Gorokan High School Workbook

Gorokan High School

GHS

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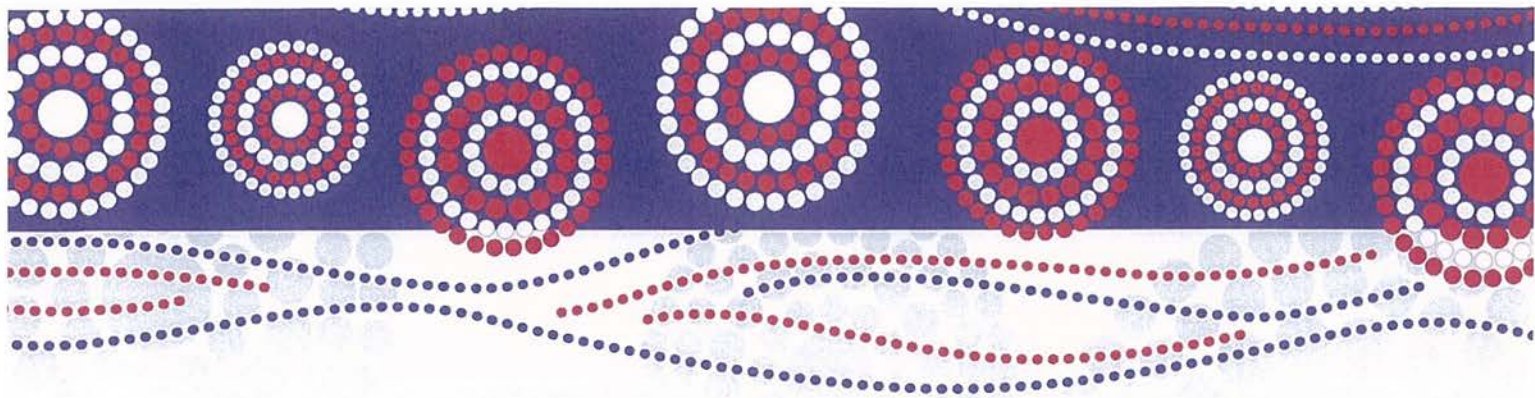
Pathways to Learning

1976

Respect · Personal Best · Co-operation

YEAR 8

BOOKLET 2

ENGLISH

Year 8
Shakespeare's World

This term you will study Shakespeare's world as well as the play, "A Midsummer's Night Dream". The following notes will be used as the basis for a speaking task later. Don't worry about this for now, just enjoy immersing yourself in the crazy world of Shakespeare. Enjoy.

A further booklet that deals with the play will be issued later if required.

Everyday Life
By Michael J. Cummings © 2003

London in 1600 was one of the great crossroads of the world. From all the regions of Britain and from lands across the seas, people crowded into the city to conduct business, find work, gain standing at the royal court, or entertain themselves or others. Greater London at that time had more than 200,000 residents, many of them living beyond the boundaries of the original walled city founded as Londinium by the Romans when they arrived in south-eastern Britain in AD 43.

William Shakespeare made London his second home between the late 1580's and 1612. He shared the narrow thoroughfares with sundry animals—such as dogs, cats, pigs, and ducks—and with a motley swatch of humanity: milkmaids, blacksmiths, jugglers, sailors, chimney sweeps, wheelwrights, magicians, stool-makers, government spies, perfumed ladies, bejewelled gentlemen—and, on occasion, perhaps even the queen herself traveling with an entourage of carriages.

Here and there he would cross paths with a prince or a pickpocket—or push through a crowd gathered at a gallows for a hanging. From time to time, he would step around horse dung, a pile of ashes from last night's supper fire, or, in years of plague, a wagon loading corpses.

Sheriffs kept the peace, assisted by constables in sections of the city known as parishes. In each parish, citizens helped the constable maintain order by patrolling neighbourhoods at night.

Shakespeare went to London to make his mark as a writer and actor, traveling back and forth between the city and the town of his birth, Stratford, about 90 miles to the northwest. The trip probably took two to four days by horseback or wagon along roads shared by cadgers, robbers, messengers, itinerant merchants, minstrels, farmers, and soldiers marching to or from service.

Over the years, he rented lodging in various parts of London, usually not far from the Thames, the great river that rose in the Cotswold Hills in England's western Midlands and snaked its way more than 200 miles south-eastward to London and the sea.

The river was a vital artery in the city's life, carrying rowboats, barges, and sailing ships on missions of commerce. After rainstorms, the river carried away human excrement and rotting food washing in from ditches, dung piles, cesspits, and streams. (Citizens emptied chamber pots into cesspits or ditches, or simply threw the contents out of windows or doors or into a stream crossing their property. They emptied containers from outdoor toilets the same way.) The river divided Greater London into northern and southern sections.

Shakespeare lodged in more than half-a-dozen dwellings on both sides of the Thames in districts that included Bishopsgate, in the northern section, and Southwark, in the southern section.

London Bridge, constructed between 1176 and 1209, was the only causeway connecting the northern and southern sections, although boats were available to ferry travellers across the river. Shops on which dwellings were built lined both sides of the bridge. Above the traffic lane in the middle were passageways (resembling overpasses above modern highways) connecting buildings on one side of the bridge with those on the other.

When approaching London Bridge, the wondrous span, Shakespeare would see a strange and frightening sight: the impaled heads of traitors atop an entranceway as a reminder to citizens that although they could cross the bridge they could not cross the royal government.

In Southwark, Shakespeare staged plays at the Globe Theatre, built in 1599 west of London Bridge in an area known as Bankside. The Globe was not the first playhouse in Southwark. Others constructed there before it were the Newington Butts Playhouse (1580), the Rose (circa 1587), and the Swan (1595).

Southwark was wild and raucous—a haven for drunks, prostitutes, con men, gamblers, and thieves. There were scores of inns and taverns. One was The Tabard Inn, made famous in the prologue of Geoffrey Chaucer's *Canterbury Tales*. There were also bloodsport rings and arenas, where spectators paid to see cockfighting or snarling dogs attack chained bears or bulls. Queen Elizabeth was among the aficionados of bearbaiting and bullbaiting, as these brutal divertissements were called.

Shakespeare apparently passed no small portion of his time in taverns, as historical records and scenes in his plays suggest. There, he made the acquaintance of other playwrights, poets, and actors, all noted for their wit and learning. This brotherhood of ale and assonance included Christopher Marlowe, Ben Jonson, George Peele, Thomas Nashe, Thomas Watson, Robert Greene, Thomas Lodge, and Edward Alleyn. They were a sometimes rowdy coterie. Jonson, for example, had been accused of murder after duelling to the death with an actor; he was exonerated. Marlowe and Watson had also been accused of murder, notes Stephen Greenblatt in his book *Will in the World*.

Watson . . . intervened in a street brawl between Marlowe and an innkeeper's son named William Bradley. The brawl, on Hog Lane, near the Theatre [playhouse] and the Curtain [playhouse], ended with Watson's sword stuck six inches into Bradley's chest. Watson and Marlowe were both arrested on suspicion of murder but were eventually released, on grounds of self-defence. (201)

Marlowe, an extraordinarily gifted writer, died in a brawl at an inn, the Eleanor Bull house, in the London suburb of Deptford after suffering a dagger wound in or above his right eye. He was only 29.

Greene, a popular poet and playwright, was well educated, having obtained degrees at Oxford and Cambridge. However, he, too, was a rowdy fellow, known especially for overindulging in drink and food and keeping company with thieves, swindlers, and gamblers.

Alleyn, an exceptionally talented actor, was also an exceptionally unscrupulous investor—at least by modern standards—for he was a part owner of a bearbaiting enterprise.

November 17, 1558
Accession of Queen Elizabeth

The daughter of King Henry VIII and his second wife, Anne Boleyn, Elizabeth succeeded her Catholic sister Mary I and re-established the Protestant Anglican Church.

April 26, 1564
William Shakespeare's Baptism (Born 23/4)
The baptism of 'Gulielmus filius Johannes Shakspere' is recorded in the register of the Holy Trinity Parish Church, in Stratford-upon-Avon. Although the exact date of Shakespeare's birth cannot be confirmed, the consensus is that Shakespeare was born on April 23, 1564.

September 4, 1568
Election of John Shakespeare as Bailiff
Shakespeare's father, John, was elected to many civic positions including chamberlain of the borough in 1561, alderman in 1565, and high bailiff in 1568. John was also Stratford's official ale taster.

November 27, 1582
Shakespeare's Marriage Licence Issued

The twins were named after two very close friends of William: a baker named Hamnet Sadler and his wife, Judith. Tragically, Hamnet Shakespeare died in 1596 at the age of eleven.

1590-1592
Shakespeare Writes Parts 1, 2, and 3 of *Henry VI*.

March 3, 1592
First Production of *1 Henry VI*

April 18, 1593
Registration of *Venus and Adonis*
Venus and Adonis, Shakespeare's narrative poem in six-line stanzas, was published by Richard Field (1561 - 1624). The poem was dedicated to Shakespeare's patron, Henry Wriothesley, Third Earl of Southampton.

May 30, 1593
Death of Christopher Marlowe

Christopher Marlowe, the great Elizabethan poet and dramatist, was murdered in a tavern brawl. It is argued that Shakespeare alludes to Marlowe's death in *As You Like It* (3.3.11-12): **"it strikes a man more dead than a great reckoning in a little room."**

1594

1597
First Quarto Editions of *Richard III*, *Richard II*, and *Romeo and Juliet*

May 4, 1597
Shakespeare Buys New Place in Stratford

Shakespeare bought the second-largest house in his home town for a sum of £60. The house was over 100 years old when Shakespeare moved in and it came with ten fireplaces and two barns. The Shakespeare Birthplace Trust acquired what was left of the once-magnificent property in 1892.

1598
First Quarto Editions of *Love's Labour's Lost* and *1 Henry IV*

1599
Opening of the Globe Theatre

The Globe was built in 1599, but the thatch roof caught fire in 1613 owing to the discharge of a cannon during a production of *Henry VIII* and the theatre was consumed. It was rebuilt in 1614 and finally demolished in 1644. Shakespeare acted and staged many of his plays at the Globe, and he was also one of the shareholders.

Shakespeare's acting troupe, the Chamberlain's Men, were commissioned by the Earl of Essex to stage *Richard II* at the Globe. Essex's rebellion against Queen Elizabeth occurred on the following day, and it was believed that Essex tried to use Shakespeare's play to encourage the people to revolt. Elizabeth herself said, **"I am Richard II, know ye not that"**? Essex was executed on February 25.

September 8, 1601
Burial of John Shakespeare

We do not know his exact age at the time of his death, but Shakespeare's father was probably near seventy years old. He had been married to Mary Arden for forty-four years.

May 1, 1602
Shakespeare Buys Land in Stratford

1603
First Printing of *Hamlet*

March 24, 1603
Queen Elizabeth Dies

Queen Elizabeth, a generous patron of drama and literature, helped Shakespeare and his contemporary writers and actors flourish.

May 19, 1603
The King's Men

After the death of Elizabeth I, James the VI of Scotland became the new monarch, known in England as King James I. James, like Elizabeth, loved the arts, particularly the theatre. When he arrived in London, James ordered Shakespeare's acting troupe, the Chamberlain's Men, to come under his own patronage. The troupe was thenceforth known as the King's Men.

Susanna's marriage to the noted physician must have pleased Shakespeare tremendously, for Shakespeare appointed John and Susanna executors of his will. John Hall died in 1635 and Susanna in 1649.

May 20, 1608
Registration of *Pericles*

February 21, 1608
The Baptism of **Elizabeth Hall**
Susanna Hall, Shakespeare's daughter, gave birth to a baby girl eight months after her wedding to Dr. John Hall. Shakespeare's granddaughter, Elizabeth, was baptized at Holy Trinity Church in Stratford.

September 9, 1608
Burial of Mary Shakespeare
Shakespeare buried his mother at Holy Trinity Church, where only months before he had witnessed the baptism of his granddaughter. Mary Shakespeare was sixty-eight at the time of her death.

1608
King's Men buy Blackfriars Theatre
Shakespeare's friend and fellow actor, Richard Burbage, inherited the Blackfriars upon the death of his father, James. Richard Burbage, his brother, Cuthbert, and four of the King's Men, including Shakespeare, became part owners in the theatre. In 1609, the roofed Blackfriars became the winter home of the King's Men.

1609
Publication of Shakespeare's Sonnets

1611
First Recorded Performances of *The Winter's Tale, Macbeth* and *Cymbeline*
Dr. Simon Forman, an English astrologer and doctor, gives detailed accounts of these early performances in his invaluable diary.

November 1, 1611
First Recorded production of *The Tempest*
The first known production of *The Tempest* took place before King James I and his court.

Read and copy out 5 main points into your bool (handwritten annotation)

From *Shakespeare's London* by Henry Thew Stephenson. New York: H. Holt.

This people, in a sense, was an ignorant people. Those of the highest rank were well and laboriously educated according to the contemporary standard; but the rank and file paid no attention to learning. They neither read, wrote, nor thought.

There was going on all the time a rapid change in the social scale. The middle class was rising into prominence. It was no longer necessary to be born a peer in order to become a man of wealth and position.

As the age of Elizabeth was the golden time of literature, so it was the golden time of superstition. There was one Banks, a hanger-on of the Earl of Essex, who lived in the Old Bailey and who possessed a wonderful horse named Morocco shod with shoes of silver. This horse could dance to music, count, make answer to questions; do a thousand and one other tricks, among which was his reputed ascent of St. Paul's steeple. London looked upon Banks and his horse as little short of the supernatural; and in later years all London wept at the news from Italy, where both master and horse were burned to death on the charge of sorcery.

With this execution the Londoners could heartily sympathize, for they were superstitious to a degree incomprehensible at the present day.
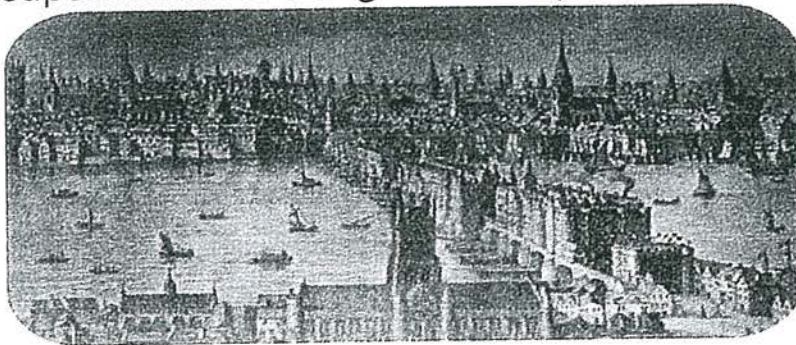
The people not only believed in ghosts and witches, but in magic of every

sort. Alchemy was a common hobby, and many a man of brain wasted his time and ruined his fortune in the vain search for the philosopher's stone long after the practice had been held up to ridicule upon the stage by Ben Jonson.

Astrology, or astronomical fortune-telling, was so thoroughly a factor of the age that every one desired the casting of his horoscope. Leicester consulted Doctor Dee, the astrologer, to discover a propitious date for the Queen's coronation. The great Queen herself consulted him upon an occasion, instead of her family physician, in order to charm away the tooth-ache. Again, a waxen image of Elizabeth was picked up in one of the fields near London. Doctor Dee was immediately sent for to counteract by his charms the evil effect of this familiar kind of sorcery.

People, one and all, believed in fairies. The usual critical opinion, that the opening scenes of *A Midsummer Night's Dream* owe their arrangement to a desire to lead gradually from the real to the unreal, would have caused an Elizabethan to laugh, if not outwardly, in his sleeve. There is nothing unreal about the fairies of that delightful comedy except their size. Any one might not only have seen the pleasant fairies, but also the wicked, and might have become blind by the sight, if he did not take care to protect himself by charms. A grown man did not feel foolish in those days if when in the neighbourhood of a lonely and ghost-haunted wood at night he wore his coat inside out. There were innumerable superstitious rites performed at births, christenings, weddings, on certain days of the year, and in certain places; as, the churchyard, the cross-roads, etc. Every hour in the day, every article in the world — stone, plant, or animal — had its cluster of superstitions.

There existed a coarseness of speech in every-day talk that would be quite intolerable to-day. Queen Elizabeth swore like a trooper, spat at her favourites, or threw her slipper at the head of an obdurate councillor.

Gossiping was one of the favourite pastimes of the Elizabethans, and London was not yet too large for the practice to be thoroughly effective. Gossip started from the barber-shop and the tavern-table — the Elizabethan equivalent of the afternoon tea — and spread thence in every

direction. Gossip led to frequent quarrels, that were more hot and bitter because side arms were worn upon all occasions. The fine woman of the time would jostle with the rudest peasants in the pit of the bull-ring and the theatre. Wakes and fairs were of daily occurrence, in which every one joined, irrespective of previous acquaintance. During the yule-tide festivities all distinctions of class were considered as temporarily non-existent. Elizabeth showed herself so often and so intimately to the common people that they considered the acquaintance almost personal. So much for the happy-go-lucky spirit that characterised the time.

The extent of gaming is lamented by all the contemporary writers who have a leaning towards reform. Dicing, card playing, and racing, though to a less extent than the others, were practised upon every hand; while cheating was but too common.

The people were greatly addicted to showy dress. Pageants of all sorts were planned upon the least occasion. Coronations, funerals, and progresses were always got up upon the most spectacular basis. The riding watches, the parades of civic officials in their gaudy robes of state, the Livery Companies upon the river in their brilliant barges, manned by oars-men in full livery, the Queen coming to St. Paul's in 1588, to render thanks for the victory over Spain — all such spectacles were provided with gorgeous pageants, triumphal arches, side-shows, and so forth, that would be weeks preparing.

How to cite this article:
Stephenson, Henry Thew. *Life in Shakespeare's London* From *Shakespeare's London*. New York: H. Holt, 1905. Shakespeare Online. 20 Aug. 2009. (date when you accessed the information)
< http://www.shakespeare-online.com/biography/londonlife.html >.

Pasted from <http://shakespeare-online.com/biography/londonlife.html>

Audience

Write this as your heading.

Who would have attended an original Shakespeare production?

*O, it offends me to the soul to hear a rumbustious
periwig-pated fellow tear a passion to tatters, to
very rags, to split the ears of the groundlings, who
for the most part are capable of nothing but
inexplicable dumbshows and noise.*
(Hamlet, 3.2)

Most of the poorer audience members, referred to as groundlings, would pay
one penny (which was almost an entire day's wage) to stand in front of the
stage, while the richer patrons would sit in the covered galleries, paying as
much as half a crown each for their seats.
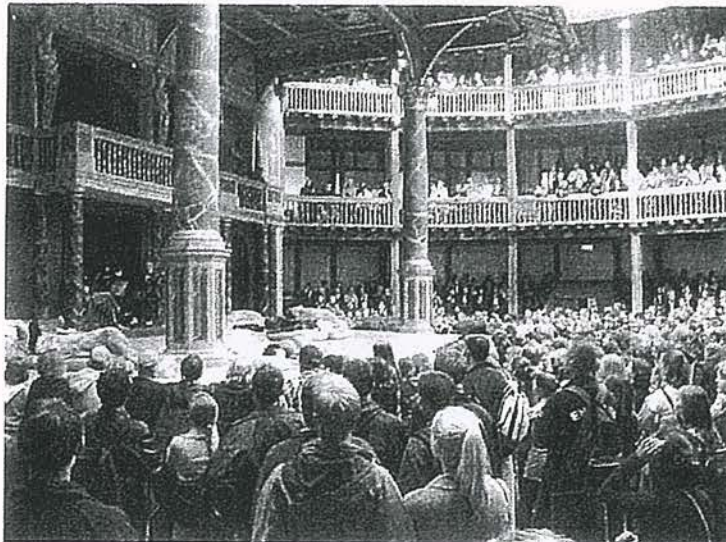
In 1599, Thomas Platter, a Swiss doctor visiting London from Basel, reported
the cost of admission in his diary:
**"[There are] separate galleries and there one stands more
comfortably and moreover can sit, but one pays more for it. Thus
anyone who remains on the level standing pays only one English
penny: but if he wants to sit, he is let in at a farther door, and there
he gives another penny. If he desires to sit on a cushion in the most
comfortable place of all, where he not only sees everything well, but
can also be seen then he gives yet another English penny at
another door. And in the pauses of the comedy food and drink are**

carried round amongst the people and one can thus refresh himself at his own cost."

(*Diary of Thomas Platter*)

Shakespeare's audience would have been composed of tanners, butchers, iron-workers, millers, seamen from the ships docked in the Thames, glovers, servants, shopkeepers, wig-makers, bakers, and countless other tradesmen and their families.

Shakespeare's audience was far more boisterous than are patrons of the theatre today. They were loud and hot-tempered and as interested in the happenings off stage as on.

One of Shakespeare's contemporaries noted that **"you will see such heaving and shoving, such itching and shouldering to sit by the women, such care for their garments that they be not trod on . . . such toying, such smiling, such winking, such manning them home ... that it is a right comedy to mark their behaviour"** (Stephen Gosson, *The School of Abuse*, 1579).

The nasty hecklers and gangs of riffraff would come from seedy parts in and around London like Tower-hill and Limehouse and Shakespeare made sure to point them out:

> **These are the youths that thunder at a playhouse,**
> **and fight for bitten apples; that no audience, but**
> **the Tribulation of Tower-hill, or the Limbs of**
> **Limehouse, their dear brothers, are able to endure.**
> (*Henry VIII*, 5.4.65-8)

How to cite this article:

Mabillard, Amanda. *Shakespeare's Audience: The Groundlings*. Shakespeare Online. 20 Aug. 2000. (date when you accessed the information) < http://www.shakespeare-online.com/essays/shakespeareaudience.html" >.

① Describe a night at Shakespeare's theatre in a detailed paragraph.

1) What types of entertainment did they have in Elizabethan England? Answer this.

In Elizabethan England, during the times when plays were not completely outlawed, going to the theatre was the favourite activity of the masses. When <u>disease ravaged London</u>, actors would travel across the English countryside, entertaining farmers. There were also many days devoted to feasting, such as Mad Day, Midsummer Day, and Ascension Day (just to name a few), when people would drink and make merry.

Dances were popular, whether you lived in London or in a small town, and so was getting together at the local pub for sing-alongs. Games like chess, checkers, and tennis were extremely popular; Miranda plays chess in *The Tempest* and <u>Queen Elizabeth</u> herself was known to love the game. Reading was also very popular, and most educated people could read their favourite bc... than one language.
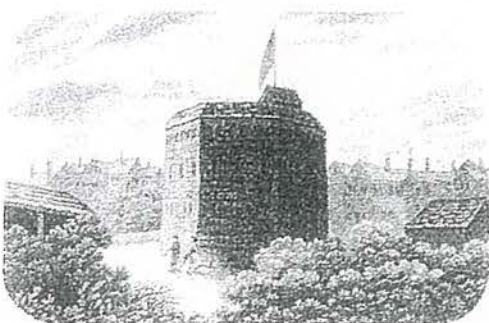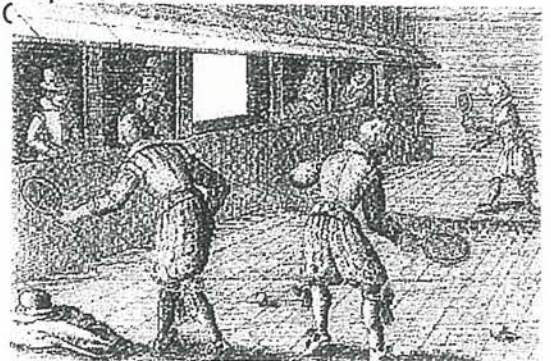
The upper classes engaged in tournaments of fencing and hunted for sport.

All classes seemed to delight in the vicious form of entertainment known as bear-baiting, but it was without doubt Queen Elizabeth's favourite pastime:

> Elizabeth took especial delight in seeing the courage of her English mastiffs pitted against the cunning of Ursa and the strength of Taurus. On the 25th of May 1559, the French ambassadors **'were brought to court with music to dinner, and after a splendid dinner, were entertained with the baiting of bears and bulls with English dogs. The queen's grace herself, and the ambassadors, stood in the gallery looking on the pastime till six at night.'**

Shakespeare alludes to bear-baiting in *Macbeth*: "But, bear-like, I must fight the course" (5.7.2).

Shakespeare's attitude?

Shakespeare may have been sympathetic to the bear rather than the baiter. In *King Lear,* Gloucester realizes that he is to be tormented by Lear's daughters, and identifies himself with a bear: "I am tied to th'stake, and I must stand the course" (3.7.56). A few lines later his eyes are put out.

Pasted from <http://internetshakespeare.uvic.ca/Library/SLT/society/city%20life/sports.html>

Reference

Chambers, Robert. *The book of days: a miscellany of popular antiquities*. London: W. & R. Chambers, 1883.

How to cite this article:

Mabillard, Amanda. *Entertainment in Elizabethan England Shakespeare Online*. 20 Aug. 2000. (date when you accessed the information) < http://www.shakespeare-online.com/faq/entertainment.html>.

Pasted from <http://shakespeare-online.com/faq/entertainment.html>

Read the following

London's streets were notoriously narrow and congested. As the population increased to 200 000 in 1600, street travel became a particularly cumbersome affair. The streets were a noisy place: salesmen shouted out their wares, bells rang and beggars could be heard on every street corner. Hygiene was a serious problem; waste had to be regularly removed from alleyways and diseases such as smallpox, "sweating sickness"* and the plague spread easily through the street crowds. Fleet Street was one of London's better known streets; here puppet shows, naked "Indians" and strange fishes were put on display for the public's amusement*.

