

SCIENCE: GOOD, BAD, MISUSED

Aspects of "good" science

- ▼ Avoids claims and exaggerations
- ▼ Separates what is known from speculations
- ▼ Avoids extrapolating about unknown quantities
- ▼ Admits to errors in analysis or method
- ▼ Admits evidence that contradicts or refutes hypothesis

Criteria for good science

- ▼ *Clarity*
- ▼ *Good reasons*
- ▼ *Accuracy and precision*
- ▼ *Consistency*
- ▼ *Relevance*
- ▼ *Peer review*
- ▼ *Sound empirical evidence*
- ▼ *Depth, breadth, and fairness*
- ▼ *Standards and protocols*
- ▼ *Patience and humility*

Aspects of "bad" science

- ▼ Badly controlled or contaminated experiments
- ▼ Conclusions drawn solely from unreplicated data,
- ▼ Reliance on anecdotal evidence, or personal testimonials
- ▼ Incompetent or inadequately-skilled researchers
- ▼ Researchers who lack depth of specialized knowledge of field
- ▼ Unresponsiveness to requested peer review
- ▼ Promotion of theories based on poorly understood factors

Misuse of science

- ▼ Promoting unfounded and unproven claims
- ▼ Questionable priorities: e.g., profit before accuracy
- ▼ Fabrication, falsification, and fraud
- ▼ Hidden agendas (conflict of interest)
- ▼ Abuse of power within scientific hierarchy or by researchers over test subjects