

Thermoreceptors – Receptors that respond to hot or cold. Informs the hypothalamus whether an object/surrounding is hot or cold.

- Peripheral Receptors – Nerve endings that detect either hot or cold temperatures.
- Central Receptor – In the hypothalamus, detects temperature of the blood.

Osmoreceptors – Measure the osmotic pressure of the blood by the concentration of substances dissolved in the water of blood plasma.

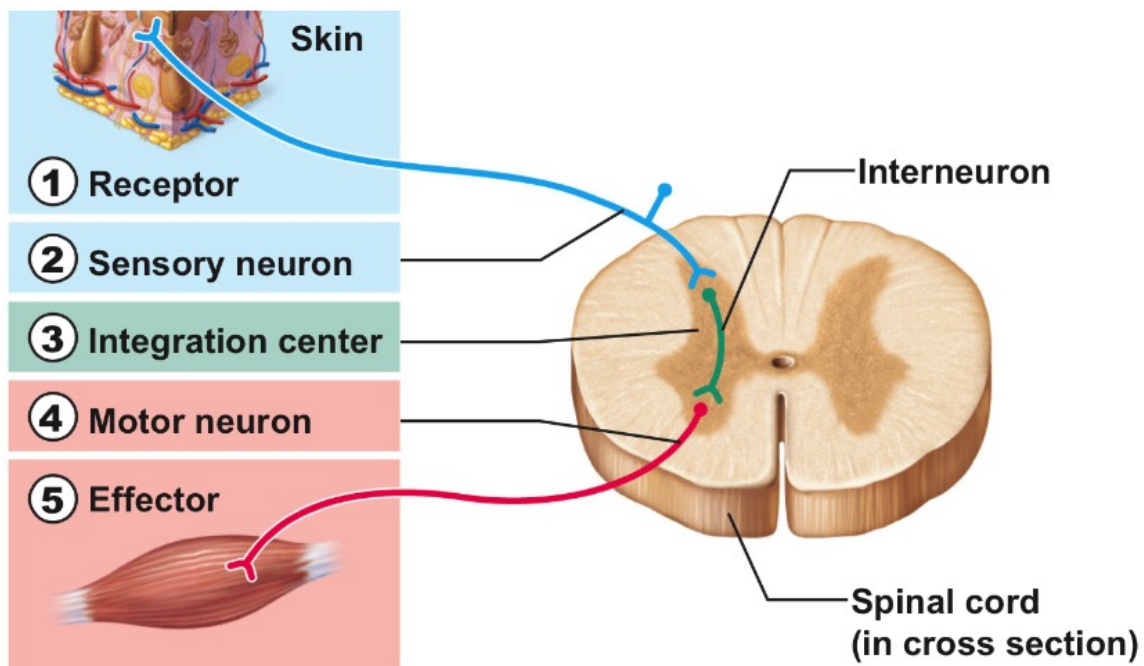
- Central Receptor – Hypothalamus

Chemoreceptors – Receptors that detect the concentration of particular chemicals.

- Found in the nose and mouth.
- Peripheral Receptors – Receptors in the Aortic and Carotid blood bodies.
- Central Receptors – Found in the hypothalamus.
- Detect changes in hydrogen ion concentration, carbon dioxide concentration, glucose concentration, or oxygen concentration.