Crime in the streets of London

As one of Europe's most important trading centres, London attracted a variety of people, some less reputable than others. The city was of special interest to criminals, since its large transient population and accessible money made it an easy target. Vagrants who had been chased out of neighbouring jurisdictions found the city's anonymity particularly appealing; they also flocked to London's relatively well organized charities.

Numerous prisons were scattered across the city, among them Bridewell, Newgate, the Clink, the Cage, the Cripplegate and the Compter or Counter*. Prisons were packed with the poor, who mostly landed there as a result of unpaid debts. Their cries could be heard on the streets and it was not uncommon for men or women to push food or clothing through the prison bars from the streets.

The Poor

The dissolution of the monasteries under Henry VIII, overpopulation, and a steady influx of immigrants all contributed to the large number of poor in London in the late 16th century.

The closing of the religious houses was a calamity for the poor because it meant they could no longer rely on the Church for charity. Some religious buildings were transformed into places of refuge for the poor -- St. Thomas' Hospital, once a religious house, became a place of lodging for the destitute and diseased*-- but a large number of these buildings were either taken over by the nobility or simply destroyed.

The city's attempts to limit overcrowding did nothing to aid the poor. On her acession to the throne, Elizabeth I issued a proclamation prohibiting any unlicensed building within three miles of London. The lack of space meant that the poor had nowhere to go, a problem Elizabeth seems to have chosen to ignore, and which would continue under James I.

Labourers' wages were kept low, largely because of the immigrants pouring into the city in search of work. Huguenot and Flemish refugees eroded the power of the guilds by establishing new industries outside the city's jurisdiction. While labour was difficult to find and wages were low, food prices kept rising as the demand grew with the population. Dismissed soldiers and sailors added to the already substantial number of unemployed.

Pasted from <http://internetshakespeare.uvic.ca/Library/SLT/society/city%20life/citylondonstreets.html>

① How do you feel about the treatment of the poor?

② Are things different in Australia today for our poor? How?

① Write a comparative price for today's food.

It is difficult to say how much Shakespeare's money would be worth today, thanks to <u>inflation</u> both then and now, but we can compare it to some wages and prices of the time.

A soldier's shopping list
(based on a Tudor soldier's food

24 oz. wheat bread	1 penny
2/3 gallon beer	1 penny
2 lbs. beef or mutton (cod or herring on Fridays)	2 pence
1/2 lb. butter	1 1/2 pence
1 lb. cheese	1 1/2 pence
Total	7 pence

Today

Note the lack of vegetables and fruit.

Average Wages
In the city, skilled journeymen (men who have completed their apprenticeships) could earn up to a shilling a day (more usually half that), with food and drink included.

Actors in <u>Henslowe's</u> company were paid a shilling a day, but it is unlikely that they received food. Apprentices got food, drink and lodging.

Farm workers got no more than half these wages; women in particular were paid less, and often supplemented their earnings by spinning thread.

Thatchers and hedgers would have received about sixpence a day, threshers and reapers half that. Others, especially permanent servants, were paid by the year, with board and food included--often no more than six shillings a year, or sixpence a week.

Cost of the Theatre.

The Lords' room	1 shilling (i. e. 12 pence)
The Gentlemen's rooms	6 pence
The galleries	2 pence
The pit (for the "groundlings")	1 penny

The cheapest seats in the private theatres were usually 6 pence; thus effectively excluding all but relatively wealthy patrons.

Philip Henslowe paid 3-5 pounds for a play (60-100 shillings); on a good day his gross gate for a performance of a new play would be over three pounds: on 28 November, 1595, he took in 4 pounds, 6 shillings for the first performance of "Harey the V"--*The Famous Victories of Henry V,* the precursor to Shakespeare's more famous play on the same king.

Plague

There were several years during Shakespeare's time in London in which the plague was severe enough to close the theatres: 1582, 1592 (15,000 deaths), 1603, and 1607.

The Elizabethans had no idea that the plague was spread by fleas that had lived on rats; though there were many "cures" for the plague, the only real defence--for those who could afford it--was to leave the crowded, rat-infested cities for the country.

A preservative against the pestilence
Take yarrow, tansy, featherfew, of each a handful, and bruise them well together, then let the sick party make water into the herbs, then strain them, and give it the sick to drink.

Another [more palatable] remedy for the plague
Take of sage, rue, briar leaves, elder leaves, of each a handful, stamp them and strain them with a quart of white wine, and put thereto a little ginger, and a good spoonful of the best treacle, and drink thereof morning and evening.

Pasted from <http://internetshakespeare.uvic.ca/Library/SLT/society/city%20life/plague.html>

① What advice given here is similar to our current situation?

For interest and the assessment later.

A woman's basic garment consisted of a bodice and skirt, or kirtle, with a "stomacher" joined by pins, hooks, or ties to the front of the bodice. A gown was sometimes worn over the bodice and kirtle. Sleeves were separate and joined to the bodice by ribbons, hooks or pins.

Necklines were varied; in the later Elizabethan period, and early in the reign of James I, they were often very low, revealing the bosom.

The ruff was worn by both men and women. Although Elizabeth wore large ruffs herself, a statute of 1580 forbade neckwear beyond a certain size. Members of the Ironmongers' and Grocers' companies were stationed at Bishopsgate to stop people with "monstrous ruffs" or excessively long cloaks and swords from entering the city. Offenders who refused to change their attire were arrested.

Date: _____

Writing Probe 1

It started out just like any other school day. I finished the last soggy pieces of cereal from my bowl full of milk before I...

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TOTAL WORDS WRITTEN
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My writing;

⊓ **Includes ALL full stops**

⊓ **Includes ALL capital letters**

⊓ **Makes sense**

⊓ **includes complex sentences**

⊓ **Includes commas to show phrasing**

⊓ _____

Date: _____
Writing Probe 2

Harry opened the old suitcase he found in his grandmother's closet. It contained a...

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TOTAL WORDS WRITTEN
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My writing;
⊢⊣ **Includes ALL full stops**
⊢⊣ **Includes ALL capital letters**
⊢⊣ **Makes sense**
⊢⊣ **Includes complex sentences**
⊢⊣ **Includes commas to show phrasing**
⊢⊣ _____

Date: _____

Writing Probe 3

A beautiful green glass bottle lay washed up on the shore. She bent down to pick it up and noticed there was something inside…

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TOTAL WORDS WRITTEN
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My writing;
⌐⌐ **Includes ALL full stops**
⌐⌐ **Includes ALL capital letters**
⌐⌐ **Makes sense**
⌐⌐ **Includes complex sentences**
⌐⌐ **Includes commas to show phrasing**
⌐⌐ _____

Date: _____

Writing Probe 4

As we crept up the narrow staircase of the old lighthouse, an eerie sound followed us...

_____

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TOTAL WORDS WRITTEN
_____

My writing;

☐ **Includes ALL full stops**

☐ **Includes ALL capital letters**

☐ **Makes sense**

☐ **Includes complex sentences**

☐ **Includes commas to show phrasing**

☐ _____

Date: _____

Writing Probe 5

Emma looked down at her watch and saw that it had started to turn backwards. She...

_____

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TOTAL WORDS WRITTEN
_____
My writing;

⊓⊔ **Includes ALL full stops**

⊓⊔ **Includes ALL capital letters**

⊓⊔ **Makes sense**

⊓⊔ **Includes complex sentences**

⊓⊔ **Includes commas to show phrasing**

⊓⊔ _____

Date: _____

Writing Probe 6

I walked cautiously through the forest and saw a strange opening in the tree. I crept silently closer and...

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TOTAL WORDS WRITTEN
_____

My writing;

⊓ **Includes ALL full stops**

⊓ **Includes ALL capital letters**

⊓ **Makes sense**

⊓ **Includes complex sentences**

⊓ **Includes commas to show phrasing**

⊓   _____
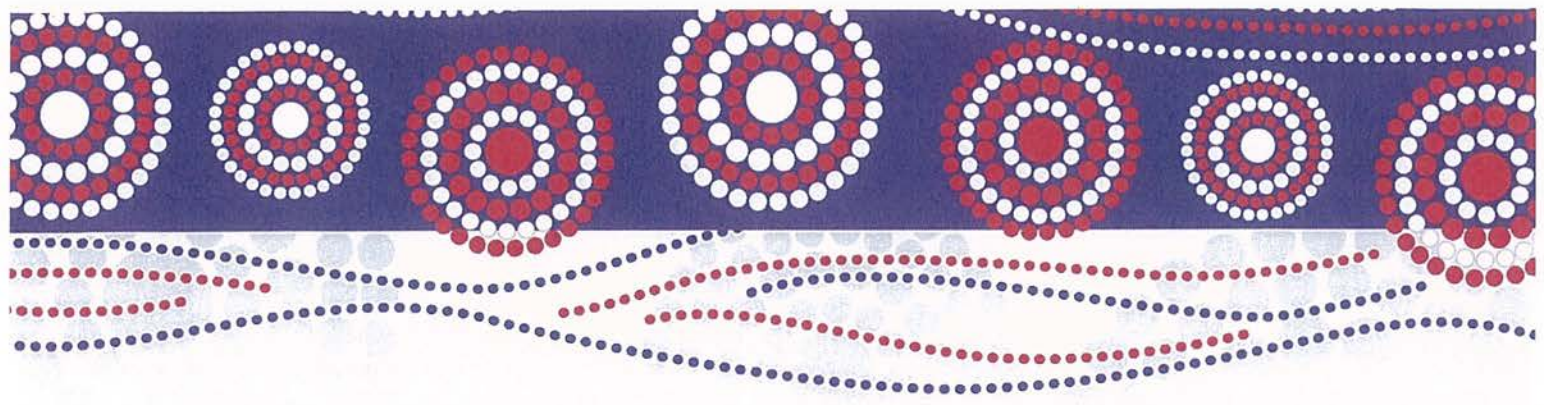
MATHS

Gorokan High School

Mathematics Online Learning

Week 2 and 3

Year 8

Area

Name:

Student Instructions:
Students are to work through the specified work outlined below. The prescribed work is for the duration of Weeks 2 and 3 of online learning. Should you have any questions, please email your classroom teacher.

The questions outlined in this lesson information sheet are a guide. You should complete these questions as a minimum. If you would like to complete the higher questions to challenge your understand, please do so. The answers are attached to help you understand if you are successful in your working out. If you find you did not get the correct answer, check your working and try again until you get to the desired answer.

Exercsie 3C – Area
Read through the information and examples and answer the following questions in ex 3C.
Questions
1) all
4) first column
5) all
6) all
8) all
10) all

Exercise 3D – Area of Special Quadrilaterals
Read through the information and examples and answer the following questions in ex 3D.
Questions
1) all
2) all
3) a, c, e, g, i, k
4) all
6) all
7) all
8) all

Exercise 3E – Area of a Circle
Read through the information and examples and answer the following questions in ex 3E.
Questions
2) all
3) all
4) a, c, e
5) a, c, e
6) all
7) all
9) all
11) all

Exercise 3F – Area of Sectors and Composite Figures
Read through the information and examples and answer the following questions in ex 3E.
Questions
2) all
4) all
5) all
6) a, b, c, e

Exercise 3G – Surface Area of Prisms
Read through the information and examples and answer the following questions in ex 3E.
Answer **all aspects of question 4** only.

3C Area

Area is a measure of surface and is often referred to as the amount of space contained inside a two-dimensional space. Area is measured in square units and the common metric units are square millimetres (mm^2), square centimetres (cm^2), square metres (m^2), square kilometres (km^2) and hectares (ha). The hectare is often used to describe area of land, since the square kilometre for such areas is considered to be too large a unit and the square metre too small. A school football oval might be about 1 hectare, for example, and a small forest might be about 100 hectares.

➡ Let's start: Squares of squares

Consider this enlarged drawing of one square centimetre divided into square millimetres.

- How many square millimetres are there on one edge of the square centimetre?
- How many square millimetres are there in total in 1 square centimetre?
- What would you do to convert between mm^2 and cm^2 or cm^2 and mm^2 and why?
- Can you describe how you could calculate the number of square centimetres in 1 square metre and how many square metres in one square kilometre? What diagrams would you use to explain your answer?

1 cm = 10 mm

1 cm = 10 mm
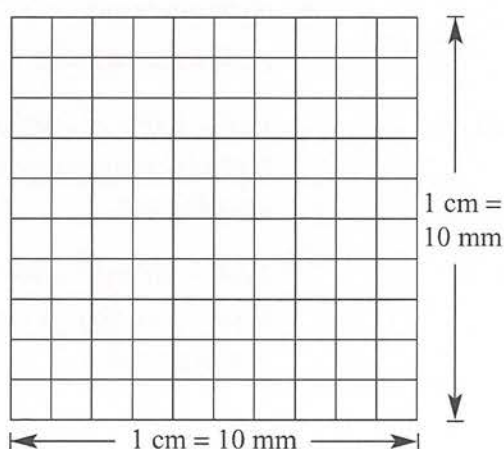
■ The common metric units for area include:
- square millimetres (mm^2)
- square centimetres (cm^2)
- square metres (m^2)
- square kilometres (km^2)
- hectares (ha)

$$\times 1000^2 \quad \times 100^2 \quad \times 10^2$$
$$= 1\,000\,000 \quad = 10\,000 \quad = 100$$

$$km^2 \qquad m^2 \qquad cm^2 \qquad mm^2$$

$$\div 1000^2 \quad \div 100^2 \quad \div 10^2$$
$$= 1\,000\,000 \quad = 10\,000 \quad = 100$$

$\times 10\,000$

$$ha \qquad m^2$$

$\div 10\,000$
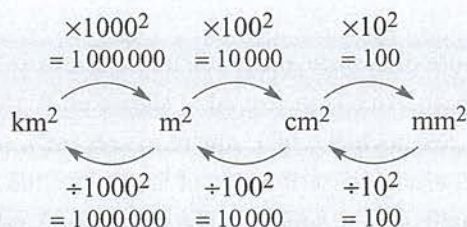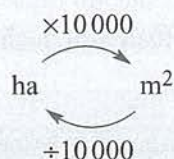
■ Area of squares, rectangles and triangles
- Square $A = \ell \times \ell = \ell^2$

ℓ

- Rectangle $A = \ell \times b = \ell b$

b

ℓ
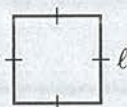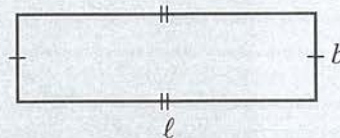
- Triangle $A = \dfrac{1}{2} \times b \times h = \dfrac{1}{2}bh$

h

b
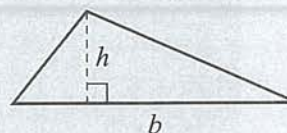
The dashed line which gives the height is **perpendicular** (at right angles) to the base.

■ Areas of **composite shapes** can be found by adding subtracting the area of more basic shapes.

① ② or
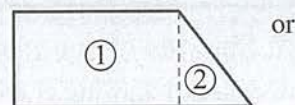
Example 6 Converting units of area

Convert these area measurements to the units shown in the brackets.

a 0.248 m^2 (cm^2) **b** 3100 mm^2 (cm^2)

SOLUTION

a $0.248 \, m^2 = 0.248 \times 10\,000$
$\qquad\qquad = 2480 \, cm^2$

b $3100 \, mm^2 = 3100 \div 100$
$\qquad\qquad = 31 \, cm^2$

EXPLANATION

a $1 \, m^2 = 100^2 \, cm^2 = 10\,000 \, cm^2$
Multiply since you are changing to a smaller unit.

$\times 100^2$

$$m^2 \qquad cm^2$$
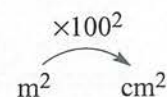
b $1 \, cm^2 = 10^2 \, mm^2 = 100 \, mm^2$
Divide since you are changing to a larger unit.

$$cm^2 \qquad mm^2$$

$\div 10^2$
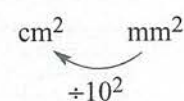
Example 7 Finding areas of rectangles and triangles

Find the area of these shapes.

a

6 cm, 2 cm (rectangle)

b

7 m, 13 m (triangle)

SOLUTION

a $A = \ell b$

$= 6 \times 2$
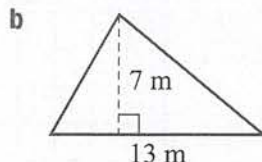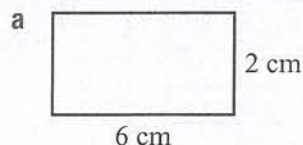
$= 12 \text{ cm}^2$

b

$A = \dfrac{1}{2}bh$

$= \dfrac{1}{2} \times 13 \times 7$

$= 45.5 \text{ m}^2$

EXPLANATION

Write the formula for the area of a rectangle and substitute $\ell = 6$ and $b = 2$.

Remember that the height is measured using a line that is perpendicular to the base.

Example 8 Finding areas of composite shapes

Find the area of these composite shapes using addition or subtraction.

a

4 m, 6 m, 10 m

b

3 mm, 1 mm, 1.2 mm
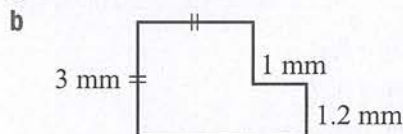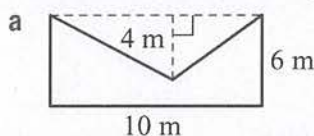
SOLUTION

a $A = \ell b - \dfrac{1}{2}bh$

$= 10 \times 6 - \dfrac{1}{2} \times 10 \times 4$

$= 60 - 20$

$= 40 \text{ m}^2$

b $A = \ell^2 + \ell b$

$= 3^2 + 1.2 \times 1$

$= 9 + 1.2$

$= 10.2 \text{ mm}^2$

EXPLANATION

The calculation is done by subtracting the area of a triangle from the area of a rectangle.

Rectangle – triangle

6 m, 10 m   10 m, 4 m
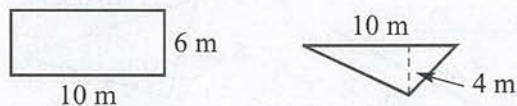
The calculation is done by adding the area of a rectangle to the area of a square.

A_1 A_2 Area $= A_1 + A_2$
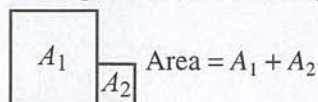
Exercise 3C REVISION

1 By considering the given diagrams answer the questions.

   a i How many mm² in 1 cm²?
     ii How many mm² in 4 cm²?
     iii How many cm² in 300 mm²?

1 cm = 10 mm

1 cm = 10 mm
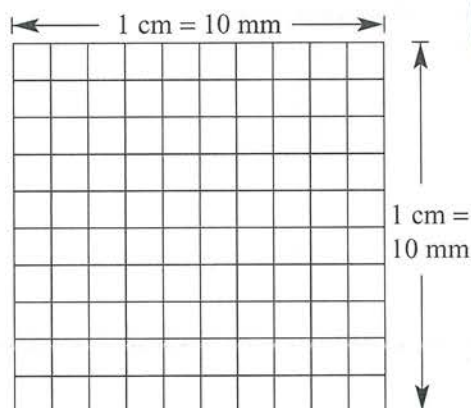
   b i How many cm² in 1 m²?
     ii How many cm² in 7 m²?
     iii How many m² in 40 000 cm²?

1 m = 100 cm

1 m²   1 m = 100 cm
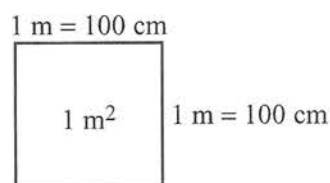
   c i How many m² in 1 km²?
     ii How many m² in 5 km²?
     iii How many km² in 2 500 000 m²?

1 km = 1000 m

1 km²   1 km = 1000 m
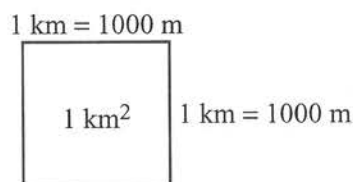
   d i How many m² in 1 ha?
     ii How many m² in 3 ha?
     iii How many ha in 75 000 m²?

100 m

1 ha   100 m
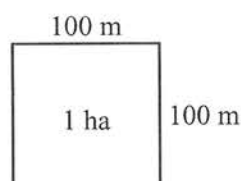
2 Which length measurements would be used for the *base* and the *height* (in that order) to find the area of these triangles?

   a 7 m
     3 m
     5 m

   b 10 cm
     6 cm
     8 cm

   c 1.7 mm
     2.4 mm   2 mm
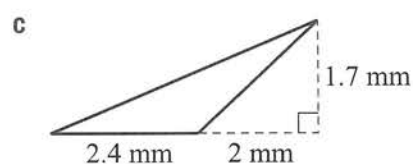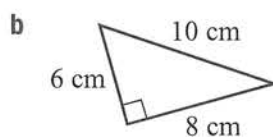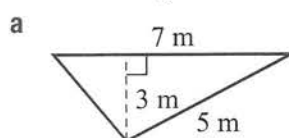
3 How many square metres are in one hectare?

Example 6 | 4 Convert these area measurements to the units shown in the brackets.

a 2 cm^2 (mm^2)
b 7 m^2 (cm^2)
c 0.5 km^2 (m^2)
d 3 ha (m^2)
e 0.34 cm^2 (mm^2)
f 700 cm^2 (m^2)
g 3090 mm^2 (cm^2)
h 0.004 km^2 (m^2)
i 2000 cm^2 (m^2)
j $450\,000 \text{ m}^2$ (km^2)
k 4000 m^2 (ha)
l 3210 mm^2 (cm^2)
m $320\,000 \text{ m}^2$ (ha)
n 0.0051 m^2 (cm^2)
o 0.043 cm^2 (mm^2)
p 4802 cm^2 (m^2)
q $19\,040 \text{ m}^2$ (ha)
r 2933 m^2 (ha)
s 0.0049 ha (m^2)
t 0.77 ha (m^2)
u 2.4 ha (m^2)

Example 7 | 5 Find the areas of these squares, rectangles and triangles.

a 3 cm

b 7 m, 3 m

c 13 cm, 6 cm

d 9 cm, 4 cm

e 11 m, 3 m

f 12 mm

g 7 m, 18 m

h 3 m, 2 m

i 3 km, 4 km, 10 km
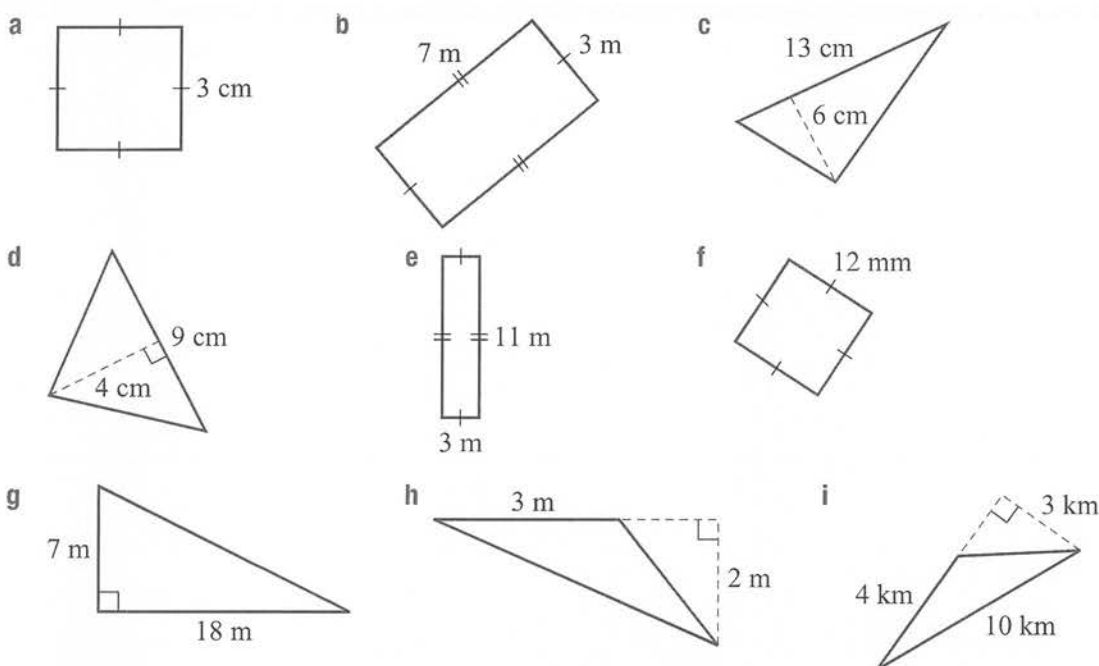
Example 8 | 6 Find the area of these composite shapes by using addition or subtraction.

a 4 m, 5 m, 10 m

b 9 m, 5 m, 3 m

c 14 cm, 8 cm

d 16 cm, 7 cm, 3 cm

e 10 km, 6 km, 7 km, 2 km

f 6 mm, 4 mm
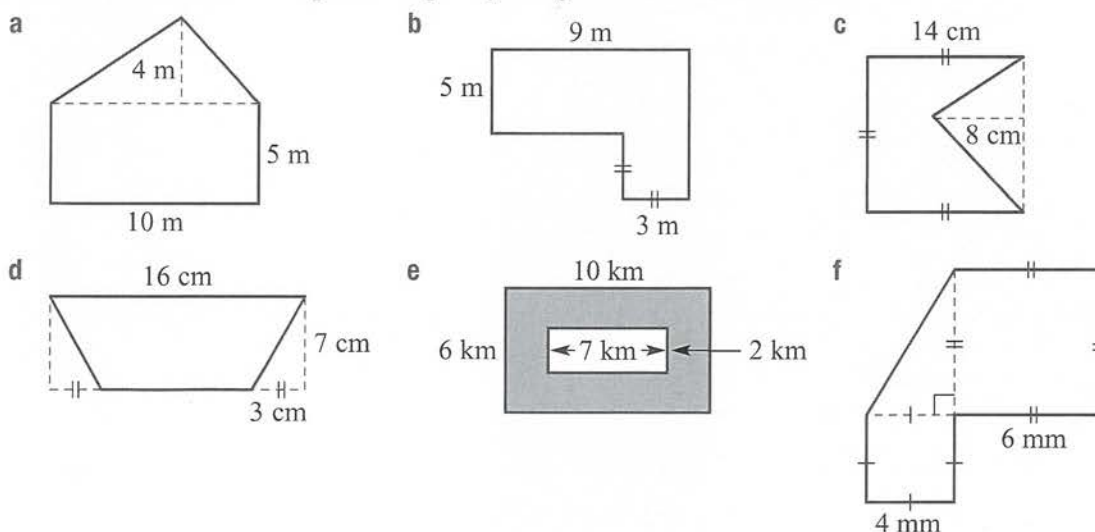
7 Use your knowledge of area units to convert these measurements to the units shown in the brackets.

a 0.2 m^2 (mm^2) b 0.000043 km^2 (cm^2) c 374000 cm^2 (km^2)
d 10920 mm^2 (m^2) e 0.0000002 ha (cm^2) f 6 km^2 (ha)

8 Find the area of these composite shapes. You may need to determine some side lengths first.

a

9 cm

6 cm

b

14 m

3 m

20 m

3 m

3 m

3 m

c

12 km

15 km
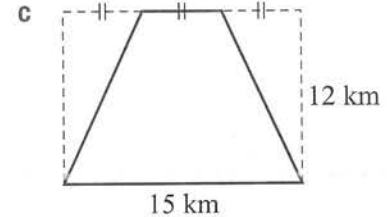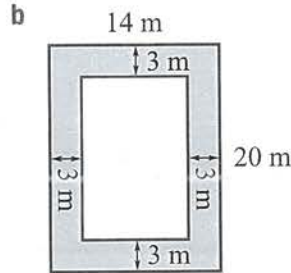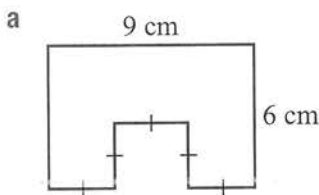
9 Find the side length of a square if its area is:

a 36 m^2 b 2.25 cm^2

10 a Find the area of a square if its perimeter is 20 m.
b Find the area of a square if its perimeter is 18 cm.
c Find the perimeter of a square if its area is 49 cm^2.
d Find the perimeter of a square if its area is 169 m^2.

