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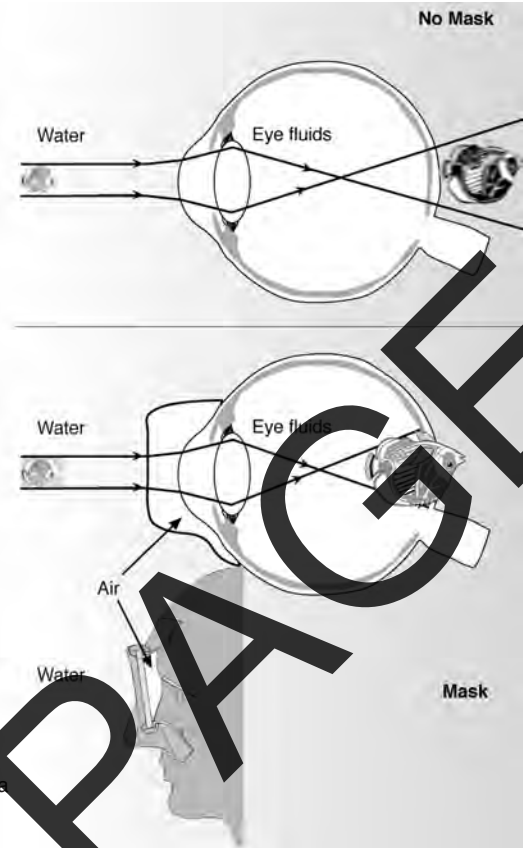
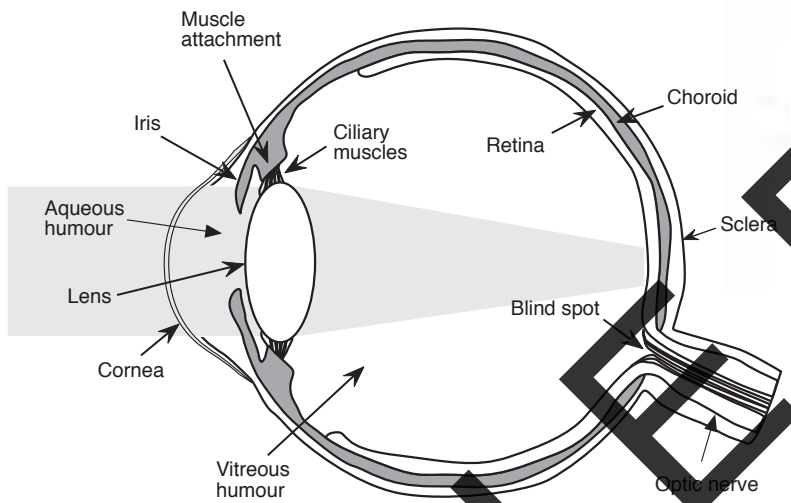
Worksheet 1: Snorkelling and the eye

Q1. Light enters the eye through the lens, cornea, aqueous humour and vitreous humour all of which bend the light towards the retina.

The eye can focus light onto the retina by means of a lens that can be contracted or relaxed by a set of the ciliary muscles.

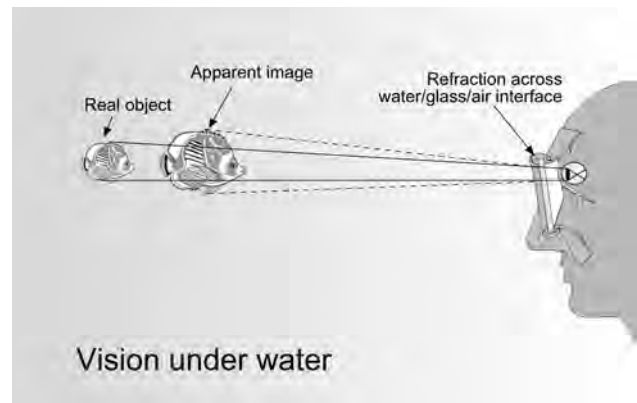
The retina has a set of light sensitive cells which process dots of light that fall onto it. The retina then sends information to the brain through the optic nerve.

Illustration - See Figure 5.2



Q2. When there is a layer of air between our eyes and water, objects appear to be one third larger and closer than they actually are - due to refraction.

Illustration - See Figure 6.4



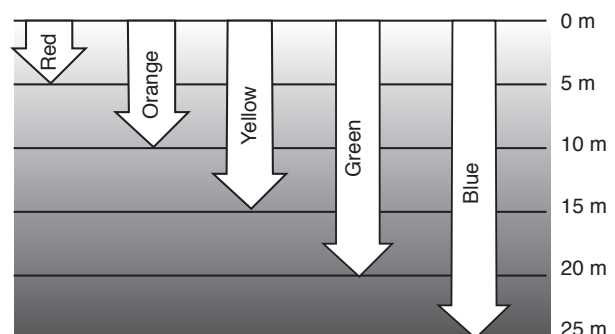
Q3. As depth increases, the range of visibility and the intensity of colour, especially at the red end of the spectrum, decreases due to the diffusion and absorption of light, hence brightly coloured marine life appears greeny-blue.

Illustration - See Figure 6.3

Q4. When a ray of light passes from water (more dense) to air (less dense) it bends away from the surface of the face mask as shown in Figure 6.2.

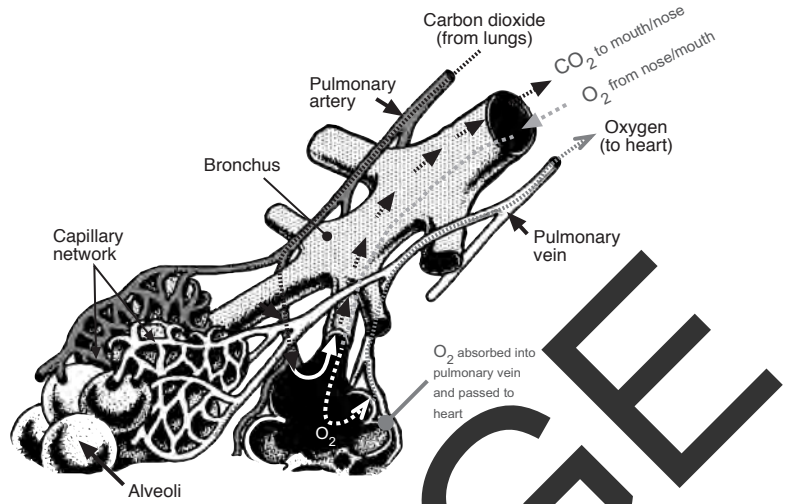
In water, rays of light are not bent as far and images focus behind the retina. This is why fish appear blurred when seen without a mask.

Illustration - See Figure 6.2



Worksheet 2: Respiration and snorkelling

- Q1. See Figures 8.1 and 8.2
- Q2. The air we breathe is 21% oxygen, 78% nitrogen and a small amount of trace gases.
- Q3. Shallow water blackout is when a snorkeller becomes faint underwater and may lead to unconsciousness. It is caused by a fall in carbon dioxide in the body combined with low oxygen levels.



Extension:

- Q1. Go to the www.worksafe.qld.gov.au site and use the search engine to search for hypoxic blackout.
- Q2. See below