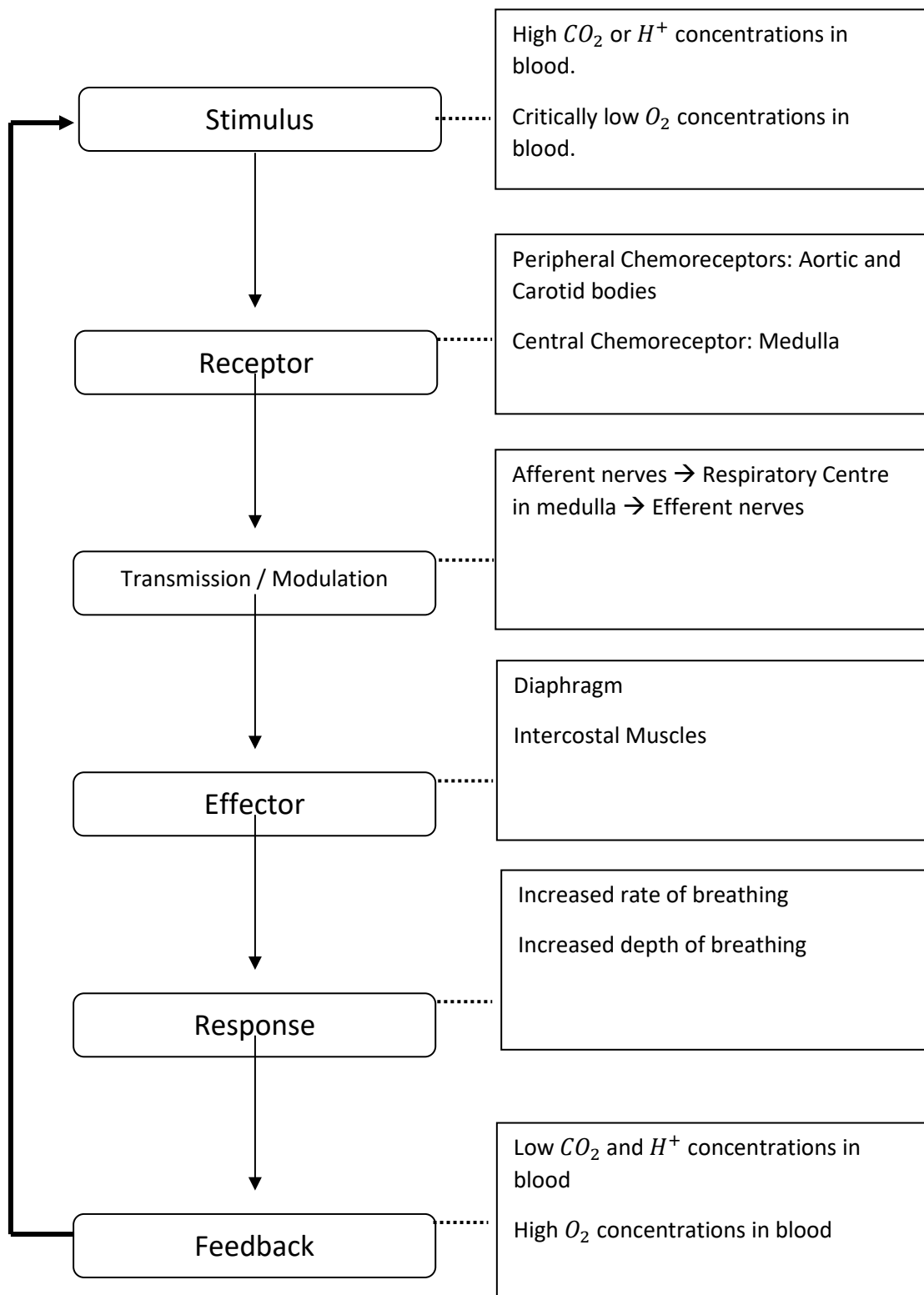
Touch Receptors – Some receptors are sensitive to very light touches. Others detect pressure and vibrations.

Pain Receptors – Stimulated by damage in the tissues.