11 A triangle has area 20 cm^2 and base 4 cm. Find its height.

12 Paint costs \$12 per litre and can only be purchased in a full number of litres. One litre of paint covers an area of 10 m^2. A rectangular wall is 6.5 m long and 3 m high and needs two coats of paint. What will be the cost of paint for the wall?

13 Write down expressions for the area of these shapes in simplest form using the letters a and b (e.g. $A = 2ab + a^2$).

a

2b

b

c
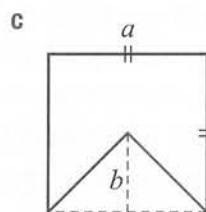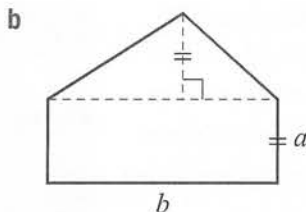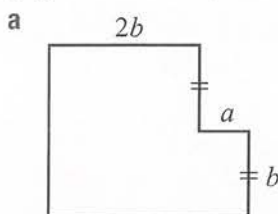
14 Using only whole numbers for length and breadth, answer the following questions.
  a How many distinct (different) rectangles have an area of 24 square units?
  b How many distinct squares have an area of 16 square units?

15 Write down rules for:
  a the breadth of a rectangle (b) with area A and length ℓ
  b the side length of a square (ℓ) with area A
  c the height of a triangle (h) with area A and base b

Enrichment: The acre

16 Two of the more important imperial units of length and area that are still used today are the mile and the acre. Many of our country and city roads, farms and house blocks were divided up using these units.

Here are some conversions

        1 square mile = 640 acres
        1 mile ≈ 1.609344 km
        1 hectare = 10 000 m^2

  a Use the given conversions to find:
   i the number of square kilometres in 1 square mile (round to 2 decimal places)
   ii the number of square metres in 1 square mile (round to the nearest whole number)
   iii the number of hectares in 1 square mile (round to the nearest whole number)
   iv the number of square metres in 1 acre (round to the nearest whole number)
   v the number of hectares in 1 acre (round to 1 decimal place)
   vi the number of acres in 1 hectare (round to 1 decimal place)
  b A dairy farmer has 200 acres of land. How many hectares is this? (Round your answer to the nearest whole number.)
  c A house block is 2500 m^2. What fraction of an acre is this? (Give your answer as a percentage rounded to the nearest whole number.)

3D　Area of special quadrilaterals

The formulas for the area of a rectangle and a triangle can be used to develop the area of other special quadrilaterals. These quadrilaterals include the parallelogram, the rhombus, the kite and the trapezium. Knowing the formulas for the area of these shapes can save a lot of time dividing shapes into rectangles and triangles.
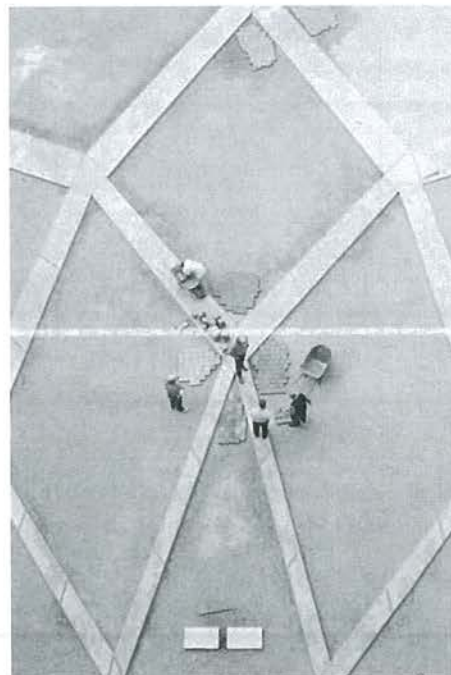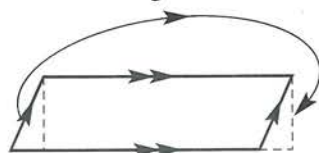
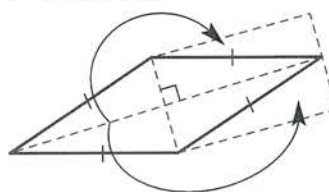The area of each quadrilateral needs to be calculated to work out how many pavers are needed.

Let's start: Developing formulas

These diagrams contain clues as to how you might find the area of the shape using only what you know about rectangles and triangles. Can you explain what each diagram is trying to tell you?

- Parallelogram

- Rhombus

- Kite

- Trapezium

Key ideas
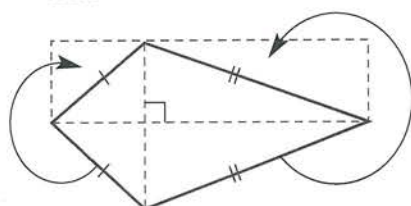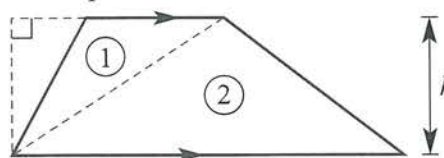
- Area of a **parallelogram**
  Area = base × perpendicular height
  or $A = bh$
- Area of a **rhombus** and the area of a **kite**
  Area = $\frac{1}{2}$ × diagonal x × diagonal y
  or $A = \frac{1}{2}xy$
- Area of a **trapezium**
  Area = $\frac{1}{2}$ × sum of parallel sides × perpendicular height
  or $A = \frac{1}{2}h(a + b)$
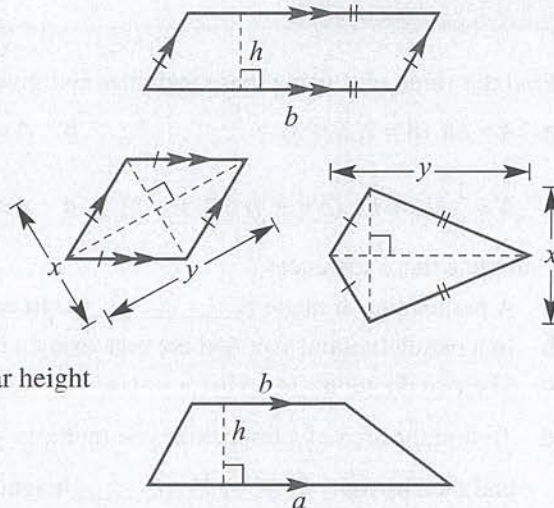
Example 9 Finding areas of special quadrilaterals

Find the area of these shapes.

a

3 m   8 m

b

10 cm   20 cm

c

3 mm
5 mm
11 mm
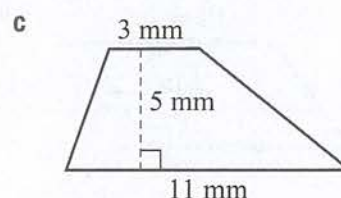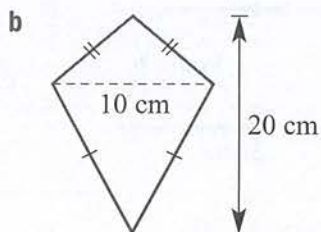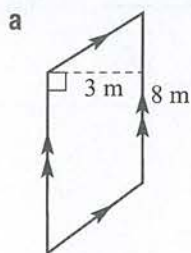
SOLUTION

a $A = bh$
   $= 8 \times 3$
   $= 24 \text{ m}^2$

b $A = \frac{1}{2}xy$
   $= \frac{1}{2} \times 10 \times 20$
   $= 100 \text{ cm}^2$

c $A = \frac{1}{2}h(a + b)$
   $= \frac{1}{2} \times 5 \times (11 + 3)$
   $= \frac{1}{2} \times 5 \times 14$
   $= 35 \text{ mm}^2$

EXPLANATION

The height is measured at right angles to the base.

Use the formula $A = \frac{1}{2}xy$ since both diagonals are given. This formula can also be used for a rhombus.

The two parallel sides are 11 mm and 3 mm in length. The perpendicular height is 5 mm.

Exercise 3D

1   Find the value of A using these formulas and given values.

a $A = bh$ $(b = 2, h = 3)$

b $A = \dfrac{1}{2}xy$ $(x = 5, y = 12)$

c $A = \dfrac{1}{2}h(a + b)$ $(a = 2, b = 7, h = 3)$

d $A = \dfrac{1}{2}h(a + b)$ $(a = 7, b = 4, h = 6)$

2   Complete these sentences.

a   A perpendicular angle is _____ degrees.

b   In a parallelogram, you find the area using a base and the _____.
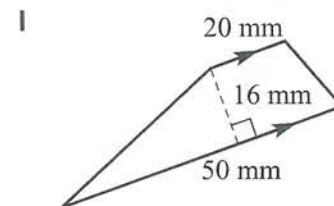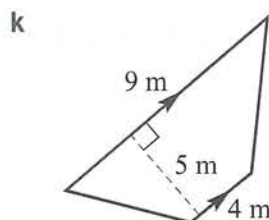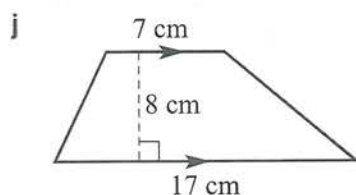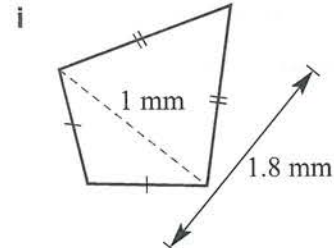
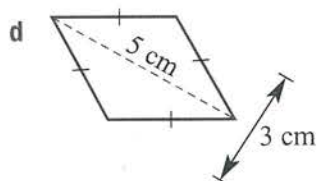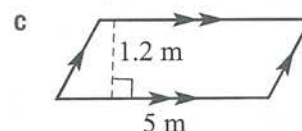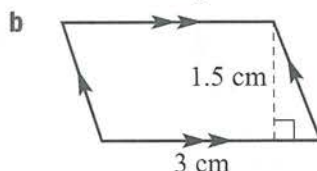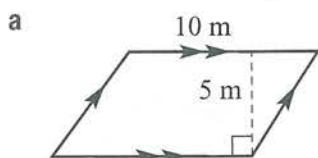c   The two diagonals in a kite or a rhombus are _____.

d   To find the area of a trapezium you multiply $\dfrac{1}{2}$ by the sum of the two _____ sides and then by the _____ height.

e   The two special quadrilaterals that have the same area formula using diagonal lengths x and y are the _____ and the _____.
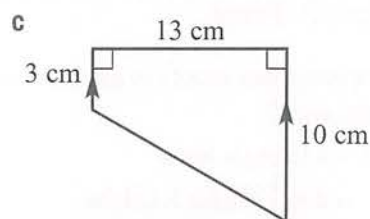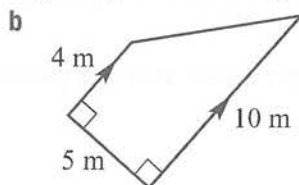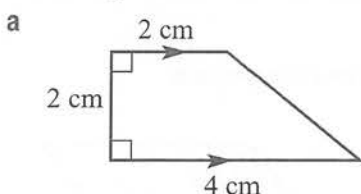
Example 9   3   Find the area of these special quadrilaterals. First give the name of the shape.
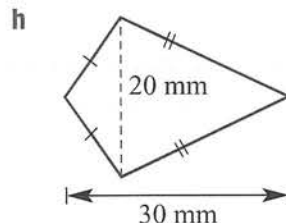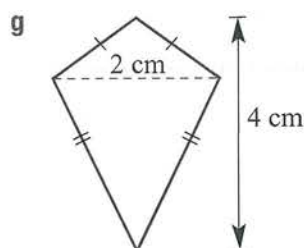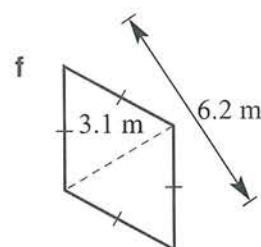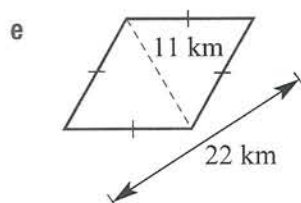
4 These trapeziums have one side at right angles to the two parallel sides. Find the area of each.

a

2 cm

2 cm

4 cm

b

4 m

10 m

5 m

c

13 cm

3 cm

10 cm

5 A flying kite is made from 4 centre rods all connected near the middle of the kite as shown. What area of plastic, in square metres, is needed to cover the kite?

30 cm

60 cm
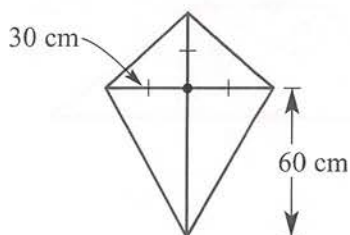
6 A parallelogram has an area of 26 m^2 and its base length is 13 m. What is its perpendicular height?

7 A landscape gardener charges $20 per square metre of lawn. A lawn area is in the shape of a rhombus and its diagonals are 8 m and 14.5 m. What would be the cost of laying this lawn?

8 The parallel sides of a trapezium are 2 cm apart and one of the sides is 3 times the length of the other. If the area of the trapezium is 12 cm^2, what are the lengths of the parallel sides?

9 Consider this shape.
  a What type of shape is it?
  b Find its area if $a = 5$, $b = 8$ and $h = 3$.
    All measurements are in cm.

a

h

b
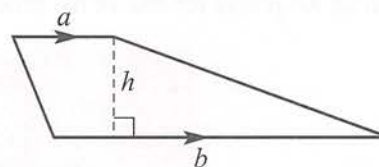
10 Write an expression for the area of these shapes in simplest form (e.g. $A = 2a + 3ab$).

a

x

$2x$

b

b

a a

$2b$

c

3a

2a

5a
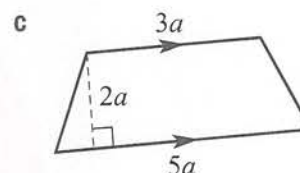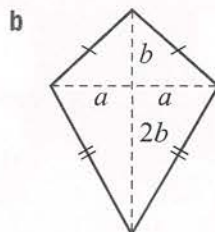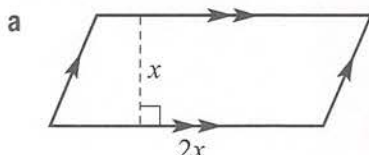
11 Would you use the formula $A = \dfrac{1}{2}xy$ to find the area of this rhombus? Explain.

8 cm   10 cm

Enrichment: Proof

12 Complete these proofs to give the formula for the area of a rhombus and a trapezium.

a Rhombus

$A = 4$ triangle areas

$\quad = 4 \times \dfrac{1}{2} \times \text{base} \times \text{height}$

$\quad = 4 \times \dfrac{1}{2} \times \underline{\hspace{1.2cm}} \times \underline{\hspace{1.2cm}}$

$\quad = \underline{\hspace{1.2cm}}$
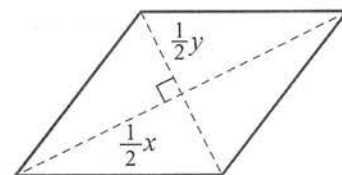
b Trapezium 1

$A = \text{Area (triangle 1)} + \text{Area (triangle 2)}$

$\quad = \dfrac{1}{2} \times \text{base}_1 \times \text{height}_1 + \dfrac{1}{2} \times \text{base}_2 \times \text{height}_2$

$\quad = \dfrac{1}{2} \times \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} + \dfrac{1}{2} \times \underline{\hspace{1cm}} \times \underline{\hspace{1cm}}$
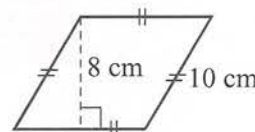
$\quad = \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$

$\quad = \underline{\hspace{1cm}}$
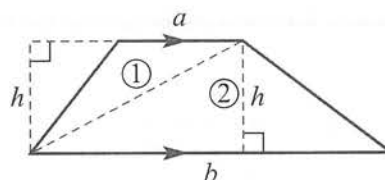
c Trapezium 2

$A = \text{Area (rectangle)} + \text{Area (triangle)}$

$\quad = \text{length} \times \text{breadth} + \dfrac{1}{2} \times \text{base} \times \text{height}$

$\quad = \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} + \dfrac{1}{2} \times \underline{\hspace{1cm}} \times \underline{\hspace{1cm}}$

$\quad = \underline{\hspace{1cm}} + \underline{\hspace{1cm}} - \underline{\hspace{1cm}}$

$\quad = \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$

$\quad = \underline{\hspace{1.5cm}}$
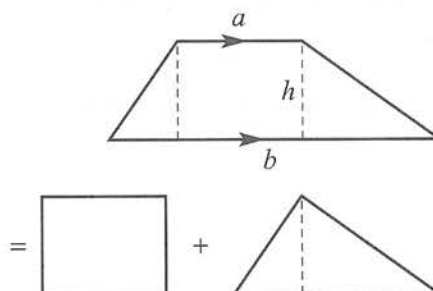
13 Design an A4 poster for one of the proofs in Question **12** to be displayed in your class.
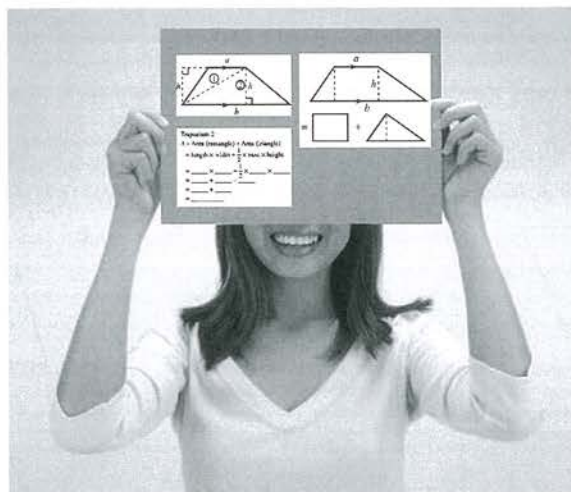
3E Area of circles

We know that the link between the perimeter of a circle and its radius has challenged civilisations for thousands of years. Similarly people have studied the link between a circle's radius and its area.

Archimedes (287–212 BC) attempted to calculate the exact area of a circle using a particular technique involving limits. If a circle is approximated by a regular hexagon, then the approximate area would be the sum of the areas of 6 triangles with base b and height h.

So $A \approx 6 \times \dfrac{1}{2} bh$

Hexagon ($n = 6$)

$A = 6 \times \frac{1}{2} bh$

If the number of sides (n) on the polygon increases, the approximation would improve. If n approaches infinity, the error in estimating the area of the circle would diminish to zero.

Proof

$A = n \times \dfrac{1}{2} bh$

$= \dfrac{1}{2} \times nb \times h$

Dodecagon ($n = 12$)

$A = 12 \times \frac{1}{2} bh$

$= \dfrac{1}{2} \times 2\pi r \times r$ (As n approaches ∞, nb limits to $2\pi r$ as nb is the perimeter of the polygon, and h limits to r.)

$= \pi r^2$
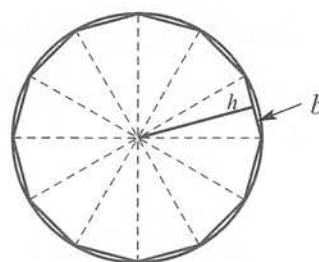
➡ Let's start: Area as a rectangle

Imagine a circle cut into small sectors and arranged as shown.

Now try to imagine how the arrangement on the right would change if the number of sector divisions was not 16 (as shown) but a much higher number.

- What would the shape on the right look like if the number of sector divisions was a very high number? What would the length and breadth relate to in the original circle?
- Try to complete this proof.

 $A = \text{length} \times \text{breadth}$

       $= \dfrac{1}{2} \times \underline{\quad\quad} \times r$

       $= \underline{\quad\quad\quad}$

Breadth

Length
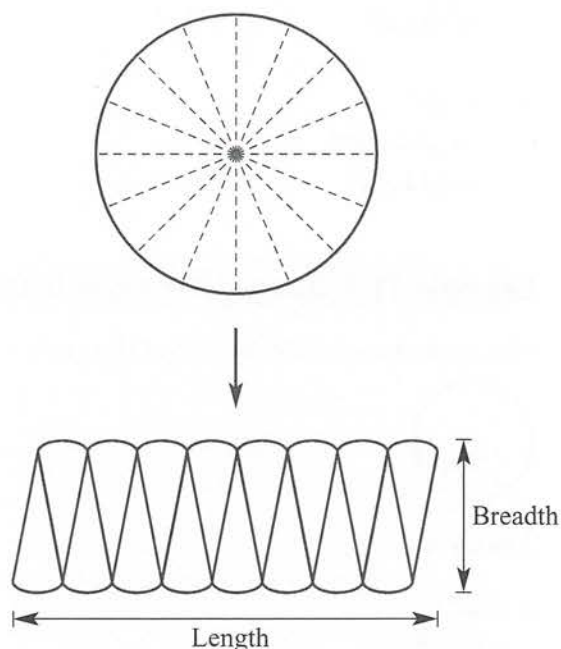
- The ratio of the area of a circle to the square of its radius is equal to π.

  i.e. $\dfrac{A}{r^2} = \pi$ so $A = \pi r^2$

- A half circle is called a **semicircle**.

  $A = \dfrac{1}{2}\pi r^2$

- A quarter circle is called a **quadrant**.

  $A = \dfrac{1}{4}\pi r^2$

$A = \pi r^2$

Key ideas
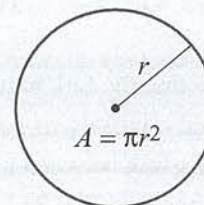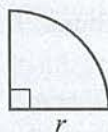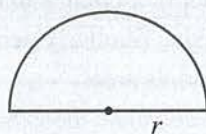
Example 10 Finding circle areas without technology

Find the area of these circles using the given approximate value of π.

a $\pi = \dfrac{22}{7}$ 7 m

b $\pi = 3.14$ 10 cm
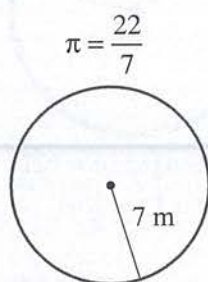
SOLUTION

a $A = \pi r^2$

    $= \dfrac{22}{7} \times 7^2$

    $= 154 \text{ m}^2$
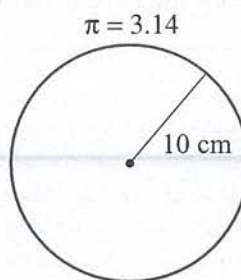
b $A = \pi r^2$

    $= 3.14 \times 10^2$

    $= 314 \text{ cm}^2$

EXPLANATION

Always write the rule.

