

PP:D4M

4. g.design

key learning objective : ecodesign (in the broad sense)

- definitions
- case studies

g.design is about reducing

environmental

impacts of a product or service through better design

g.design is also concerned with reducing

social impacts

of a product or service through better design



Light weight polyethylene pouch.

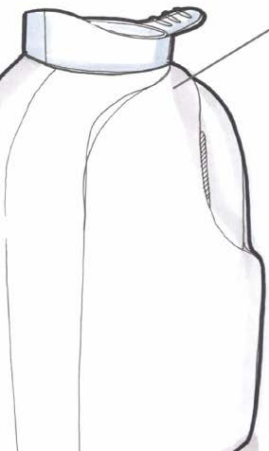


Carton board sleeve offers good stability and controlled pouring.

why g.design?

80%
of environmental
impacts

of a product or service
can be locked-in at
the design stage

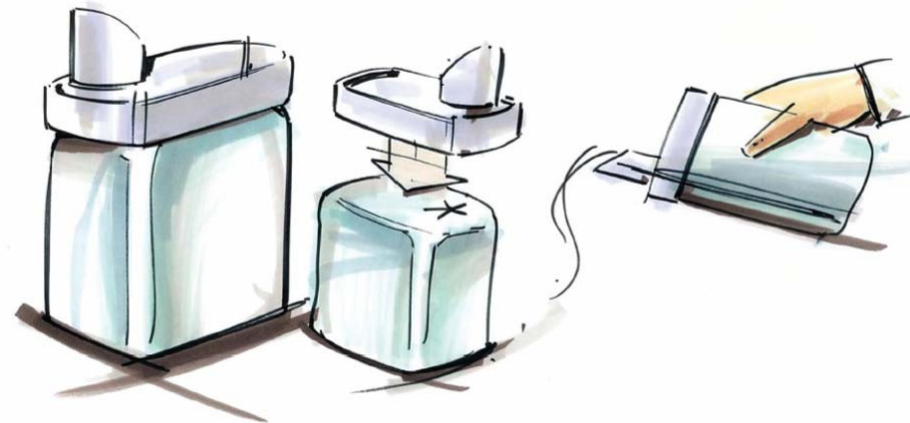


