St John

EYE HEALTH

Proficiency Workbook

10–12 Campion Street
(PO Box 292)
Deakin West ACT 2600

www.stjohn.org.au

Proficiency review and re-write author: Belinda Ding and Kieran Brown

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This Cadet workbook is available online for download at Member Connect, members.stjohn.org.au. Go to: Browse resources / Juniors and Cadets / Cadet Proficiency Badges. A training and assessment guide is available at the same location.

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Icons

Below are the icons that will be used throughout this Workbook. In fact, you will find them in all of the new Proficiency Courses.

Tip

Assessment

Read this

Activity

Key point

Training idea

Assessment

The assessment for this course is based upon your participation and the work completed in this Workbook.

On completion, you will receive a proficiency certificate. You will also receive a badge that looks like this:

This is an approved Proficiency course as part of the Grand Prior's Award program for St John Ambulance Australia Cadets.

COURSE OVERVIEW

Welcome to the Eye Health Proficiency Course! We all know how important and precious our eye sight is, and it is important to protect our own eye sight and promote eye health and preventative care.

In some countries (and in some parts of Australia), the health care system is not as well developed as in the big cities in Australia, and many people go without basic procedures that can prevent blindness or restore eye sight. In a lot of cases, blindness is avoidable, and by restoring sight, people are able to participate in work and education activities, as well as become more independent. Reducing vision impairment and blindness has been linked to helping lift families, and even whole communities out of poverty!

This is a great course for you to do because you will learn:

- about the important work the St John Ophthalmic branch here in Australia
- how the eye works
- what can go wrong with eyes
- about preventative measures to protect our eyes
- valuable first aid skills for assisting casualties with an eye problem
- how to assist people with a visual impairment.

Outcomes

In this Course, you will have the opportunity to:

- Demonstrate a basic understanding of the work of the St John Ambulance Australia Ophthalmic Program.
- Describe some of the common types of eye disorders and how they are managed.
- Describe the function of the main components of the eye.
- Demonstrate knowledge of how to conduct a basic eye assessment.
- Demonstrate appropriate first aid management skills for eye injuries.
- Demonstrate an understanding of, and ability to, assist people with a visual impairment.

Skills and attributes

As you complete this proficiency course, you will also be recognised for the skills and personal attributes you obtain. Below is a list of all of the skills and personal attributes found in St John proficiency courses. You may only be recognised for a handful of them for each proficiency course. The ones with stars beside them are the ones you will cover in this course.

Skills

- Collecting, analysing and organising information*
- Communicating ideas and information*
- Planning and organising activities
- Working with others in teams*
- Using mathematical ideas and techniques
- Artistic expression
- Solving problems*
- Using technology*
- Leadership
- Managing risk*
- Using initiative and change*

Attributes

- Pursuing and promoting health and wellbeing*
- Determination
- Resilience
- A sense of service*
- A sense of responsibility*
- An ethical outlook*
- Cultural awareness and understanding

Reading and resources

This Workbook is a major resource for the completion of the course. Internet access is helpful for completing this proficiency course.

Other resources will be mentioned as required.

Assessment

The assessment for this course is based upon participation including work completed in this Workbook.

Duration

This course has a minimum duration of 10 weeks (or equivalent hours undertaken in a Cadet Camp environment).

THE ST JOHN OPHTHALMIC PROGRAM

Read this...

The St John Ambulance Australia Ophthalmic Program (previously called the Ophthalmic Hospital Branch or Ophthalmic Branch), is responsible for assisting people with eye disorders, especially through support of the Eye Hospital located in Jerusalem. St John in Australia also provides funding for eye health programs in rural and remote Australia, plus in Timor-Leste (or East Timor). In this Topic, we are going to focus on the work of the Hospital in Jerusalem. Further information about work in Australia or Timor-Leste can be found at www.stjohn.org.au.

How it all started in Australia

When it first opened, the Ophthalmic Program in Australia made its contribution by raising money to support the work of the Eye Hospital. In the few decades after World War Two, the Program paid for a young Australian specialist ophthalmic surgeon to live and work at the Hospital each year. This helped give valuable specialist expertise to the Hospital and valuable experience to the surgeon. Other countries, including England, Canada and the United States, also sent young ophthalmic surgeons.

In recent years, the Israeli-Palestinian conflict has made sending specialist health care professionals to the area very challenging. As a result, the focus of the Program has shifted in recent years towards providing funding for outreach nurses and helping the Hospital in funding the training of ophthalmic nurses from the local population.

The history of the Eye Hospital

Links with Jerusalem

More than 900 years ago the Abbey of St Mary in Jerusalem set up a small hospital to care for sick pilgrims. The small hospital was attached to a little church dedicated to St John. When the first Crusade captured Jerusalem in 1099 the hospital was probably run for the Abbey by one of its monks called Gerard (later known as 'The Blessed Gerard').

In 1140, Pope Paschal II recognised the Brothers as an independent order called 'The Order of St John'. The original hospital was closed when Christians were expelled from the Holy Land, but the Knights of St John carried on their work for the next several hundred years at various locations around the Mediterranean, particularly at Rhodes and in Malta.

How did the modern hospital begin?

The St John Ambulance Association was started in England in 1877 to train the public in first aid and provide ambulance transport. Five years later, in 1882, the members founded the St John Ophthalmic Hospital in Jerusalem (often called the Hospitaller) as a symbolic reminder of the early role of the Knights of St John in caring for the sick and injured.

In 1887 the St John Ambulance Brigade was formed from several local Corps (or groups) of volunteers with St John certificates who had begun providing first aid at public events, including for the Golden Jubilee of Queen Victoria (yep, they were kind of like our Event Health Services volunteers of today!). This huge public celebration was the first major event for the Brigade (basically landing them on the Queens radar).

So impressed with the work of St John, Queen Victoria formerly reinstated the English Branch of the Order of St John (which had been suspended since the time of Queen Elizabeth I) in 1888. This was partly in recognition of the work of the Hospitaller in Jereusalem and partly because of the work in providing public first aid.

Back in the Middle East… after St John was reinstated by Queen Vic, the land for the Hospital was granted to St John by Sultan Abdul Hamid II of the Ottoman Empire (which ruled Palestine from its historic location in Constantinople) at the request of Queen Victoria's elder son, the Prince of Wales (who was also a strong supporter of St John). The Prince became the Grand Prior of the Order when it was granted its Royal Charter, and on Queen Victoria's death in 1901 he became King Edward VII, Sovereign Head of the Order. His son, the Prince of Wales (later to become King George V) succeeded Edward as Grand Prior.

The Work of the Ophthalmic Hospital Today

During the Second World War the buildings of the Hospital were badly damaged. At the end of the British Mandate for governance of Palestine (basically British rule) in 1948 the site was abandoned and the Hospital was rebuilt in a new location (in the Sheikh Jarrah District of East Jerusalem, on Mount Scopus) and was opened in 1960. Today, the Jerusalem based Hospital has 235 staff and in 2015 treated 45,000 patients and performed over 3,800 major operations. The Hospital also runs clinics in Gaza, Anbata and another smaller Hospital in Hebron, as well as a Mobile Outreach service and Diabetic Retinopathy Screening Program. All of the service combined are called the St John of Jerusalem Eye Hospital Group.

The rate of blindness in the Palestinian territories is **10 times higher** than in the developed countries, like in the West (e.g. Australia). There is a high incidence of cataract, corneal diseases, congenital eye disorders and diabetes. **Up to 80% of this blindness is avoidable.**

The Mobile Outreach Teams (MOT) are kind of cool. There are 2 teams staffed by a really brave group of nurses and doctors who risk their lives every day to go into the hills and villages of the West Bank (at the moment, these are not safe places due to the conflict in the area!). The MOT provide primary ophthalmic care to the most underprivileged members of the Palestinian population, who wouldn't be able to access these health services without them. They also provide health education in these remote communities.

The majority of non-surgical cases are dealt with on the spot by the MOT, including laser treatment for diabetic eye disease. Patients requiring surgery or more detailed assessment are referred to the Hospital in Jerusalem (and the Mobile Outreach Team

take them there too!). In 2015, the two little mobile teams treated a whopping 16,700 patients!

Key point... Combining the work of the hospitals, clinics and outreach services, in 2015 123,000 patients were treated (40,000 were children), including 5,000 major operations. The Eye Hospital Group treats these patients regardless of race, religion or ability to pay.

Activity 1. Presentation

In small groups your leader will allocate each group one of the following eye conditions that the Eye Hospital commonly treats:

- cataract blindness
- diabetic retinopathy
- glaucoma
- myopia.

Each group's task is to:

- Find out what the condition is, its symptoms and some basic information about what treatment of the condition involves.
- Develop a poster (or digital presentation) on your findings. Your group can include dot points, images, drawings etc. Feel free to get creative!
- Present your findings and poster to the whole group (yep, that means talking about what you found peps! Don't worry, you're amongst friends in St John).

Hot tip... Google (and other search engines) will be your friend for this activity! If your division doesn't have internet access, team members might volunteer to do a little leg work each at home or at school for the group ☺

An ophthalmic nurse hard at work helping a young girl at the Eye Hospital in Jerusalem. Inspirational stuff!