Use $\pi = \dfrac{22}{7}$ and $r = 7$.

$\dfrac{22}{7} \times 7 \times 7 = 22 \times 7$

Use $\pi = 3.14$ and substitute $r = 10$.

3.14×10^2 is the same as 3.14×100

Example 11 Finding circle areas using a calculator

Use a calculator to find the area of this circle correct to 2 decimal places.

2 cm
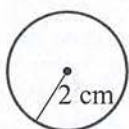
SOLUTION

$A = \pi r^2$

    $= \pi \times 2^2$

    $= 12.57 \text{ cm}^2$ (to 2 decimal places)

EXPLANATION

Use the π button on the calculator and enter $\pi \times 2^2$ or $\pi \times 4$.

Example 12 Finding areas of semicircles and quadrants

Find the area of this quadrant and semicircle correct to 2 decimal places.

a

3 m

b

5 km
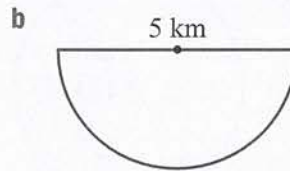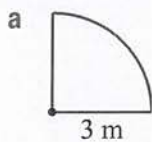
SOLUTION

EXPLANATION

a $A = \dfrac{1}{4} \times \pi r^2$

$= \dfrac{1}{4} \times \pi \times 3^2$

$= 7.07 \text{ m}^2$ (to 2 decimal places)

The area of a quadrant is $\dfrac{1}{4}$ the area of a circle with the same radius.

b $r = \dfrac{5}{2} = 2.5$

$A = \dfrac{1}{2} \times \pi r^2$

$= \dfrac{1}{2} \times \pi \times 2.5^2$

$= 9.82 \text{ km}^2$ (to 2 decimal places)

The radius is half the diameter.

The area of a semicircle is $\dfrac{1}{2}$ the area of a circle with the same radius.

Exercise 3E

1 Evaluate without the use of a calculator.

a 3.14×10 b 3.14×4 c $\dfrac{22}{7} \times 7$ d $\dfrac{22}{7} \times 7^2$

2 Use a calculator to evaluate these to 2 decimal places.

a $\pi \times 5^2$ b $\pi \times 13^2$ c $\pi \times 3.1^2$ d $\pi \times 9.8^2$

3 What is the length of the radius in these shapes?

a

10 m

b

2.3 mm

c

7 km
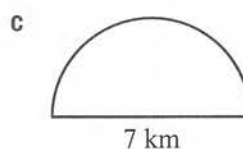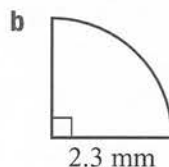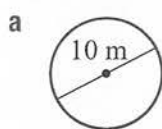
Example 10 **4** Find the area of these circles, using the given approximate value of π.

a

7 cm

$\pi = \dfrac{22}{7}$

b

14 km

$\pi = \dfrac{22}{7}$

c

28 mm

$\pi = \dfrac{22}{7}$

d

10 km

$\pi = 3.14$

e

2 m

$\pi = 3.14$

f

200 m
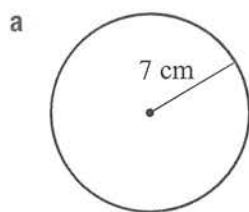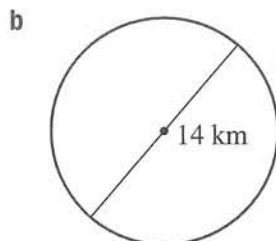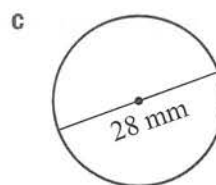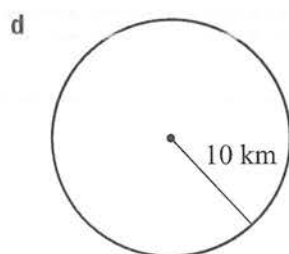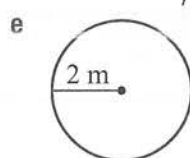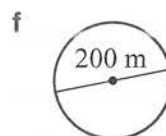
$\pi = 3.14$

Example 11 **5** Use a calculator to find the area of these circles correct to 2 decimal places.

a

3 cm

b

6 m

c

1.5 mm

d

10 km

e

3.4 cm

f

1.7 m
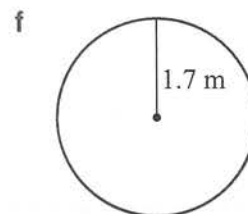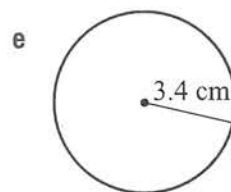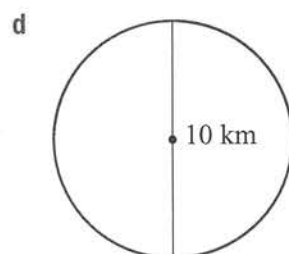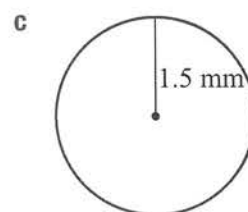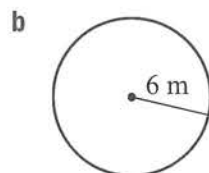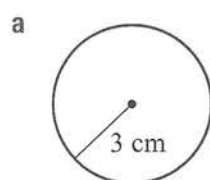
Example 12 **6** Find the area of these quadrants and semicircles correct to 2 decimal places.

a

2 cm

b

16 cm

c

17 mm

d

10 cm

e

3.6 mm

f

8 m
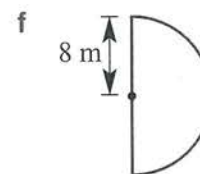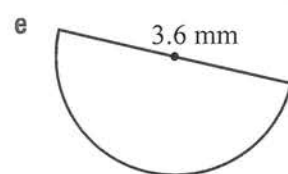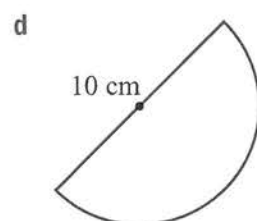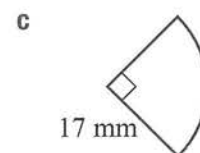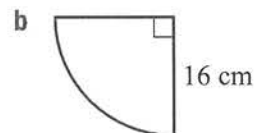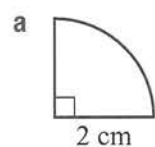
7 A pizza tray has a diameter of 30 cm. Calculate its area to the nearest whole number of cm^2.

8 A tree trunk is cut to reveal a circular cross-section of radius 60 cm. Is the area of the cross-section more than $1 m^2$ and, if so, by how much? Round your answer to the nearest whole number of cm^2.

9 A circular oil slick has a diameter of 1 km. The newspaper reported an area of more than $1 km^2$. Is the newspaper correct?

10 Two circular plates have radii 12 cm and 13 cm. Find the difference in their area correct to 2 decimal places.

11 Which has the largest area, a circle of radius 5 m, a semicircle of radius 7 m or a quadrant of radius 9 m?

12 A square of side length 10 cm has a hole in the middle. The diameter of the hole is 5 cm. What is the area remaining? Round the answer to the nearest whole number.

13 A circle has radius 2 cm.
   a Find the area of the circle using $\pi = 3.14$.
   b Find the area if the radius is doubled to 4 cm.
   c What is the effect on the area if the radius is doubled?
   d What is the effect on the area if the radius is tripled?
   e What is the effect on the area if the radius is quadrupled?
   f What is the effect on the area if the radius is multiplied by n?

14 The area of a circle with radius 2 could be written exactly as $A = \pi \times 2^2 = 4\pi$. Write the exact area of these shapes.
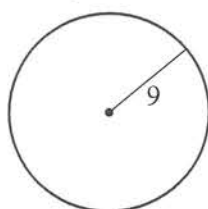
   a   **b**   **c**
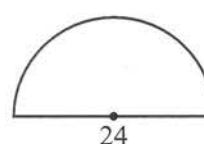
15 We know that the diameter d of a circle is twice the radius r, i.e. $d = 2r$ or $r = \frac{1}{2}d$.

   a Substitute $r = \frac{1}{2}d$ into the rule $A = \pi r^2$ to find a rule for the area of a circle in terms of d.

   b Use your rule from part **a** to check that the area of a circle with diameter 10 m is 25π m^2.

Enrichment: Reverse problems

16 Reverse the rule $A = \pi r^2$ to find the radius in these problems.
   a If $A = 10$, use your calculator to show that $r \approx 1.78$.
   b Find the radius of circles with these areas. Round the answer to 2 decimal places.
      i $17 m^2$ **ii** $4.5 km^2$ **iii** $320 mm^2$
   c Can you write a rule for r in terms of A? Check that it works for the circles defined in part **b**.

3F Area of sectors and composite figures

A slice of pizza or a portion of a round cake cut from the centre forms a shape called a sector.

The area cleaned by a windscreen wiper could also be thought of as a difference of two sectors with the same angle but different radii. Clearly the area of a sector depends on its radius, but it also depends on the angle between the two straight edges.
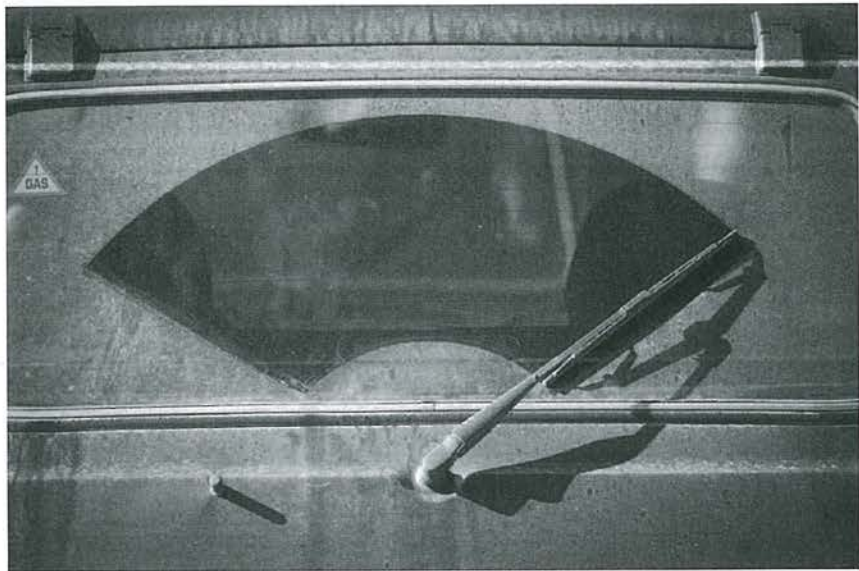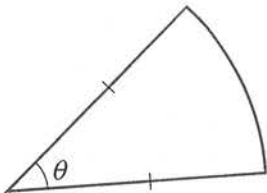
Let's start: The sector area formula

Complete this table to develop the rule for finding the area of a sector.

Angle	Fraction of area	Area rule	Diagram
180°	$\dfrac{180°}{360°} = \dfrac{1}{2}$	$A = \dfrac{1}{2} \times \pi r^2$	180°
90°	$\dfrac{90°}{360°} = \underline{\quad}$	$A = \underline{\quad} \times \pi r^2$	90°
45°			
30°			
θ		$A = \underline{\quad} \times \pi r^2$	θ

Key ideas

■ A **sector** is formed by dividing a circle with two radii.
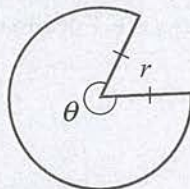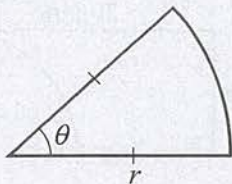
■ A sector's area is determined by calculating a fraction of the area of a circle with the same radius.

  – Fraction is $\dfrac{\theta}{360}$

  – Sector area $= \dfrac{\theta}{360} \times \pi r^2$

■ The area of a **composite shape** can be found by adding or subtracting the areas of more basic shapes.

$$A = \ell b + \tfrac{1}{2}\pi r^2$$
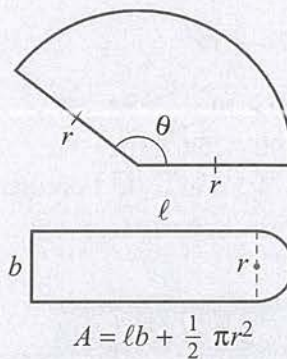
Example 13 Finding areas of sectors

Find the area of these sectors correct to 2 decimal places.

a

120°

2 cm

b

5 m

70°
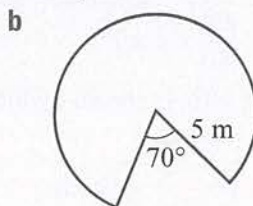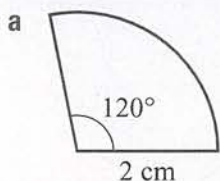
SOLUTION

a $A = \dfrac{\theta}{360} \times \pi r^2$

$ = \dfrac{120}{360} \times \pi \times 2^2$

$ = \dfrac{1}{3} \times \pi \times 4$

$ = 4.19 \text{ cm}^2$ (to 2 decimal places)

b $\theta = 360 - 70 = 290$

$A = \dfrac{\theta}{360} \times \pi r^2$

$ = \dfrac{290}{360} \times \pi \times 5^2$

$ = 63.27 \text{ m}^2$ (to 2 decimal places)

EXPLANATION

First write the rule for the area of a sector.

Substitute $\theta = 120$ and $r = 2$. Note that $\dfrac{120}{360}$ simplifies to $\dfrac{1}{3}$.

First calculate the angle inside the sector and remember that a revolution is 360°. Then substitute $\theta = 290$ and $r = 5$.

Example 14 Finding areas of composite shapes.

Find the area of this composite shape correct to 1 decimal place.
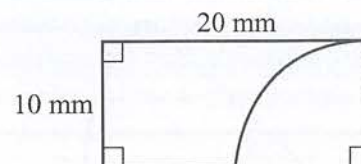
SOLUTION

$A = \ell b - \dfrac{1}{4}\pi r^2$

$= 20 \times 10 - \dfrac{1}{4} \times \pi \times 10^2$

$= 200 - 25\pi$

$= 121.5 \text{ mm}^2$ (to 1 decimal place)

EXPLANATION

The area can be found by subtracting the area of a quadrant from the area of a rectangle.

Exercise 3F

1 Simplify these fractions.

a $\dfrac{180}{360}$
b $\dfrac{90}{360}$
c $\dfrac{60}{360}$
d $\dfrac{45}{360}$

2 Evaluate the following using a calculator. Give your answer correct to 2 decimal places.

a $\dfrac{180}{360} \times \pi \times 2^2$
b $\dfrac{20}{360} \times \pi \times 7^2$
c $\dfrac{210}{360} \times \pi \times 2.3^2$

3 What fraction of a circle in simplest form is shown by these sectors?

a

b

c
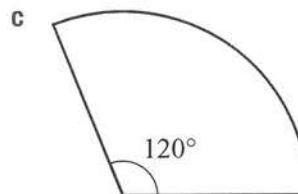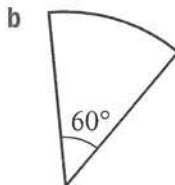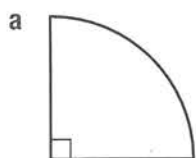
Example 13a 4 Find the area of these sectors correct to 2 decimal places.

a

b

c

d

e

f

g

45°
21.5 m

h

315°
18.9 m

i

210°
36.4 km
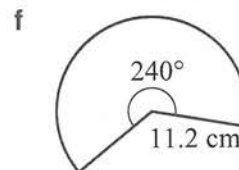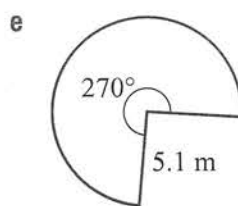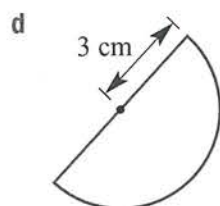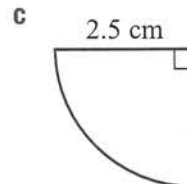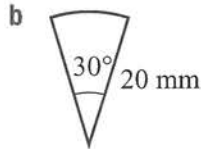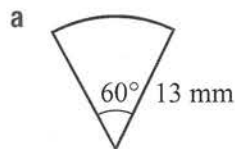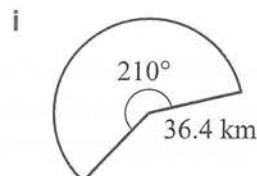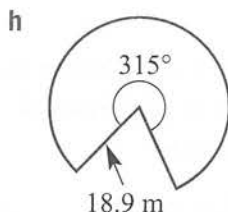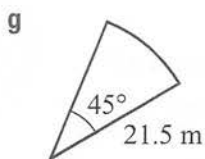
Example 13b **5** Find the area of these sectors correct to 2 decimal places.

a

240°   6 m

b

7.5 m
80°

c

115°
14.3 km
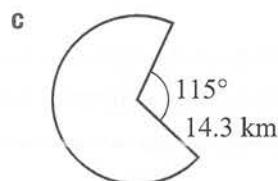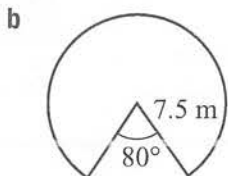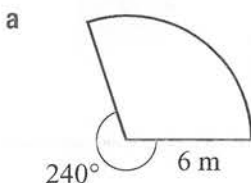
Example 14 **6** Find the areas of these composite shapes using addition or subtraction. Round the answer to 2 decimal places.

a

5 m

b

2 m
3 m

c

10 cm
20 cm

d

9 mm
20 mm

e

24 km

f

4 m

g

3 m   10 m

h

2 mm
5 mm

i

3 cm   1 cm
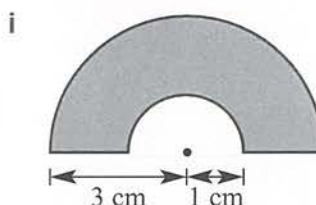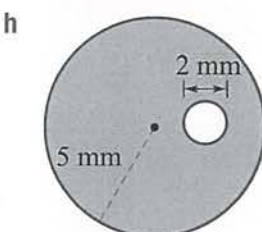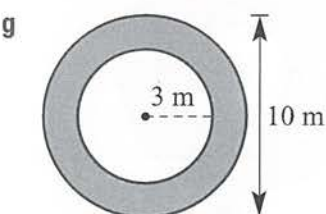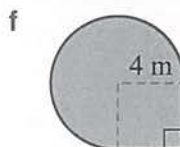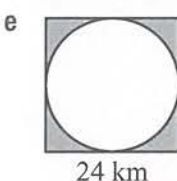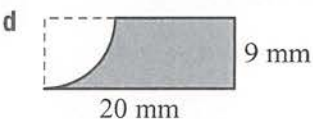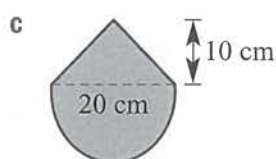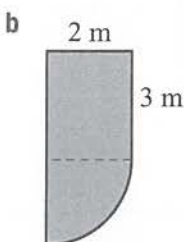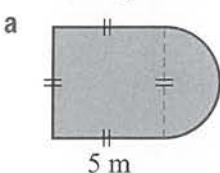
7 A simple bus wiper blade wipes an area over 100° as shown. Find the area wiped by the blade correct to two decimal places.

100°
1.2 m
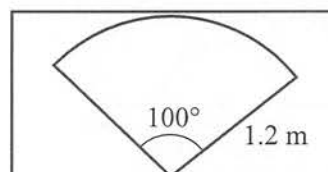
8 At Buy-by-the-sector Pizza they offer a sector of a 15 cm radius pizza with an angle of 45° or a sector of a 13 cm radius pizza with an angle of 60°. Which piece gives the bigger area and by how much? Round the answer to 2 decimal places.

9 An archway is made up of an inside and outside semicircle as shown. Find the area of the arch correct to the nearest whole cm².

$\overset{\longleftrightarrow}{60\text{ cm}}$ $\overset{\longleftrightarrow}{60\text{ cm}}$
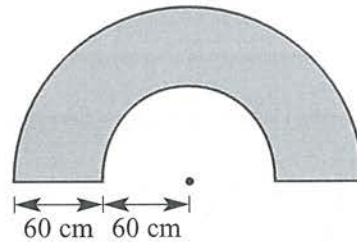
10 What percentage of the total area is occupied by the shaded region in these diagrams? Round the answer to 1 decimal place.

a
4 cm

b
249°
3 m

c
7.2 cm
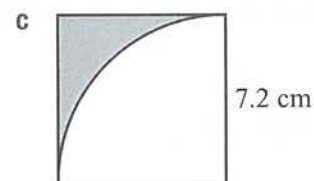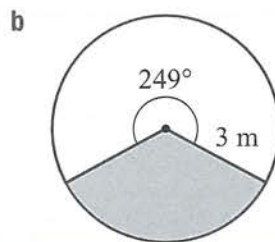
11 An exact area measure in terms of π might look like $\pi \times 2^2 = 4\pi$. Find the exact area of these shapes in terms of π. Simplify your answer.

a
2 cm

b
40°   5 m

c
1 mm
3 mm

d
5 m   10 m

e
3 cm

f
15 km
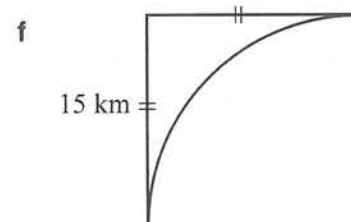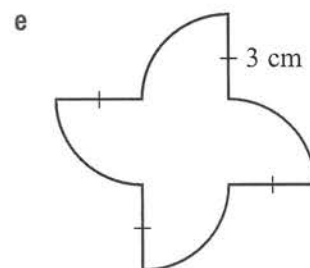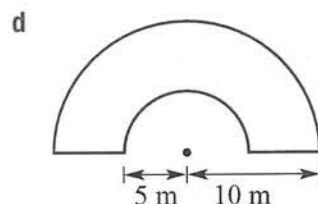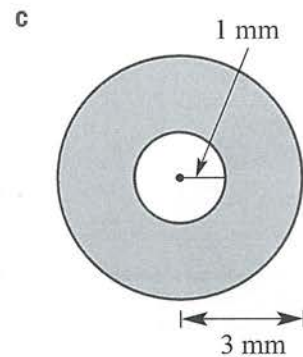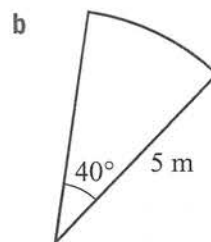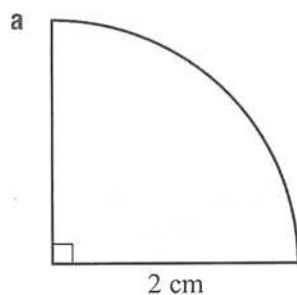
12 Consider the percentage of the area occupied by a circle inside a square
and touching all sides as shown.

   a If the radius of the circle is 4 cm, find the percentage of area occupied
      by the circle. Round the answer to 1 decimal place.

   b Repeat part **a** for a radius of 10 cm. What do you notice?

   c Can you prove that the percentage area is always the same for any radius r?
      Hint: Find the percentage area using the letter r for the radius.
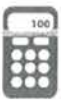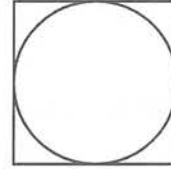
Enrichment: Sprinkler waste

13 A rectangular lawn area has a 180° sprinkler positioned in the middle of one side as shown.
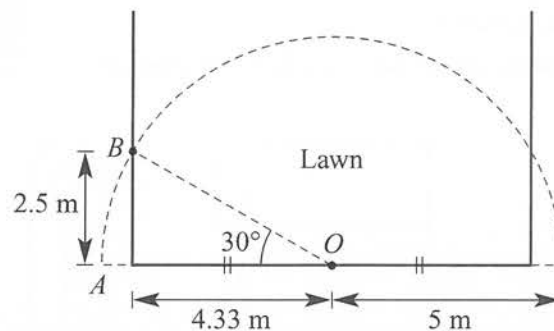
   a Find the area of the sector OAB correct to 2 decimal places.

   b Find the area watered by the sprinkler outside the lawn area correct to 2 decimal places.

   c Find the percentage of water wasted, giving the answer correct to 1 decimal place.

3G Surface area of prisms

Many problems in three dimensions can be solved by looking at the problem or parts of the problem in two dimensions. Finding the surface area of a solid is a good example of this, as each face can usually be looked at in two-dimensional space. The approximate surface area of the walls of an unpainted house, for example, could be calculated by looking at each wall separately and adding to get a total surface area.

→ Let's start: Possible prisms

Here are three nets that fold to form three different prisms.

- Can you draw and name the prisms?
- Try drawing other nets of these prisms that are a different shape to the nets given here.