*Material optimised handled bottle
with minimal neck to reduce weight.*



*Light-weight
re-close plug.*

*Screw on pouring spout
provides control and re-close.*



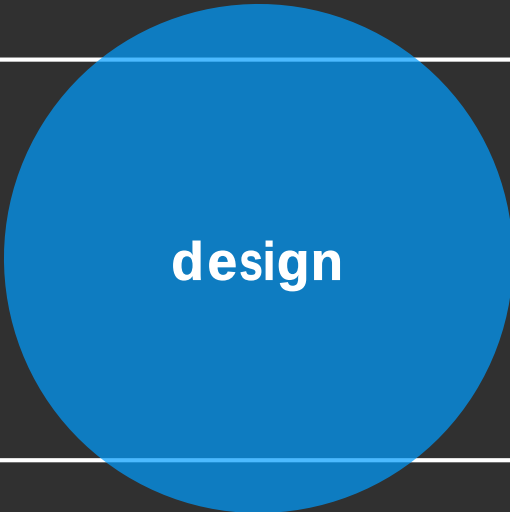
this means that the choices

designers make

can have long-term impacts

designers **interact**
between industry and
consumers

industry

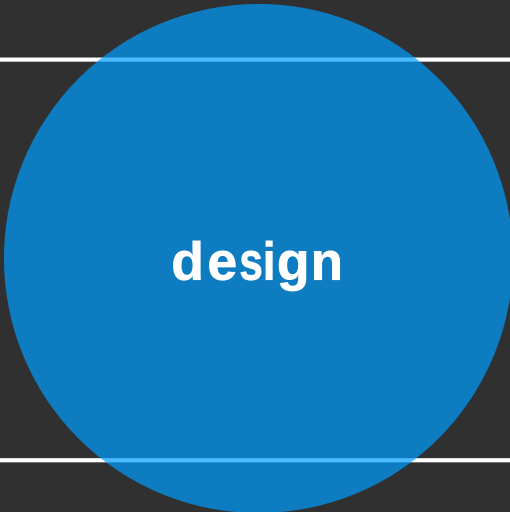


design

consumers

designers can **influence**
how people consume
products

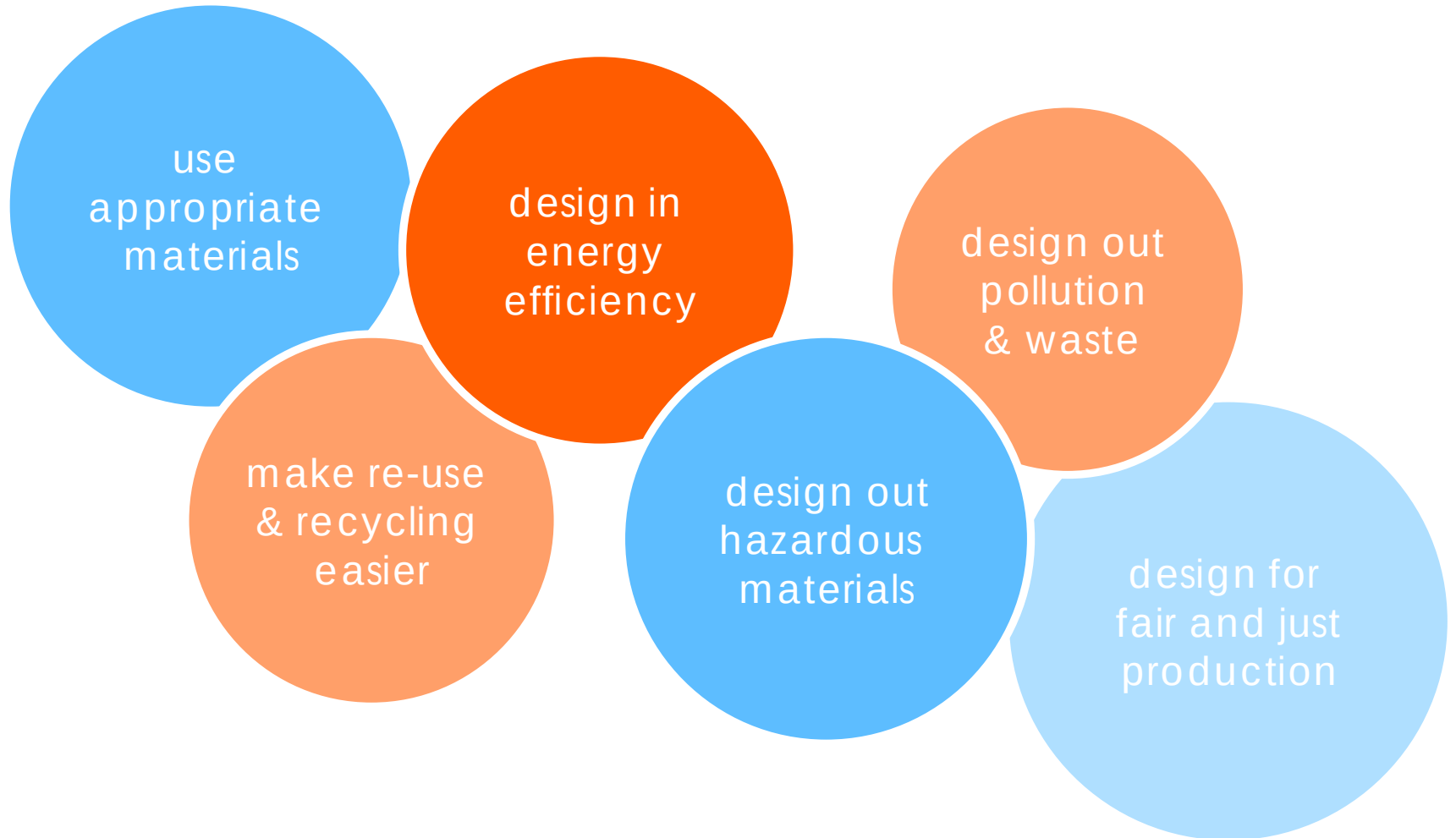
industry



design

consumers

some of the key design considerations



what are the key terms in g.design?