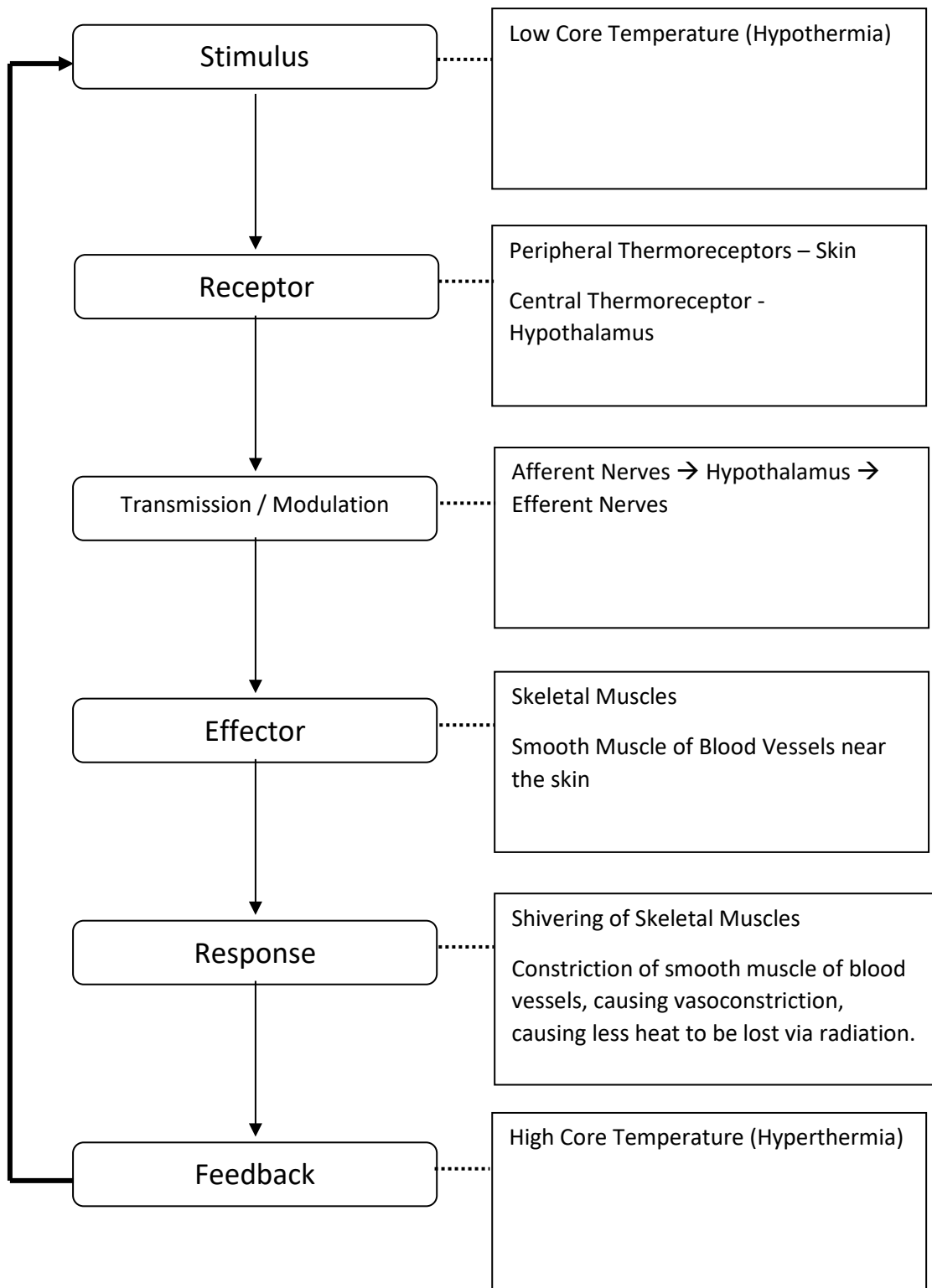
- Reflex arcs are important when protecting the body because they allow the body to have the least amount of damage (such as stepping on glass without being aware on it, and lifting your foot.)