HOW THE EYE WORKS

Read this...

Structure and function of the eye

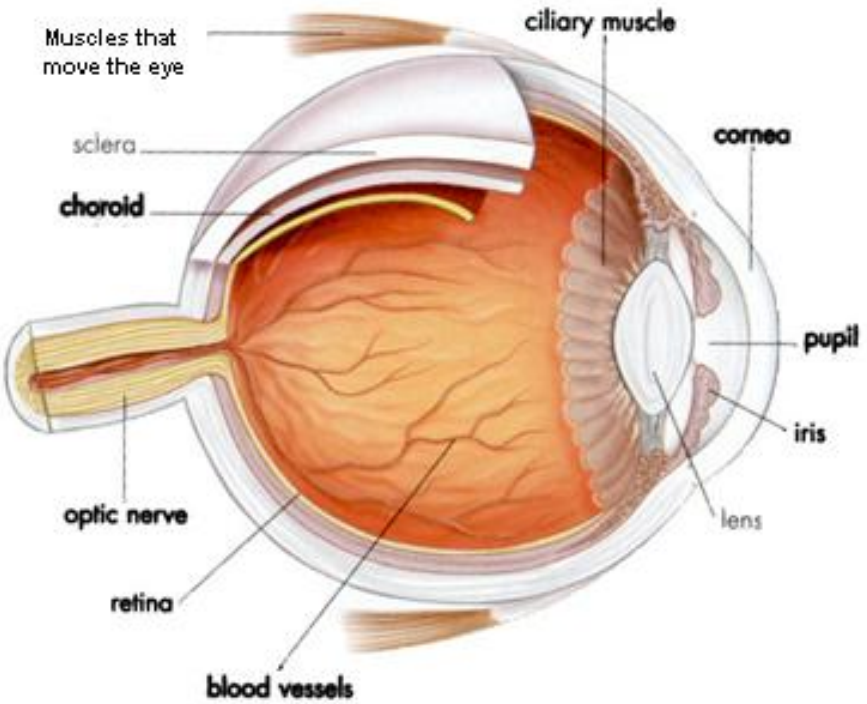
The eye, like all organs in your body, is made up of many different parts that all function together allowing you to see.

Did you know that we can only really ‘see’ three colours? But that by combining them, we are able to recognise over nine million colours? This happens because our eyes and brain work together. Our eyes take in information about the world around us and our brain interprets that information so that we can make sense it.

Half of all our nerve endings are called ‘sense receptors’. Their job in the eye is to receive information and send it to the brain. Sight is our most complex sense!

Below is a diagram of the eye. You may recognise some of these parts or have heard about them. The eye is generally described starting from the outside and working our way in.

Take some time to look over the diagram below and read what each part or structure does on the following pages.



Layers of the eyeball

The eyeball consists of three layers: The first layer incorporates the **cornea** and the **sclera.** The cornea is the clear or transparent part of the eye through which we see. If you look straight at someone it covers the coloured part of the eye called the **iris.** If you look at the side of someone's eye, it looks like half a glass ball bulging outward. The cornea is the part of the eye that bends most of the light entering our eyes to focus an image onto the retina.

The *cornea* does not have a blood supply, so it receives all of its nutrients from the fluid inside the eye. It is also very sensitive because of the many sensory nerves it contains. This explains why it is very painful when scratched or injured!

The *sclera* is the white part of the eye and gives the eye its round shape (when filled with the fluids of the eye). It also helps to protect the inner layers of the eye and is very tough. A thin layer of tissue called the **conjunctiva** covers the sclera and the inside of the eyelids. You may have heard of the irritating (and somewhat icky!) condition called *conjunctivitis*– this is when the conjunctiva becomes inflamed from infection or injury.

The second layer of the eye is called the **uvea** (pronounced: u-ve-a), and is made up of the **choroid** (pronounced: kor-oid), the **ciliary body** and the iris. The choroid is the blood vessel layer which supplies nutrients and oxygen to the outer part of the retina.

The third layer or the innermost layer is called the **retina**. The retina is a special layer that will be discussed later.

Chambers or spaces of the eye

The eye contains 3 clear spaces. The first is the **anterior chamber**. This is the space between the back of the cornea and the front of the iris. The second chamber is the **posterior chamber** and is the space between the back of the iris and the **lens**. Both of these chambers are filled with a fluid called **aqueous humour**.

The formation and drainage of the aqueous humour maintains the pressure inside the eye, which is called the **intraocular pressure** ('intra' meaning inside, 'ocular' meaning eye). The aqueous (or fluid) is formed or secreted by the *ciliary body* into the posterior chamber and then flows forward through the pupil into the anterior chamber. As it flows into and circulates around the anterior chamber it provides nutrients to the cornea and lens. Remember the cornea does not have any blood vessels, so this is a really important process that keeps the eye healthy.

As the aqueous flows, it is constantly being drained. Firstly through a mesh and then out through a canal, this is located in the angle formed by the cornea and the iris and is called the **Canal of Schlemm** (yep, it sounds like some kind of place on a planet far, far away in a sci-fi movie). The mesh and canal form a circle like the iris. Once the aqueous has drained through, it reaches the small blood vessels on the surface of the eyeball and eventually enters the blood stream of the body.

The intraocular pressure is measured in millimetres of mercury (mmHg), like blood pressure, but much smaller, usually between 10 and 21 mmHg. High pressure levels can lead to a disease called *glaucoma*.

The third chamber of the eye is called the **vitreous cavity**. This is a large area behind the lens and is filled with a gel-like substance called the **vitreous humour**. This gel helps to maintain the eyeball's round shape.

The iris

The iris is the coloured part of the eye. Its job is to control the amount of light entering the eye through the pupil.

The iris consists of two very thin muscles that dilate (widen) and constrict (narrow) the pupil. One of these muscles is called a **sphincter muscle** which lies around the very edge of the pupil. In bright light this muscle contracts, causing the pupil to constrict, which prevents too much light from entering the eye. The second muscle called the **dilator muscle** runs around the iris like the spokes of a bicycle wheel. This muscle dilates the pupil when it is dim or dark, allowing more light into the eye, which helps us to see better in these types of conditions. The iris is very clever!

The colour of the iris comes from microscopic pigment (colour) cells, which make a chemical substance called **melanin**; these are the same kind of cells that cause our skin to tan when exposed to the sun. The colour, texture, and pattern of each iris are unique to every person, like our fingerprints.

Cool fact... when someone is taking a photograph with a flash, the iris can't react fast enough to shield the retina from the brightness of the flash, so a 'red-eye effect' occurs. This is because the red coloured retina can be seen through the pupil. Most modern cameras now prevent this by a preliminary flash causing the iris to constrict, quickly followed by the main flash (half a second later) that happens while the pupil is still small.

The lens

The lens of the eye is responsible for focusing light onto the retina to help us see clearly. The lens is attached to the ciliary body by very fine fibres called **zonules** (pronounced zon-uls). When an object is close to the eye, like when reading, the ciliary body or muscle contracts and the zonules relax allowing the lens to become round like a soccer ball, this increases its power to focus light. When an object is far away from the eye, the ciliary muscle relaxes. This tightens the zonules causing the lens to become flatter, which decreases its focusing power, allowing distant objects to be focused onto the retina.

The retina

The retina is like the film in a camera. It captures the image, which is then interpreted by the brain.

It has layers of different cells to help us see. The outermost layer (or the one closest to the choroid) is called the **Retinal Pigment Epithelium (RPE).** This is a single layer of cells each containing melanin, which is the same as the cells in our skin and iris. These cells are involved in many chemical processes such as absorbing light, metabolism and regeneration of the very important **rods** and **cones**.

The rods and cones are specialised cells called **photoreceptors** (photo- meaning light). They contain chemicals which when stimulated by light, form an electrical current.

Rod cells are very long and narrow containing a layer of discs which are stacked on top of each other forming the shape of a rod. These discs contain a light sensitive pigment, which helps us to see different shades of black and white when the lighting is very dim or when it's dark. **There are about 110 to 125 million rod cells in the retina!**

The cones are also long narrow cells but a bit shorter than the rod cells. They also have a layer of discs stacked on top of each other, but instead of this stack being shaped like a rod they form the shape of a cone. These discs also contain light sensitive pigments, which are sensitive to the colours red, green and blue. The cones are used in bright light to help us see fine detail and for colour vision. **There are about 6 to 7 million cones!** Most of the cone cells are found in an area of the retina called the **macula** (pronounced: mac-u-la).

The macula is a very special area of the retina because it gives us our central vision and allows us to see millions of different colours. It is shaped like an oval and has a yellowish colour (it is sometimes called the 'yellow spot'). It is very small, about 4 or 5 millimetres wide. In the middle of the macula is the **fovea** (fo-v-a). This is about 1.5 millimetres wide and allows us to see very fine detail such as when we are reading and writing. Most of the cones are found in the fovea.

