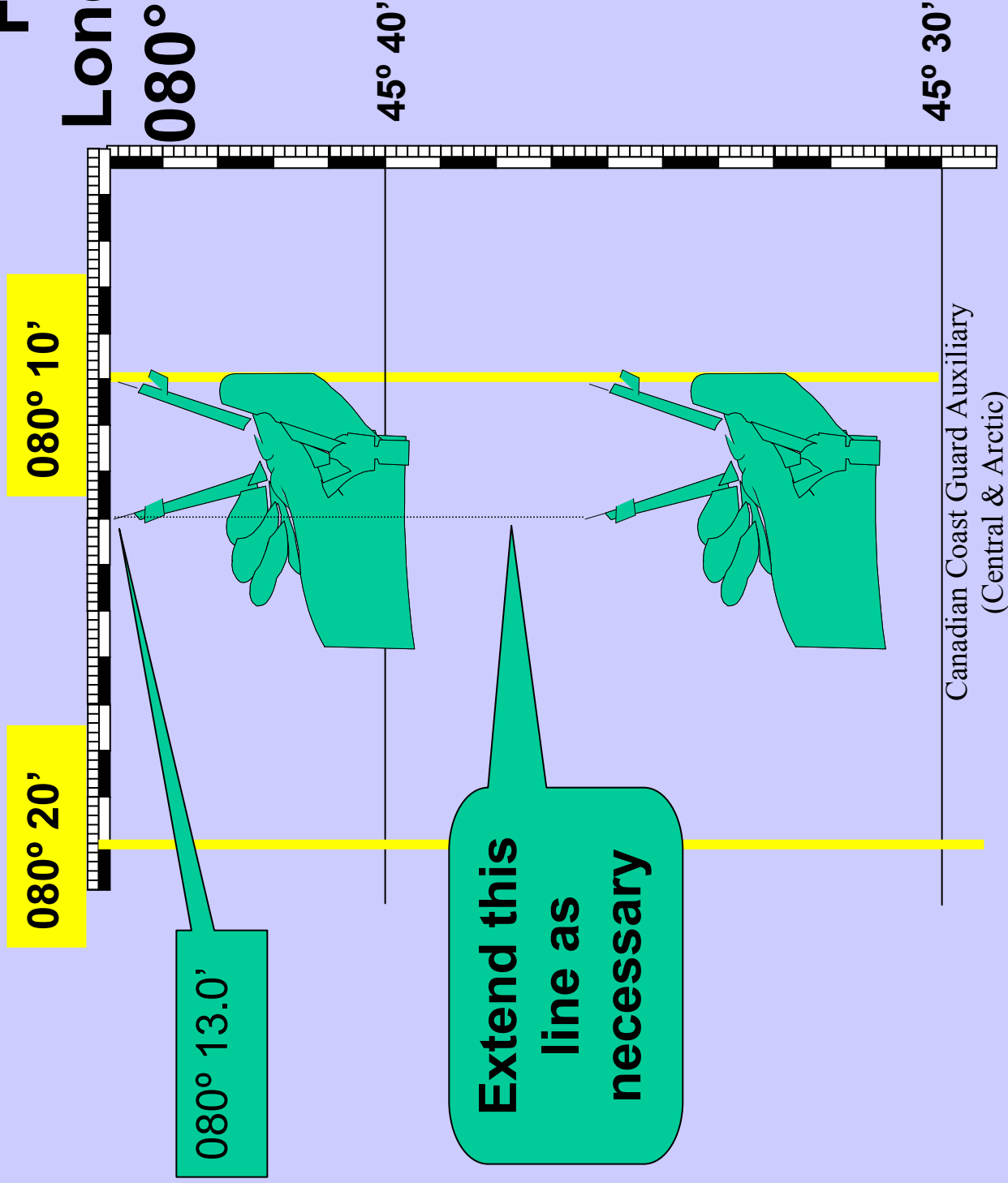
TO LOCATE A POSITION ON A CHART



Find

Longitude

Find Longitude 080° 13.0'W



**PLOT THE
POSITION
45° 38.4'N,
080°13.0'W**

080° 10'

080° 20'

080° 13.0'