Breathing Negative Feedback Loop



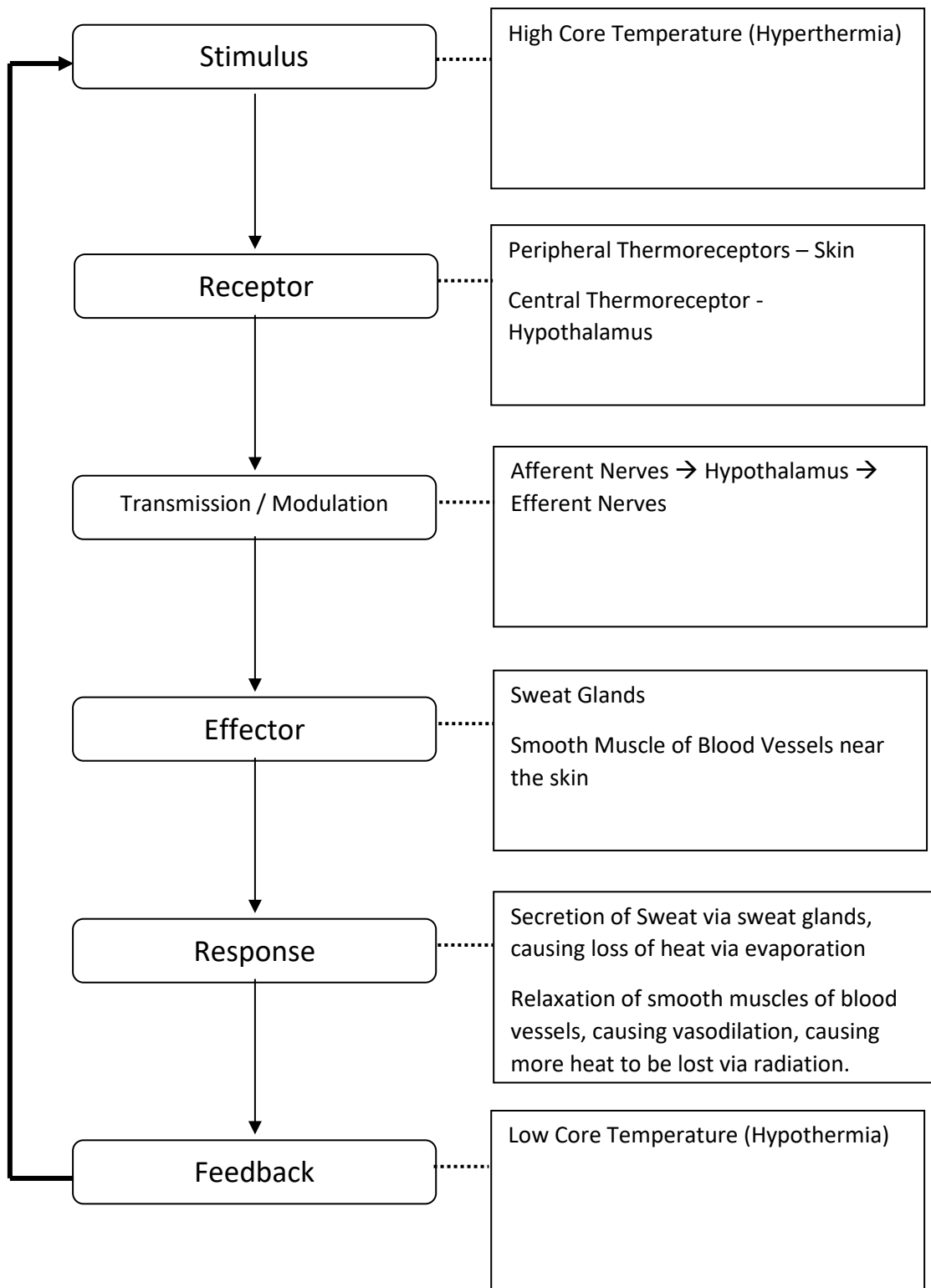
- Cerebrum can override breathing centre
- Entire loop can be affected by drugs and emotions
- Adrenaline can affect feedback loop

Thermoregulation Negative Feedback Loop (Cold Stimulus)