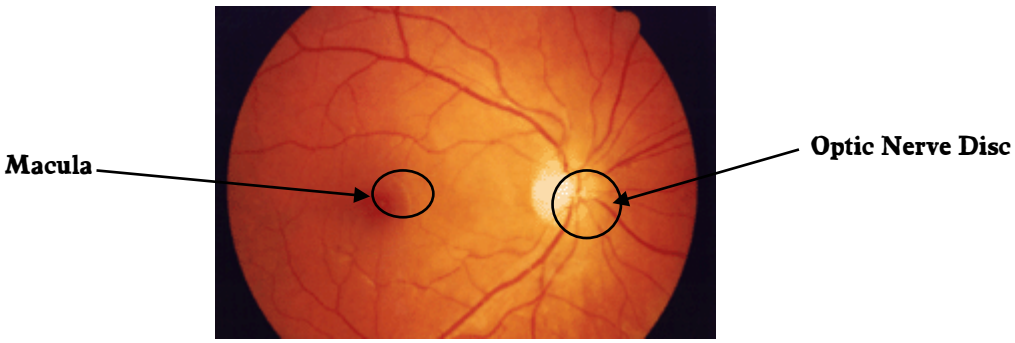


Photo courtesy of Visual Communication Unit, CERA

The visual pathway

It is easy to think that it is the retina that sees for us. However, the retina is only the start of the process by turning light into electricity. It is the brain that does all the actual seeing.

So the light from an object or image which has been turned into an electric current by the retina flows though all these different parts of the eye to the back of the brain where it is then processed into what we see. But how does what we see get to be a three dimensional image?

3D vision and depth perception

The process of how we see occurs in both eyes. The retina in each eye gets a different view or image of the same object. When the two images arrive simultaneously in the back of the brain, they are combined into one image. To do this the brain matches up the similarities and ads in the small differences. This combined image is a three-dimensional or *stereo* picture. Remember both eyes must be working together for this to occur.

Through our stereo-vision we are able to interpret the three dimensional space around us and visually judge distances and the differences between objects and images. This is known as depth perception or the ability to perceive that objects and the space around them have depth.

Movement (Muscles)

There are six muscles that are used to move the eyes, which can be divided into groups of two.

The muscles responsible for moving the eye from side to side are called the **medial rectus** and **lateral rectus**. The medial rectus is on the nose side of the eye and moves the eye towards the nose. The lateral rectus is on the other side and moves the eye to the side of the head. The muscles responsible for looking directly up and down are the **superior** and **inferior rectus**. The superior rectus sits on top of the eye and makes the eye move up and the inferior rectus sits on the bottom of the eye and helps the eye to move down.

There are two other muscles that help the eyes to look up and down but they also help the eye to rotate when it looks around; they are called the **superior** and **inferior oblique**. The superior oblique muscle also sits on top of the eye but attaches to the eye on an angle, which is why it is called oblique; this helps it to rotate the eye inwards when we look down and to the sides. The inferior oblique sits under the eye and also attaches to the eye on an angle; this rotates the eye inwards when we are looking up and to the sides.

Structures that protect the eye

The eye socket

The eye and its surrounding soft structures lie in what is commonly called the 'eye socket'. Its technical name is the **orbit**. The orbit consists of a thick outer rim of bone surrounding the outer part of the eye, which you can feel with your fingers. This rim of bone provides protection against direct blunt injuries.

The inner part of the socket is made up of four walls that run backward into the skull forming the shape of a cone. A good way to imagine this is to think of the orbit as a room, it has two sidewalls a floor and a roof. The floor and the wall next to the nose are the weakest bones and when someone sustains a direct blunt injury, it is usually the floor that gives way, trapping muscle and fat inside the fracture, causing movement of the eye to be restricted.

At the back of the orbit there are two holes. One hole provides an opening for the **optic nerve** to pass through on its journey to the back of the brain, the other is a long narrow opening that allows various nerves and blood vessels to pass through.

Eyelids

The eyelids provide a protective cover for the eyes. A thin layer of normal skin covers the outside and the conjunctiva covers the inside. They also contain tiny glands that produce different fluids and oils that make up our tears.

Tears

Tears are produced by a number of small glands in the eyelids and one large gland, which is located above and to the side of the eye. They form a kind of film for our eyes. The main gland is called the **lacrimal gland** and produces the watery middle layer of our tears. Tiny glands in our eyelids produce the other two layers. One of these sets of glands produces mucous helping the tears to stick to the surface of our eyes, while the other set produces a layer of oil that sits on top of the watery layer

preventing it from evaporating. The tear film helps to keep the eyes moist, provide nutrients to the front of the eyes, and protection from infection and injury.

Did you ever think that your eyes were so complex (and amazing!)?

Activity 1. Make a Camera Obscura!

1. Find a small box that is open at one end (or cut an opening). An old shoe box is perfect.
2. Cover the open end with tracing paper or plastic that is not quite clear.
3. At the opposite end, make a small hole with a pin or nail.
4. Hold the box in front of you and look at the tracing paper screen.

You should see a coloured, upside-down image of the objects in front of you!

Challenge!

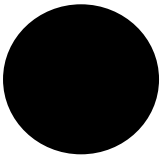
If you really want to challenge yourself, try making a more complex Camera Obscura. Check out this video on YouTube for how to make it:

https://www.youtube.com/watch?v=Y0wenfVfHuo

Activity 2. Retina blind

1. Cover your **left** eye with your hand and look at the **spot** below with your **right** eye (hold it about 30cm away from you).

   You should be able to see the cross out of the corner of your eye.
2. Now hold the paper out in front of you with your arm stretched out and look at the spot. You still should be able to see the cross out of the corner of your eye.
3. Slowly bring the paper towards you as you continue to look at the spot.
4. Suddenly the cross will disappear! The image of the spot has fallen on the blind spot where there is no retina! Bring the paper closer still and you will be able to see the cross again.
5. Repeat the activity but this time covering your **right** eye and looking at the **cross** with your **left** eye.



Activity 3. Focus on the object

1. Stand two metres in front of a picture on the wall.
2. Close one eye.
3. Hold a pen or pencil vertically about 30cm in front of your open eye, and focus on it.
4. The picture becomes blurred.

You cannot focus sharply at the same time on two objects at different distances from the eye!

Activity 4. Pupil reaction

1. Look carefully into a fellow Cadet's eye. How many parts can you see and name?
2. Darken the room and shine a torch into the Cadet's eye (hold the torch about 1 metre away). What happens to the pupil?
3. Move the torch to a distance of 15cm away from the eye. What happens to the pupil now?

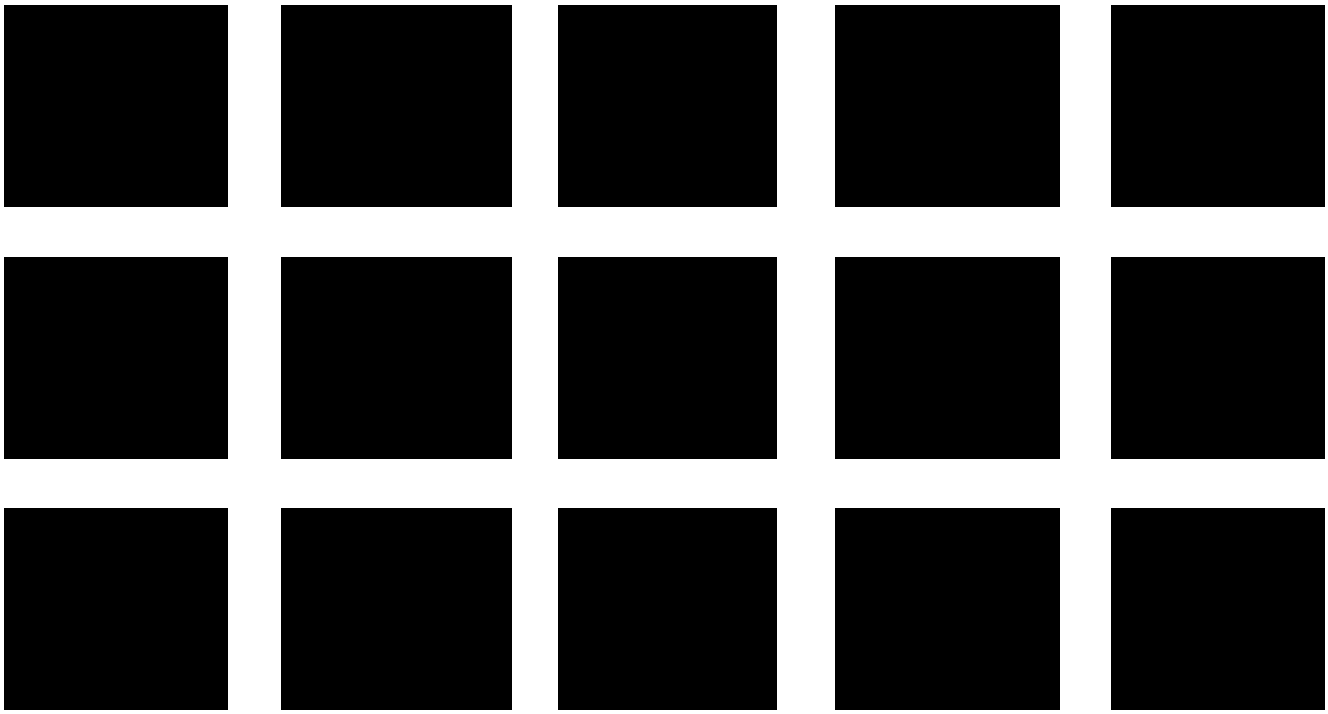
Pupils constrict (grow smaller) when light to the eye increases and dilate (grow larger) when light to the eye decreases or lessens!