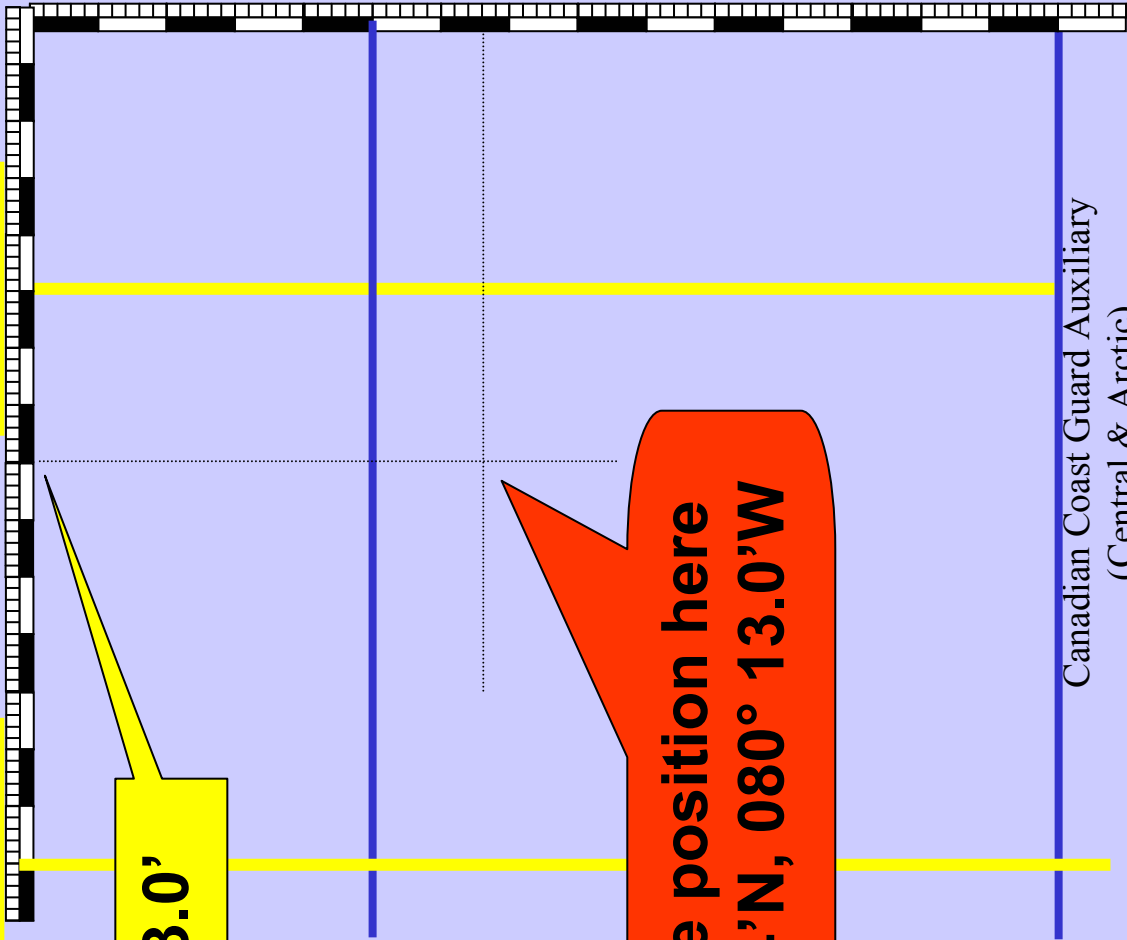
45° 40'

45° 38.4'

45° 30'

