T172

Tutorial2

Maths

- Dayschoolfor TechnologyStudents
- Saturday27March
- RegionalCentre,Manchester
- (Detailstobesentinpost)

Thedayschoolclasheswiththenextscheduledtutorial
Tutorialcanbearrangedtopreviously Thursdayevening
Pleaseletmeknow asap ifyouareagreeable.

GroupExercise

- Whatimpactsdoesyourhousehold haveontheenvironment?
- Rankthemin orderofimportance

Here's one I prepared earlier!

Energy Use	CO_2 emissions – global warming Resource depletion
Waste	Pollution (land, water, air) Land use CO_2 emissions – global warming
Transportation	CO_2 emissions – global warming Noise
Consumption of goods and services	Resource depletion Pollution (over life cycle) Ozone depletion

RankingImpacts

- Difficult!
- Likecomparingapplesandoranges
- Helpfulifwehavesometoolswecan use

ManagingOurImpacts

- Assessingimpacts
  - Needtoknow
    - whatareimpactsare
    - whicharemostsignificant
- Reducingimpacts
    - wecanonlyreallydecideonwhatweshould doifwehaveassessedimpactsfirst

Assessing impacts

- Environmental indicators
  - e.g. Environmental Footprint
- Environmental modelling
  - e.g. Ecocal ,NHER*

•Ecocal and NHER both use environmental indicators

Group Exercise

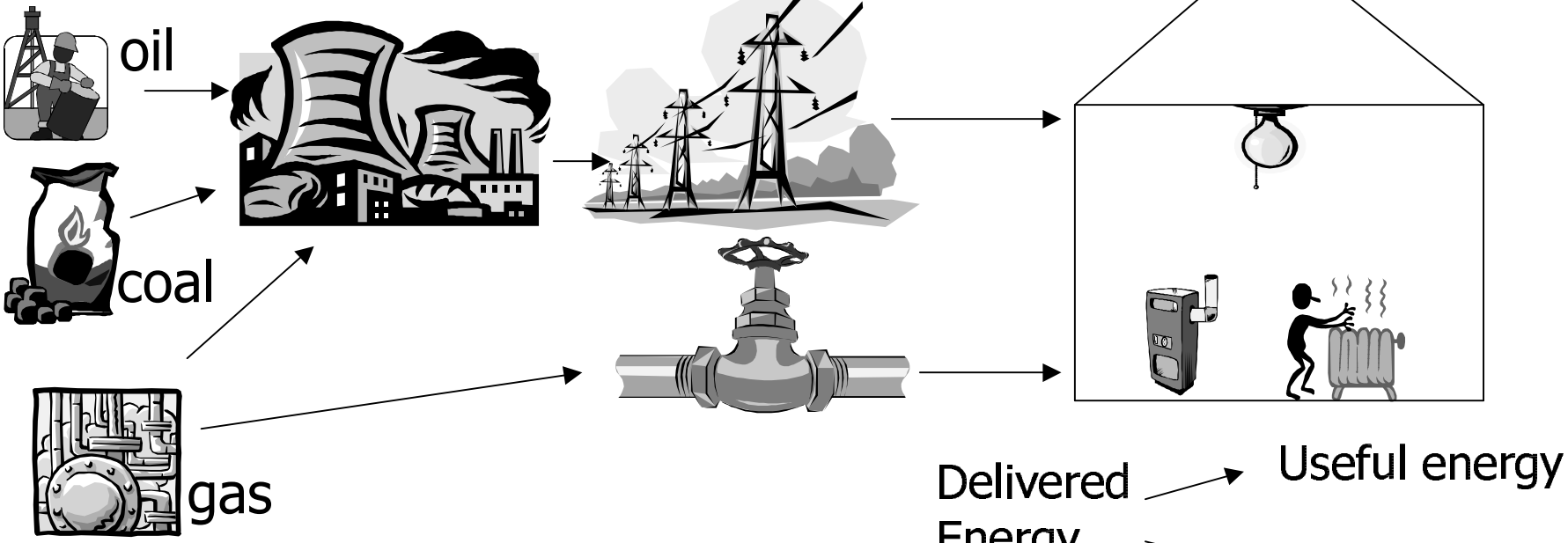
- What can we do to minimise our impacts due to energy consumption?
- Identify
  - How impacts occur
  - Options for eliminating or reducing them

