Population Geography Course, by W. W. Munroe (2010)

Chapter 2 - How do we know things?

Main points: Measurement, Proportions, Distance, Space, Time, Perspectives, and Science,

How do we figure things out, what happened, how, when where, why? How much of an impact does one thing have on another?

how important is something?

how do we measure how much things impact others?

how do we put things in perspective?

What weight do we apply?

It is my hope that while we explore Population Geography, that we will also learn how to explore issues ourselves.

There are many opinions about Population including issues related to population increase or decrease, with some experts with phd's advocating one point of view and other experts advocating the opposite point of view.

How much confidence do we have in the information we are told.

Often we hear numbers but they are often estimates or guestimates; therefore, numbers need to be qualified.

Statements should be based on tests of hypothesis with a figure being somewhere in a range or confidence interval.

Also, we should be able to verify statements. We benefit from being able to check things out ourselves.

Includes studies into the tangible (rocks) and the less tangible (ideas)

Knowledge, understanding, perspective, proportions, weighting

What is Science?

A method of inquiry

A way to test ideas, theories, world views, to see if they are indeed true.

A way to refer to reality

Removes individual from influencing outcome

Verifiable

theories can be developed to fill in the unknown bits between the bits of tested hypothesis.

Scientists attempt to be neutral independent observer.

Scientists openly describe strengths and weaknesses of work

- Scientists to have increasingly important role
- Society requires reliable information
- Scientists have been and continue to be persecuted
- People need to know, test, and verify
- Works easiest on the tangible, and less on the intangible
- Doubt to skepticism to sinicism versus acceptance to illusion
- Questioning – coming up with ideas – we don't stifle ideas, we encourage them and testing ideas
- Find ways to test ideas to find out what is really happening
- Refers to the real world
- Attempts to remove influence over outcome.
- Verifiable – methods clear and available
- Ground truthing
- Ensure no Ecological fallacy
- Neutral, unbiased, independent

Quantitative / qualitative methods

- Quantitative, total population, age, sex, births deaths migration into and out of areas.
- Qualitative, attributes, characteristics
- As important as hockey statistics

Weighting and measure, proportion, ratio

Statistics – testing social and economic integration indicators

- Measurement
    - Nominal, ordinal, interval, ratio
- Likelihood, probability
- Bell curve
- Don't want to play the part of a statistic on a government chart. (Sting)
- "Statistical thinking will one day be as necessary for efficient citizenship as the ability to read or write".

Measure and weighing

- Distance, Time, Mass, Speed, Weighting, Proportion.
- Moving across Scale
- Eons to now