design for.... recycling/reuse
disassembly, servicing, upgrade, reduced material mix



design for.... disassembly

recycling, servicing, end-of-life, upgrade, lean manufacturing, cleaner production, down-cycling, material segregation,

design for.... low impact materials

recycled, recyclable, bio materials, compatibility, compostable, renewable, sustainable

image source: inhabitat, Worn Again, Moscardino, Remarkable, Sony





design for.... responsible-packaging

natural, returnable, reusable, multifunction, biodegradable

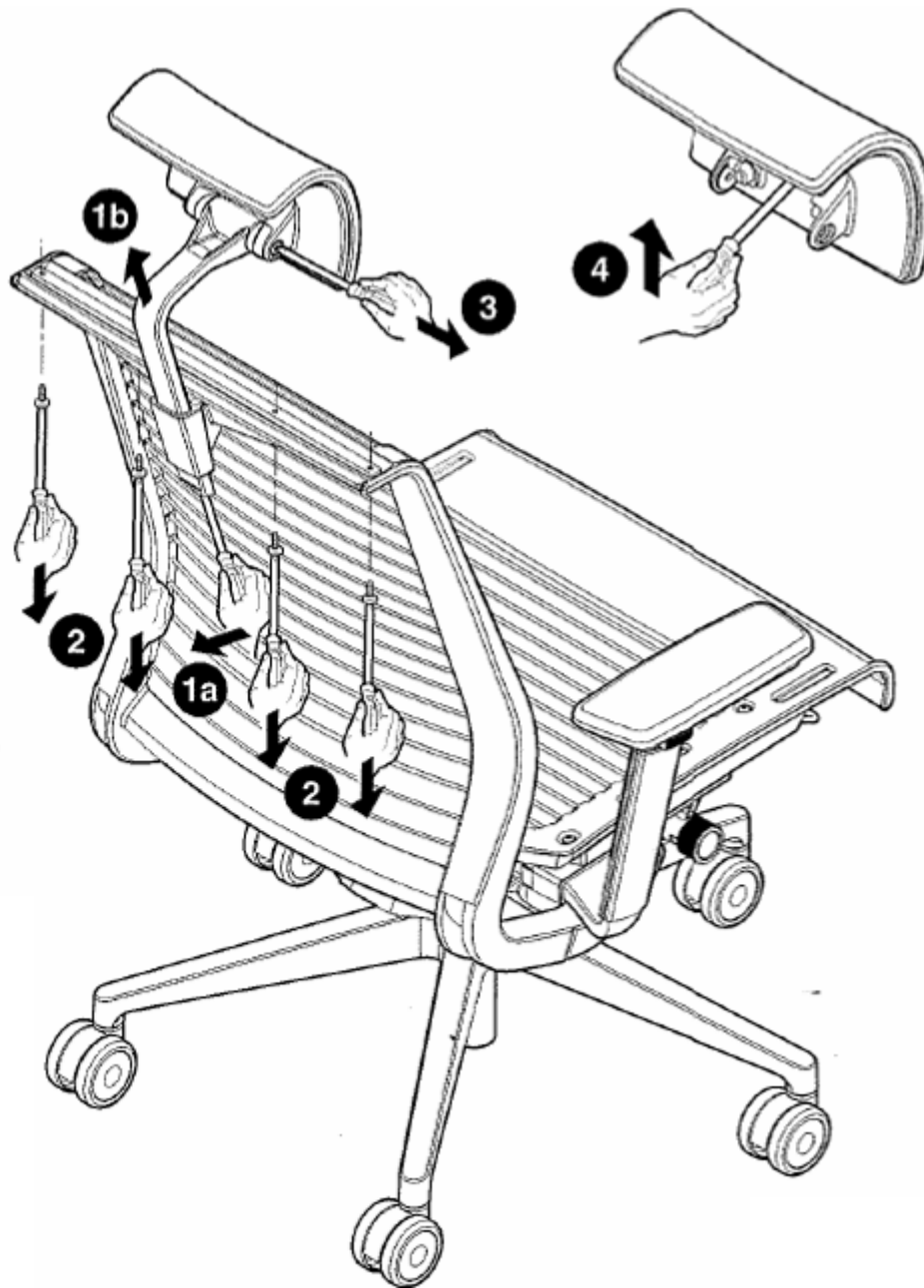


design for.... renewable power

human powered, solar, wind, bio, re-chargeable