Activity 5. After images

1. Stare at a coloured heart below for about 30 seconds, and then look at a plain white sheet of paper. What do you see?

There are three types of colour sensitive cells at the back of the eye. One is sensitive to red light, another green and another blue. If you stare at something green, the green cells eventually get tired. When you look at something white, all the cells send signals but the (tired) green ones don't work.

2. Now check out the following grid of black squares. What shows up on the intersecting (crossing) lines even though they are all white?



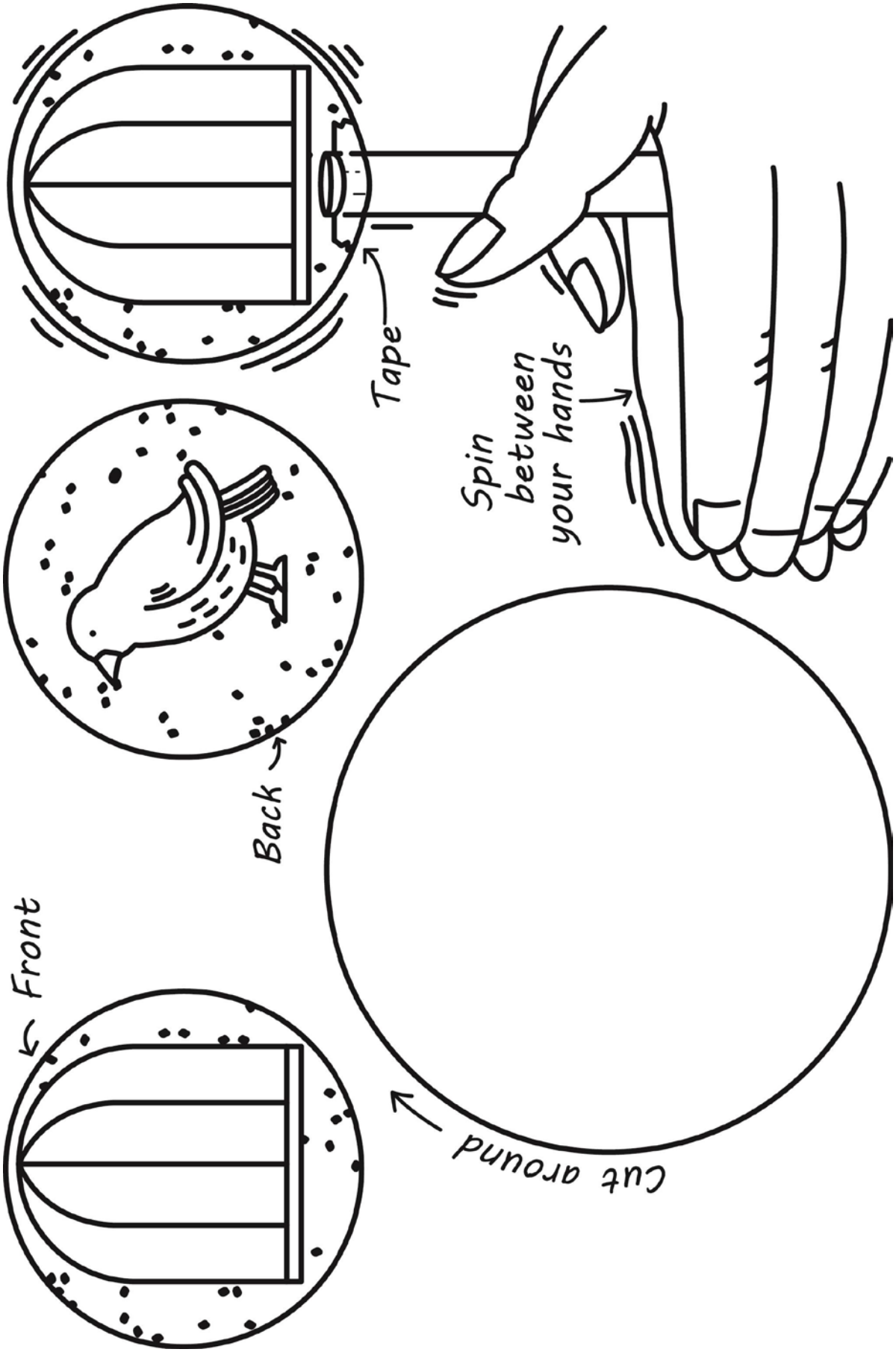
You got it! It looks like there a black dots between all of the intersecting lines, but they are not actually there. This is a perfect example of an after image called an *optical illusion*.

Activity 6. Eye fooled you!

You can trick your eyes and your brain by drawing an optical illusion. You will need a piece of cardboard or thick paper (about A5 size should do), a pencil or rod/dowel, a large jar lid or compass (drawing tool), sticky tape, and pencils or markers for colouring.

1. Trace a circle onto your cardboard (you can use a jar lid or compass to do this).
2. Cut out your circle.
3. On one side, draw a bird cage.
4. On the second side, draw a bird.
5. Colour both the cage and the bird.
6. On one side, tape your pencil or rod/dowel as per the drawing on the next page.
7. Putting the rod between both hands, rotate the stick to create an 'instant movie'. Watch what happens to the free bird.

See the drawing on the next page for an example.


Tape
Spin between your hands
Back
Front
Cut around

EYE EXAMINATIONS

Read this...

There is a basic set of steps that make up an eye examination. This begins with taking a patient's history. It will be followed by eye examinations and some special tests. Your trainer will go through all of the steps with you and show you how to conduct some basic components of an eye examination. You will then get to have a go yourself on a willing fellow Cadet! You will need access to a Pen Torch for some of these activities.

Casualty history

There are a number of basic steps to follow when taking a history (or general observation) for any casualty experiencing difficulty with their eye(s). The best way to begin a history is to note the symptoms a person is experiencing. Often there are specific symptoms that are important and need to be considered carefully. However, as with any history the following are very important:

- date of birth (age)
- general health and past medical history (many diseases such as diabetes and high blood pressure can affect the eyes)
- medications (some medications like steroids, can affect the eyes). It is important to ask if any medication is being taken for the eye, what exactly it's for and when they last took the medication
- past eye history, including accidents, operations, glasses or contact lenses
- family history. This is important because many eye conditions such as cataracts, short-sightedness, macular degeneration, squint and glaucoma can run in families.

When assessing why a person has come to you it is important to consider the following ways in which someone may present their problem:

- loss or change of vision
- pain or discomfort
- change in appearance
- double vision or dizziness
- discharge.

Here's a little information on each of these problems:

Loss or change of vision

One of the most important aspects to think about when someone says they're having trouble seeing, is whether only one eye is affected or both. A patient may describe a number of symptoms with loss or change of vision. Here are some examples:

Sudden loss of vision

This usually occurs in one eye and can be due to blockages of the main arteries and veins in the retina. Bleeding into the vitreous and detachment of the retina can also be causes.

Slow (or gradual) loss of vision

This can usually be seen in both eyes and can be due to the need for glasses, cataract, diabetic eye disease, glaucoma, macular degeneration and many other problems of the retina or visual pathway.

Momentary loss of vision

This can be a result of migraine headaches, high pressure inside the eye, strokes occurring in the retina, swelling of the optic nerve from increased pressure inside the skull from trauma, or diseases of the blood vessels in the brain.

Distorted vision

This can occur when the macular (central vision) is affected or if someone has something called *astigmatism* (a condition where the cornea is an uneven shape, e.g. it is shaped like a football rather than a round basketball). Astigmatism causes some parts of an image to be in focus while other parts are not.

Light sensitivity

This can occur in conjunctivitis, headaches, trauma to the eye or in rare cases is there is an infection or inflammation inside the eye.

Colour change

Certain colours may have a 'washed out' appearance or may be duller than usual, this can occur when the nerve at the back of the eye(s) is affected e.g. by trauma or stroke.

Halos

These can be due to swelling of the cornea, cataracts or an increase in pressure inside the eye. Halos are exactly as they sound, with a halo being a bright circle that appears around the source of light.

Floaters and spots

Again, like they sound, floaters or spots are tiny dots or threads that float across the eye. In most cases they are normal bits of debris floating around in the vitreous, but in some cases, if there are 'thousands' of floaters. This can be caused by bleeding into, or detachment of, the vitreous.

Flashes

These are caused by mechanical stimulation of the retina, and may occur when it tears or detaches. They appear like small sparkles, lightening or fireworks.

Visual field defects

This can be due to diseases of the cornea, or fluids in the eye, the retina or brain e.g. migraine headaches, trauma, stroke etc. These can show as loss of peripheral (outside of the centre of the eye) vision.

Night blindness

This is a rare symptom seen in retinitis pigmentosa (a change in the retina that causes progressive loss of peripheral vision and may lead to blindness), but can also occur as part of aging with the degeneration of the eye and cataract.