- Universe to here
- Here and now

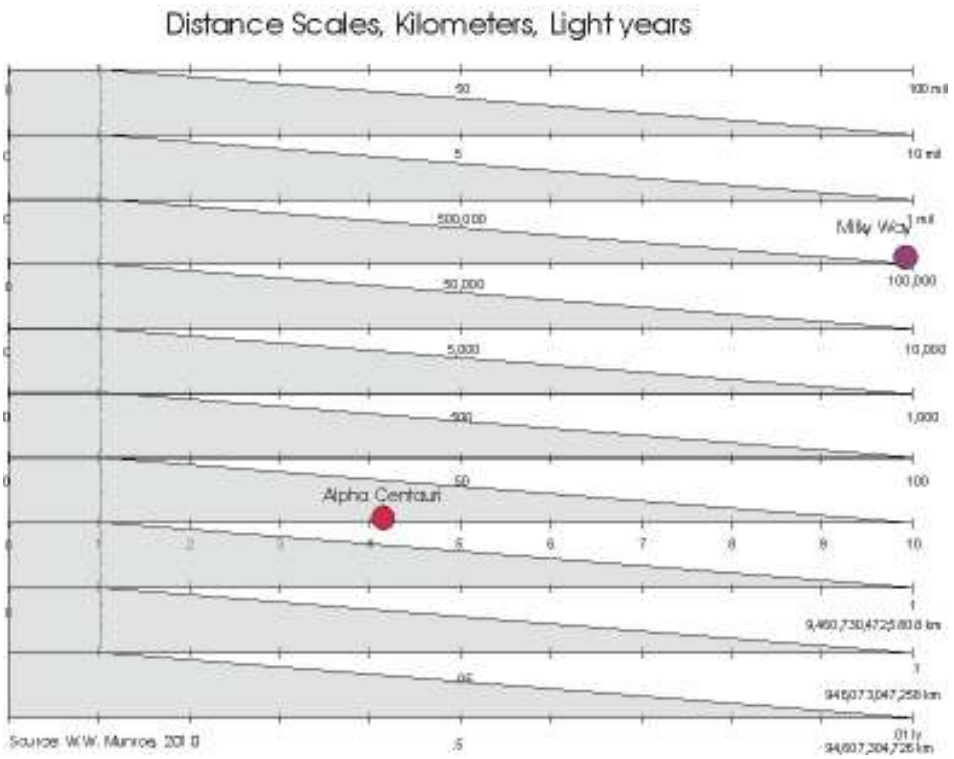
Levels of aggregation

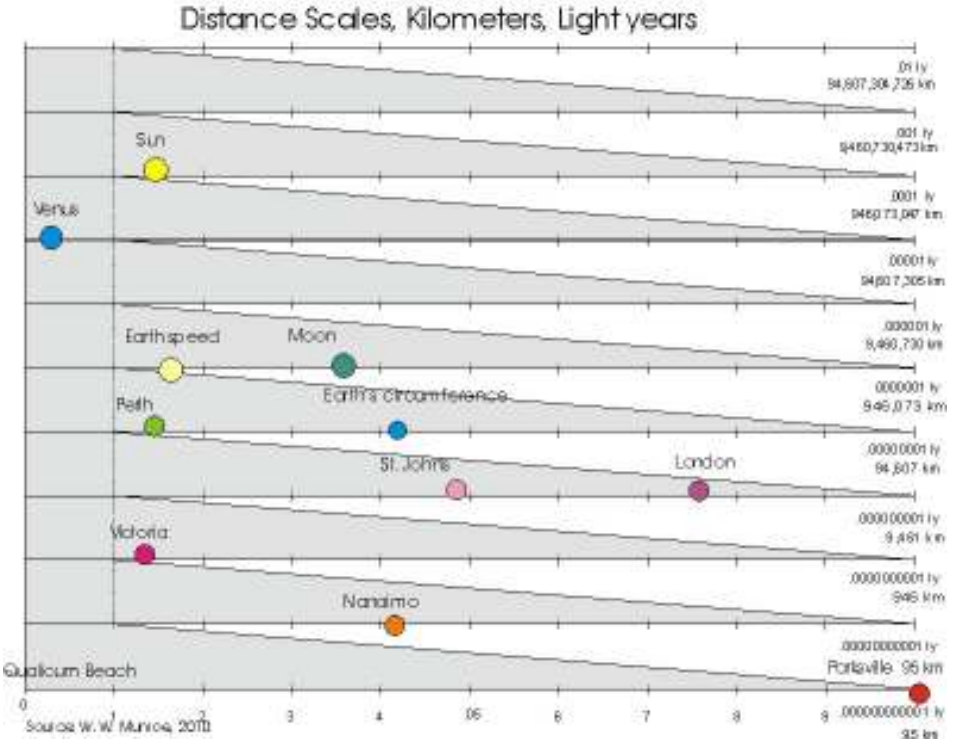
- Gather information from local level
- Several local areas joined to meet municipal boundaries
- Municipalities joined with unorganized areas to meet RD boundaries = regional
- RDs joined to make up Economic Region
- Econ regions joined to make up province
- Provinces to nation
- Nations to world
- Some areas not nations
- Disputed areas, Unclaimed
- Aggregated data can hide important information

Exercises in prespectives and measurement

- Distances
- Solar System
- Make a scaled model
- How big would the Sun and planets be if Earth were the size of a marble?
- Make all the planets of the solar system (plasticine works) and the sun (don't use plasticine 'cuz it would have to be about 2 feet in diameter)
- Draw a scale which increases by 10 times.

Here is an example…





Each line is divided into ten equal parts.

Then the lower line is compressed into the first part of the next line up.

Earth speed should read how far Earth travels in time. How long does it take for Earth to travel 160,000 km?

Is this correct? Try to find errors.

Time

Geological time scale

Scaled model

How long would humans existed if Earth was in existance for one hour?