image source: Philips, Freeplay, Solio





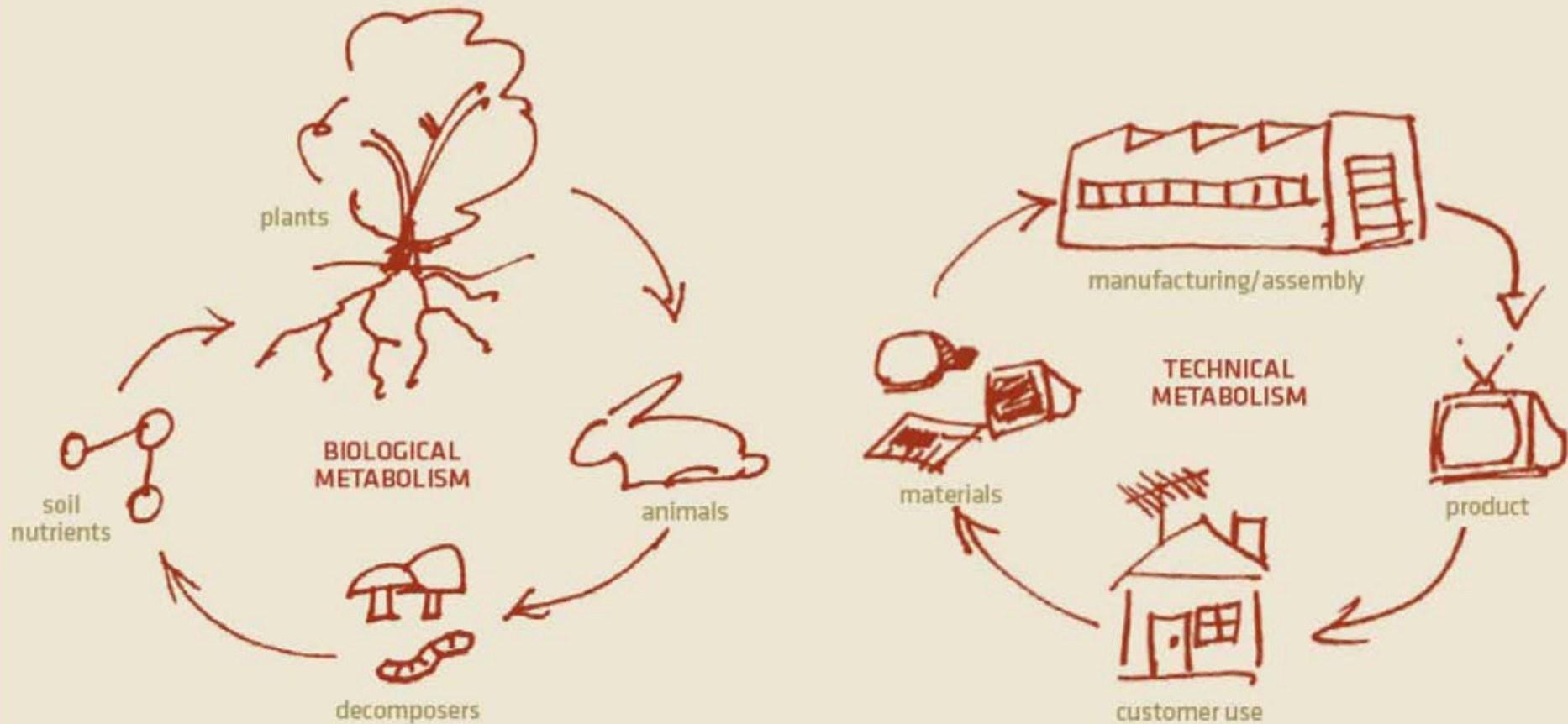
design for.... manufacture & assembly

lean manufacturing, cleaner
production, servicing, upgrade,



design for.... durability

longevity, durability, desire



design for.... full life cycles

life cycles, nutrient cycles, material selection, cradle to cradle



design for.... fair & just production

health and safety, employees rights, unions, forced labour, child labour, discrimination,



design for.... product systems

returnable, remanufacture,
re-use, closed-loop, end-of-life,
product-service-system



case studies....



think chair

Steelcase



designed for..