Pain or discomfort

A casualty may feel pain and discomfort in many different ways, and may use some of the following words to describe it:

- headache
- eye ache
- burning
- gritty
- itchy
- dry.

Change in Appearance

You or the casualty may notice that their eye looks different to normal. Some of the things that need to be looked out for are listed below:

1. Discolouration:
   - red eye, inflammation or subconjunctival haemorrhage (pooling of blood under the conjunctiva) from trauma, or even sneezing or coughing
   - yellow eyes, in jaundice (liver disease)
   - blue eyes, in some degenerative diseases.
2. Abnormal shape: pupil(s) may be unequal or distorted.
3. Swelling or bruising on the surface of the eye, eyelids or surrounding structures.
4. Lumps or masses on the surface of the eye or eyelids.
5. Displacement:
   - the eye may appear protruded or have a sunken appearance
   - eyes may not look in the same direction.

Double Vision or Dizziness

Double vision in one eye can appear as a ‘ghosting’ of vision, this can occur in astigmatism, cataracts and scarring of the cornea.

Double vision in two eyes is due to an imbalance between the muscles of the eye, which can occur from nerve interference, trauma or displacement of the eye from tumours etc.

Discharge

Pus or yellowish discharge, which can stick the eyelids together generally, indicates a bacterial infection. Watery discharge can have a number of causes, including a viral infection, allergy and irritation or in some cases a blockage in the drainage.

Activity 1. Taking a casualty’s history

In pairs, use an OB12 take a casualty’s history using pages 19-21 of this Workbook as your guide. Be sure to ask your casualty about any loss or changes to their vision as well as asking for general information and history (the casualty can make up their condition, but try not to be too complex, you’re all beginners!).

Eye examinations—need to know stuff

A routine eye examination consists of the following elements:

1. Visual Acuity and Colour Vision
2. General Observation
3. Local Examination
4. Pupil Examination
5. Eye Movements
6. Front of Eye Examination
7. Field of View (Visual Field) Examination
8. Retinal Examination.

Hot tip... It is important to always practise handwashing skills and the use of gloves during any examination to avoid the exchange of fluids and introduction of foreign matter into the eye!

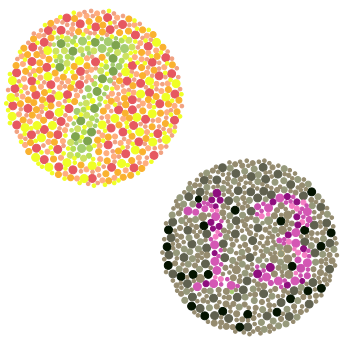
Visual Acuity and Colour Vision

Visual acuity is the ability of the eye to see fine detail. You've probably heard of 20/20 vision (however in Australia we call it 6/6 vision). This means that a letter or line of letters designed to be seen at 6 metres away (for a standard size chart) can be seen from 6 metres away. This is called **normal vision**.

To test visual acuity, health professionals such as optometrists, orthoptists, eye doctors (ophthalmologists) and nurses use a vision chart with a series of letters that get smaller as you read down it. The smaller the line that can be read, the better the vision. This is called testing distance vision and is usually performed at 6 metres. However some charts can be used at closer distances. There are many different types of distance vision tests designed for children and adults. The test that most people recognise when they visit the optometrist is called a **Snellen Chart.** Visual acuity tests for children include charts with pictures or shapes.

To test visual acuity a person is placed at the appropriate distance from the chart and covering one eye at a time is asked to read down as far as they can. Vision is recorded at the smallest line read. If a person cannot read any letters on the chart, it can be moved closer usually by half the distance. If the person still cannot see anything on the chart, other tests such as ability to count fingers, see hand movements or a light being shone into the eye(s), can help to assess vision.

Colour vision is often assessed using a test called the **Ishihara Test**. This test contains a series of plates, each containing multiple coloured dots, in which there is a pattern or number. If you can see the patterns or numbers on all the plates then colour vision is normal. If someone has difficulty recognising the pattern or number, then they may have a colour vision disorder. There are many other tests of colour vision, which are extremely sensitive to very small colour differences, but the Ishihara test is the main one.



How you can test vision as a first aider?

To assess vision in the first aid setting, a number of techniques can be employed. Firstly ask:

- if the casualty has noticed any change i.e. is vision clear or hazy (remember to ask if they wear glasses/contacts as vision will probably be affected without them)
- can they read your name badge clearly
- them to read the print on the OB12 (Patient Record Form) at their usual reading distance. Is there any change? (Do they wear reading glasses?).

You can also test a casualty's vision by their ability to count fingers. To do this stand at a distance of half a metre from the patient and then directly in front of the eye randomly show them 1, 2 or 5 fingers, 5 times. If the casualty can see 3 out of 5 then they are able to count vision. Record your results on an OB12. If they are unable to count fingers, then you can test vision by moving your hand from side to side and up and down and then ask the patient what you are doing with your hand. Do this at the same distance. If they can tell you which way your hand is moving then record vision as 'hand movements' on the OB12.

If they are unable to recognise a hand moving, then with your pen torch move the light over their eye(s) asking them if they can see the light. If so, then record their vision as 'light perception', if not, there is 'no light perception'. Record the result on the OB12.

Activity 2. Visual acuity test

Using the Snellen Chart on page 24, and working with another Cadet, record for each eye the visual acuity of your eyes and the eyes of your partner. A tape measure would be helpful for this activity.

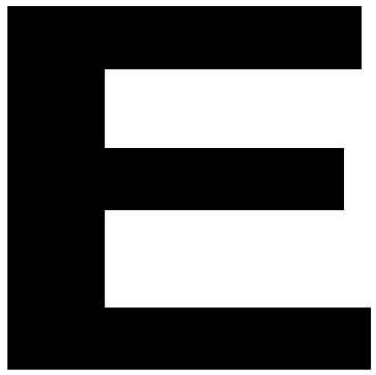
If you or your partner can read the 6th line down (red arrow) standing at 3 metres away (the appropriate distance for an A4 chart), then you have 6/6 vision (sometimes called 20/20 vision outside of Australia). Not many humans can read to 6/10 or what would be the 10th line down in a full chart, but many animals would be able to!

*** Note: It is important to know that the chart that you will be using is unlikely to be the exact size and won't necessarily produce accurate results. This activity is meant to help you understand the process of a visual acuity test rather than assess someone's vision. If you have any concerns about your vision, seek medical aid from a qualified eye care professional.**

	You		Your partner	
	Left eye	Right eye	Left eye	Right eye
Last line read clearly (e.g. 4th line down)?				