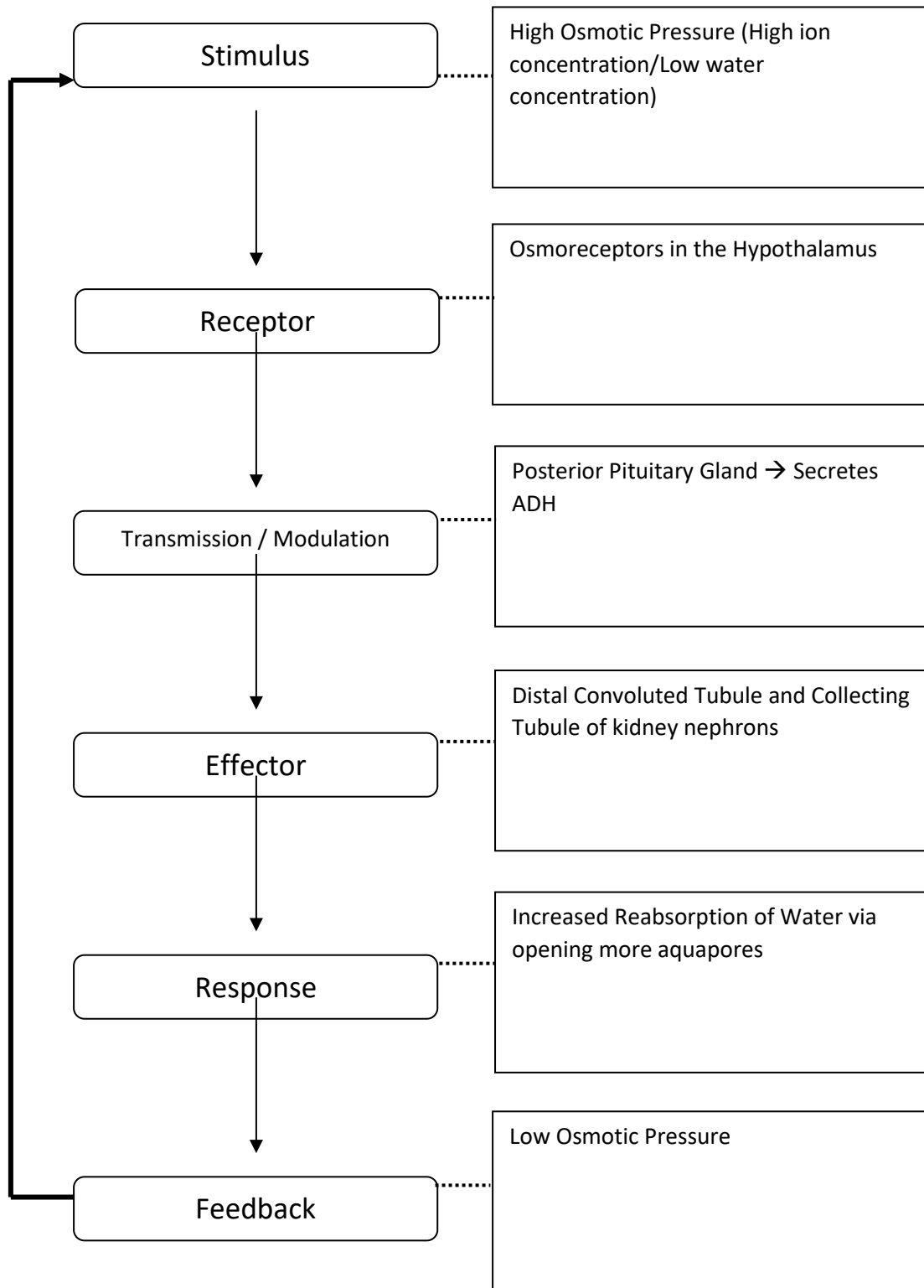


- Behavioural Responses also contribute to thermoregulation
- Over a long term cold stimulus, more TSH can be introduced.