**Plot the position here
45° 38.4'N, 080° 13.0'W**

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Measure Distance
Traveled

MEASURING DISTANCE TRAVELLED

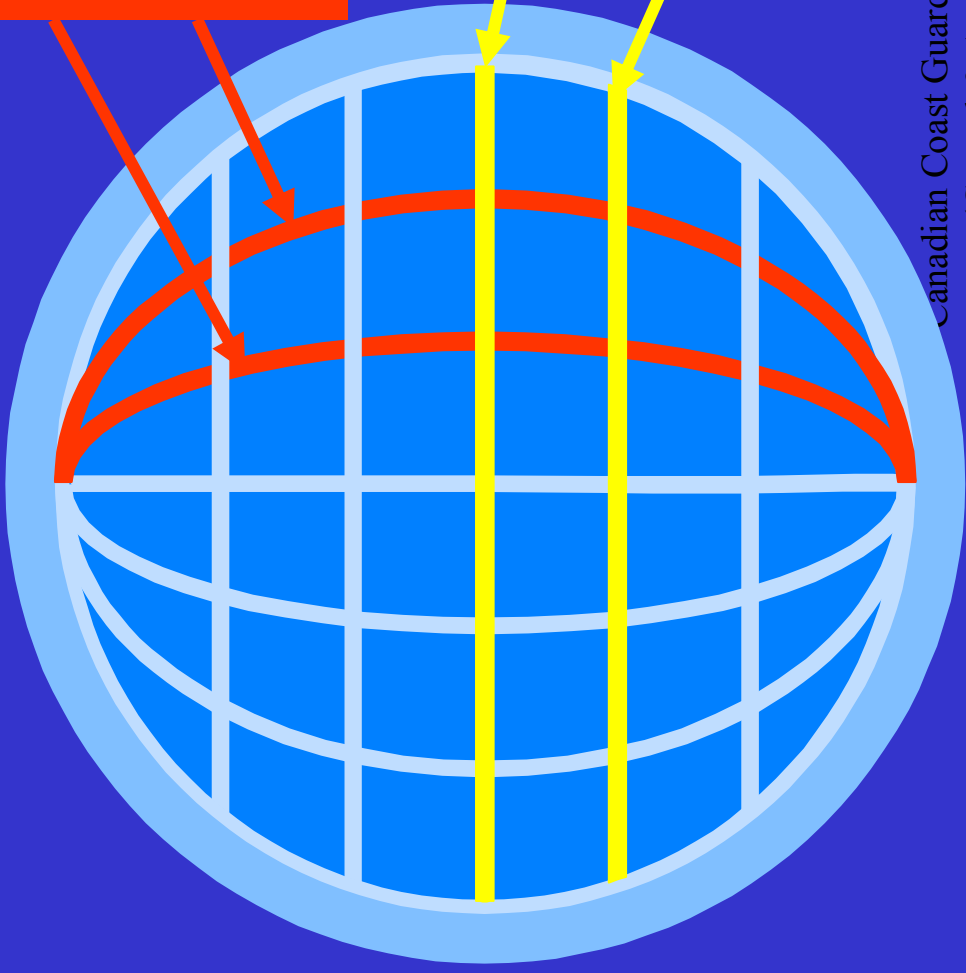


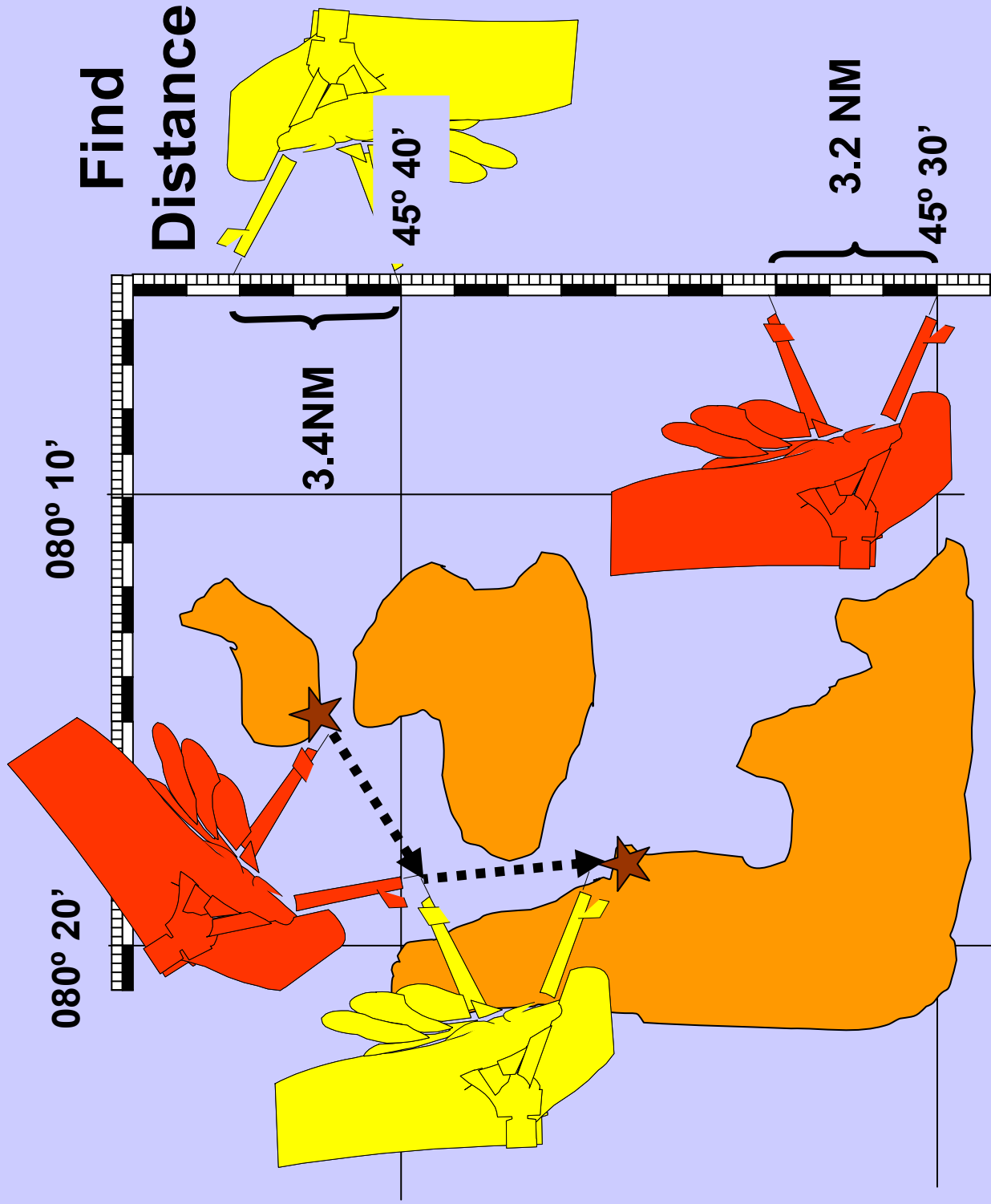
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Which Scale to Measure Distances?