Visual Acuity Chart - Approximate Snellen Scale

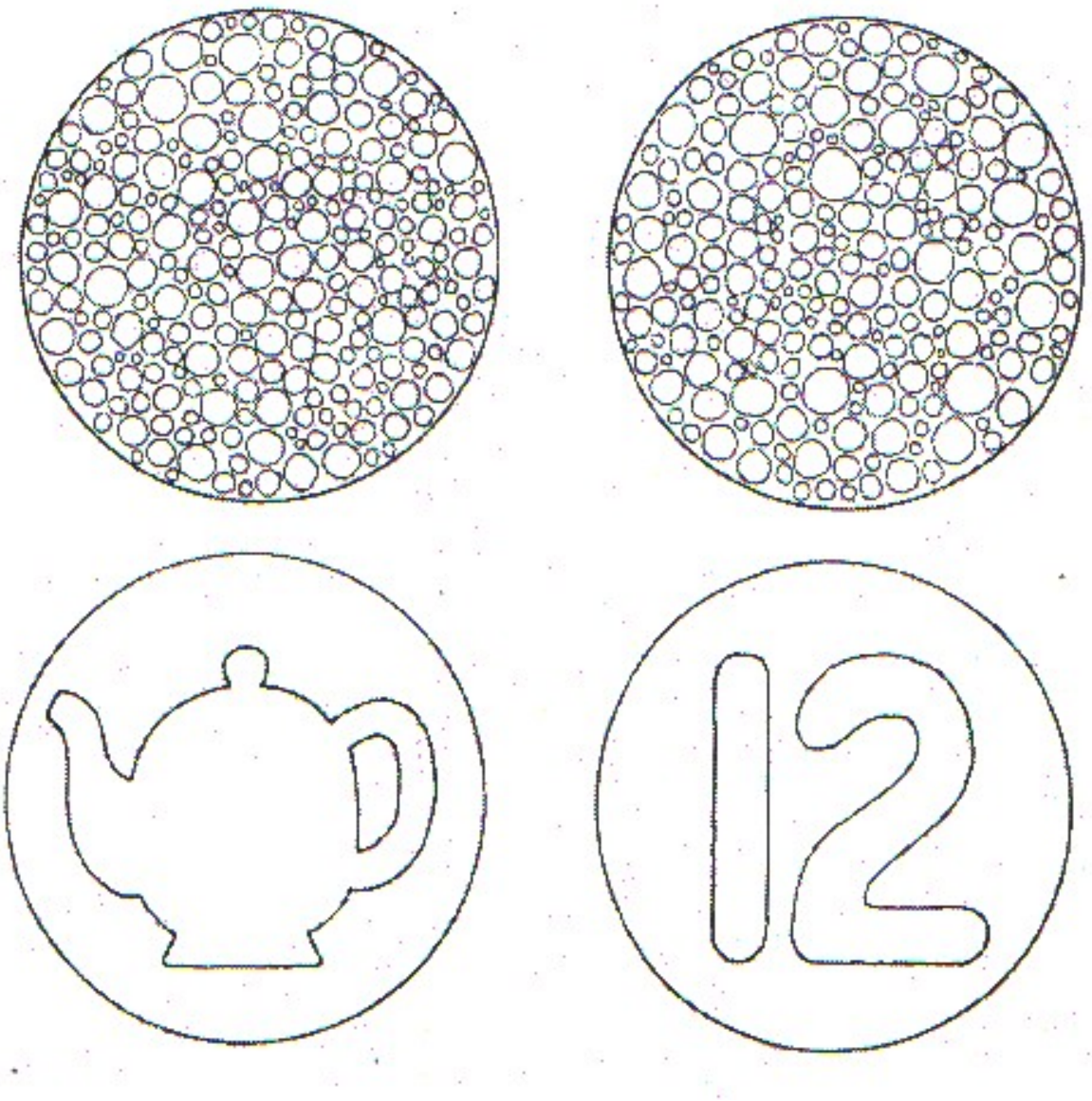
For Educational Purposes Only



20/200	E	6/60
20/100	H N	6/30
20/70	D F N	6/20
20/50	P T X Z	6/15
20/40	U Z D T F	6/12
20/30	D F N P T H	6/9
20/20	P H U N T D Z	6/6
20/15	N P X T Z F H	6/4½

Activity 3. Checking for colour blindness

Using the worksheet on page 24, use one colour to make a teapot shape in the circle of dots, using the outline of a teapot below, and another colour to fill in the background. Repeat this, but with the number 12 (you can use different shades this time if you like!).



Now, test it out with another Cadet to see what shapes they can pick. Which colours are easiest to see? Which colours are hardest to see?

Local examination

In a clinician's examining room the local examination is often done with a special instrument called a **Slit Lamp**. This is a device that has a headrest and enables the examiner to focus a beam of light on all parts of the eye and surrounding areas under magnification. This light can be made smaller or larger, brighter or dimmer depending on what needs to be examined. Different coloured lights can be used to assess eye pressure and problems affecting the surface of the eye.

As a first aider, you can look at the face, eyelids and skin. This can be done in the field with a Pen Torch and a magnifying glass if necessary.

Pupil examination

Pupils should be inspected for:

- equality (are both pupils the same size?)
- size
- shape
- reaction to stimulation (light reflex to direct light and when shone in the other eye).

You should always ask the casualty if any medications are being taken that might cause the pupils to be constricted or dilated. Normal pupils are equal in size. The pupil is often larger in children and gets gradually smaller with age. A slight difference in the size of the pupils is often seen and is normal variation. Unequal pupils may suggest an eye or neurological problem though.

Small pupils (less than 4mm in diameter) are called *constricted* and can be caused by the following:

- head injury
- narcotics (e.g. heroin, morphine)
- excessive alcohol
- stroke or nerve disorder
- bright lights
- glaucoma medications.

Enlarged pupils (larger than 7mm) are called *dilated*. Causes of dilated pupils include:

- head Injury
- direct trauma
- fright
- drugs (e.g. atropine and certain eye drops)
- increased pressure inside the skull from trauma
- altered conscious state.

Irregular pupils are often pathological (or abnormal). The shape of the pupil can be affected by abnormalities at birth, other diseases such as inflammation of the iris or

resulting from trauma. Yet in some cases there may be a normal variation. Others can be caused by:

- head injury
- stroke
- eye injury
- eye medications
- an artificial eye.

How to examine the pupils

Holding the pen torch about 15cm above the casualty's face and in a sweeping motion, the light should be brought from the side of the eye until shining into the pupil and removed. While doing this, the patient should be instructed to look at something in the distance. The reason for this is that the pupils constrict as a normal reaction when focusing on something at a close distance (e.g. when reading), this is called the *near reflex*. By looking into the distance this cancels that effect.

Testing the pupil of one eye is called the *direct light response* and should be done on both eyes. Also, when testing the pupil in one eye, the other pupil should constrict as well as part of the normal response, this is called *consensual response*. It is also important to note that this response occurs normally.

Eye movements

Examining the movement of the eye is important when someone says they have double vision, a turned eye (squint), or have sustained a blunt injury to the eye. This examination tests the coordination of the muscles that control the movement of the eye.

The position of the eyes should be observed with the patient looking straight ahead. The casualty should be instructed to keep their head still. With a pen torch, ask the patient to follow the light from side to side and up and down. Diagonal positions are also tested i.e. up and to the right or down and to the left (but this is usually only performed by eye health professionals).

When testing eye movements, any restriction of either eye should be noted as well as any pain on movement. If the casualty is experiencing double vision, ask them 'does it get better or become worse in one position compared to another?'

Front of eye examination

In the field, it is possible to examine the front of the eye(s), but can often be hard and at times impractical.

Activity 4. Be a star pupil!

Try out your own font of eye examination with a fellow Cadet. You will need a Pen Torch to help you look at the structures of the eye.

Check the following parts of the eye (if you can't remember some of the parts of the eye, don't worry! Just re-check your diagram on page 10):

Eyelashes:

- Are the eyelashes pointing in towards the eye and scratching the cornea?

Eyelids:

- With one finger, gently pull the lower eyelid down until you can see its surface, observe if there are any foreign bodies i.e. dirt etc. Does it look smooth and pink or swollen and red?
- Look at the surface of upper eyelid. To do this ask patient to tilt their head back and look down, gently grasp the eyelashes and pull lid up until you can see the surface. You may have to do this a couple of times along the length of the eyelid to inspect all of it. Look for foreign bodies. Does it look smooth and pink or swollen and red?

Conjunctiva:

- Does it look swollen, red, and watery? Is there any pus? Are there any lumps?
- Are there any foreign bodies present?

Sclera:

- Does it look swollen or red?
- Are there any foreign bodies present?

Cornea:

- Check for foreign bodies!
- Does it look hazy or swollen?

Anterior Chamber:

- Is there any blood or pus?

Iris:

- Look at colour and shape, and test pupil reactions (see page 26).

Write your findings on your OB12. Hopefully, your casualty will have no issues to report!

In the eye professional's office, all these are examined in a similar way. However, an ophthalmoscope or a slit lamp is used to provide both illumination and magnification, as often many problems are hard to see with the naked eye.

Field of View (Visual Field) examination

Assessment of a person's *field of view* or *visual field* is a very important part of an eye examination. There are a number of methods used to test visual field, either manually or by a machine.

Manual testing can be performed via the **confrontation method** or by using a specially designed wall mounted screen. The confrontation method usually involves the examiner sitting directly in front of the patient and using his or her fingers or some other object to assess for any field loss in different areas. When a screen is used, the examiner seats the casualty in front of it at a specific distance and then slowly moves an object from outside the field of view towards a central dot (which the casualty is

looking at). The casualty is then asked when they can first see the object and if it disappears at any point. In all field tests each eye is tested separately.

When using an automated or machine test, the casualty places their head into a large dome. Like in all field tests they are asked to focus the uncovered eye on a central spot and while doing so, lights of different brightness appear in various areas of the field of view. If the casualty sees a flash of light they are asked to hit a buzzer, which tells the machine they have seen it, this then helps to create a map of their visual field.

There are many causes of visual field loss, some of which are mentioned below:

Affecting both ryes:

- stroke
- glaucoma
- brain tumours, and
- trauma e.g. compression of visual pathway in the brain.

Affecting one eye:

- Glaucoma
- Trauma, or
- blood vessel defect of the retina or optic nerve.

Retinal Examination

To examine the retina special instruments used by eye professionals are needed for retinal examination. A brief introduction to these is given below.

Special Tests and Instruments

Eye professionals use special equipment to look at the back of the eye or retina. The most common instrument used is called an **ophthalmoscope**. This is a hand held instrument containing a series of lenses for magnification and illumination that can be used to look directly into the eye. It is brought right up to the patient's eye and can be used to examine all of its different parts.

As mentioned earlier, another ophthalmoscope is the slit lamp. However instead of being hand held it is mounted on a table and supports the head of the patient making examination easier. It is also used to examine all parts of the eye, often with the aid of angled mirrors and magnifying lenses, particularly when examining the retina.

Using both these instruments it is possible to provide a complete examination of the eye. To examine the cornea often a yellow dye called *fluorescein* is put on the surface of the eye and using a cobalt blue light to illuminate it, areas of dryness, ulceration, abrasion etc. can be assessed. They can also be used to see if there is blood or inflammatory cells in the anterior and posterior chambers and the vitreous. These instruments help to examine cataracts and all aspects of the retina particularly the area called the **fundus** (this is a circular area of the retina containing the macula and the optic nerve).

The slit lamp can also measure the pressure inside the eye. An instrument called a **tonometer** (most commonly attached to the slit lamp) measures the pressure by directly touching the cornea, which has first been anaesthetised. Fluorescein dye

illuminated with a cobalt blue light is also used. There is also a hand held instrument called a **tono-pen** that can be used to measure pressure in the same way, however it doesn't require dye to be instilled. Some clinics also use a puff of air onto the cornea to measure pressure.