Thermoregulation Negative Feedback Loop (Hot Stimulus)

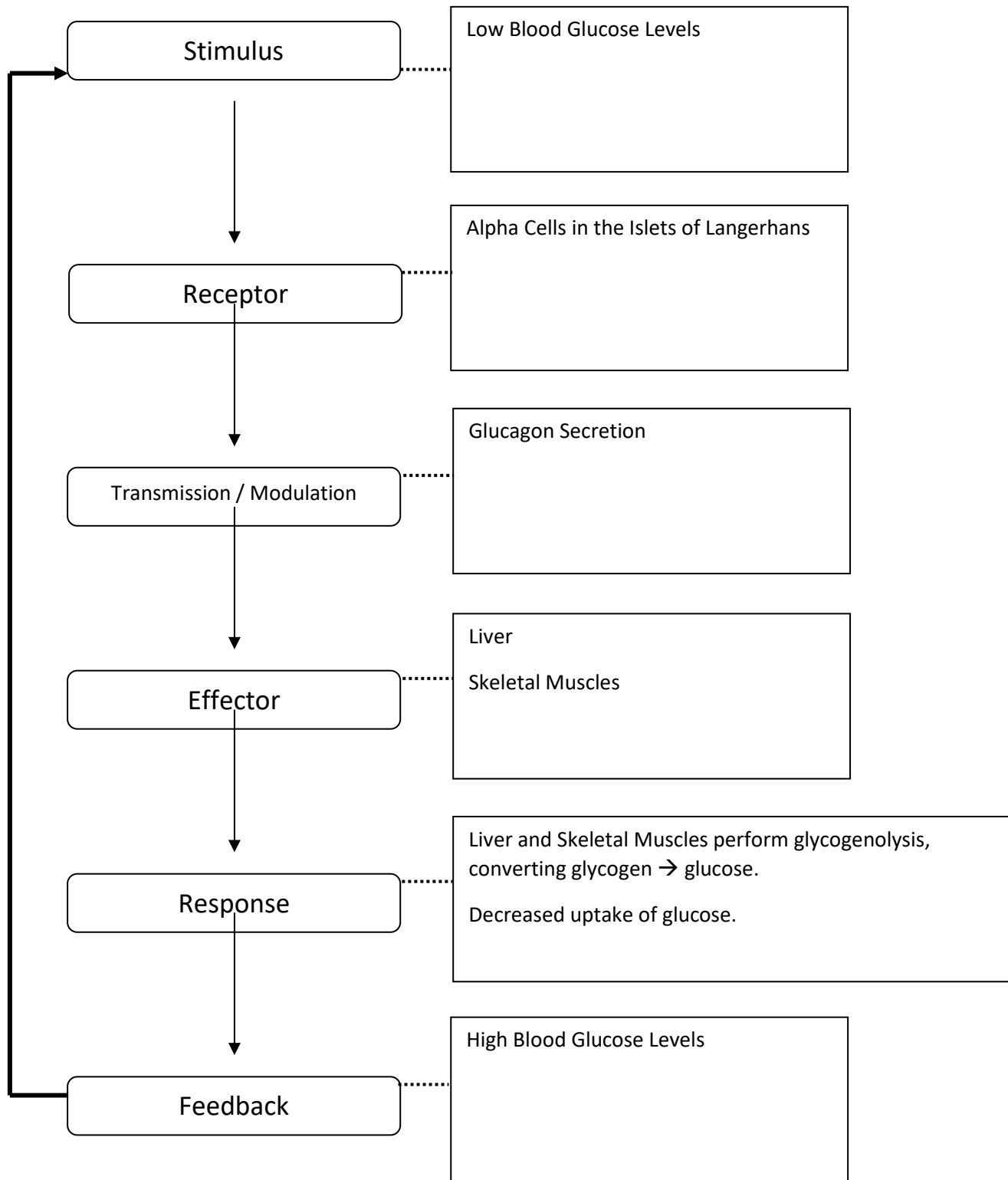


Water Homeostasis Negative Feedback Loop