Key ideas
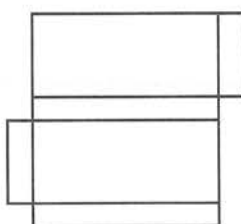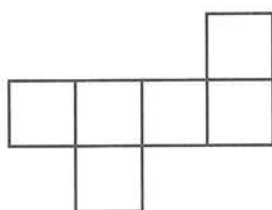
- A **prism** is a polyhedron with a constant (uniform) **cross-section.**
  - The cross-section is parallel to the two identical (congruent) ends.
  - The other sides are parallelograms (or rectangles for right prisms).
- A **net** is a two-dimensional representation of all the surfaces of a solid. It can be folded to form the solid.
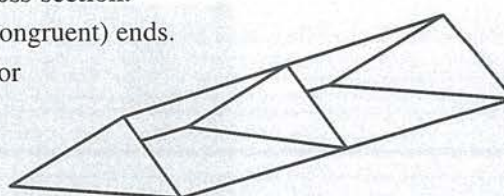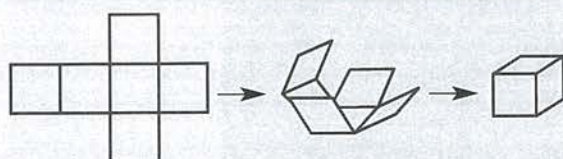
- The **surface area** (A) of a prism is the sum of the areas of all its faces.

$$A = 6s^2 \qquad A = 2\ell b + 2\ell h + 2bh$$
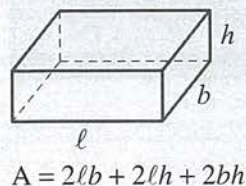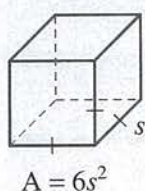
Example 15 Calculating surface areas

Find the surface area of this prism.
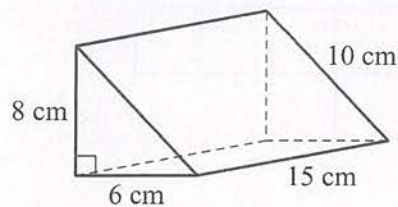
SOLUTION

Area of 2 triangular ends
$$A = 2 \times \frac{1}{2} \times bh$$
$$= 2 \times \frac{1}{2} \times 6 \times 8$$
$$= 48 \text{ cm}^2$$

Area of 3 rectangles
$$A = (6 \times 15) + (8 \times 15) + (10 \times 15)$$
$$= 360 \text{ cm}^2$$

Surface area
$$A = 48 + 360$$
$$= 408 \text{ cm}^2$$

EXPLANATION

One possible net is:
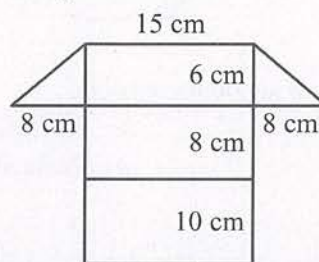
Work out the area of each shape or group of shapes and find the sum of their areas to obtain the surface area.
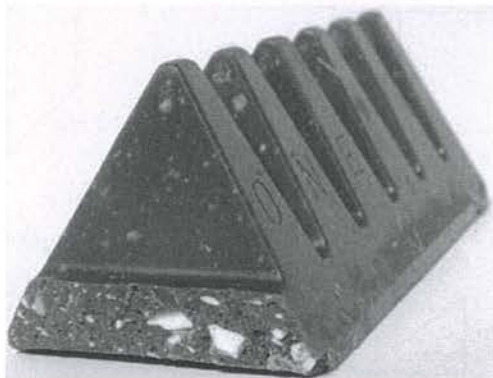
The surface area of this chocolate can be estimated by a similar process.

Exercise 3G   EXTENSION

1   How many faces are there on these prisms? Also name the types of shapes that make the different faces.

a

b

c
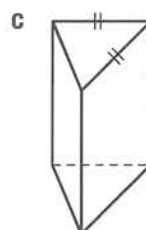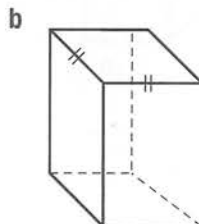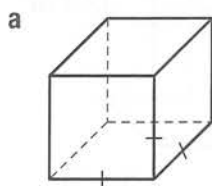
2 Match the net to its solid.

a

b

c

A

B

C
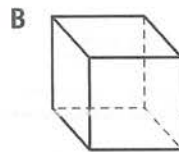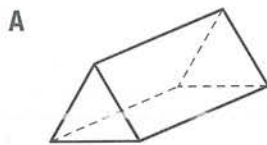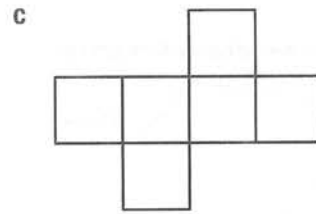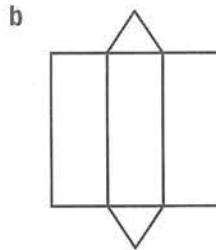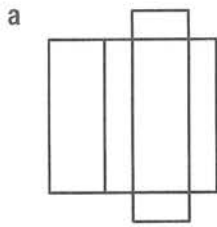
3 How many rectangular faces are on these solids?

Pentagonal prism

a Triangular prism

b Rectangular prism

c Hexagonal prism

d Pentagonal prism
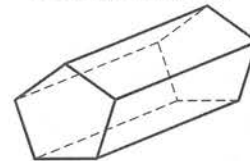
Example 15

4 Find the surface area of these prisms.

a

2 cm

b

8.2 m

c

3 cm

2 cm

1 cm

d

4 cm

12 cm

8 cm

e

5 m

3 m

4 m

6 m

f

9 cm   12 cm

15 cm

14 cm

g

6 mm

4 mm

6 mm

5 mm

h

8 m

3 m

i

1.5 m

4.2 m
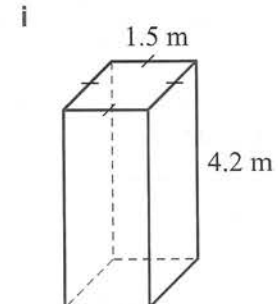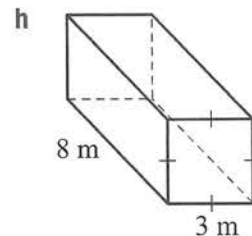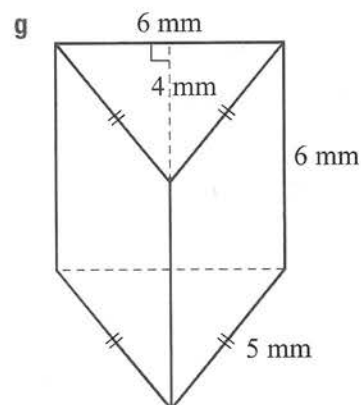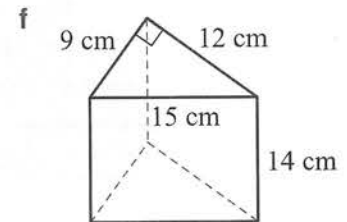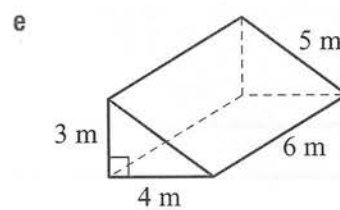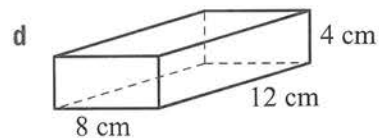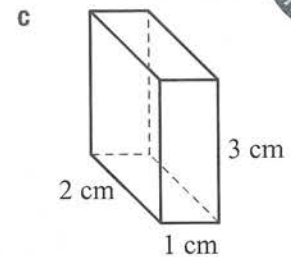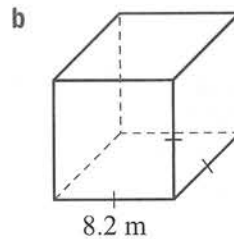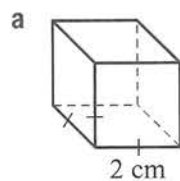
5   This prism has two end faces that are parallelograms.
    a   Use $A = bh$ to find the combined area of the
        two ends.
    b   Find the surface area of the prism.

2 cm   1.5 cm   8 cm   6 cm
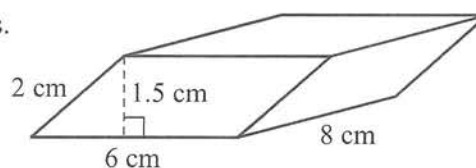
6   An open box (with no lid) is in the shape of a cube and is painted on the outside including the
    base. What surface area is painted if the side length of the box is 20 cm?

7   A book 20 cm long, 15 cm wide and 3 cm thick is covered in plastic. What area of plastic is
    needed to cover 1000 books? Convert your answer to m^2.

8   Find the surface area of these solids.

a   5 m   3 m   7 m   6 m   3 m

b   6 m   8 m   5 m   15 m   10 m

c   3 cm
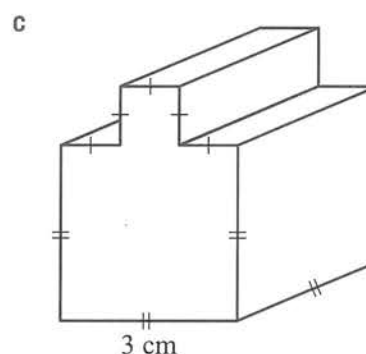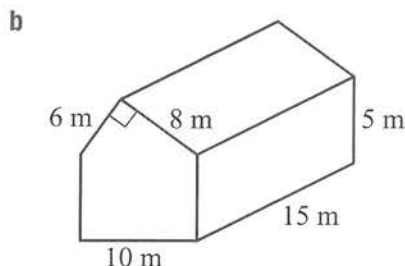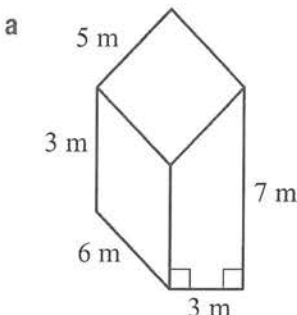
9   The floor, sides and roof of this tent are made from
    canvas at a cost of $5 per square metre. The tent's
    dimensions are shown in the diagram. What is the
    cost of the canvas for the tent?

2.8 m   2 m   1.5 m
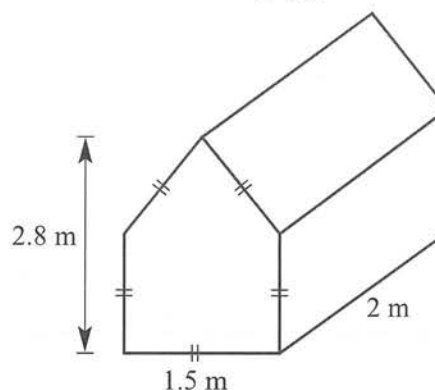
10 Write down the rule for the surface area for these prisms in simplest form.

a ℓ

b b ℓ

c h b ℓ
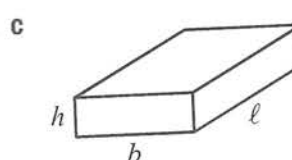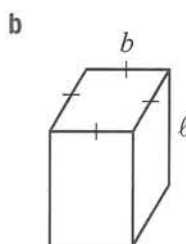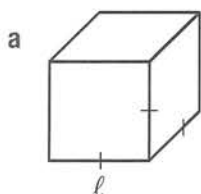
11 A cube of side length 1 cm has a surface area of 6 cm^2.

    a What is the effect on the surface area of the cube if:

       i its side length is doubled?

      ii its side length is tripled?

      iii its side length is quadrupled?

    b Do you notice a pattern from your answers to part **a**. What effect would multiplying the side length by a factor of n have on the surface area?

Enrichment: **The thick wooden box**

12 An open box (with no lid) in the shape of a cube is made of wood that is 2 cm thick. Its outside side length is 40 cm.
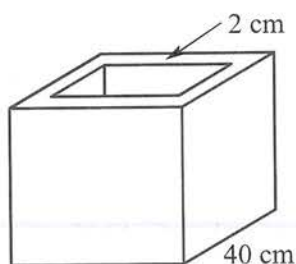
    a Find its surface area both inside and out.

    b If the box was made with wood that is 1 cm thick, what would be the increase in surface area?

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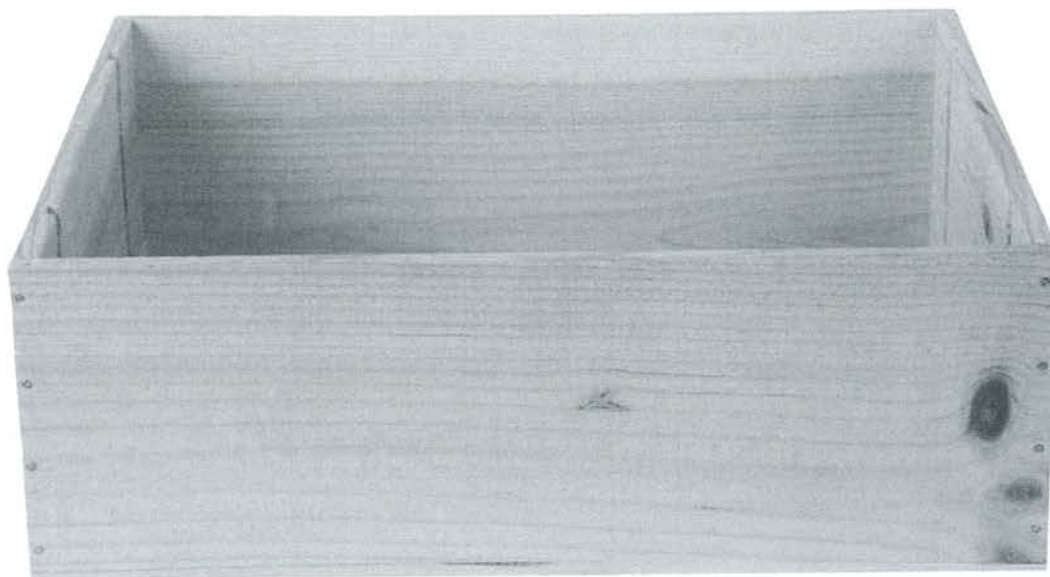
Puzzles and challenges

1 a 13   **b** 7.5   **c** 9 years
   d $44.44   **e** 15

2 a 2nd step or 3rd line (cannot divide by 0)
   b

$$\times 28 \left(\begin{matrix} 0 = 1 \\ 0 = 28 \end{matrix} \right) \times 28$$
$$+22 \left(\begin{matrix} 0 = 28 \\ 22 = 50 \end{matrix} \right) +22$$

3 $6 \le x \le 7$

4 $2x = 2(3 + x) - 1$ or $3x + 1 = 2 + 3(x + 1)$

5 a 65 kg, 62 kg, 55 kg   **b** 70 kg, 60 kg, 48 kg
   c 35 kg, 42 kg, 45 kg, 48 kg

Multiple-choice questions

1 A   **2** D   **3** C   **4** C   **5** B
6 B   **7** D   **8** E   **9** A   **10** A

Short-answer questions

1 a false   **b** true   **c** true

2 a $m = 4$ **b** $m = -12$ **c** $a = -1$ **d** $m = \dfrac{1}{5}$
   e $m = 15$ **f** $a = 6$

3 a $2m + 3 = 3m$ **b** $5(n + 4) = 20$ **c** $x + x + 2 = 74$

4 a subtract 15   **b** add 5   **c** subtract $2a$

5 a $a = 4$ **b** $y = -9$ **c** $x = -4$ **d** $x = 4$
   e $x = 2$ **f** $a = 1$

6 a $m = -6$ **b** $x = 8$ **c** $y = -18$ **d** $k = -58$
   e $w = -2$ **f** $a = 43$

7 a $x = 14$ **b** $x = 6$ **c** $x = 40$

8 a $a = 8$ **b** $m = \dfrac{1}{2}$ **c** $x = 4$ **d** $a = 2$
   e $x = -8$ **f** $x = 9$

9 a $x = 3$ **b** $x = -4$ **c** $x = -4$ **d** $a = 4$
   e $a = -7$ **f** $m = 4$ **g** $a = -3$ **h** $x = 17$
   i $x = 1$

10 a 12   **b** 4   **c** 8.5

11 a ± 2 **b** ± 10 **c** ± 7
   d ± 2.83 **e** ± 6.24 **f** ± 30.23

12 a 1   **b** 2   **c** 0
   d 0   **e** 1   **f** 0

13 a $x \ge 100\,000$ **b** $x \le 6700$
   c $1.54 \le x \le 1.9$

Extended-response questions

1 a $S = 20 + 0.12n$ **b** 30 times
   c $Y = 15 + 0.2n$ **d** 25
   e $20 + 0.12n = 15 + 0.2n$, $n = 62.5$, so 63 is the minimum number.

2 a $18x - 180$
   b **i** $35.50   **ii** $41   **iii** $459
   c $25   **d** $30   **e** $30 \le x \le 35$

Chapter 3

Pre-test

1 a 300 cm   **b** 200 mm   **c** 1800 m   **d** 25 cm
   e 3.5 cm   **f** 4.2 km   **g** 5 m   **h** 0.1 m
   i 120 s   **j** 3000 mL   **k** 4 L   **l** 3 kg

2 a circle   **b** square   **c** rectangle   **d** parallelogram
   e rhombus   **f** kite   **g** triangle   **h** trapezium

3 a 30 cm^2 **b** 25 m^2 **c** 16 cm^2 **d** 20 cm^2

4 a 30 m   **b** 14.5 cm   **c** 38 cm

5 a 10   **b** 27   **c** 25   **d** 121
   e 58.5   **f** 6   **g** 9   **h** 12

6 a 12 cm^3 **b** 250 m^2 **c** 4200 cm^3

Exercise 3A

1 a 10   **b** 100   **c** 1000   **d** 100 000
   e 1000   **f** 1 000 000

2 a 1000   **b** 100 000   **c** 1 000 000

3 a 10   **b** 10   **c** 2

4 a 12 m   **b** 22 cm   **c** 10 mm
   d 44 km   **e** 1.4 cm   **f** 3.6 m

5 a 30 mm   **b** 610 cm   **c** 8930 m   **d** 3000 mm
   e 2.1 m   **f** 32 cm   **g** 9.62 km   **h** 0.38 km
   i 4.3 mm   **j** 2040 cm   **k** 23.098 m   **l** 3.42 km
   m 194.3 m   **n** 0.01 km   **o** 24.03 mm   **p** 0.994 km

6 a 19 m   **b** 44 m   **c** 13 cm   **d** 32 cm
   e 28 km   **f** 18 cm   **g** 17.2 mm   **h** 34.4 cm
   i 29.4 m

7 a 5   **b** 2   **c** 4
   d 18   **e** 9.5   **f** 6.5

8 a 40 cm   **b** 17 cm   **c** 7.8 cm
   d 2000 cm   **e** 46 cm   **f** 17 600 cm

9 a 2   **b** 3   **c** 9

10 $2392

11 8 min

12 240 cm

13 a $P = 2a + b$ **b** $P = 2a + 2b$
   c $P = 2a + 2b$ **d** $P = 2a + 2b$
   e $P = 8a + 2b$ **f** $P = 4a + 2b$

14 a $x = P - 11$ **b** $x = P - 4$ **c** $x = \dfrac{P - 3}{2}$
   d $x = \dfrac{P - 8}{2}$ **e** $x = \dfrac{P}{4}$ **f** $x = \dfrac{P}{8}$

15 a 6 squares   **b** 8 squares

Exercise 3B

1 a 15.71   **b** 40.84   **c** 18.85   **d** 232.48

2 a 3.1   **b** 3.14   **c** 3.142

3 a diameter   **b** radius   **c** circumference

4 Answer is close to pi.

5 a 12.57 mm **b** 113.10 m **c** 245.04 cm **d** 12.57 m
 e 21.99 km **f** 15.71 cm

6 a 314 cm **b** 62.8 m **c** 18.84 km

7 a 44 mm **b** 132 cm **c** 220 m

8 11.0 m

9 12 566 m

10 a 64.27 cm **b** 12.34 m **c** 61.70 mm

11 a 28.57 cm **b** 93.97 m **c** 5.57 cm

12 a 25.13 cm **b** 56.55 m **c** 35.71 m

13 Svenya and Andre

14 $d = 2r$, so $2\pi r$ is the same as πd.

15 a 4π **b** 36π **c** 78π **d** 4π
 e 7π **f** 5π

16 a 8π **b** 18π **c** $5\pi + 20$

17 a i $r = \dfrac{C}{2\pi}$ **ii** $d = \dfrac{C}{\pi}$ **b i** 2.23 m **ii** 6.37 cm

Exercise 3C

1 a i 100 **ii** 400 **iii** 3
 b i 10 000 **ii** 70 000 **iii** 4
 c i 1 000 000 **ii** 5 000 000 **iii** 2.5
 d i 10 000 **ii** 30 000 **iii** 7.5

2 a 7 m, 3 m **b** 8 cm, 6 cm (or other way around)
 c 2.4 mm, 1.7 mm

3 10 000

4 a 200 mm² **b** 70 000 cm² **c** 500 000 m²
 d 30 000 m² **e** 34 mm² **f** 0.07 m²
 g 30.9 cm² **h** 4000 m² **i** 0.2 m²
 j 0.45 km² **k** 0.4 ha **l** 32.1 cm²
 m 32 ha **n** 51 cm² **o** 4.3 mm²
 p 0.4802 m² **q** 1.904 ha **r** 0.2933 ha
 s 49 m² **t** 7700 m² **u** 24 000 m²

5 a 9 cm² **b** 21 m² **c** 39 cm²
 d 18 cm² **e** 33 m² **f** 144 mm²
 g 63 m² **h** 3 m² **i** 6 km²

6 a 70 m² **b** 54 m² **c** 140 cm²
 d 91 cm² **e** 46 km² **f** 64 mm²

7 a 200 000 mm² **b** 430 000 cm² **c** 0.0000374 km²
 d 0.01092 m² **e** 20 cm² **f** 600 ha

8 a 45 cm² **b** 168 m² **c** 120 km²

9 a 6 m **b** 1.5 cm

10 a 25 m² **b** 20.25 cm² **c** 28 cm **d** 52 m

11 10 cm

12 $48

13 a $A = 4b^2 + ab$ or $A = b(4b + a)$

b $A = 1.5ab$ or $A = \dfrac{3ab}{2}$

c $A = a^2 - \dfrac{ab}{2}$ or $A = a\left(a - \dfrac{b}{2}\right)$

14 a 4 **b** 1

15 a $b = \dfrac{A}{l}$ **b** $\ell = \sqrt{A}$ **c** $h = \dfrac{2A}{b}$

16 a i 2.59 km² **ii** 2 589 988 m² **iii** 259 ha
 iv 4047 m² **v** 0.4 ha **vi** 2.5 acres
 b 81 ha
 c 62%

Exercise 3D

1 a 6 **b** 30 **c** 13.5 **d** 33

2 a 90°
 b height
 c perpendicular
 d parallel, perpendicular
 e rhombus, kite

3 a parallelogram, 50 m² **b** parallelogram, 4.5 cm²
 c parallelogram, 6 m² **d** rhombus, 7.5 cm²
 e rhombus, 121 km² **f** rhombus, 9.61 m²
 g kite, 4 cm² **h** kite, 300 mm²
 i kite, 0.9 mm² **j** trapezium, 96 cm²
 k trapezium, 32.5 m² **l** trapezium, 560 mm²

4 a 6 cm² **b** 35 m² **c** 84.5 cm²

5 0.27 m²

6 2 m

7 $1160

8 3 cm and 9 cm

9 a trapezium **b** 19.5 cm²

10 a $A = 2x^2$
 b $A = 3ab$
 c $A = 8a^2$

11 No, use formula for parallelogram $A = bh$, as we already know these lengths.

12 a A = 4 triangle areas
$$= 4 \times \frac{1}{2} \times \text{base} \times \text{height}$$
$$= 4 \times \frac{1}{2} \times \frac{1}{2}x \times \frac{1}{2}y$$
$$= \frac{1}{2}xy$$

b A = Area (triangle 1) + Area (triangle 2)
$$= \frac{1}{2} \times \text{base}_1 \times \text{height}_1 + \frac{1}{2} \times \text{base}_2 \times \text{height}_2$$
$$= \frac{1}{2} \times a \times h + \frac{1}{2} \times b \times h$$
$$= \frac{1}{2}ah + \frac{1}{2}bh$$
$$= \frac{1}{2}h(a + b)$$

c A = Area (rectangle) + Area (triangle)

$$= \text{length} \times \text{width} + \frac{1}{2} \times \text{base} \times \text{height}$$

$$= a \times h + \frac{1}{2} \times (b-a) \times h$$

$$= ah + \frac{1}{2}bh - \frac{1}{2}ah$$

$$= \frac{1}{2}ah + \frac{1}{2}bh$$

$$= \frac{1}{2}h(a+b)$$

Exercise 3E

1 a 31.4 b 12.56 c 22 d 154
2 a 78.54 b 530.93 c 30.19 d 301.72
3 a 5 m b 2.3 mm c 3.5 km
4 a 154 cm² b 154 km² c 616 mm²
   d 314 km² e 12.56 m² f 31 400 m²
5 a 28.27 cm² b 113.10 m² c 7.07 mm²
   d 78.54 km² e 36.32 cm² f 9.08 m²
6 a 3.14 cm² b 201.06 cm² c 226.98 mm²
   d 39.27 cm² e 5.09 mm² f 100.53 m²
7 707 cm²
8 yes, by 1310 cm²
9 no (A = 0.79 km²)
10 78.54 cm²
11 circle of radius 5 m
12 80 cm²
13 a 12.56 cm² b 50.24 cm²
    c quadrupled (×4) d multiplied by 9
    e multiplied by 16 f multiplied by n^2
14 a 81π b $\dfrac{49\pi}{4}$ c 72π
15 a $A = \dfrac{\pi d^2}{4}$ b true
16 a true b i 2.33 m ii 1.20 km iii 10.09 mm
    c $r = \sqrt{\dfrac{A}{\pi}}$

Exercise 3F

1 a $\dfrac{1}{2}$ b $\dfrac{1}{4}$ c $\dfrac{1}{6}$ d $\dfrac{1}{8}$
2 a 6.28 b 8.55 c 9.69
3 a $\dfrac{1}{4}$ b $\dfrac{1}{6}$ c $\dfrac{1}{3}$

4 a 88.49 mm² b 104.72 mm² c 4.91 cm²
   d 14.14 cm² e 61.28 m² f 262.72 cm²
   g 181.53 m² h 981.93 m² i 2428.12 km²
5 a 37.70 m² b 137.44 m² c 437.21 km²
6 a 34.82 m² b 9.14 m² c 257.08 cm²
   d 116.38 mm² e 123.61 km² f 53.70 m²
   g 50.27 m² h 75.40 mm² i 12.57 cm²
7 1.26 m²
8 13 cm radius pizza by 0.13 cm²
9 16 965 cm²
10 a 78.5% b 30.8% c 21.5%
11 a π cm² b $\dfrac{25\pi}{9}$ m² c 8π mm²
    d $\dfrac{75\pi}{2}$ m² e $9\pi + 9$ cm² f $225 - \dfrac{225\pi}{4}$ km²
12 a 78.5%
    b 78.5%, Same answers as for part **a**.
    c Percentage area $= \dfrac{\pi r^2}{4} \div r^2 \times 100 = 25\pi \approx 78.5\%$
13 a 6.54 m² b 2.26 m² c 5.8%

Exercise 3G

1 a 6, squares
   b 6 squares and rectangles
   c 6, isosceles triangles and rectangles
2 a C b A c B
3 a 3 b 6 c 6 d 5
4 a 24 cm² b 403.44 m² c 22 cm²
   d 352 cm² e 84 m² f 612 cm²
   g 120 mm² h 114 m² i 29.7 m²
5 a 18 cm² b 146 cm²
6 2000 cm²
7 81 m²
8 a 138 m² b 658 m² c 62 cm²
9 $107.25
10 a SA $= 6\ell^2$ b SA $= 2b^2 + 4\ell b$
    c SA $= 2b\ell + 2bh + 2\ell h$
11 a i quadrupled ii multiplied by 9 iii multiplied by 16
    b multiplied by n^2
12 a 15 072 cm² b 456 cm²

Exercise 3H

1 a 24 b 12 c 72
2 a 96 b 6 c 2 d 5
3 a 1000 b 1 c 1 d 1
   e 1 f 1000

SCIENCE

Cells - the Units of Life

All Living Things are Made of Cells

Every living organism that has ever been examined with a microscope has been found to be made up of tiny little "bags" of living matter that we call "cells".