PREVENTION & FIRST AID

Read this...

In this Topic, you will learn about how to prevent eye injuries and appropriate first aid management protocols.

Prevention

It is important to be aware of the possible dangers of eye injuries during certain activities. Eye injuries can be prevented by wearing protective goggles or appropriate shielding while:

- operating machinery
- playing sports (e.g. ball sports, contact sports), or
- using chemicals.

Other ways of prevent eye injuries include:

- Carrying sharp object with the sharp end down (e.g. scissors).
- Never use fireworks in confined spaces.
- Supervising children when they are handling potentially dangerous items (e.g. scissors, pencils etc.). Be aware that even common household items like paper clips, elastic cords, wire coat hangers, rubber bands and fish hooks can cause serious injury.
- Check the age appropriateness of projectile toys like darts, guns, bows and arrows. Never allow children to play with paint ball guns, pellet guns or air-powered rifles.
- Always check to make sure spray nozzles face away from the face.
- Use grease shields to cover frying pans and protect eyes from splattering liquids.
- Read instructions before using tools and chemicals.

Common types of damage to the eye

There are a number of things that can cause damage to the eye. The most common of these are discussed below. When treating someone with an eye injury, it is important that your hands are thoroughly washed and clean, and disposable gloves are worn.

Know that inspections of a damaged eye may be difficult due to involuntary spasms, swelling or twitching, mucus and blood discharge, or injuries to the eyelid or face. Also, an eye injury always results in pain and watering. The whites of the eye often become red and the casualty may be unable to open their eye.

Where an injury to an eye is severe, do not persist in examining the eye, but call for immediate medical aid.

A note on contact lenses

If the casualty wears contact lenses which can be removed easily, ask the casualty to remove them before you deal with the eye injury. Do not remove contact lenses yourself, request that the casualty removes it for themselves. **A contact lens should not be removed if the surface of the eye is badly injured.**

Never put a patch on an injured eye that has a contact lens in it, as doing so could cause further damage.

Activity 1. Skill up!

Your task is to perform simulated first aid for each type of eye injury. A Skills Checklist is contained at the end of this Topic for your Trainer to sign off on once you've demonstrated competence in the management of each condition.

Wounds to the eye

Wounds to the eye are caused by a direct blow (e.g. from a fist fight) or by fast moving objects (e.g. a squash ball) can be painful and severe. If the injury is severe, do not persist in examining the eye but call for immediate medical aid.

Lacerations and bruises around the eye

Lacerated eyelids generally bleed profusely because of the many blood vessels in this area. A dressing on the injured part will usually control bleeding. However, care must be taken to make sure there is no pressure applied to the eyeball as this may cause permanent damage.

What to do

1. Follow DRSABCD.
2. Reassure the patient.
3. Place a light dressing over the injured eye only, making sure there is no pressure on the eye.
4. Ask the casualty not to move their eyes.
5. Lie the casualty in a comfortable position on their back.
6. Ensure an ambulance has been called: Triple Zero (000).

Small (foreign) objects in the eye

Foreign objects in the eye can be irritating and extremely painful and may cause significant damage. The eye tries to flush the foreign object out by natural watering (tears), but this is not always successful. It may be necessary to take further action to remove the object.

Loose eyelashes, grit, dust, glass, cosmetics, metal particles, and insects are some of the foreign objects that may enter the eye.

- DO NOT allow the patient to rub their eyes. Despite the strong desire to do so, rubbing may damage the cornea or other parts of the eye.
- DO NOT remove any foreign object from the cornea of the eye.
- DO NOT remove any object embedded in or protruding from the eye.
- DO NOT persist in examining the eye if the injury is severe.

What to do

1. If tears do not rid the eye of the foreign object, ask the patient to look up.
2. Gently draw the lower lid down and out.
3. If the object is visible, remove the object using the corner of a clean, moist cloth, gauze or cotton bud.
4. If the object is not visible, ask the patient to look down.
5. Gently grasp lashes of the upper lid.
6. Pull lid down and over lower lid; this may dislodge the foreign object.
7. If unsuccessful, wash the eye with a gentle stream of sterile saline or clean cool water.
8. If the object cannot be removed, cover the injured eye (only), with an eye pad or clean dressing.
9. Seek medical aid.

Penetrating eye injury

A penetrating eye injury is usually caused by a sharp object which has gone inside the eye, or is protruding from the eye.

Any sharp object which penetrates the eyeball can cause serious damage and may cause infection if not properly managed.

What to do

1. Follow DRSABCD.
2. Help the patient to lie down in a comfortable position on their back.
3. DO NOT attempt to remove the object.
4. Cover the injured eye only. Place thick pads around, or above and below, the eye, or cover with a paper cup.
5. Bandage the pads in place, making sure there is no pressure on the eye.
6. Ensure an ambulance has been called: Triple Zero (000).
7. DO NOT give any food or drink.

Embedded object in the eye

An embedded object is one that cannot be easily removed by flushing with sterile saline or water. **A first aider should never try to remove any object embedded in the eye.**

What to do

1. Follow DRSABCD.
2. Cover injured eye with an eye pad or dressing.
3. Seek medical aid.

Burns to the eye

Burns to the eye can be caused by chemicals (e.g. acids, caustic soda, lime, plant juices, sap), heat from flames or radiant heat (the sun), welding flash or other ultraviolet light, glues and solvents.

In addition to the eyes being painful, red and very watery, they will be sensitive to light and eyelids will be swollen.

If the injury has been caused by a welder's flash, the eyes will feel gritty and painful. This is not felt until several hours after the exposure. The eyelids are often in spasm.

Snow blindness is caused by ultraviolet light, and symptoms are the same as those caused by welder's flash.

Warning: If chemicals have burnt the eye, act with extreme urgency.

What to do

Chemical or heat burns

1. Follow DRSABCD.
2. Open eyelids gently.
3. Wash eye gently with cold flowing water for 20 minutes. Make sure to wash under eyelids; turn the upper eyelids back.
4. Place eye pad or light clean dressing over the injured eye only.
5. Ensure an ambulance has been called: Triple Zero (000).

Welder's flash, snow blindness or other ultraviolet light burn

1. Place eye pads or light clean dressings over the injured eyes.
2. Seek medical aid.

Smoke in the eyes

Smoke in the eyes will probably cause the patient pain, and the eyes will look red and watery.

What to do

1. Follow DRSABCD.
2. Ask the patient not to rub their eyes.
3. Wash the eyes with sterile saline or cold water.
4. Seek medical aid if necessary.

Skills checklist

Type of injury	Competent (to be initialled by assessor)
Wounds to the eye	
Small (foreign) objects in the eye	
Penetrating eye injury	
Embedded object in the eye	
Burns to the Eye: • Chemical or heat burns • Welder's flash, now blindness or other ultraviolet light burn	
Smoke in the eyes	

WORKING WITH SOMEONE WITH VISION IMPAIRMENT

Read this...

When you meet a person who has vision impairment, the first and best thing you can do is ask questions. The worst thing you can do is to assume you know what they need! Every person who has vision impairment experiences life very differently to someone else with vision impairment. Some people who have vision impairment are not totally blind. Some will have side vision, while others might be able to see what is in front of them but not what is immediately to their left or right.

This Topic will discuss some ways that you might assist someone who has impaired vision and how advances in technology can help, even in the simplest way!

Guiding someone who has impaired vision

Sometimes people who experience vision impairment find it useful to be guided by a sighted person. But before you offer to guide a visually impaired person, ask if they would like your help. If you do not know each other, introduce yourself and ask where they would like to go.

1. If they ask for your help, contact the **back of their hand with the back of yours**. They can then choose to hold on to your arm just above the elbow.
2. When you walk with the person, **walk about half a step in front of the person, and slightly to the side**. Always walk at a pace that is comfortable for both of you (no rushing ahead!).
3. Warn them of **hazards** at head height, foot level (e.g. any changes in ground surface) as well as to the side.
4. If you need to pass through a **narrow space**, make sure you tell them what is coming. You can move your guiding arm towards the centre of your back and let them know that they need to walk behind you. Make sure you don't lose contact with your arm when doing this.
5. If you need to **change sides**, it is easiest to do if you are both standing still. Again, be sure not to lose contact with the person while changing sides. You can allow the person to hold your guiding arm with both of their hands, and then they can move one hand to your other arm.
6. When passing through a **doorway**, before you get to the door explain which way it opens (e.g. away from you or towards you). Open the door and walk through with the person on the **hinged side** of the door.

7. When you come across **steps**, stop at the first step and tell the person if the steps are going up or down. If there is a handrail, the person you are helping may choose to use this. Start walking when the person is ready and walk one step ahead, telling the person when you reach the bottom/top.

8. When helping the person to **sit down** (e.g. in a chair), tell them which way the chair is facing. You can place your guiding arm on the chair and explain which part of the chair you're touching. The person can then move their own arm down your arm to touch the chair for themselves.