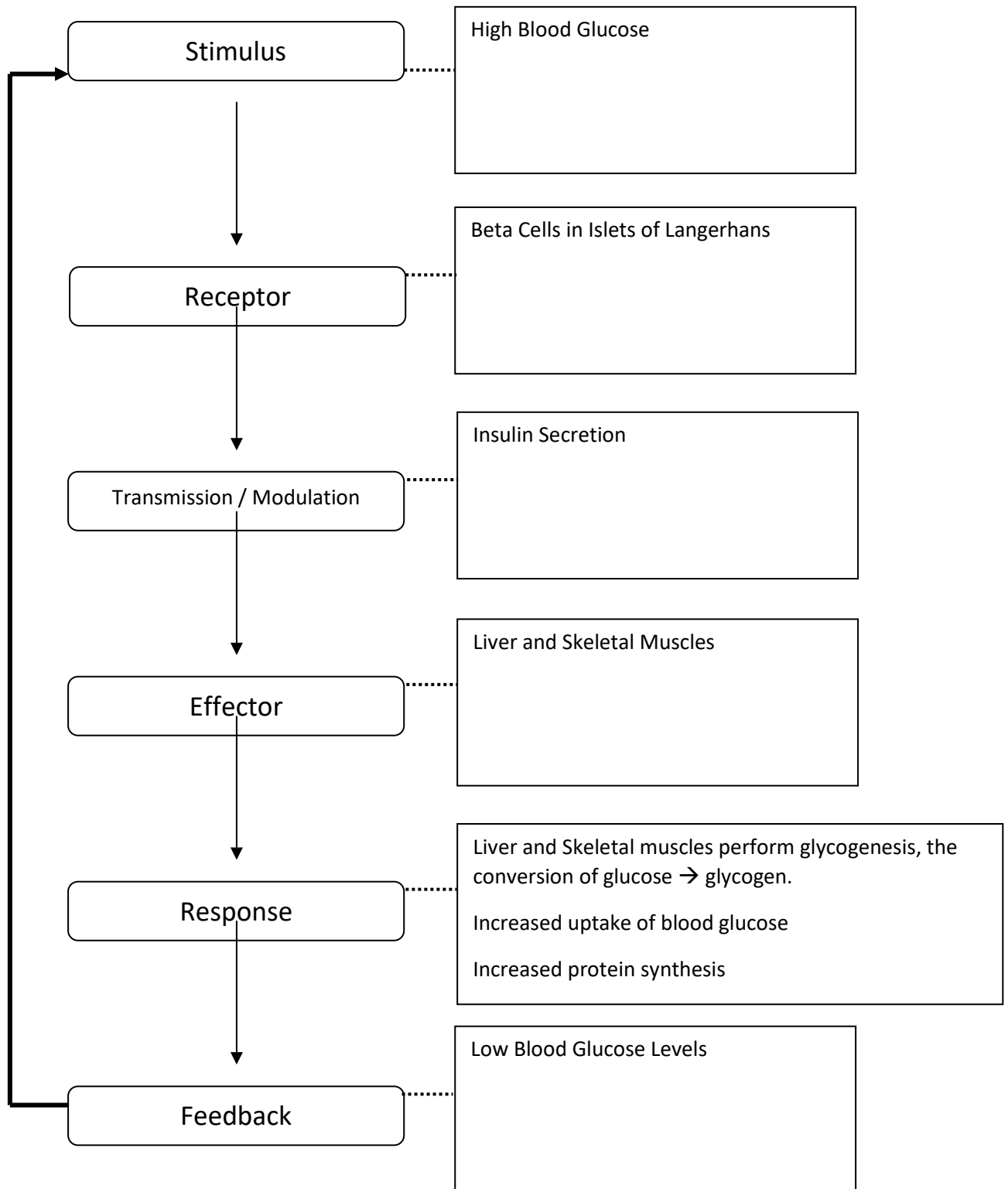


- Thirst Reflex influences individual to drink more water.
- Aldosterone affects this negative feedback loop.