Each cell is alive. Some living things are made up of just one cell. All the familiar living things are made up of many, many cells. Your body contains at least 200 billion cells. (200,000,000,000 cells)

DIAGRAM OF A LIVING CELL

Various structures called "organelles" are visible inside a cell.
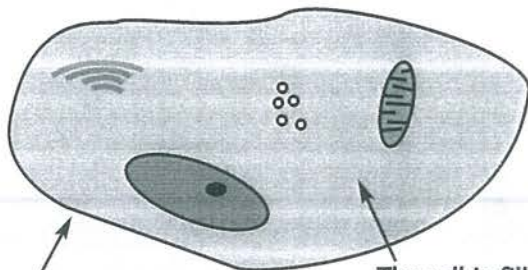
"Cell Membrane" on the outside contains the cell, and controls what goes in or out.

The cell is filled with a jelly–like liquid called "cytoplasm".

How Big is a Cell?

Obviously, cells are very small and you need a microscope to see them.

Cells vary a lot in their shape and size. In the diagrams below, the vertical scale bar represents 0.1mm ($^1/_{10}$ of a millimeter).

This represents a very large cell.

0.1 mm

Some cells in your blood are about this size.

Some cells are a very odd shape, like this.

Some cells are so small that even with a good microscope, they are hard to see in detail.
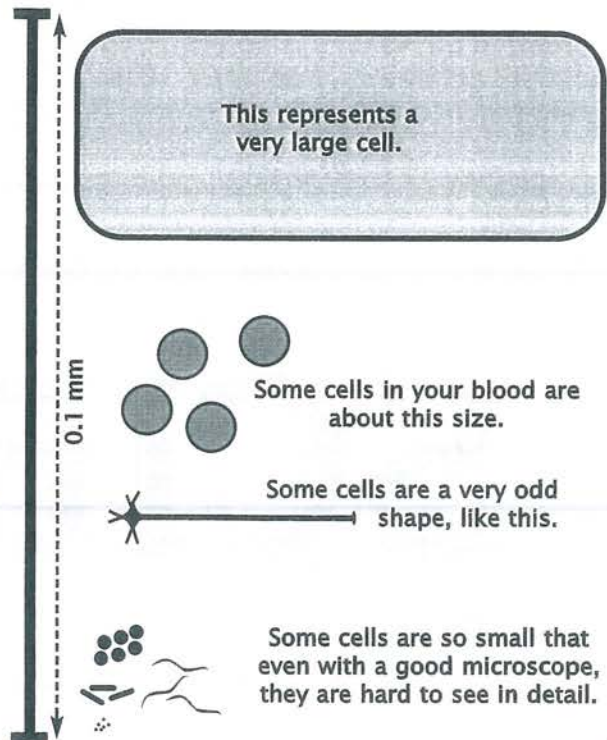
A Little History

The Discovery of Cells

By about the1500's, people had begun using glass lenses to make spectacles and "magnifying glasses". Soon, the telescope was invented, and later some experimenting was done to construct microscopes to look at very small things.

In 1665, Robert Hooke, an English scientist, used a primitive microscope to look at a piece of cork.

Hooke's microscope
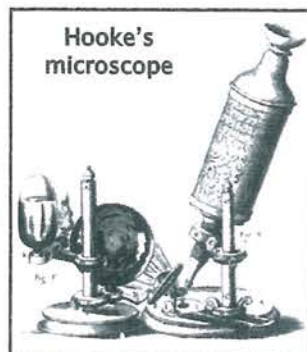
He saw that the cork was made up of rows and rows of hollow little boxes, like rows of small rooms in a gaol or monastery. He described them as "cells" and the name stuck.

We now understand that these cells were hollow because cork is the dead bark of a tree.

The hollow spaces were where the living cells used to be when the bark was growing.

What Hooke saw

Small hollow "rooms" within a piece of cork.
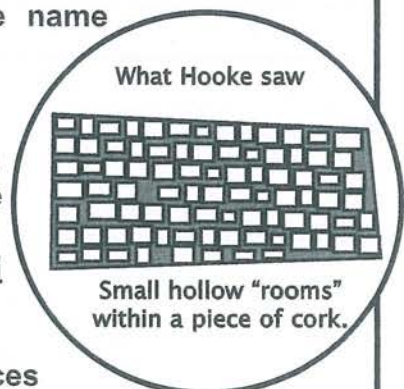
Parts of a Cell
Each living cell is a very complicated structure.
Some of the most important parts are described below. Essential learning!

Animal Cells
The diagram shows the main features of a typical cell in an animal.

Nucleus
This organelle is the "control centre" of the cell. The nucleus sends out "chemical messengers" to every part of the cell, to control all the cell processes.

Cytoplasm
This a jelly-like liquid which completely fills the cell. It is mostly water, with thousands of different kinds of chemicals dissolved in it. Also suspended in the cytoplasm are many small structures called "organelles".
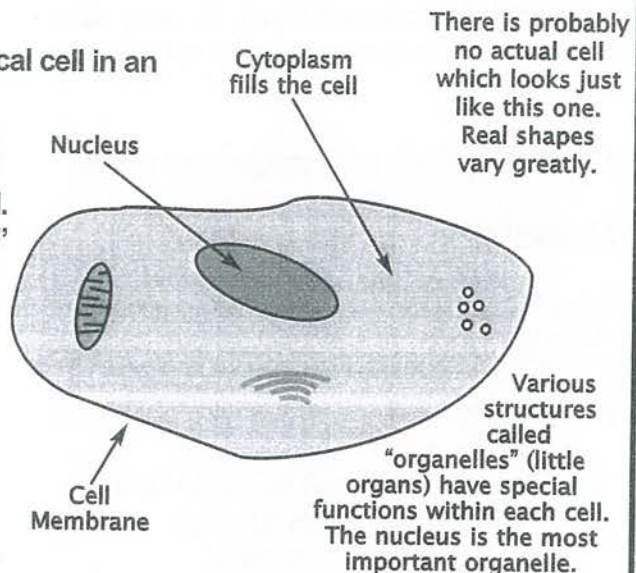
Many chemical reactions are constantly occurring in the cytoplasm solution, and within the organelles. "Life" is mostly a matter of chemistry.

Cell Membrane
Surrounding the cell, and containing it, is an extremely thin, flexible layer. This membrane not only holds all the cell parts together to form a little bag of life, but it controls all the chemicals which enter or leave a cell.

Cytoplasm fills the cell

Nucleus

There is probably no actual cell which looks just like this one. Real shapes vary greatly.

Cell Membrane

Various structures called "organelles" (little organs) have special functions within each cell. The nucleus is the most important organelle.

Plant Cells
Plant cells have all the same features of animal cells, but have 2 extra features that you need to know about. These are never present in an animal.

Chloroplasts
These are green-coloured organelles which absorb the energy of the Sun and use it to make food for the plant by the process of photosynthesis.

Not every plant cell has chloroplasts; only the leaves and sometimes the green stem.

Cell Wall
This is a tough, fibrous, non-living layer on the outside of the cell. It makes plant cells stronger and helps to maintain the stiffness and shape of thin leaves, petals and fragile roots.

Cytoplasm

Cell Membrane

Nucleus

Cell Wall on the outside of the cell membrane

Chloroplasts which absorb light and make food for the plant
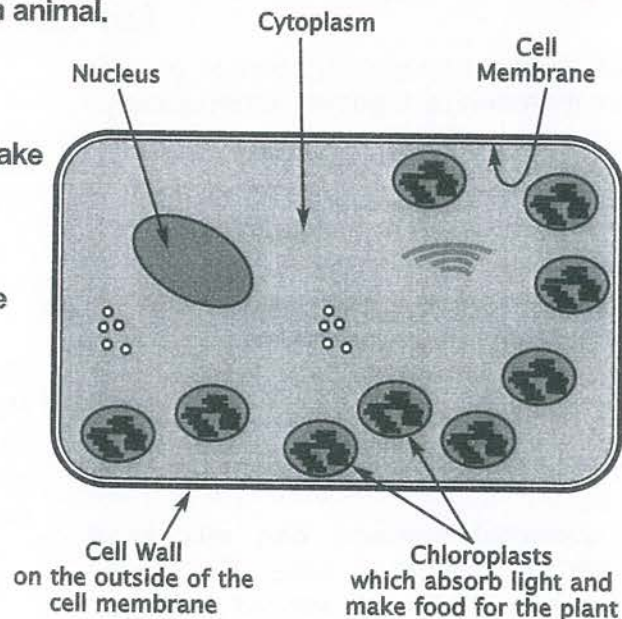
Movement of Substances Through the Cell Membrane

What Cells Need

Each cell is alive. This means it has all the requirements that you have. To stay alive you need to breathe, eat and drink, and so does a cell.

- <u>Food</u> chemicals and <u>water</u> must get in.

- <u>Oxygen</u> gas (O_2) must get in.

- <u>Waste products</u> must get out.
  "Wastes" include the gas carbon dioxide (CO_2), plus other waste chemicals from processing food.

For these substances to get in or out,
they must move through
the cell membrane.

The cell membrane does not have a "mouth" or any openings, so how is this possible?

Food
Water
Oxygen
Carbon Dioxide & other wastes

The cell membrane is a bit like using a plant hedge as the fence around a farmyard. A hedge will prevent the cows getting through, but a mouse or lizard will easily crawl and wriggle through.

Similarly, the cell membrane acts as a barrier to large chemicals and organelles, but small molecules (like water, O_2 & CO_2) can easily pass through.

The word "permeable" describes something that liquids can seep or soak through. The cell membrane is "<u>semi-permeable</u>" which means that some substances can move through it, but other things cannot.
<u>Why</u> the chemicals move is another matter.
You may have already studied "<u>diffusion</u>" in a previous topic. Diffusion is revised below.

Diffusion

Fluids (liquids and gases) seem to be able to mix themselves together automatically.

one drop of food colour dye

The food colour spreads out through the water by itself.

Water

Without any stirring, it auto-mixes through the water.

This process is called "Diffusion".

The coloured solution can mix itself through the beaker of water. The brown gas can mix with the air without any help.

Gas Jar of air

glass separator

Gas Jar of brown gas

When the separator is removed, the two gases mix themselves together.
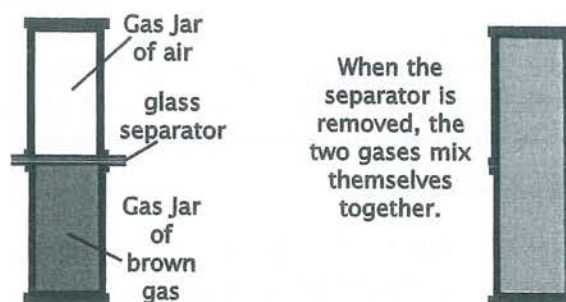
The explanation is in the Moving-Particle Model of matter. In liquids and gases, the particles are moving around. If 2 different gases or liquids are side-by-side, then the moving particles will automatically mix.

Some substances move through the cell membrane because of diffusion.

Worksheet 1
Cells

Fill in the blanks

Student Name.................................

Every living thing is made of a)............... Each one is alive. To see cells you need to use a b)....................................

Some living things are composed entirely of c)............... cell, but all familiar life-forms are made up of d)............................. of them. Cells are generally less than e).................. (fraction) of a millimetre in size, and many are much smaller still.

Cells were first seen (and named) by f)................................... in 1665

The main parts of a cell are:
• the g)........................., which is the control centre for each cell.
• h)........................., a jelly-like liquid which fills the cell. In it are also many small structures called i).................................

• the j)..................................., which surrounds the cell. It also controls k).................................... of the cell.

Plant cells have 2 additional features:
• a tough l)............................. on the outside of the cell membrane.
• m)........................., which absorb n)..................... energy to make food by the process of o)...............................

Each cell needs to get food and p)........................ (gas) in, and to remove wastes such as q)............................. (gas) These must all move through the r).................................... which can let some things through, while blocking others. It is said to be "s)..............-...............................". Small molecules like water can easily move through by the process of t)....................

Worksheet 2
Cell Structure & Function

Match the lists.
Write the letter (A,B,C, etc) of the list item which matches each description.

Student Name.................................

Descriptions	List Item
1. Magnifying device used to view cells.	....
2. Man who first saw cells.	....
3. Part of a plant cell which is green and makes food.	....
4. Organelle which controls all cell functions.	....
5. Cell membrane is like this.	....
6. Cells are full of this.	....

7. Process by which small molecules can move through a membrane.   ....

8. A gas which cells need to get in from the outside.   ....

9. What cytoplasm is mostly made from.   ....

10. Found on the outside of plant cells only.   ....

List Items (not all will be used)
A. water
B. A.Einstein
C. cytoplasm
D. oxygen
E. R.Hooke
F. nitrogen
G. chloroplast
H. semi-permeable
I. microscope
J. diffusion
K. cell wall
L. nucleus

Worksheet 3
Identifying Cell Parts
Label all the diagrams

Student Name..................................

1.

a) Is this a plant or animal cell? ....
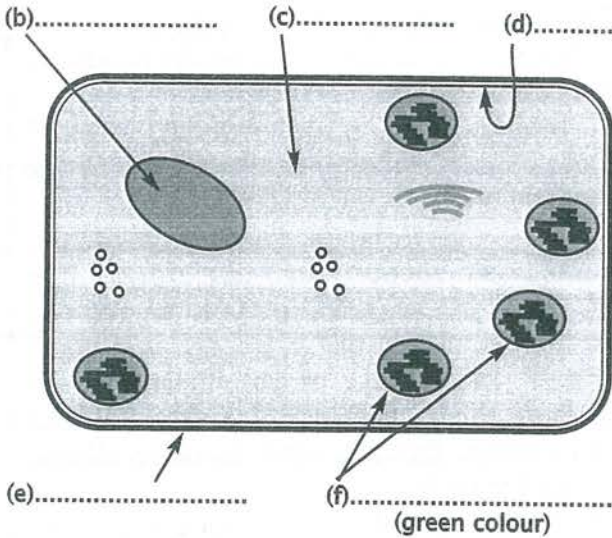
(b)........................ (c)........................ (d)........................

(e)........................ (f)........................
(green colour)

2.

a) Is this a plant or animal cell? ....
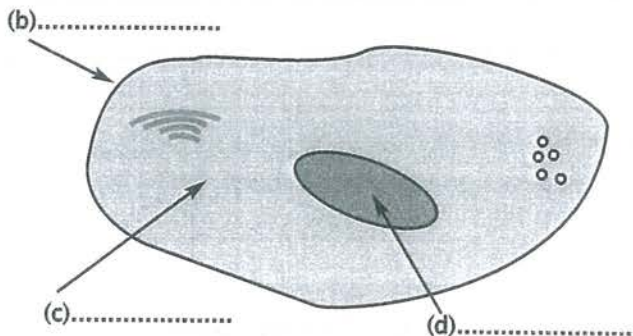
(b)........................

(c)........................ (d)........................

3.

a) Is this a plant or
animal cell? ....
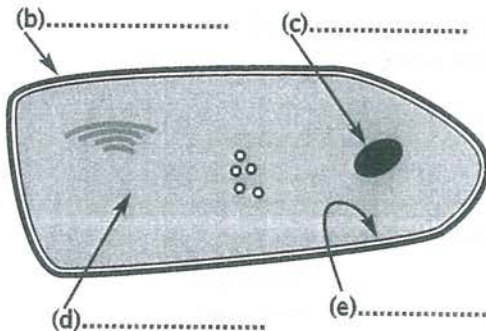
(b)........................ (c)........................

(d)........................ (e)........................

4.

a) Is this a plant or
animal cell? ....

(b)........................
(green) (c)........................

(d)........................

(e)........................

(f)........................

5.

a) Is this a plant or
animal cell? ....

(b)........................ (c)........................

(d)........................

6.

a) Is this a plant or
animal cell? ....

(b)........................

(c)........................

(d)........................

This "tail" structure is called a
flagellum. It allows this sperm cell to
swim to find and fertilise the egg.
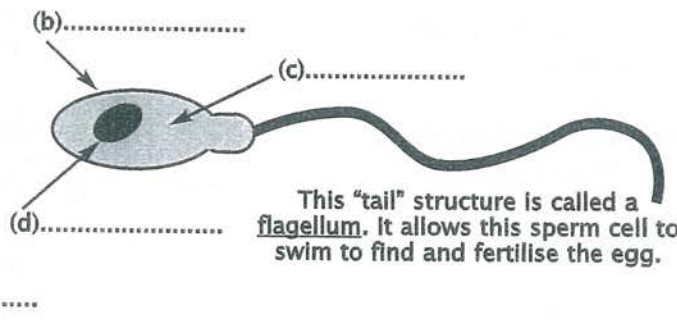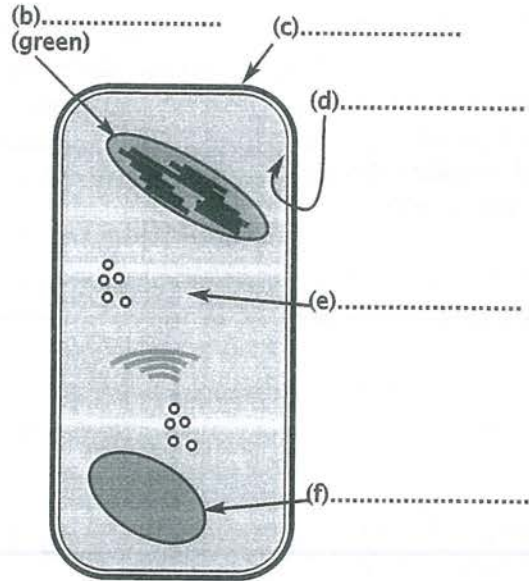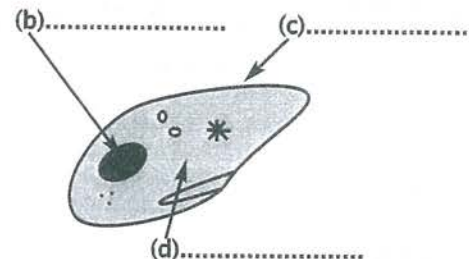
Unicellular & Multicellular Organisms

"Uni-" = one. "Multi-" = many. "cellular" = made of cells.

Unicellular Organisms

There are many types of living things which are composed of just one, single cell.

Obviously, they are very small, and in some cases there may be millions of them living in a single drop of pond water.

One of the most common types is the bacteria.

Bacteria live in every place you can imagine. They live in water & soil, and on and inside other living things.

Bacteria
magnified 20,000 X
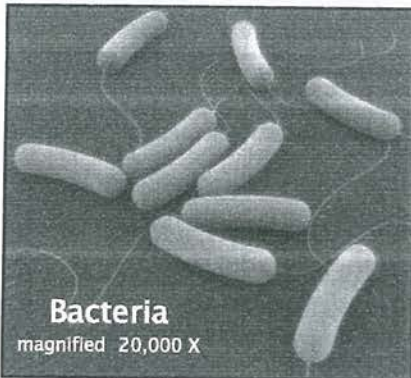
You have millions of bacteria on your skin, in your mouth and throughout your gut.

Bacterial cells are very small, often only about $1/1,000$ mm long.

Multicellular Organisms

All the familiar plants and animals are multicellular... they are made up of billions of cells.

The cells are all pretty much the same size. For example, the cells in a mouse are exactly the same size as the cells in an elephant... the elephant simply has a lot more cells.
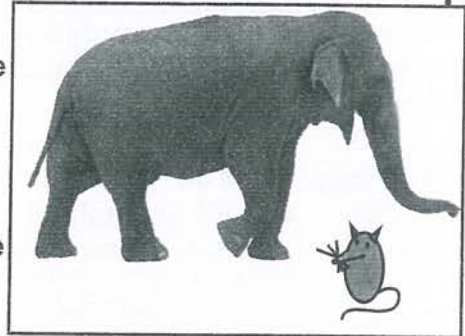
The single cell of a unicellular life-form must be able to do everything.

In a multi-cellular creature, however, each part of the body is specialised to do a particular job, and usually has many different specialist cells. For example, muscle cells are different to nerve cells, and blood cells are different again.

Through the Microscope

You will probably learn how to use a microscope and look at some cells through it. You probably will NOT view bacteria (too small), but might see the following examples. Try to identify all the visible cell parts that you see.

Paramecium
(unicellular organism)
magnified 100X

cytoplasm
nucleus
cell membrane
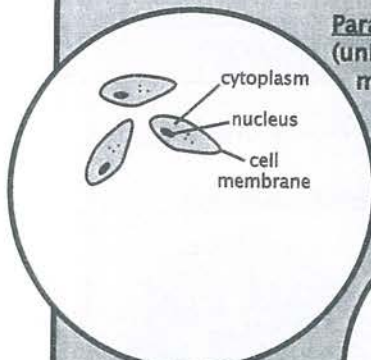
Human Blood
magnified 400X

Even at maximum magnification you will probably not see any detail

Onion skin
magnified 100X

nucleus
cytoplasm
cell wall
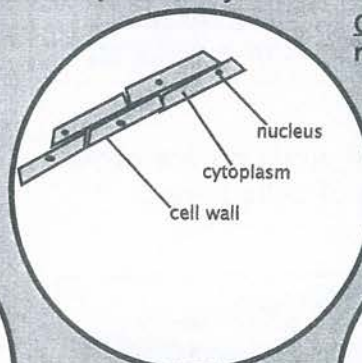
Human Cheek Cells
magnified 400X

cell membrane
nucleus
cytoplasm
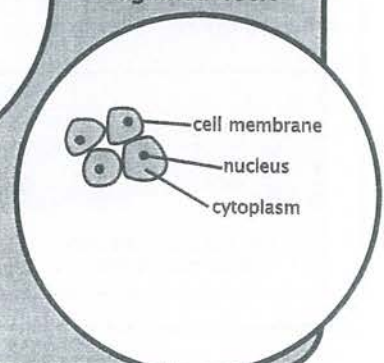
Learn to sketch inside a circle which represents the "field of view" of the microscope. Sketch only a few of the cells, to scale.

Always label your sketches

Micro-organisms

These are organisms that are only visible through a microscope.
Most are unicellular. Many are beneficial to the environment or to other life-forms.
However, some are dangerous and can cause diseases.

The Types of Micro-organisms

There are a number of different kinds of living things which are microscopically small.

Bacteria have already been mentioned. Bacteria are all underlined unicellular, and have very small cells in a variety of shapes.
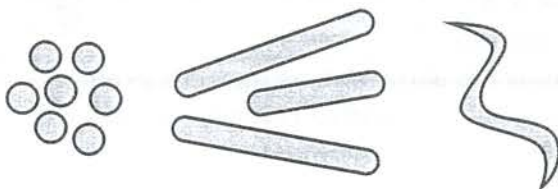
Some are round.   Some are rod-shaped.   Spirals

Bacterial cells are quite different to either plants or animals.