Energy

Primary Production

Transmission

Consumption



Energy Production

- Renewable resources
- Less polluting fuels
- More efficient technology
- "End of pipe" solutions
  - E.g. emission control equipment

Energy Transmission

- Local energy production
  - E.g. local heating schemes; local generation schemes
- More efficient transmission technology
- Maintenance of equipment and infrastructure

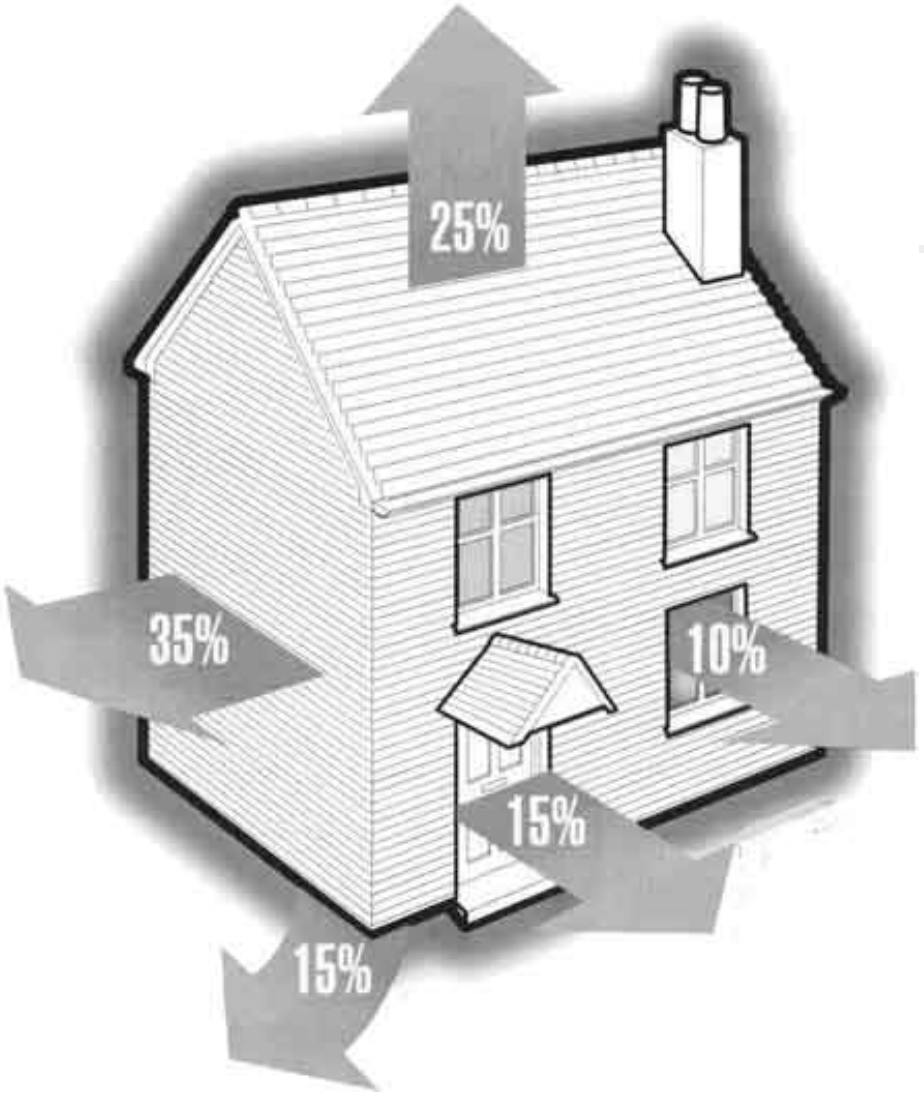
Energy Consumption

- Use less
- More efficient equipment
  - boilers and heaters
  - lights
  - controls
- Minimise losses
  - fabric
  - ventilation
- Utilise & control incidental gains

Efficiencies of Heating Appliances

	Average seasonal Efficiency (%)
Open coal fire	32
New coal boiler	70
Electric fire	100
Old gas fire	50
Typical gas boiler	65
Gas condensing boiler	85

Source: Table 2.1, Page 6 Energy File Part 1B



Source: http://www.nationalenergysaver.co.uk/user_pages/energy_saving/heat_loss.htm

Waste Hierarchy