The main reasons for administering an anaesthetic agent to animals are to:

- facilitate the humane handling of a fearful animal
- abolish the awareness of pain
- provide optimal conditions for examination and treatment, including muscle relaxation for the performance of surgery.

Levels of anaesthesia

Traditionally, depth of anaesthesia has been described as progressing through a number of levels.

Although this is not exactly consistent with the present understanding of neurology, it remains a useful clinical tool.

Four levels of anaesthesia were originally described based on ether anaesthesia.

The use of pre-anaesthetic agents and other drugs to maintain anaesthesia may modify the clinical signs seen at these levels. For example, when using quicker acting induction agents, such as thiopentone and halothane, the earlier stages may be less well defined.

The levels of anaesthesia are generally defined as:

- **Stage 1: Voluntary excitement**
  This begins with the induction of anaesthesia. Animals are conscious and may display ‘fear, fight, flight’ reactions which may be modified by preanesthetic drugs.

- **Stage 2: Involuntary excitement**
  This begins with the onset of unconsciousness and lasts until rhythmic breathing is established.

- **Stage 3: Surgical anaesthesia**
  - Plane 1, light: Intubation is possible, except in cats, which require local anaesthetic to depress laryngeal reflexes. Minor examinations and surgical procedures are possible.
  - Plane 2, medium: Suitable for most surgical procedures.
Plane 3, deep: This depth is unnecessary for most surgical procedures, except where profound muscle relaxation is required to enhance surgical exposure. Muscle relaxation could be achieved with other drugs and anaesthetic techniques to prevent taking an animal this deep.

- Stage 4: Excessively deep
  You’ll need to react quickly if the animal reaches Stage 4 because it can lead to death due to severe cardiovascular and ventilatory depression.

Reflexes
To assist in assessing depth of anaesthesia, the anaesthetist will assess a number of different reflexes:

- palpebral reflex—blinking is stimulated by touching the medial canthus of the eye
- pupillary light reflex—the pupils constrict in response to light. These eye reflexes disappear in Stage 3, Plane 2
- nystagmus (flicking of the eyes)—may be seen in light anaesthesia in horses
- pedal reflex or withdrawal reflex—pinching between the toes will cause withdrawal of the leg
- yawning reflex—opening of the mouth during light anaesthesia may elicit a yawn in carnivores
- ear flick—mild stimulation of the external auditory meatus of the dog or cat will cause the ear to flick. This is present in light anaesthesia
- jaw tone—the amount of resistance encountered when opening the mouth gives an indication of muscle tone
- pharyngeal reflex—enables swallowing
- laryngeal reflex—enables coughing and closure of the larynx
- visceral reflex—traction of an organ will elicit an increase in respiratory effort even when the patient is at a sufficient depth of anaesthesia for surgery.

Monitoring during anaesthesia
When a patient is unconscious, it is important to keep a careful check on its physiology. This means regularly recording details, such as:

- heart rate and rhythm
- respiratory rate and depth
- mucous membrane colour and capillary refill time.
We may also have monitors to help us record blood pressure, oxygen saturation, carbon dioxide levels and heart electrical signals.

You need to monitor the level of anaesthesia to ensure that the animal does not go either too deep or start to wake up.

This information is recorded on an anaesthesia chart.