

- This happens because
  - Not all of an organism is swallowed as a food source
  - Not all of the food swallowed can be absorbed and used in the body
  - Some organisms die without having being eaten by an organism from the next trophic level
  - There's considerable heat loss due to cell respiration at all trophic levels

### Pyramid of energy

- A *pyramid of energy* is used to show how much and how fast energy flows from one trophic level to the next in a community
  - They take into account the rate of energy production, not just the quantity
  - Unit: kilojoules per square meter per year ( $\text{kJ}/\text{m}^2/\text{yr}$ )
- Energy is lost so each trophic level becomes smaller
- Pyramids of numbers show the population size of each trophic level, not the energy

### Food webs

- The number of organisms in the chain and the quantity of light available will determine how long the chain is
- The biomass of a trophic level is an estimate of the mass of all the organisms within that level
- Some molecules along the food chain can't participate in the accumulating biomass, because they're lost in various forms
  - carbon dioxide, water, urea, faeces
- Sometimes it's necessary to describe a food web rather than a food chain, because many animals have complex dietary preferences