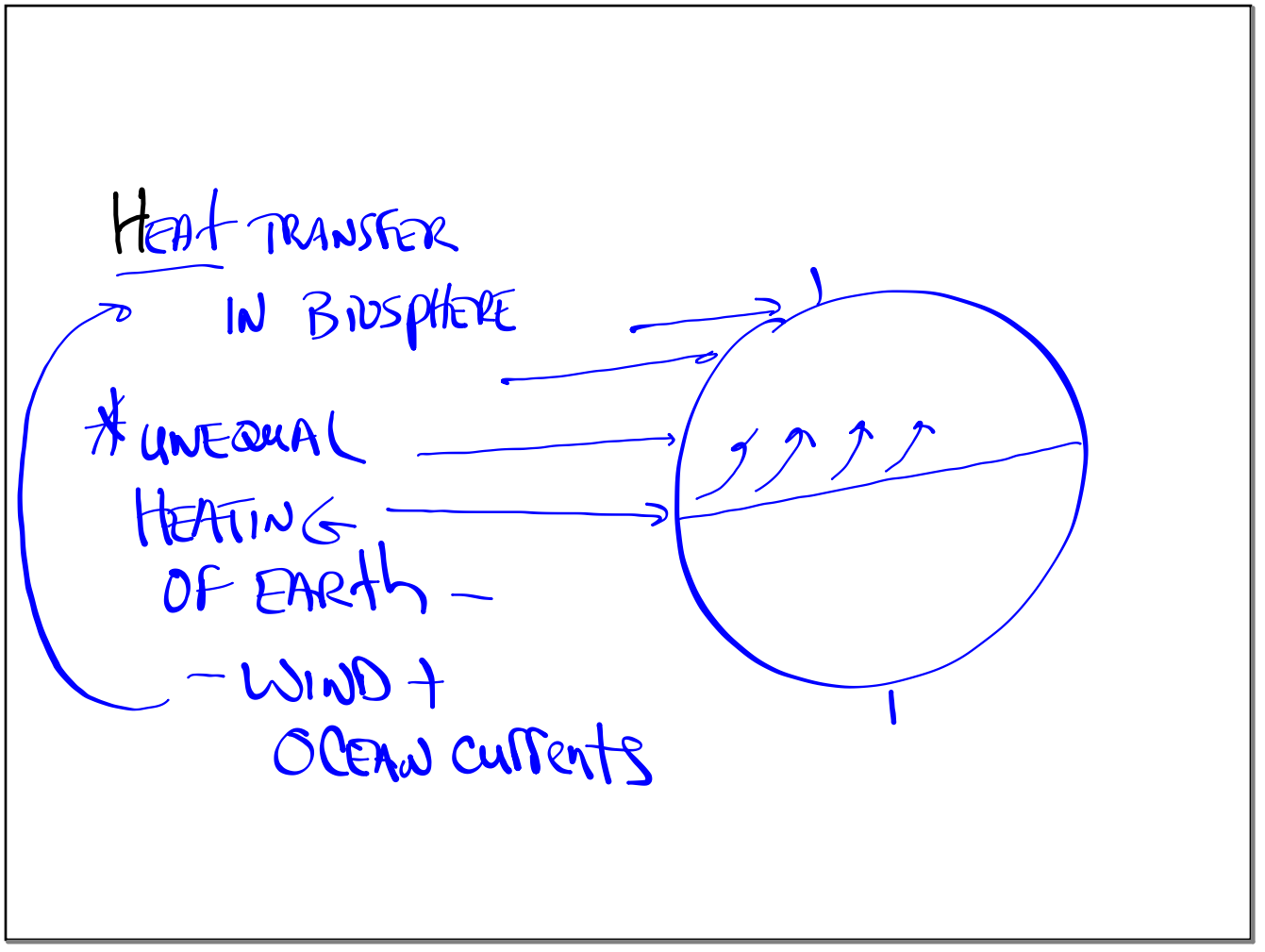

HEAT TRANSFER
IN BIOSPHERE
* UNEQUAL
HEATING
OF EARTH -
- WIND +
OCEAN CURRENTS

GREENHOUSE EFFECT

MAINTAINS temp

RANGE NEEDED FOR LIFE

GASES

CO_2

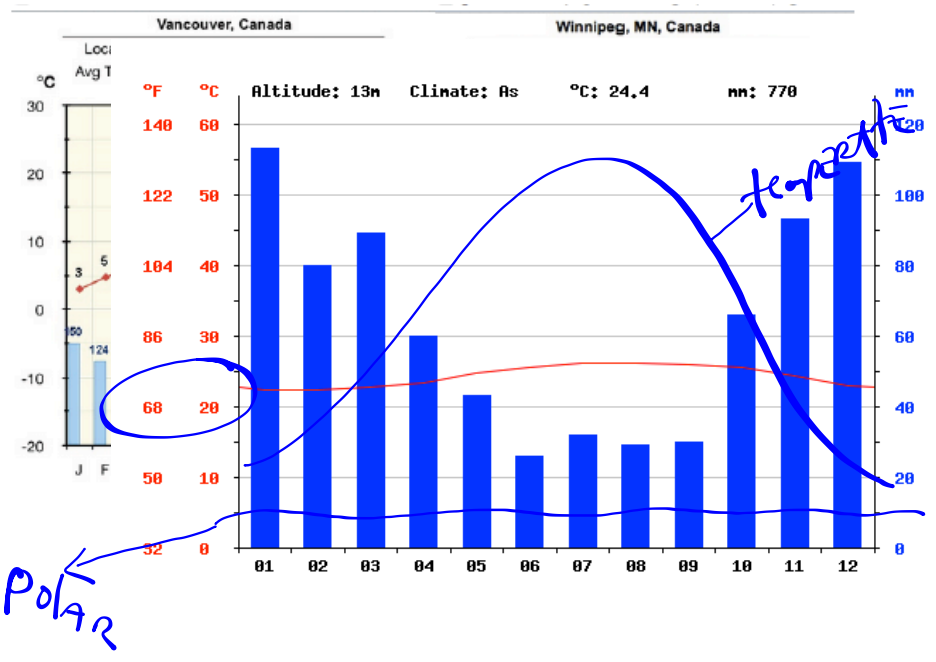
NH_4

H_2O

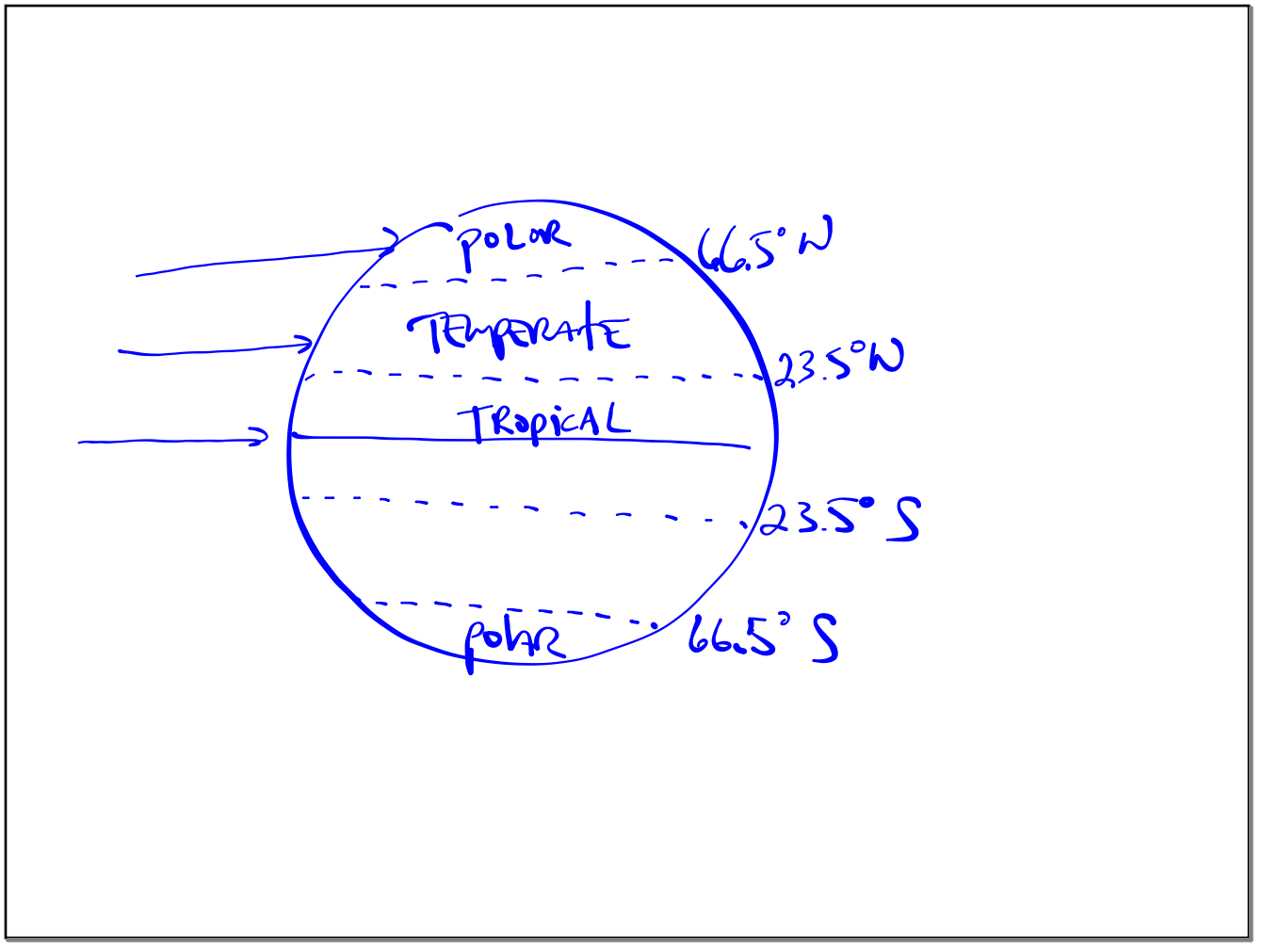
habitat - address

Niche - occupation

↳ Competition Exclusion principle - no 2 species can occupy same niche @ same time


Vancouver, Canada
Winnipeg, MN, Canada
Altitude: 13m
Climate: As
°C: 24.4
mm: 770
°F
°C
mm
140
122
104
86
68
50
32
60
50
40
30
20
10
0
100
80
60
40
20
0
01
02
03
04
05
06
07
08
09
10
11
12
temperature
Polar

Van
Win


POLAR
66.5° N
TEMPERATE
23.5° N
TROPICAL
23.5° S
POLAR
66.5° S

$$D = \frac{N(N-1)}{\sum n(n-1)}$$

N = total # of indvs in pop

n = # of eq. species

N = 200 indvs.

$\sum n(n-1) = 850$

$$D = \frac{200(199)}{850} = 46.8$$

FACTORS AFFECT B. DIV — ↓

- DEFORESTATION
- INTRO. OF EXOTIC SPECIES
- DEVELOPMENT / FRAGMENTATION
- OVER-HARVESTING

Ecol. succession - after disturbance

Primary - on newly exposed surfaces

Secondary - on soil

Community interactions - ENERGY

- Predator/prey
- symbiosis
  - mutualism - both benefit
  - commensalism - 1 benefits other not help/not harmed
  - parasitism - 1 benefits, other harmed