- recycled materials (44%)
- recyclability (99%)
- ease of upgrade
- ease of disassembly (5 mins)
- re-upholstering
- cleaner production

Steelcase

Life cycle assessment

End of life

Think is up to 99% recyclable by weight. The chair can be easily disassembled in about 5 minutes, using ordinary hand tools. Parts weighing more than 50g are clearly labeled for recycling.

Use

Designed for long life, Think is easy to repair, reconfigure and upgrade. Seat and back cushions, arms, headrest and lumbar adjustments can be easily added, changed or replaced.

Transport

To reduce shipping, chairs are manufactured close to customers in Europe and North America, and beginning 2005 in Asia. Because the Think chair is lightweight, it requires less energy for shipping. Think is available to ship ready-to-assemble, which uses less packaging and allows more chairs per shipment.

Materials

To reduce overall material usage, Think weighs only 32 pounds — a fraction of the weight of comparable chairs. It contains up to 44% recycled materials, and absolutely no PVCs, CFCs, solvents, benzene, chrome, lead or mercury.

Production

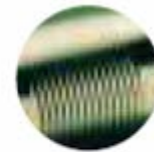
Think was designed to be made with minimal waste, energy consumption and environmental impact. Powder-coat painting is VOC-free and free of heavy metals. No gluing processes are used in assembly.



Steelcase



Acetal



Aluminum



Nylon



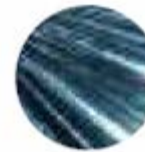
PolyEthylene



Polyurethane



Polypropylene



Steel

Steelcase

www.steelcase.com

lightweight  medical



neo-capsul 

neo-restraint[®]



neo-capsul[®]

neo-therm[®]



designed for..

- disassembly (no bonded parts)
- recycled materials
- no single-use consumables
- end-of-life recovery
- usability
- localised production
- skills development
- cleaner production

