



Math & Statistics, Geography and Social Justice

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Research Engagement



Building
Research
Relationships

Indigenous
Methodologies

Indigenous
Rights and
Responsibilities

Building Research Relationships

1

Having tea, conversations, asking general questions for areas of concerns

Following protocol, Attending ceremonies, visiting the elders within the community

Involving the youth, and bringing the awareness to the issue to the community members and chief and council

Indigenous Methodologies

2

Two-eyed seeing,
data sharing
agreements

Engaging Indigenous
Communities in
Research – surveys

Involve the community members in
creating how the research is carried
out

Indigenous Rights and Responsibilities

3

UNDRIP, OCAP,
Duty to consult,

Research
Ethics

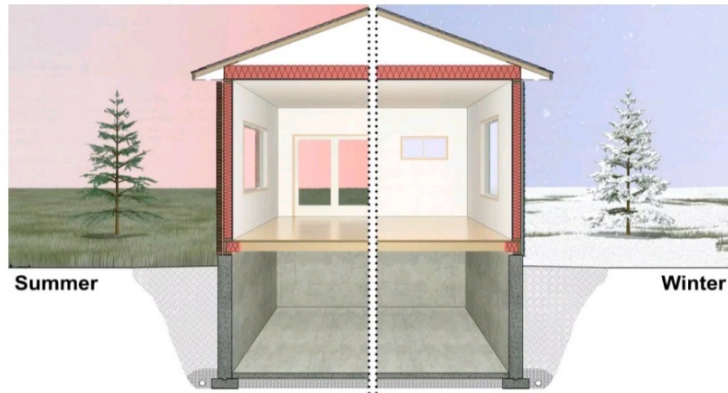
Truth and Reconciliation
calls to Action (TRC)

My Research Project

- Total income 200 homes over 15 years
- Utilities bills It measures the amount of heat removed from a room per hr
- Basic needs
- Food

Conduction Heat flow formula

$$\text{Area} \times (\text{Temperature difference}/\text{R-value}) = \text{BTU}/\text{HR}$$



Exercise: Calculating Conduction Heat Flow

$$\text{Heat Flow} = \frac{\text{Exposed area} \times \text{Temp. difference}}{\text{R-Value}}$$

Example: 1000 sq.ft. -10 F outside, 70 F inside, R40

$$\text{Heat flow} = 1000 \times (70 - (-10))/40 = \text{_____ BTU/hr}$$



Exercise: Calculating Conduction Heat Flow

$$\text{Heat Flow} = \frac{\text{Exposed area} \times \text{Temp. difference}}{\text{R-Value}}$$

Example: 1000 sq.ft. -10 F outside, 70 F inside, R40

$$\text{Heat flow} = 1000 \times (70 - (-10))/40 = \text{2000 BTU/hr}$$

Double the insulation amount and what happens to heat loss?



Exercise: Calculating Conduction Heat Flow

$$\text{Heat Flow} = \frac{\text{Exposed area} \times \text{Temp. difference}}{\text{R-Value}}$$

Example: 1000 sq.ft. -10 F outside, 70 F inside, R80

$$\text{Heat flow} = 1000 \times (70 - (-10))/80 = \text{1000 BTU/hr}$$

Double the insulation amount and the heat loss is reduced by half!



NOTE: It is not possible nor practical to eliminate heat flow entirely, there are diminishing returns to insulation.

My Research Project

Community garden

- 15 acres
- 1km long fence
- Community kitchen
- Solar powered greenhouse
- 3 partnered programs