**Lines of Longitude
are different
distances apart
One Minute = ???**

**Lines of Latitude
are always the
same distance
apart
One Minute = 1 NM**





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TIME / DISTANCE

$$60 D = ST$$

Distance (D) in Nautical Miles

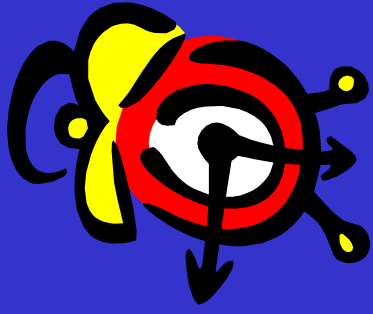
Time(T) in Minutes

Speed (S) in Knots (KTS)

$$T = \frac{60 \times D}{S}$$

$$D = \frac{S \times T}{60}$$

$$S = \frac{60 \times D}{T}$$



WHAT'S AN ETA ?

Estimated Time of Arrival (ETA) is
CLOCK time, not elapsed time.

Example: Time of departure: 2230 hr.

Running time (elapsed time): 50 minutes

Separate hours and minutes: 22 hr 30 Min

Add 50 Min

= 22 hr 80 Min

ETA is 2320



BEARINGS

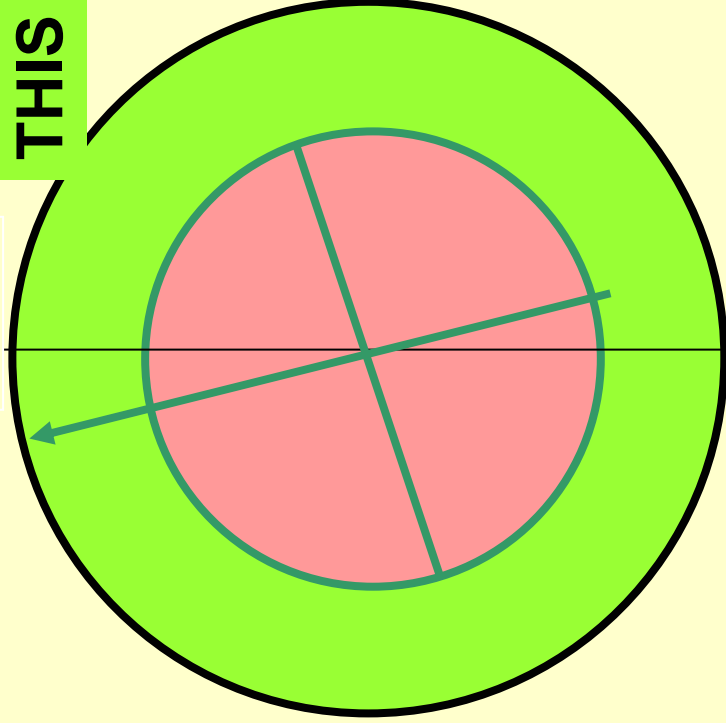
BEARINGS

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THE COMPASS ROSE

The Outside scale gives TRUE readings. USE THIS FOR CHARTWORK

N
000°



270°

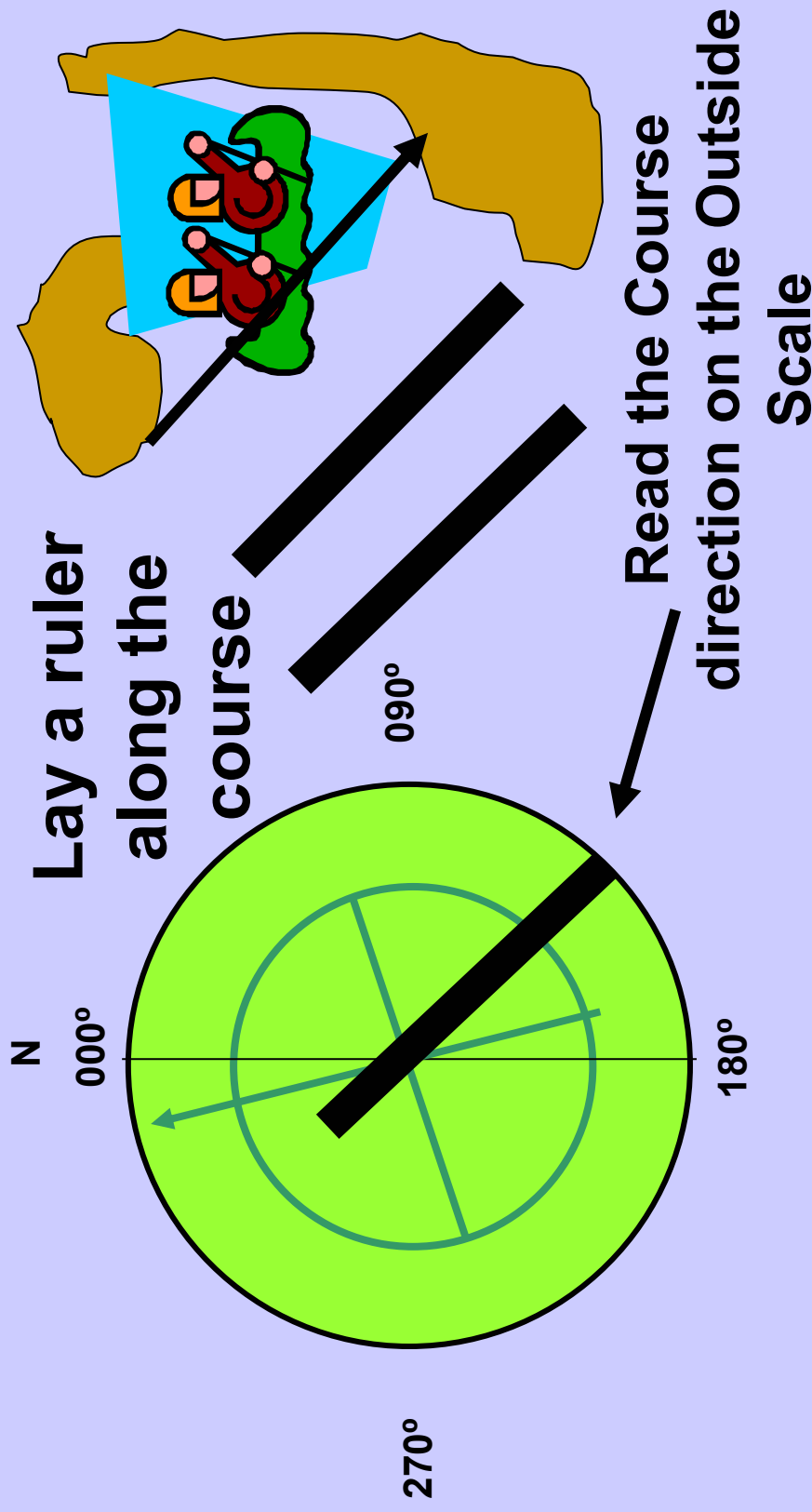
090°

180°

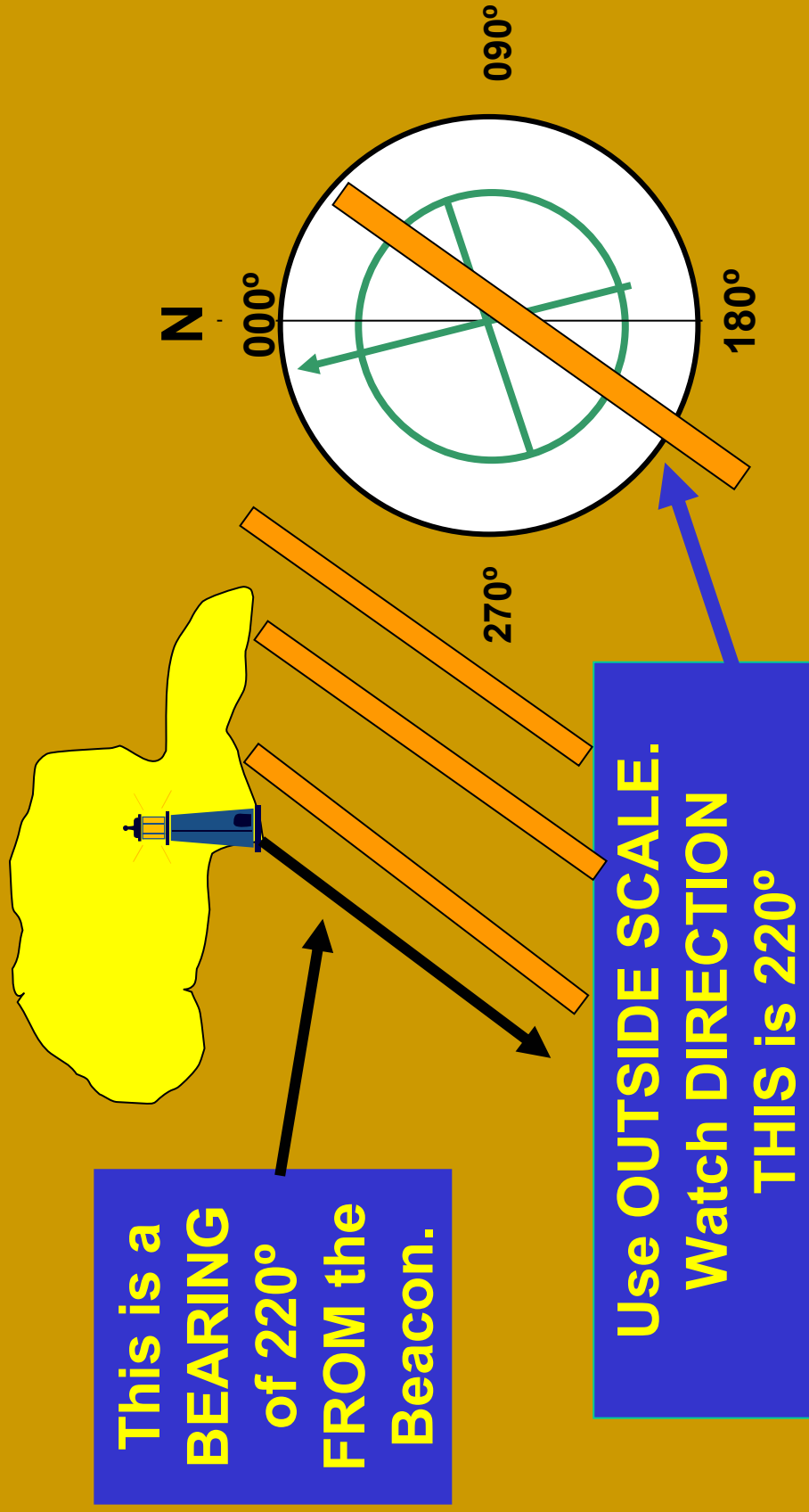
The Inner Scale shows Compass Variation

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What Course is the Canoe Traveling?



Finding a Bearing of 220° Off (from) the Beacon



END



END ENVIRONMENTAL SURVEILLANCE PROGRAM

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WATERWAYS

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OPTIONAL

HINTS FOR USING POWER POINT

•Move **FORWARD**

- Right or Down Arrow
- Page Down
- Space Bar
- N

•Show the **ARROW**: CTRL A

- To Hide it: CTRL H

Start Slide Show: F5

•Move **BACKWARD**

- Left or Up Arrow
- Page Up
- Back Space
- P

•Show the **PEN**: CTRL P

- To Hide it: CTRL H

Change Pen Colour: Right Click, Pointer Options, Pen Colour

End the Presentation: ESC

JUMP DIRECTLY to a slide:
Slide Number and Return

Return to the First Slide: Home

OK? Then:

Hit: 2 and RETURN, or,

Click on



For a **Full List of commands**, Go to
Slide Show / View Show / F1

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N (TRUE)

MAGNETIC
NORTH

Variation West
Compass reads
too far WEST.



