

Prior knowledge errors

- Chemistry
 - Gases are ‘lighter’ than liquids (mass/ density)
 - Chemical reactions in everyday life
- Physics
 - Force causes movement (rather than change in movement)
- Biology
 - Evolution happens so that organisms can adapt to changes in their circumstances (attribution of causality)

But... what if what they know is wrong...

- Prior conceptual schemas can
 - Limit attention, preventing challenging ideas being identified
 - Remain resistant to change
- Preconceived notions include.
 - Non-scientific beliefs: from religious or mythical teachings.
 - Conceptual misunderstandings: incomplete or over-simplified knowledge from previous science courses.
 - Vernacular misconceptions: uncertainty about differences between the popular vs. the scientific use of words like work or theory .
 - Factual misconceptions: falsities learned at an earlier time and retained