

# Kuhn on Science

## Pre-paradigmatic periodic

- pre-normal science: before establishment of paradigm, not well ordered, not effective

## Normal or paradigmatic science

- periods where a lot of background is held constant
- characteristic of normal science: absence of debate over fundamental tenets (“consensus-forging” role of paradigms)
- the primary task of scientists is to bring the accepted theory and fact into closer agreement
- examples of paradigms: Newton’s, Einstein’s, Skinner’s behaviorism, modern molecular genetics, etc
- one paradigm per field at any given time (usually)
- “puzzle-solving” in normal science, extending and refining the paradigm

## Crisis period

- anomalies: data irreconcilable with paradigm or puzzle that has resisted resolution
- disposal of entire paradigm only if two necessary conditions are met
  - (1) critical mass of anomalies is reached
  - (2) a rival paradigm has emerged
- Crises are triggered when scientists acknowledge the discovered counter-instance as an anomaly in fit between the existing theory and nature
- All crises are resolved in one of three ways.
  - (1) Normal science can prove capable of handling the crisis-provoking problem, in which case all returns to "normal."
  - (2) Alternatively, the problem resists and is labeled, but it is perceived as resulting from the field's failure to possess the necessary tools with which to solve it, and so scientists set it aside for a future generation with more developed tools.
  - (3) In a few cases, a new candidate for paradigm emerges, and a battle over its acceptance ensues - these are the paradigm wars.

## New paradigm

- Incommensurable with the old one
- Normal science again