Protozoa

Protozoa are unicellular and have animal-like cells.

cell membrane
cytoplasm
nucleus
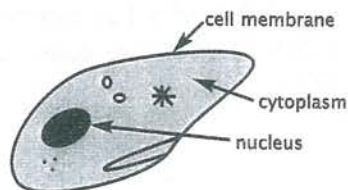
Microscopic Algae

These have cells which are plant-like. They have chloroplasts and a cell wall on the outside.

Some are unicellular, while others grow in long, thin threads of cells joined end-to-end.

Spirogyra.
An alga which grows in filaments

Chains of plant-like cells joined end-to-end

Spiral strings of chloroplasts give Spirogyra its name
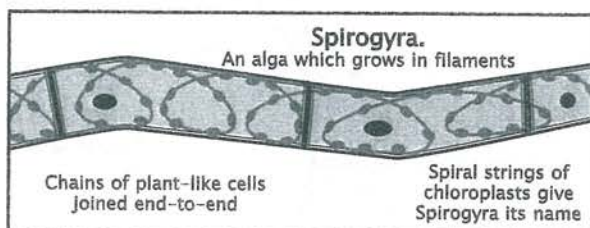
Fungi

The fungi are a type of living thing that includes mushrooms and "toadstools", which, of course, are not microscopic.

However, some fungi are unicellular micro-organisms. These are known as "yeasts".

Fungi were once thought to be a type of plant. However, we now recognise that their cells are neither plant-like, nor animal-like. In a later topic you will learn more.

Viruses

Viruses are the smallest of all, and are non-cellular... they are not made of cells at all.

Does this mean they are not really living things?

Actually, they ARE considered living things, even though they do not have cells. This is because they are always made by living cells, and are composed of chemicals which are typical of living things.

The modern scientific definition of a living thing is usually stated this way:
"All living things are composed of cells, or are the product of cells"

By this definition, viruses ARE living things.

So, if viruses are not cellular, what are they?

Each virus is a tiny capsule of protein, with some genetic material inside. (DNA or RNA)
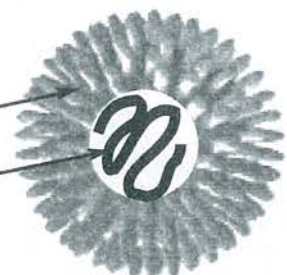
Microbes Good and Bad

Beneficial Micro-organisms

Human Food Production
The unicellular fungus called <u>yeast</u> is vital for the production of bread, beer & wine.

The living yeast makes the dough rise so that, when baked, the bread has its open, soft texture, and delicious taste.

Yeast causes <u>fermentation</u> to make the alcohol in beer and wine. It is vital to the production of <u>ethanol</u> for adding to petrol.

Microbes Help Digestion
Most plant-eating animals have bacteria living in their gut which help them to digest tough, plant fibres.

A mother koala will feed her joey with some of her stomach contents so it gets the helpful bacteria it will need to digest tough gum leaves.

Clean-Up & Recycle
Probably the greatest benefit of micro-organisms is how they decompose all the dead leaves, animal wastes and dead materials in the environment.

There are zillions of bacteria and fungi which live in the soil or in the mud under lakes and oceans. They feed on all the wastes and dead remains and cause it to rot away.
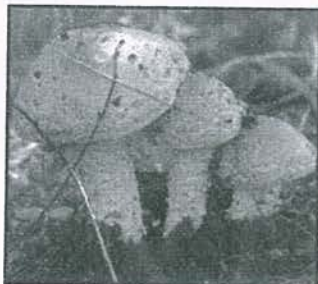
This not only cleans up the environment, but it recycles vital chemicals back into the soil so plants can continue growing.

Dangerous Micro-organisms

The vast majority of micro-organisms are "good-guys". Many are very helpful, as described on the left. Many others are simply harmless, and go about their lives without doing any damage.

Some, however, are our enemies.

Microbes Cause Diseases
All <u>infectious</u> diseases (those you can catch) are caused by "germs". Germs are really micro-organisms which infect our bodies and make us sick.

<u>Virus diseases</u> include measles, 'flu and A.I.D.S. In fact, every virus causes disease in some living thing. Even bacteria suffer from virus diseases.

The best protection against viral disease is immunisation, which is when our bodies are "primed" to recognise and destroy an invading virus.

Bacterial Diseases
Many of the great killer-diseases of history are caused by bacteria. The "<u>black death</u>" killed about $1/3$ of the entire population of Europe in the Middle Ages.

Today, most bacterial diseases are controlled by immunisation and/or by using antibiotic drugs.

Protozoa & Fungi
A few diseases are caused by <u>protozoa</u>. The most important is <u>malaria</u>, which kills millions of people each year in Africa and Asia. Despite 100 years of effort, we still cannot control malaria in some tropical areas.

A few diseases are caused by fungi. These are mostly skin infections (e.g. <u>tinea</u>) and are rarely life-threatening. Fungal disease can usually be cured by anti-fungal drugs.

Worksheet 4
Microbes
Fill in the blanks

"Unicellular" means a living thing which is made up of a)........................... All unicellular organisms are "microbes", which means they can only be seen with a b)...........................

All the familiar plants and animals are c)........................... organisms. They are made up of d)........................... of cells. They contain many different types of cells, each e)........................... to do a particular task in their body.

There are many different types of micro-organisms:

f)..........................., which have very small cells in various shapes.

Protozoa, which have g)...........................- like cells.

Microscopic h)..........................., which have plant-like cells.

i)..........................., which are single-celled fungi.

j)........................... These are non-cellular, and consist of a tiny capsule of

protein with some k)........................... inside.

Many microbes are beneficial, such as l)........................... which is used to make bread, and to brew m)........................... and ....

Other microbes live in the gut of animals and help them to n)...........................

Many o)........................... and .... live in the soil and cause p)........................... to rot away. This not only cleans up the environment, but q)........................... many important chemicals back into the soil.

Some microbes causes r)........................... Every s)........................... causes a disease in some living thing. The best protection against viral disease is t)...........................

Many other diseases are caused by u)........................... including many of the great killer-diseases of history.

Not many protozoa cause disease, but one notable example is v)........................... which kills millions of people each year.

Worksheet 5
Which Type of Microbe...

a) has animal-like cells? ....

b) is non-cellular? ....

c) is important for cleaning up the environment by decomposing dead and waste matter? (2 answers)

.... and ....

d) is the cause of malaria? ....

e) has plant-like cells? ....

f) often lives in the gut of plant-eaters and helps them digest food? ....

g) caused most of the epidemic diseases in history? ....

How Knowledge of Microbes Has Changed Society

For most of human history, people believed that diseases were due to evil curses or spirits, or were punishments from God, or other supernatural events.

Many children died young. Epidemics of disease killed millions. Many minor injuries led to fatal infections. The average life expectancy was only about 40 years. (Today it is about 80 years.)

It was the great French scientist Louis Pasteur (1822-95) who led the way to a greater understanding.

He proved that some diseases were caused by microscopic "germs". Soon, many more were identified.

Portrait of
Louis Pasteur
in his laboratory

He also led the way to developing the process of immunisation as a way to protect against infectious disease.

People and governments came to realize the importance of clean water, personal hygiene and sanitary sewerage and garbage disposal.

Mass immunisation and antibiotic drugs have reduced the impacts of infectious diseases dramatically. Smallpox, a virus disease which once killed millions, has been eliminated world-wide.

In developed countries like Australia, cases of serious infectious diseases are now quite rare, and a death from an infection is considered a failure of the health system.

People know about "germs" and the importance of keeping clean. Parents get their children immunised to prevent them getting diseases.

All these wonderful changes can be attributed to scientific knowledge. Without the advances in the Health Sciences over the last 150 years you might already be dead!

People Make Choices

Attitudes to Immunisation
Unfortunately, there is an "urban myth" that sometimes being immunised actually causes disease. For example, it is widely believed that "Fluvax" (the vaccine used to immunise against infuenza) can give you a 'flu infection.

In fact, the scientific evidence is that this is totally false.

In other cases, there actually is a slight risk to being immunised. In a very, very small number of cases, the vaccine for a disease can cause a reaction in a child which is fatal, or causes permanent brain damage.

This scares many people, who then decide not to have their children immunised.

What Happens Next?
Although it is tragic when a child is harmed by a reaction to a vaccine, what happens when people make a decision not to immunise is even more tragic.

If everyone in a community is immunised then the disease basically ceases to exist because there is no "reservoir" of infected people to pass the disease on.

However, when enough people choose not to have their children immunised, then the disease continues to infect people.

The health risk of not being immunised is actually much higher than the risk of a reaction to the vaccine, but some people continue to make that choice.

How Unicellular Organisms Reproduce

Genetic Information

Every type of living thing must reproduce. Mice have baby mice, gum trees make seeds which grow into new gum trees, and bacteria make more bacteria.

Each living thing carries information on how to make offspring of its own type. Mice never make gum tree seeds, and horses do not give birth to cats.

The information needed to accurately reproduce the same type of living thing is located in the nucleus of every living cell.

Information is stored in a chemical known as DNA. DNA molecules are the largest known and carry a "code" within their helix-shape structure.

It is the DNA inside every cell nucleus which controls the cell and all its functions.

The key to reproduction is to make copies of the DNA and pass it on to the next generation.
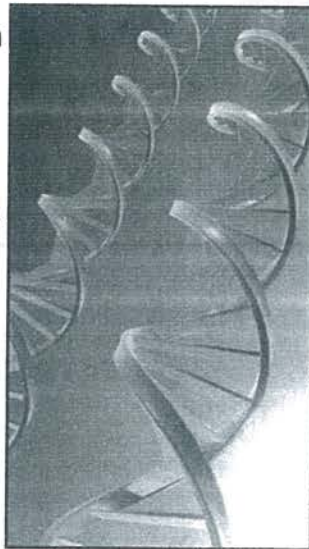
Cell Division

Unicellular organisms reproduce by simply dividing in two. This is called "Mitosis".

Each cell first makes a duplicate copy of its DNA. Then the 2 sets of genetic information are separated. At this point it is as if the cell has 2 nuclei (plural of nucleus).

Then the cell itself divides into 2 smaller cells. Each new cell is only half-size but has a complete nucleus with a full copy of the genetic information in its DNA.

Finally, each cell can then grow to full size before the whole process starts again.

Mitosis cell division is the way that unicellular organisms reproduce. Under ideal conditions, some bacteria can go through the whole cycle in about 30 minutes.

If you started with 1 bacterial cell, and it divided in two every hour, how many would there be after 1 day?

Time (hours) >	0	1	2	3	4	5
No. of Bacteria	1	2	4	8	16	32

If you continue this calculation to 24 hours, you will have over 16 million cells!

In multicellular organisms, mitosis is how new cells are made for growth. You started out as 1 single cell, but now have billions. Each cell has the complete genetic information (DNA) that makes you, you.

Mitosis Cell Division

Original cell.

DNA duplicated.

DNA copies are separated. 2 nuclei form.

Cell divides.

2 half-size cells with identical genetic information.

Each new cell grows to full size.

Nucleus

DNA
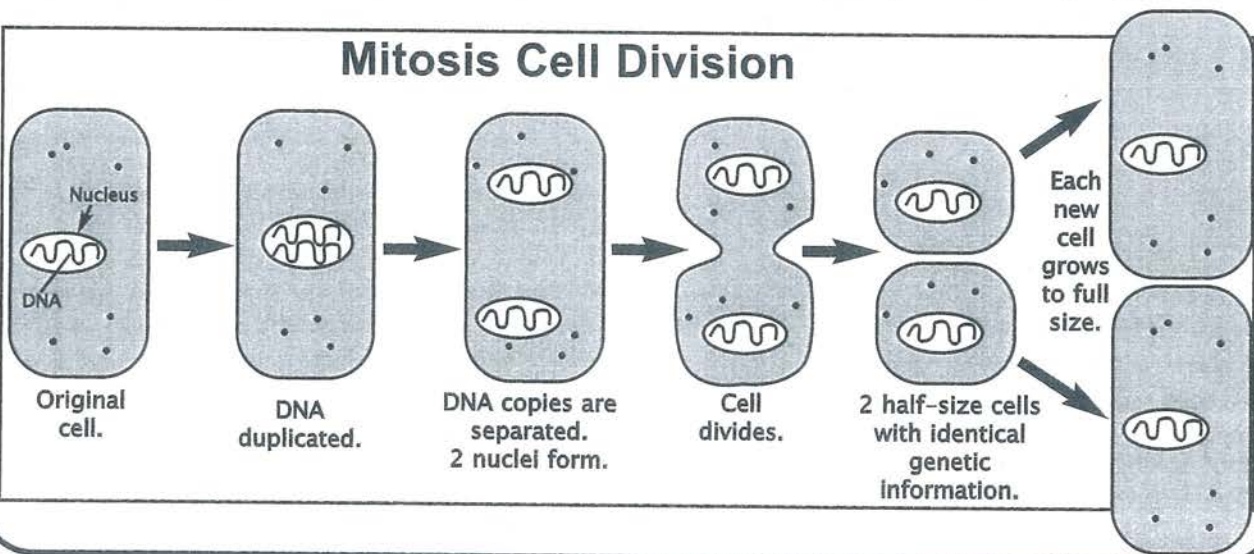
Worksheet 6
Cell Division

Student Name..................................

Fill in the blank spaces

Genetic information is stored in the a)............................... (organelle) in every living cell in the form of the chemical called b)........................ For reproduction to occur, the information must be c)........................ and passed onto the next generation.

Unicellular organisms reproduce by simply d).. This cell division is called e)...............................

The first step is to f)............................ the DNA. Then the 2 copies are separated so the cell really has 2 g)........................

Next, the cell splits into two cells. Each one is only h).................-size, but each has a complete copy of the i)....................

Each new cell now j).......................... to full size, and then the process can start again.

In multicellular organisms, cell division is used for k)............................. Each living thing begins with l)................ cell. This becomes billions by repeated m)... Each cell has a complete copy of the n).................

Worksheet 7   Mitosis

The process of cell division by Mitosis is all jumbled up in these diagrams and captions. Cut them out and re-arrange into correct order. Connect with arrows.

Nucleus

DNA

Original cell.
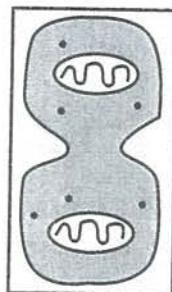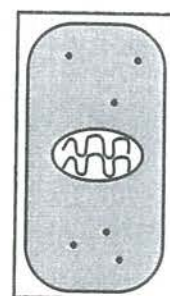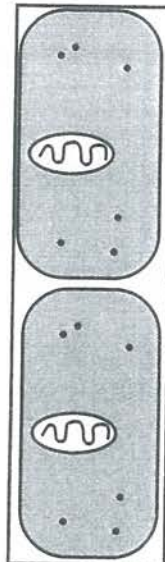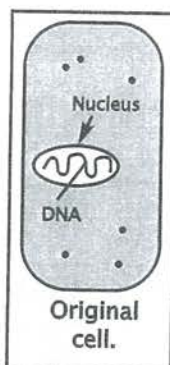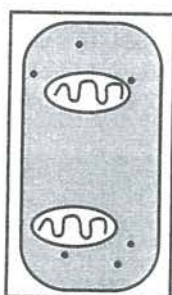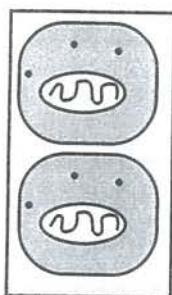
Cell divides.

DNA duplicated.

Each new cell grows to full size.

DNA copies are separated. 2 nuclei form.

2 half-size cells with identical genetic information.

Topic Test - Living Cells

Answer all questions
in the spaces provided.

Student Name.................................

Score   /25

1. (10 marks)
True or False?   T or F

a) Most cells can be seen
with the naked eye.   ....

b) All cells have a cell wall.   ....

c) All cells have a cell membrane...........

d) The nucleus controls all
the functions of a cell.   ....

e) The cells in a large animal
are the same size as the
cells in a small animal.   ....

f) Protozoa are unicellular,
with plant-like cells.   ....

g) A virus has no cells.   ....

h) The first man to see cells
was Louis Pasteur.   ....

i) Yeast is a disease-
causing virus.   ....

j) DNA is copied before
cell division.   ....

2. (4 marks)
For each pair of items, state clearly
what is the difference between them?

a) <u>unicellular</u> and <u>multicellular</u>

b) <u>cell membrane</u> and <u>cell wall</u>

3. (5 marks)
Label the parts of this cell.

(a)......................   (b).....................
(green)
                                          (c).........................

                                          (d).........................

                                          (e).........................
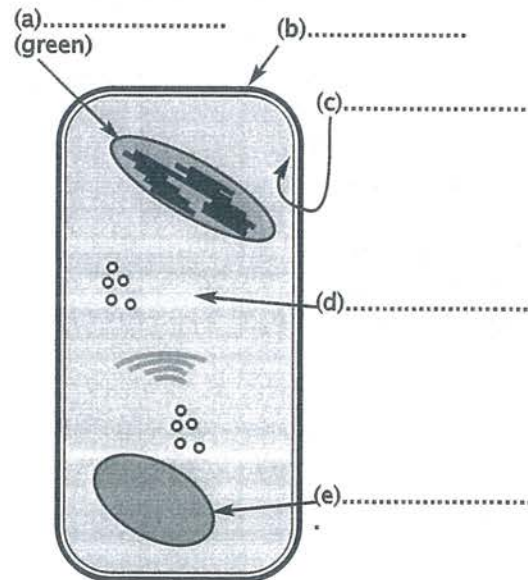
f) Is this cell plant or animal?..................

4. (2 marks)
The cell membrane is described as
"<u>semi-permeable</u>".
Briefly, what does this mean?

5. (3 marks)
The cells that are formed by mitosis are referred
to as "daughter cells". The original cell before
mitosis can be called the "parent cell".

a) How does the <u>size</u> of a daughter cell
(immediately after mitosis) compare to
the parent cell?

b) How does the <u>DNA content</u> of a
daughter cell compare to the parent
cell?

c) What is the <u>vital first step</u> before a cell
begins to divide?
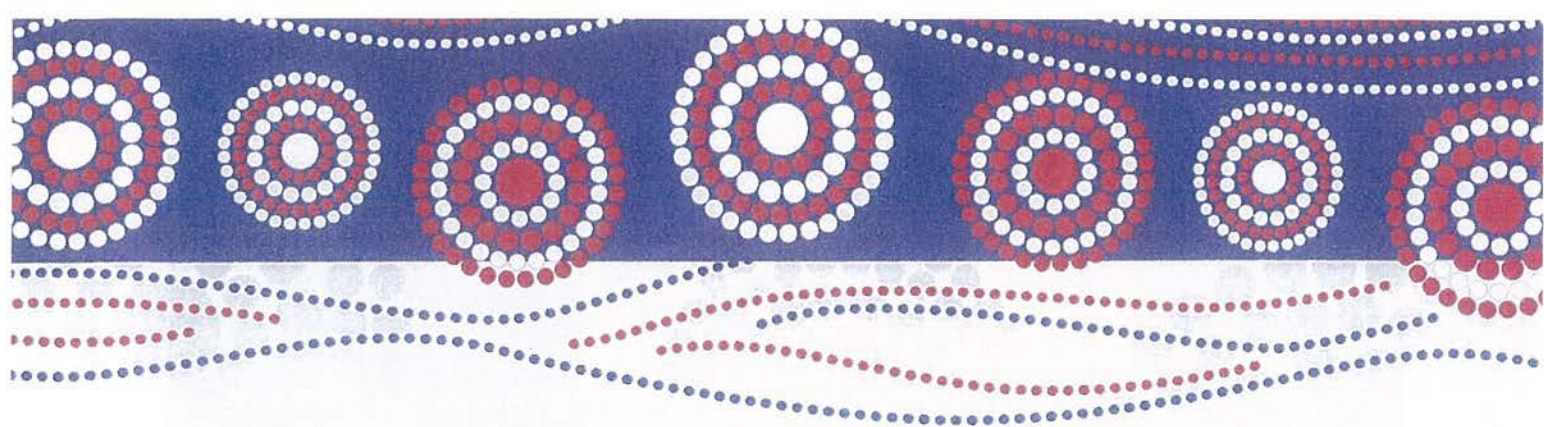
PDHPE

YOUNG DUMB AND BROKE

Year 8 – Term 3
Title page (10mins)

YOUNG dumb & BROKE

UNIT OVERVIEW

- We will be doing decision making and risk behaviours
- Working through scenarios relating to risk
- Devising plans to keep safe
- Drugs and harm minimisation
- Safe partying and first aid

THEME ONE: DECISION MAKING AND RISK BEHAVIOURS

- Investigate reasons why young people engage in risk taking behaviours and analyse scenarios which are relevant to young people.

Learning Intention.

Success Criteria
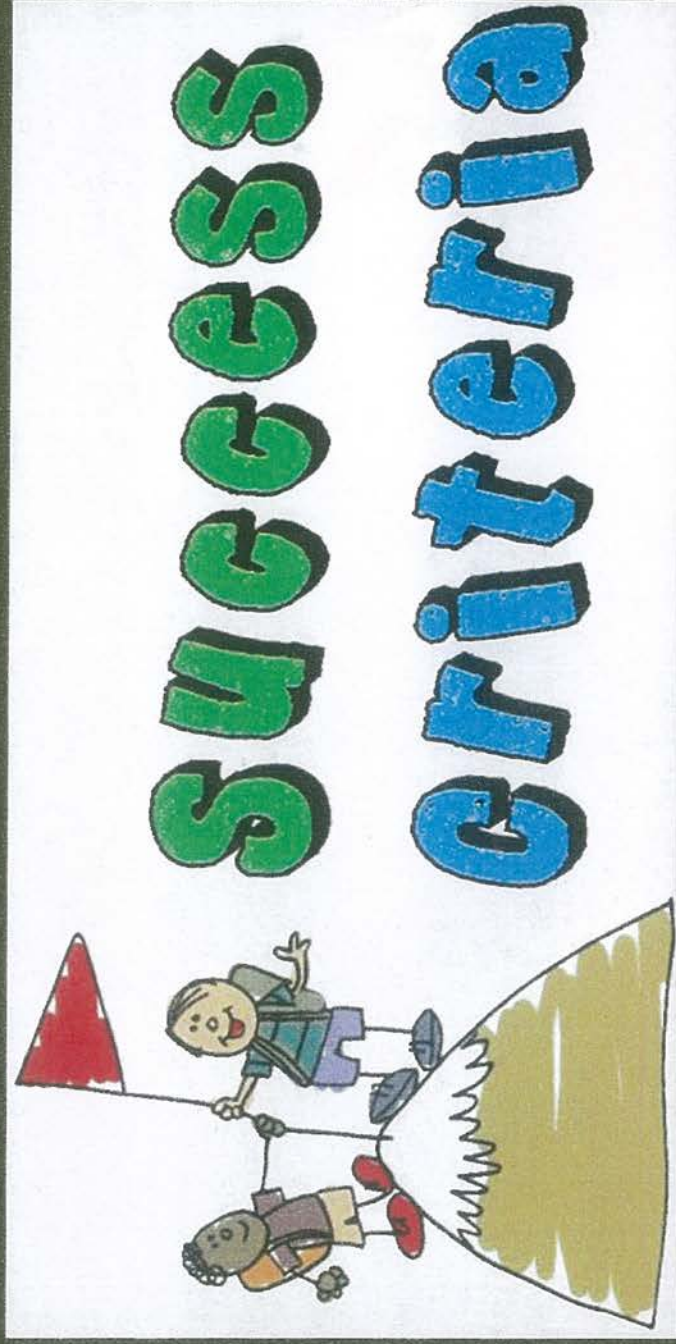
- Students have a scaffolded plan to overcome risky situations with positive health behaviours.
- Students can identify risky situations and follow safe process to ensure safety for themselves and others.

RISK TAKING BEHAVIOURS

- Create a list of risk taking behaviours and scenarios relevant to young people.