9. **Getting into a car** can be challenging for a visually impaired person, but if you tell the person which way the car is facing, and which door they are getting into, plus place your guiding arm onto the door handle (so they can run their hand down your guiding arm) it can be very helpful. You can also place your arm on the inside of the roof so they can feel where the roof is to avoid bumping their head.

10. Tell them when you arrive at the destination and when you are about to leave.

Source: Adapted from: http://www.visionaustralia.org/living-with-low-vision/learning-to-live-independently/in-the-community/useful-tips-and-mobility-fact-sheets/guiding-a-person-who-is-blind-or-has-low-vision

Activity 1. Experience it for yourself

In pairs, practice the steps in 1 to 10 above in your divisional hall (or in a nearby outside space). One person can either choose to shut their eyes or be blindfolded (no peeking) while the other person is the guide. You will also need to ensure that chairs are available for the activity (you can even set up 4 as a pretend car or use a willing leader's vehicle to practice for step 9).

Once each of you has finished the steps above, reflect on your experience and write in the following spaces what your experience was like in both roles, including any challenges you faced. Was being vision impaired or the guide harder?

Being the guide:

Being the person with vision impairment:

Communication

The way you communicate is very important and may require you to adapt the way you would normally speak or respond.

Identify yourself

When you approach a blind person, always say ‘Hello’ and identify yourself (never assume that the person will know who you are by your voice). Always tell them when you are leaving, so that they are not left talking to themselves.

Talking

Do not change the way you speak, speak naturally and clearly. Use everyday language that comes naturally to you. Do not be afraid to say ‘look!’ or ‘nice to see you’– most blind people use these words or phrases themselves. Avoid responding non-verbally only, for example by nodding or shaking your head.

In a group

If you and the person are in a group setting, address them by name or use a light touch on the arm to indicate that you are speaking to them. Always introduce the other people in the group.

The person may also have hearing loss

Allow for the possibility, especially if the person is older, that they might also have hearing loss. If they do, talk to them in quieter areas and, if they wear a hearing aide, walk on that side of them.

Describe the surroundings

Depending on the situation, many people with vision loss appreciate a description of their surroundings. You might like to describe the interior of the building– its size and furnishings, and how many other people are there. Here’s an example:

Instead of saying: “There’s a spare seat next to you.” Say: “The seat next to you, on your right, is taken but the seat on your left is free.”

Personal space

To allow you’re the person maximum independence in the home, make sure their belongings and the items they frequently use are kept in the same place– this will make it easier for them to locate things.

Eating

You can assist a visually impaired person when eating by thinking about what you prepare– foods such as peas, for example, may be difficult for the person to eat as they slide around the plate. You should also tell them where their glass/cup is and ask them if they would like condiments such as salt and pepper.

The ‘clock’ method

By simply arranging the food on the plate in a certain way, a visually impaired person can have more control over what they are choosing to eat. If they are told where the food is on the plate– for example, the potatoes are at ‘12 o’clock– they will be able to eat without your assistance. Place the main item of food at ‘6 o’clock’. Plates may be fitted with a guard.

But most importantly, when helping a person with vision impairment, relax and be yourself!

Other tips to help people with vision loss

Always be close by

Do not leave a vision impaired person alone or in a situation where they could possibly become disorientated or where there are hazards (e.g. for trips and falls).

Meetings

If you are at a meeting with a person who has vision impairment, tell them who else is there. A good policy if you are conducting the meeting is to hold an informal roll call of people who are present.

Visual displays

If visual displays are being used at a meeting, describe them to the person with vision impairment. If handout material is used, you might like to provide it in Braille or on audio cassette. Some people with vision impairment use screen readers, which verbally read information from a computer screen.

Toilets

You can ask the person with vision impairment if they know where the toilets are and if they need assistance at any stage to get there.

Activity 2. Seeing technology

Imagine that you have a visual impairment, what kinds of day-to-day tasks might you struggle with? You can list some ideas below:

As a small group, pick just one of those day-to-day tasks and think about how technology might help? Come up with a concept for your own App (application) using the template below (think into the future, don't let limitations in technology today stop your ideas flowing!):

What is the problem that your App is trying to solve? Describe this below:

How would your App address the problem/what's your solution?

Who are the users (e.g. vision impaired people, volunteers, members of the public)?

What features would your App have?

You never know, you App could be the next big thing!

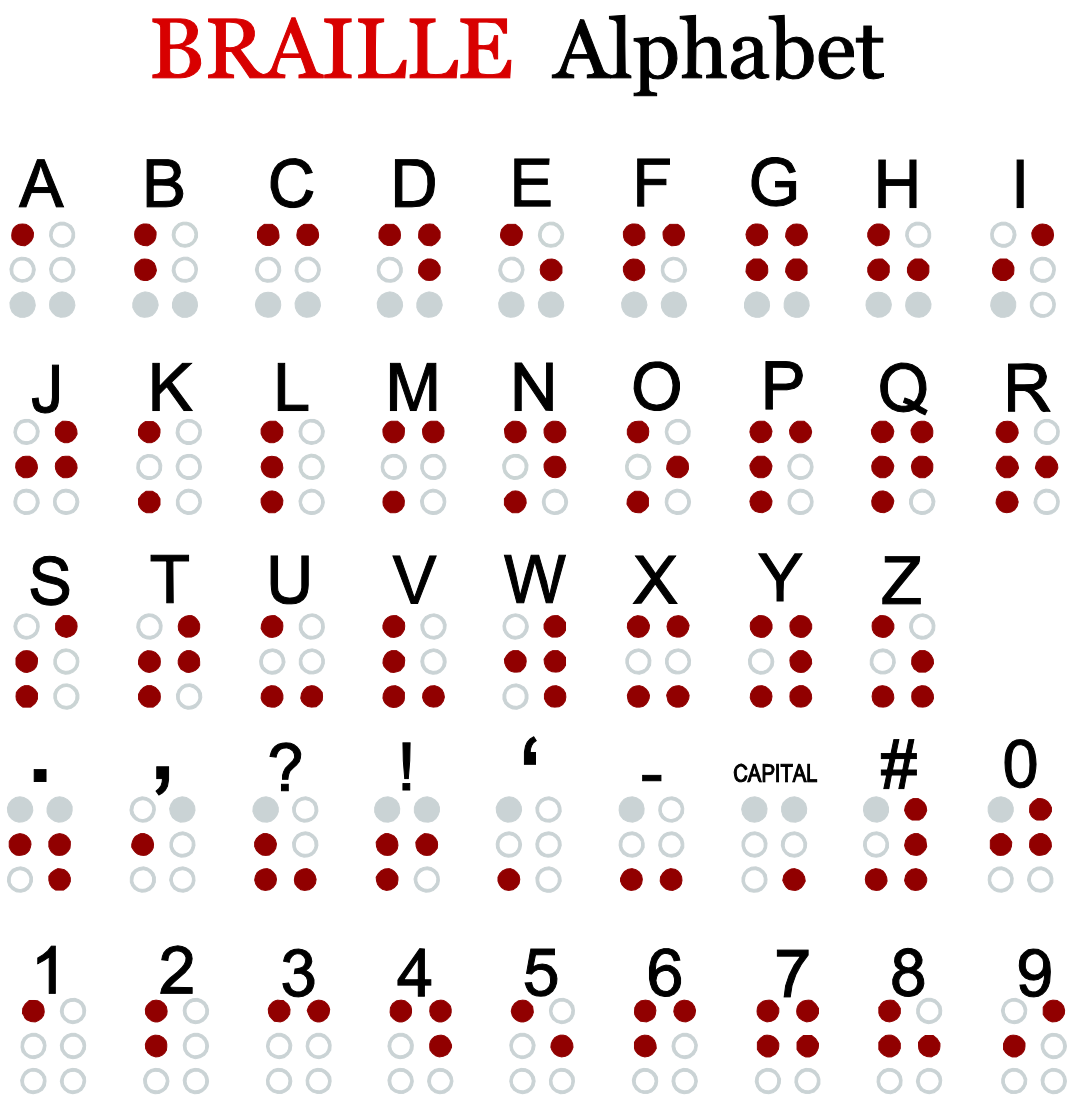
Activity 3. Braille

Louis Braille was a French organist and teacher of the blind (and was also blind in both eyes himself). He developed a system of raised dot-writing for literature and music. His first book on the topic was published in 1829 (when he was only 15 years old!). This remarkable system, called the Braille Alphabet, makes it possible for people who cannot see to read with their fingertips!

Strangely, Braille did not take off until after Louis' death in 1852. Braille then started spreading worldwide in 1868. Now, nearly every country in the world uses Braille!

The Braille alphabet is based on a rectangle made up of six dot positions. By changing the number of dots used and varying their positions within the rectangle, Louis Braille was able to come up with enough variations to represent twenty six letters *plus* ten numerals and all the basic punctuation marks. Pretty cool stuff!

Here is the Braille Alphabet, number system and basic punctuation:



Now, try writing a short message in Braille to a fellow Cadet and sign it with your name in the space provided. See if they can interpret the message!

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Other great resources for you!

Check out the National Member Connect website at: http://members.stjohn.org.au/

Username: onestjohn Password: member

Join the St John Australian Youth Advisory Network on Facebook at www.facebook.com/stjohnayan or their website at www.ayan.org.au.