So, ADD the
Variation to the
compass to
“correct” it.

Variation East
Compass reads
too far
EAST.



So DEDUCT the
variation from
the compass to
“correct” it.

VARIATION DIAGRAM

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[Return](#)

[Next](#)

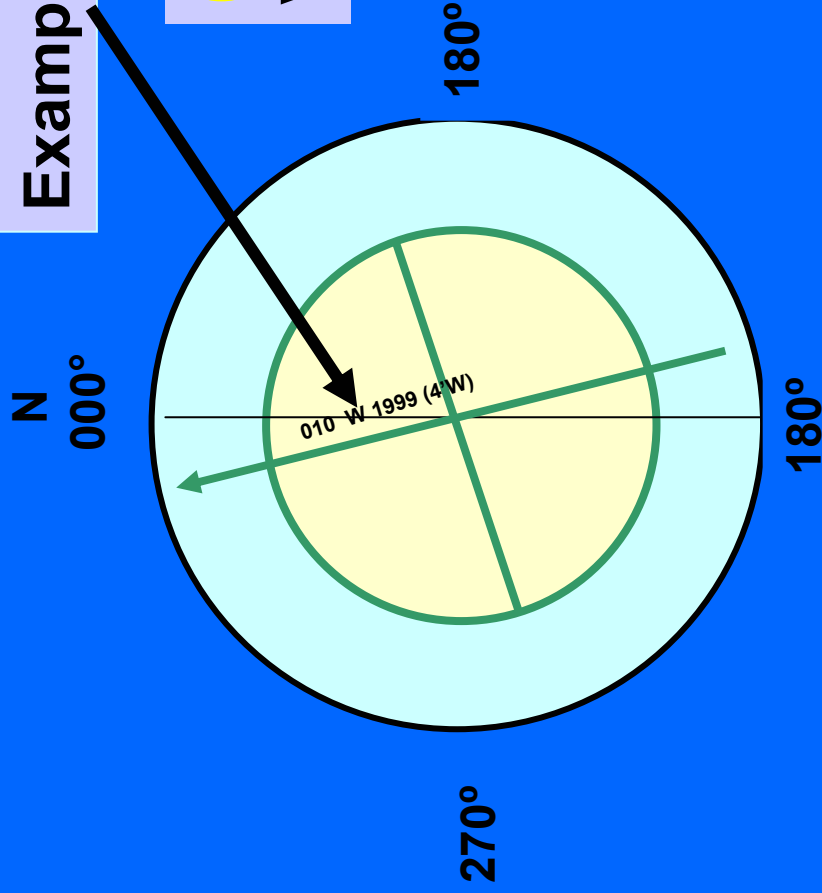
The Compass Rose and Variation

Look here along the arrow:

Example: **010° W 1999 (4' W)**

010° W 1999 In 1999
Variation was **010° WEST**

(4' W) Variation is
increasing to the West
by 4' (four minutes)
each year.
 $4' \times 15 \text{ Years} = 60' = 1^\circ$



[Return](#)

GREENWICH

U.K.

Is on the Thames River a short distance east of London England. It is located on Longitude 000° .



Longitude is measured from the 000° Meridian to 180° to the West, and to 180° to the East.

The time at Greenwich (Greenwich Mean Time, or Coordinated Universal Time, or Z) is the “base” time for most military, naval, coastal navigation, celestial navigations tables and the like. (Except CCGA).

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INSTRUCTOR INFORMATION

This material responds to a need for very basic crew-level navigation skills.

It is assumed that only compass, chart, dividers, and straightedge are available. This is likely to be the case where electronics have failed.

Variation is an Optional Topic. If omitted, Instructors could simply show students how to add or deduct the local Degrees of Variation to either Compass or Chart (true) Course.

Jim Gram, 2002.

[RETURN to TITLE PAGE](#)



(Central & Arctic)

USING THE CHART

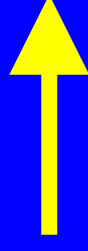
The following slide contains an over-simplified diagram-type “chart”. This, or a similar chart, is easily reproduced so each student can have a copy and perform the skills as the presentation unfolds. This “chart” can be useful to develop basic principles and skills without some of the distractions of a real chart.