www.lightweight-medical.co.uk



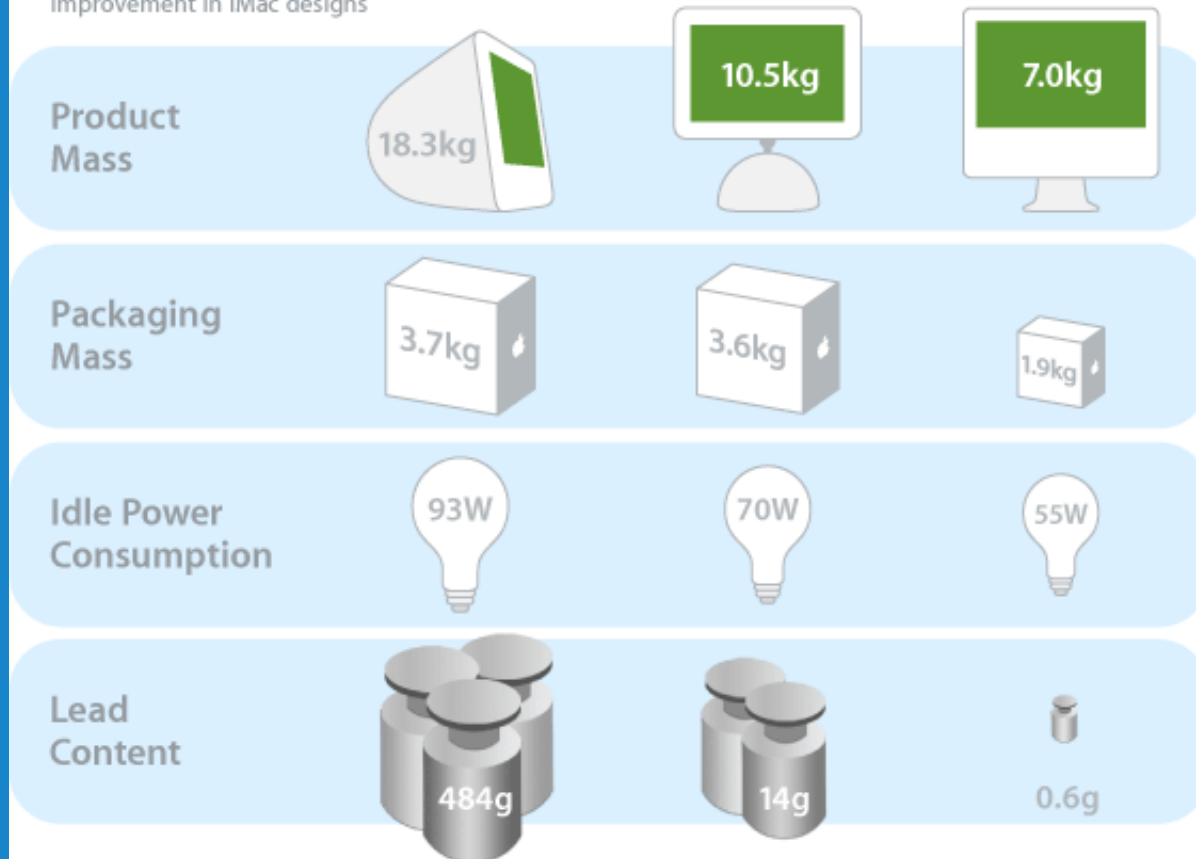
i-mac



designed for..

reduced packaging
recyclable materials
dematerialization
energy efficiency
reduced footprint
cleaner production

Examples of continuous improvement in iMac designs



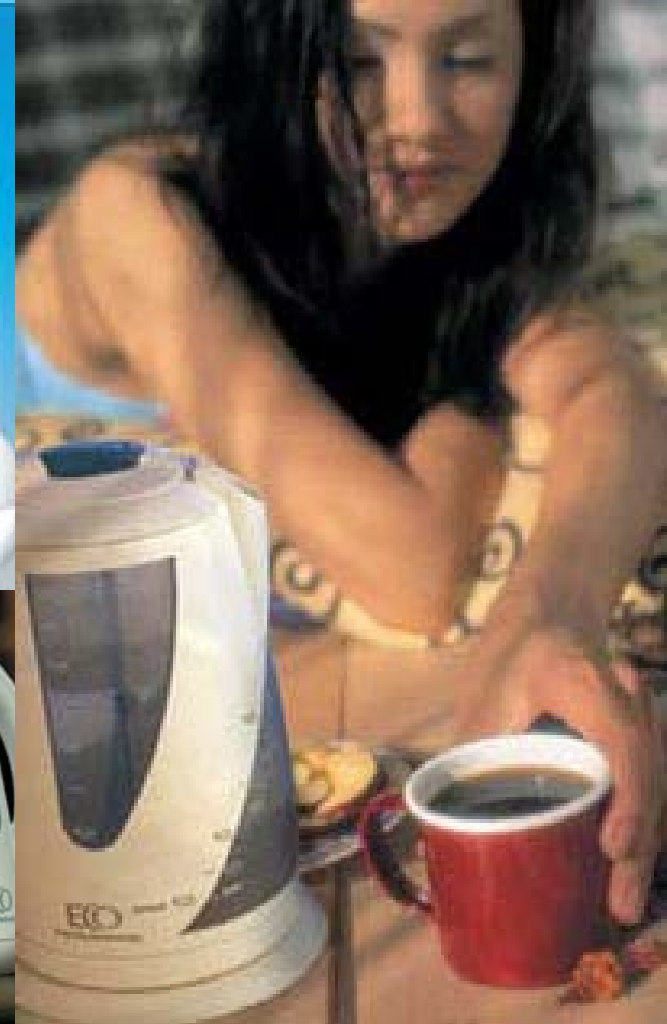
www.apple.com

ECO
kettle™



designed for..

energy efficiency
water efficiency
behaviour change
low carbon



www.ecokettle.com