

Homeostasis

Biology

Negative feedback, and the four components every control loop needs.

The general form of a negative feedback loop.

1

Stimulus

A variable moves away from its set point.

2

Receptor detects it

Thermoreceptors, chemoreceptors, osmoreceptors.

3

Control centre compares

Usually the hypothalamus or a gland.

4

Effector responds

Muscle or gland acts to reverse the change.

5

Return to set point

The stimulus is removed; the loop switches off.

POSITIVE FEEDBACK

Amplifies rather than reverses

Childbirth: oxytocin and contractions

Blood clotting

Rare, because it is unstable by design

Negative feedback is self-limiting and stable. Positive feedback runs to completion, which is why it is used sparingly.