Blood Sugar/Glucose Concentration Homeostasis (Low Blood Glucose)

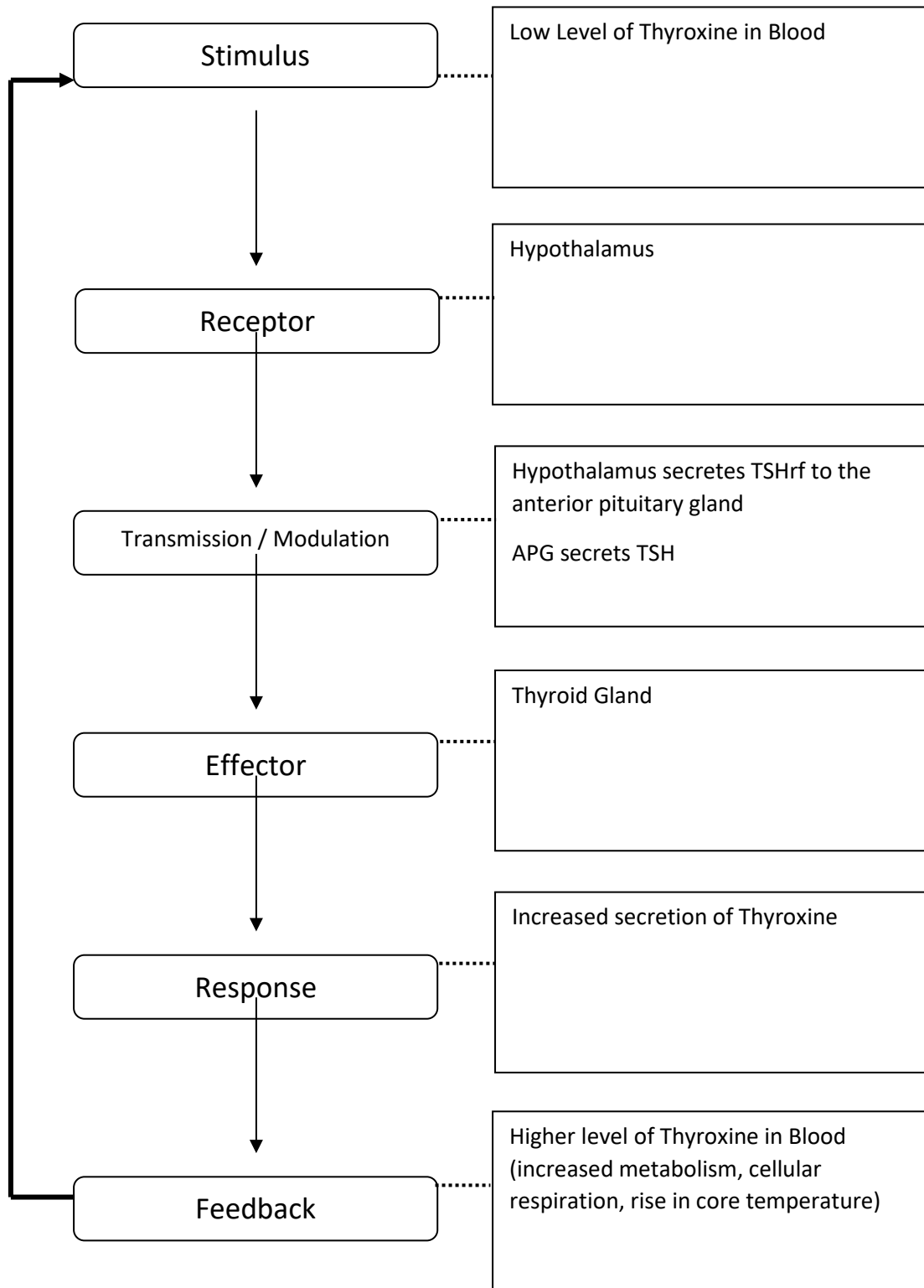


Blood Glucose Homeostasis (High Blood Glucose)



- Affected by adrenaline, thyroxine, and cortisol.

Metabolism Homeostasis



- Thyroxine secretion increases in the winter and decreases in the summer

Glycogenesis

- Formation of glycogen from excess glucose by forming glucose chains and storing in liver and muscles.
- Performed in the liver and skeletal muscles.
- Requires insulin to work.

Glycogenolysis

- Formation of glucose via glycogen.
- Performed in the liver and skeletal muscles.
- Requires glucagon or adrenaline.

Gluconeogenesis

- Excess fats and amino acids are converted into glucose.
- Happens to muscles + fat stores
- Requires Cortisol or Glucagon.