The slide containing the attached chart can be copied to your word processing program for modification, copied to a new slide and modified here, or printed directly for use in your instruction.

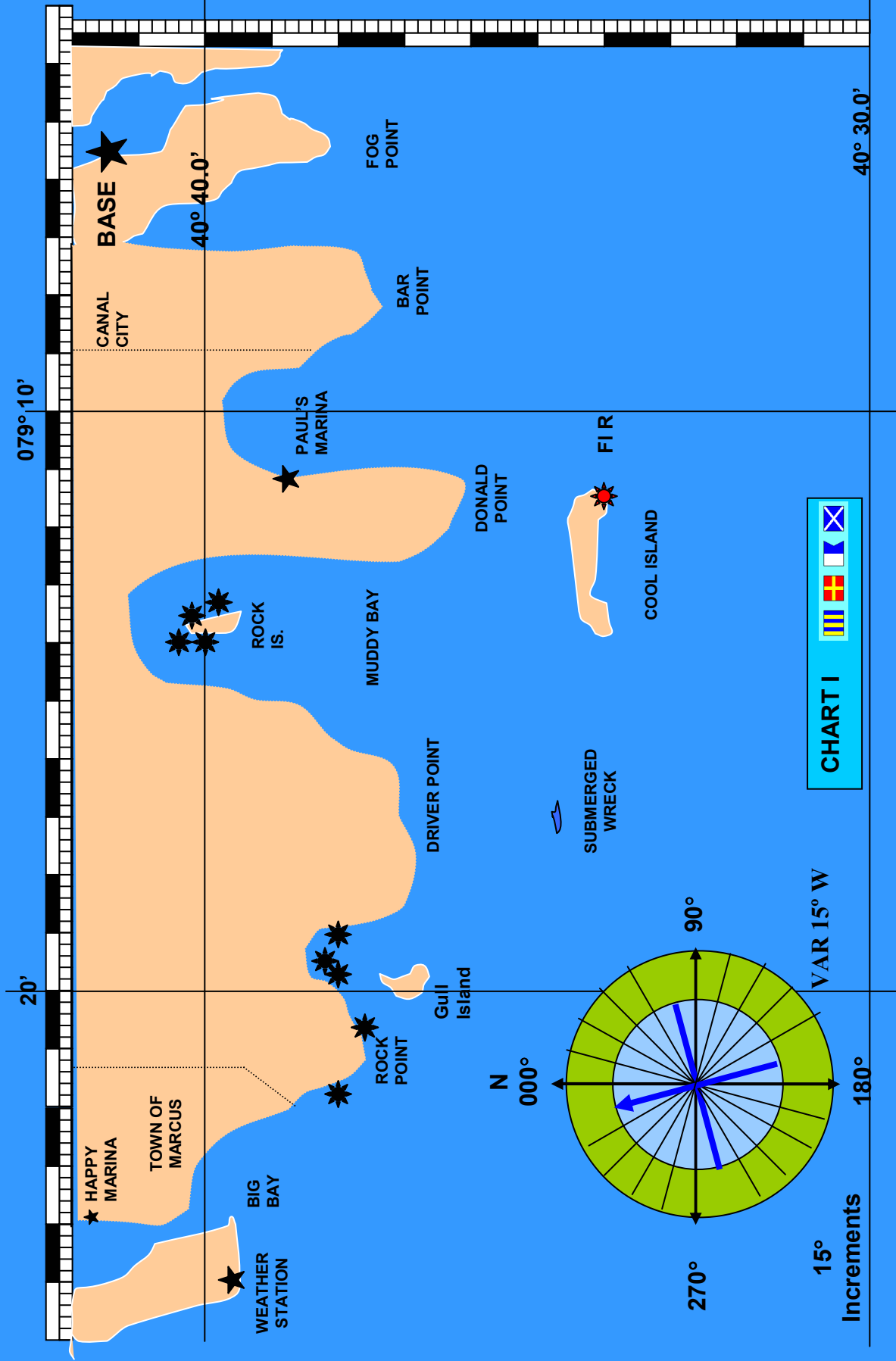
To print directly from the slide, be sure to use “Landscape” orientation, and check “Scale to fit paper”. The chart will then fill an 8 ½ x 11 page.

RETURN to TITLE PAGE

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CHART



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LINKS

BACK TO PREVIOUS PAGE (CLICK UP ARROW)

RETURN to TITLE PAGE

RETURN TO INSTRUCTOR -INFORMATION

Back to Slide 1 hit HOME