Generations

50,000 years = how many generations?

20 years average between 15 and 25

Make list showing how many generations there were between now and 2000 ya, or 10,000 ya or 50,000 ya.

Quantitative methods - measurement types

Nominal - categorical

Ordinal – in order eg. From biggest to smallest

Interval – in order with equal intervals

Ratio – in order with equal intervals and a zero

Qualitative methods use measure often

More less, like better/worse

Relationships/Interactions

Correlation is not an explanation

Dependant versus independent variable

Leading and lagging indicators

Social Sciences

A method of inquiry into human to human interactions

A way to test ideas, to see if they are indeed true.

Removes individual from influencing outcome

Must be verifiable

In the UK, in 2010, court ruled that a University is required to make data available….

http://yro.slashdot.org/story/10/04/21/2156215/UK-University-Researchers-Must-Make-Data-Available

Neutral independent observer

A way to refer to reality

Ground truthing

- Ecological fallacy
- Art over Reality or Reality over Art
- Art as artifact – a human influence
- Science is an effort to refer to the real world without human influence.
- Social sciences looks at human to human interaction

Human Geography

- looks at human to human interaction in relation to human interaction with the environment
- Social and physical Science
- Demographics / Statistics / Geography
- Move across scale
- Top down, Bottom up
- Mapping the Flow of Ideas
- Meaning of words changes over time and across place
- Map of changing political landscape in the USA

Population Geography

- Components of population change by area
- Natural change – births and deaths
- Migration in and migration out of an area by age and sex
- Settlement patterns
- Concentration
- High density surrounded by lower density
- Density gradients
- Dispersion
- Separated by equal distances
- Random
- No pattern between concentration and dispersion
- Urban / rural interactions
- Urbanization
- Variation between places
- Core periphery
- Expansion / Contraction
- Human to human interaction in relation to interaction with the environment.

Economic and Social activity

Examine cultural variations

Individual and the State

Population concentration – high density

Shift from horizontal networks to verticle hierarchy

By looking at the state we can understand the individual

Easier to look at the state because it is bigger (Plato)

State and Individual

Plato and Aristotle

Ideal versus real

Generalizations versus specifics

People fit administration versus Administration fit people

A secular nation state prefers reality to illusion

To control actions, control minds

Similarities and Differences

Across scale from small to large to make comparisons

interdependence versus independence

Plato and Aristotle

People fit administration versus Administration fit people

priest / monarch rule versus democracy

for an example of how http://video.movies.go.com/apocalypto/

E.g., Art versus Reality

Role of Scientists

Science could play a more important role in decision making

Currently there is a group in Canada looking at this – headed by a great believer, Preston Manning

Perhaps someday science will help democracies with better decision making.

From Will Durant's Story of Philosophy…

"Brief as the picture is, we see in it again the outline of every philosopher's utopia - a people guided in peace and modest plenty by their wisest [people]. The dream of every thinker is to replace the politician by the scientist; why does it remain a dream after so many incarnations? Is it because the thinker is too dreamily intellectual to go out into the arena of affairs and build his concepts into reality? Is it because the hard ambition of the narrowly acquisitive soul is forever destined to overcome the gentle and scrupulous aspirations of philosophers and saints? Or is

it that science is not yet grown to maturity and conscious power? - that only in our day do physicists and chemists and technicians begin to see that the rising role of science in industry and war gives them pivotal position in social strategy, and points to the time when their organized strength will persuade the world to call them to leadership? Perhaps science has not yet merited the mastery of the world; and perhaps in a little while it will".

What will happen to science during the next major contraction?

What happened after the fall of the Roman Republic

Roman empire – Rise and Fall

Dark Ages

Information gathering

Manuscripts kept in monasteries

Copied generation after generation

To pass information on

Like seed pods waiting for the conditions to be right for growth

Language and ideals changed

Excitement thought to be undesirable

Liberty from desire rather than liberty to desire

But some of the information gatherers put conditions on information

Some more extreme than others would burn information they thought / felt was inappropriate

Standards organizations

Royal Geographic Society

Mother of all sciences

Oldest science organization in UK

First country to adopt a measure of secularism.

Mapping for trade routes requires reference to real world.

American Statistical Association

Nature the greatest teacher

The real world without our perceptions clouding our vision