- Think about all the different scenarios that young people find themselves in

- Put this list into a mind map

BRAINSTORMING
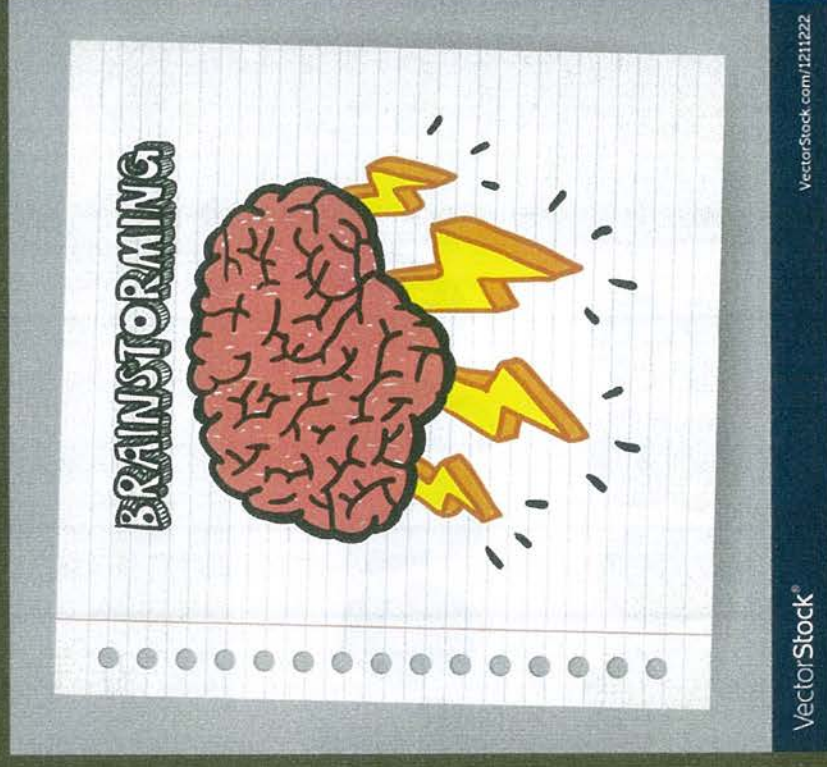
INFLUENCES ON RISK TAKING BEHAVIOURS

Activity: Create a scenario

- Step 1

Choose one of the following settings:

-Parties

-Drugs & Alcohol

-Relationships

-Road Safety

-Social media/sexting

-Individuals and groups

-Any other that isn't listed that you can think of

- Step 2

For your setting, create and write down a risk taking scenario

- Step 3

Time to plan and think about the scenario

Write down a list of **both** negative and positive behaviours

Think about and write down why young people choose to/not to partake in these behaviours and the ramifications these decisions can have on themselves, those around them (family, friends etc.) and others

Extension: Choose the same setting and plan out and answer a different scenario or choose a different setting and complete a scenario for your new setting

INFLUENCES ON RISK TAKING BEHAVIOURS

Continuum Activity

- Draw a continuum across your page and place the below statements on the continuum depending how dangerous you think they are. On the very left, put **not dangerous** and on the right, put **extremely dangerous**

- Be prepared to justify their position when your teacher checks your work.

Statements:
1. Drinking alcohol at a party
2. Drug taking at a party
3. Going to the beach with friends
4. Going to the shops with friends
5. Driving a car and road safety
6. New relationships
7. Use of social media
8. Getting a new job
9. Wagging school

Not Dangerous ← → Extremely Dangerous

This is what your continuum should look like
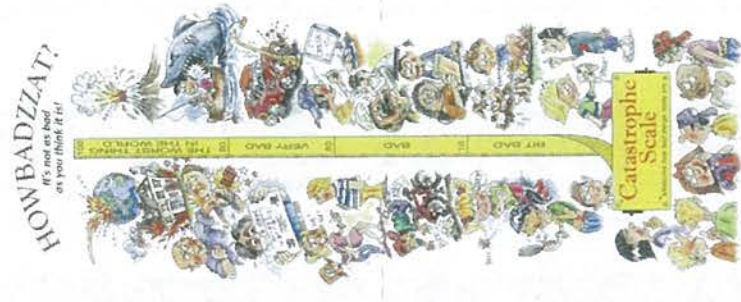
YOUNG PEOPLE'S BRAIN – RESEARCH TASK

https://www.psychologytoday.com/au/blog/the-wide-wide-world-psychology/201506/why-are-teen-brains-designed-risk-taking

Read the information presented on the above website and report on some of the points stated throughout. This can be completed through notes, dot points, tables, mindmaps, etc.

Take special consideration to the section on the Prefrontal Cortex (PFC) and how it is used.

This should be completed on the Google Doc attached to the activity post

Gorokan High School

Activity = Research the unmodified version of this sport. Change rules, equipment, settings, aim (modify) so that the sport can be played in isolation with the resources you have at home.

Eg. Basketball: equipment (use socks and furniture), change aim (stationary shooting to score points), setting (inside or outside), rules (if you have a partner you are working together, game is timed (5 mins), different shots and distances equate to different points being awarded, etc.).

Expectations:

1. **Type up new rules for sport in the classwork section (Google Doc is provided). Complete by Friday 2.30pm**
2. **Send through video recording of you playing the modified sport with new rules**
3. **Complete the physical activity task assigned for the week and submit video**

Volleyball

Volleyball	
Equipment	
Aim	
Rules	
Setting	

Overall Question:

- Explain how you utilised the transfer of movement skills between actual Basketball skills and the modified game you have designed

Answer	

PDHPE
Home Based Learning
Week 2

Home Based Learning

Year 9: Personal Development, Health and Physical Education		
Term 3:	Week: 2	Lesson Focus: Soccer
Learning Intention: - To evaluate movement strategies that enhance performance of a modified game.	**Success Criteria:** ☐ Identify the steps required to successfully perform a range of movement skills related to the modified game. ☐ Identify skills involved in the modified game.	

Learning Tasks Summary		
WHAT YOU NEED TO DO:	Recommended Time:	Completed By:
Week 2 - Modified Game 1. Read through the rules of Basketball. 2. Create a modified version of Basketball from home THAT IS SAFE. 3. Write a description of your modified game on the Google Doc. 4. Complete all activities on the Google Doc. 5. Upload a video of your modified game. 6. Turn it in by Friday 2:30pm.	5 mins 15 mins 40 mins	**Friday 2:30pm 23rd of July**

Classwork to be completed and submitted

Week 2 - Practical Basketball (modified) Activity

PLEASE ENSURE YOU ARE DOING THESE ACTIVITIES SAFELY.

Activity = Research the unmodified version of this sport and then; Change the rules, equipment, settings, aim (modify) so that the sport can be played in isolation with the resources you have at home.

Eg. Volleyball- equipment (use balloons, or socks for the ball and furniture to create a net), change aim (to keep up off the ground, one hit each side), setting (inside or outside), rules (if you have a partner you are working together, game is timed (5 mins) etc,).

Expectations:

1. **Type up the equipment required for the sport**
2. **Type up the new aim of the sport.**
3. **Type up new rules for sport**
4. **What is the new setting? (Is it played inside or outside? Or both, on the stairs? Under the dining table etc)**
5. **Complete by Friday 2.30pm**
6. **Send through video recording or photos of you playing the modified sport with new rules**
7. **Complete the physical activity task assigned for the week and submit video**

PRIOR SKILL ACTIVITIES

1. If you have a basketball then you can use this, if not, get creative; use a different ball, some socks or a few pieces of paper scrunched up.

COMPLETE THE MODIFIED GAME AND RULES BELOW - BE SURE TO UPLOAD A PHOTO OR VIDEO WHEN YOU TURN IN YOUR WORK.

Basketball	
Equipment	
Aim	
Rules	
Setting	

YOUNG DUMB AND BROKE

THEME ONE: DECISION MAKING AND RISK BEHAVIOURS

- Investigate reasons why young people engage in risk taking behaviours and analyse scenarios which are relevant to young people.

Learning Intention

success criteria

- Students have a scaffolded plan to overcome risky situations with positive health behaviours.

- Students can identify risky situations and follow safe process to ensure safety for themselves and others.

RISK TAKING & ADOLESCENCE

https://www.youtube.com/watch?v=2Q4tlPEihAM
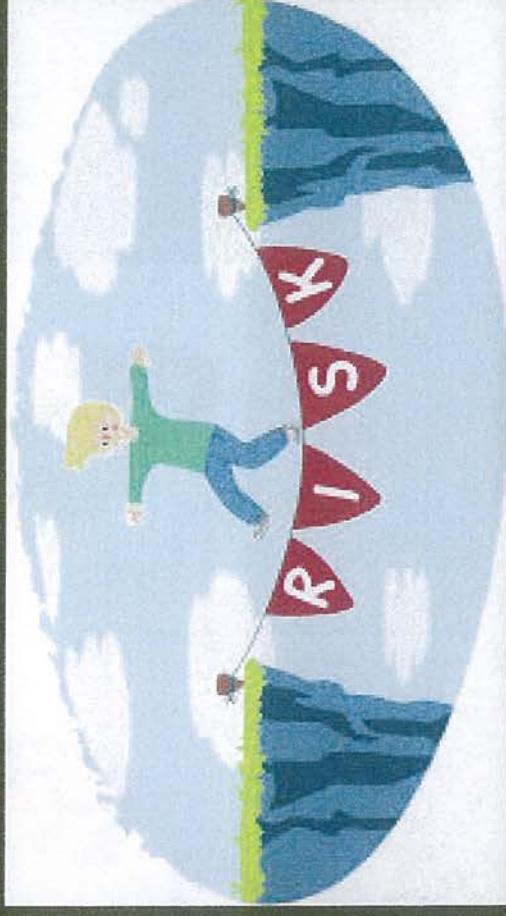
TRUST, TALK, TAKE CONTROL

Trust your feelings, your thoughts and your reading of the situation.

Talk about it to someone.

Take control by using your own plan for becoming comfortable and safe.

TRUST, TALK, TAKE CONTROL

Trust
- Your feelings
- Your thoughts
- Your reading of the situation

Talk
- About it to someone in your network

Take Control
- By using your own plan to become comfortable and safe

SAFETY CAMPAIGN PITCHES

Focus Areas: bullying, road safety, safe partying, peer pressure (saying NO)

- Create a Campaign to pitch to your teacher as to why your campaign should run in our school.

- Provide an overview of your focus area – why is it an area for improvement for adolescents?

- Students must provide reasoning for their campaign – identify risky situations and behaviours associated with their focus area.

- How will your campaign help to assist in ensuring a safe environment for themselves and others?

- Implement the Trust, Talk, Take Control model into your plan of action

- What positives can come out of the success of your campaign

Questions from panel members after pitches

1. How can emotions affect risk-taking behaviours in your area of focus?
2. What are the strengths of your campaign?
3. How does the campaign assist in ensuring people are enabled to make an educated decision.
4. Why should we pick your campaign?

Home Based Learning – Week 2

| Year 9: Personal Development, Health and Physical Education		
Term 3	Week: 2	Lesson Focus: Risk Taking & Adolescence
Learning Intention: • Investigate reasons why young people engage in risk taking behaviours and analyse scenarios which are relevant to young people.		**Success Criteria:** • Students have a scaffolded plan to overcome risky situations with positive health behaviours. • Students can identify risky situations and follow safe process to ensure safety for themselves and others.

Learning Tasks Summary		
WHAT YOU NEED TO DO:	**Recommended Time:**	**Completed By:**
THEORY - ACCESS IN CLASSWORK SECTION OF GOOGLE CLASSROOM 1. Complete the literacy activity – read over and write answers on Google Doc 2. Read through the information on the attached PowerPoint and Google Doc. 3. Complete the appropriate activities on the Google Doc by answering all questions. 4. Turn in your Google Doc once completed - via the 'turn in' process by Friday 23rd of July 2:30pm	5-10 mins 45-50 mins	**Friday 2:30pm 23rd of July**

Harm minimisation 1

Nominalisation

Academic writing tends to focus on things and concepts (nouns) rather than happenings (verbs). For example, instead of writing about 'to organise' (a verb), we often write about 'organisation' (a noun). To be an expert writer in PDHPE, we need to know how to turn verbs into nouns, a process called nominalisation.

1. Turn these verbs into nouns that end in 'ion'

Verb (a happening)	Noun (a thing)
e.g. to organise	organisation
to realise	
to reduce	
to interact	
to intervene	
to integrate	
to regulate	
to legislate	

2. Choose three verbs from this list that you do not know the meaning of, look up the meanings in a dictionary and write them below.

a.	
b.	
c.	

3. The paragraph below does not contain many nominalisations. As a result, it sounds quite informal and casual. Look at the wordings in bold and find a nominalisation from the box that has a similar meaning. Write the nominalisation on the line provided.

Word Bank:
- regulations
- interventions
- harm minimisation
- foundation
- reduction
- legislation

The National Drug Strategy for Australia aims to help build safe and healthy communities. The main approach in the strategy is **creating fewer harms or less serious harms**. Harms are negative effects of drug or alcohol use on individuals and society. It is the **basic founding thing** for drug-related **laws that have been made** and **policies that regulate** people in Australia. Harm minimisation is when the drug, the individual and the environment **interact with each other. Things people do to intervene** can be targeted at the individual, peers, school, family, local community and society as a whole.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Week 2 Theory – Risk Taking & Adolescence

Slide 2: Learning Intention for this lesson.

Slide 3: Success Criteria for this lesson.

Slide 4: Answer:

1. What is the definition of a risk (before video)

2. What is a reasonable degree of risk? (before video)

Watch YouTube clip.

3. What are examples of negative stereotypes associated with adolescents? (30 seconds)

4. What is some typical risk taking behaviours? (50 secs)

6. What factors contribute to young people taking risks? (1.05 mins)

7. All age groups are influenced by adults to take risks besides which age group? Why is this? (2.50 mins)

8. Are you more likely to listen to a peer or an adult? Explain your answer. (End of Video)

Slide 5:

From the slide, fill in the missing parts to the diagram.

Slide 6:

Fill in the details for Trust, Talk & Take Control

Trust	Talk	Take Control
• • •	•	•

List what situations could you use the Trust, Talk, Take Control Model in? (Minimum 4)

-
-
-
-

Slide 7:

Focus Areas: bullying, road safety, safe partying, peer pressure (saying NO)

You may choose to do this below on this Google Doc or on a different ICT platform and attach it when you turn it in.

- Create a Campaign to pitch to your teacher as to why your campaign should run in our school.
- Provide an overview of your focus area – why is it an area for improvement for adolescents?
- Students must provide reasoning for their campaign – identify risky situations and behaviours associated with their focus area.
- How will your campaign help to assist in ensuring a safe environment for themselves and others?
- Implement the Trust, Talk, Take Control model into your plan of action
- What positives can come out of the success of your campaign

Questions from panel members after pitches

1. How can emotions affect risk-taking behaviours in your area of focus?
2. What are the strengths of your campaign?
3. How does the campaign assist in ensuring people are enabled to make an educated decision?
4. Why should we pick your campaign?

YOUNG PEOPLE'S BRAIN RESEARCH TASK

https://www.psychologytoday.com/au/blog/the-wide-wide-world-psychology/201506/why-are-teen-brains-designed-risk-taking

- Read the information presented on the above website and report on some of the points stated throughout. This can be completed through notes, dot points, tables, mindmaps, etc.
- Take special consideration to the section on the Prefrontal Cortex (PFC) and how it is used.

1. Article Research Findings

Answer:

2. Prefrontal Cortex (PFC) Findings

Answer:

Home Based Learning

Year 7: Personal Development, Health and Physical Education		
Term 3: Invasion Games	**Week: 3**	**Lesson Focus:** Defensive Strategies

Learning Intention:
- To evaluate movement strategies that lead to successful outcomes in invasion games

Success Criteria:
☐ I can identify five invasion games or sports.

☐ I can explain how defensive movement strategies lead to successful outcomes in invasion games.

☐ I can select and describe successful defensive passages of play by watching videos of different invasion games.

Learning Tasks Summary

WHAT YOU NEED TO DO:	Recommended Time:	Completed By:

1. Read the information regarding; movement strategies, invasion games and offensive strategies.
2. Complete all questions on the Google Doc worksheet;
   a. Identify 5 Invasion Games
   b. Select 2 offensive movement strategies for invasion games and explain how they lead to successful outcomes (e.g. scoring points and winning games).
   c. Select one offensive passage of play from each of the following videos that lead to a successful outcome and complete the tables (Google Doc);
      i. AFL – AFLW Grand Final 2019
      ii. Basketball – Australia vs USA
      iii. Korfball – Australia vs Poland
	40 MINS	Friday 2:30pm 30th July

3. Complete a minimum of 20 minutes of physical activity, preferably in relation to one of the following sports;
   d. AFL – kicking, handball, etc.
   e. Basketball – dribbling, shooting, mini game, etc.
   f. Rugby 7's– passing, kicking, etc.
If it is not possible, 20 minutes of aerobic exercise; slow jog, fast walk, cycle, etc.
 	
Turn all work in by Friday 2:30pm
	20 MINS	

<u>**Classwork to be completed and submitted**</u>

Movement Strategies – Invasion Games

LEARNING INTENTION

- To evaluate movement strategies that lead to successful outcomes in invasion games.

✅ SUCCESS CRITERIA

- ☐ *I can identify five invasion games or sports.*
- ☐ *I can explain how defensive movement strategies lead to successful outcomes in invasion games.*
- ☐ *I can select and describe successful defensive passages of play by watching videos of different invasion games.*
- ☐ *I can suggest invasion games with similar movement strategies as international games and sports, and justify my selection.*

Movement strategies refer to a variety of approaches that will help a player or team to successfully achieve a movement outcome or goal (e.g., kicking a goal in AFL).

Movement strategies include moving into space to receive a pass from a team-mate or hitting the ball away from opponents in order to make it difficult to retrieve or return the ball.

Different games and sports may require similar activities or goals and will therefore use similar *movement strategies* in order to achieve success.

Invasion Games
Aim is to invade
an opponent's

territory to score.

Offence
The movement strategies used in attempting to score.
The player or team in possession - attempting to score.

V

S.

Defence

Defensive Strategies

Defensive Strategies
Defend the goal and prevent scoring opportunities.
Defend an area of the field/court to prevent opponents from attacking the area.
Gain possession of the ball through interception, stealing the ball or creating a turnover.
Defensive positioning between the opponent and the goal.
Quick transition from offensive to defensive position.
Predict and respond to an opponent's move.

LITERACY ACTIVITY

1. Identify five invasion games:

Invasion Games
•
•
•
•
•

2. Select two defensive movement strategies for invasion games and explain how they lead to successful outcomes (e.g., scoring points and winning games).

Type of Game	Defensive Strategies
Invasion Games	

ICT ACTIVITY

Invasion s

3. Select one defensive passage of play from each of the following videos that lead to a successful outcome and complete the tables below:

- AFL - AFLW Grand Final 2019: https://youtu.be/mjvNRdz3yFY

- Basketball - Australia vs. USA: https://youtu.be/Vq8WicBy4k4

- Korfball - Australia vs. Poland: https://youtu.be/9WzswqVQv68

Defensive	AFLW	Basketball	Korfball
Timeframe in video (e.g., 2:30 - 3:20 minutes)			
Describe what happened in the defensive play and the outcome.			
Identify one defensive movement strategy that was used			

4. Suggest two games or sports (other than AFL and basketball) with similar movement strategies to Korfball. Justify why you selected these sports below.

Sport	Justification

Using social media safely

There are three different perspectives we use when writing and speaking:

1

First person
First person is from the speaker's or writer's own perspective.

e.g. **I like using Facebook.**

We can use first person to express our personal opinion, to write complaint letters and to write reflections. Only use first person if you are asked for your opinion.

2

Second person
Second person is used when the writer or speaker directly addresses someone else.
e.g. **You should be careful about the photos you post online.**

Sometimes the 'you' is general (all people). Only use second person if you are giving specific advice or recommendations to a person or a group of people.

3

Third person
Third person is used for writing and speaking about someone or something.
e.g. **Many young people post photos online that are embarrassing or inappropriate.**

Third person is used for factual, academic and technical writing in a subject.

Draw a tick under a heading to show if each sentence is an example of first person, second person or third person	First person	Second person	Third person
1. The Australian Government's eSafety website provides useful tips on how to be safe when using social media			
2. If you share a photo online, you might be sharing with people you do not know.			
3. I never 'friend' anyone who I do not actually know.			
4. You should never share your personal details with anyone over the net.			
5. All social networking sites have their own privacy and security settings.			
6. You should make sure you know how each site works and how to change your settings.			
7. But what do I do if I receive a message from someone I don't know?			
8. You should never reply to a random text message or internet message, unless you know who sent it.			
9. Online videos and photos are private and personal so they should only be shared with friends.			

1. **Change this sentence from second person to third person**
   You should be careful to protect your online reputation and not post photos that might be embarrassing.

   _____

   _____

2. **Change this sentence from first person to third person.**
   I think that clicking on links can be dangerous as they could contain malware or viruses.

   _____

   _____

Year 8 History
Term 3, 2021

Syllabus Dot Point: Read and understand historical texts.

Task 1.

- Students are to copy the glossary of terms into their work books.
- Students will then summarize the slides and complete the activities into their books.

Syllabus Dot Point: Sequence historical events and periods

Task 2.

- Students are to create a timeline of significant events that happened over the first week of holidays. Draw a straight line left to right similar to this making sure that each each mark is evenly spaced and indicates a new day of the week. Then place an event that happened on that day at each point. Make sure that this is copied into your book.
- Copy the following info into your books.

A timeline provides a visual representation of events that helps you better understand history, a story, a process or any other form of an event sequence arranged in chronological order and displayed along a line (usually drawn left to right or top to bottom). It explains what happened during a certain period or to a particular person, starting with the earliest event and moving forward through time. Increasingly, timelines are illustrated in infographics combining text and graphic images for a better presentation.

- Students are to watch the following clip .

Task 3.

- Copy the following notes into your books.
- Use these notes to analyse the source below. In your books answer the different parts of P.O.T.B.L.A.C.

Context

New Norcia is located 132km north of Perth in Western Australia. The township was originally established in 1846 by Bishop Rosendo Salvado with another Spanish Benedictine monk, Joseph Serra. Salvado's vision was to establish a self-sufficient community based around agriculture for the local aboriginal population, and to bring to the community Christianity. Aboriginal children were taken from their parents

in an attempt to assimilate the children to European values and customs in a belief that it was for their own good.

This image was taken on an inspection by the Governor Sir Charles. To learn more about the effects of being removed from their homes follow the link

Courtesy Battye Library 7424 4P

The Governor Sir Charles and Lady Gairdner with Abbot Gomez
inspecting the children of St. Joseph's Orphanage, New Norcia, WA

Syllabus Dot Point: Draw conclusions about the usefulness of sources.

Task 4.

- Copy notes into book .

Historians need to work out if their sources are useful and reliable. A useful source is one that helps to explain something you are investigating from the past. To check whether a source is reliable, it helps to think about whether the source:

Is complete or incomplete contains accurate or inaccurate information

Contains facts or opinions

Is biased for or against something — that is, whether or not it provides too positive or too negative a view of something

Was created to make someone believe something or act in a certain ways

...orted or contradicted by other sources — that is, whether or not the source agrees with information that people already accept about a particular topic.

- Read the source below and answer the questions in your workbook.

Source 5 Description by Tacitus of Emperor Nero's punishment of the Christians after the fire that destroyed much of Rome in AD 64. Tacitus was a famous historian of ancient Roman times who lived from c.AD 56 to AD 118. His writings reveal his criticism of the leadership of many Roman emperors.

> To scotch the rumour [that he had ordered the fire] Nero fastened the guilt and inflicted the most exquisite tortures upon a group hated for their abominations, whom the populace called Christians ... First, then, those who confessed membership were arrested; then, on their information, great numbers were convicted ... And mockery was added to their deaths: they were covered with the skins of wild beasts and torn to death by dogs, or they were nailed to crosses and, when daylight failed, were set on fire to provide lights at night. Nero had offered his gardens for the spectacle ... Hence, although they were deserving of the most extreme punishment, a feeling of pity arose as people felt that they were being sacrificed not for the public good but because of the savagery of one man.

1. What event is Tacitus referring to in line 1?

2. What is the main event the writer is describing?

3. What is the writer's attitude to Nero? Which words show this?

4. What is the attitude of Tacitus towards the Christians? Which words show this?

5. What words and information provide clues about the writer's perspective?

6. What impressions of ancient Rome do you gain from this source?

7. What do you think was the writer's purpose in creating this source and how successful was he in achieving this?

8. What does this extract reveal about Nero and the Roman people?

9. What extra information would you need before accepting this as fact?

Glossary of terms

- **History**: The study of the past through examining the written evidence of a society.

- **Historian**: An expert in or student of history, especially that of a particular period, geographical region, or social phenomenon.

- **Archaeologist**: A specialist in archaeology, the scientific study of prehistoric peoples and their cultures by analysis of their artefacts, inscriptions, monuments, etc.

- **Artefacts**: A handmade object, as a tool, or the remains of one, as a shard of pottery, characteristic of an earlier time or cultural stage, especially such an object found at an archaeological excavation.

- **Evidence**: Information that we find within a source that helps us prove or disprove something.

- **Perspective**: Way of looking at and thinking about things.

- **Heritage**: All things that we value from the past, including, events, traditions, influences, places and experiences.

- **Source**: Written (i.e. a diary, newspaper etc.) or non-written (Photograph, statue, vase etc.) item that can tell us something about the past.

- **Dendrochronology**: Tree-ring dating, a method of telling the age of wood.

- **Hypothesis**: A theory that tries to explain some aspect of the past and which can be tested against the evidence found in historical sources.

The Ancient Past

Knowing about and understanding the ancient past

is fundamental to understanding the present.

'History stretches from the distant past to the

present ... It introduces us to a variety of human

experience, enables us to see the world through

the eyes of others, and enriches our appreciation

of the nature of change.'

WHAT IS HISTORY?

When investigating the past, historians ask questions

such as:

- Who?
- What?
- When?
- Where?
- Why?
- How?

WHAT IS HISTORY?

We study history to learn about:

- What people did.

- How they felt.

- The reasons for their actions.

- The results of their actions.

Primary and secondary sources

- Primary source – one that was created during the period the historian is investigating E.g. a photo of statue from the time.

- Secondary source – One that was created after the period the historian is investigating. E.g. textbook or drawing of the area.

Class Competition

Copy the table bellow into your books:

PRIMARY SOURCE	SECONDARY SOURCE

8 pictures of a mixture of Primary or Secondary

sources will flash up on the screen. For each one

place it in its correct column.

Your teacher will be choosing people at random to

JUSTIFY their answer.

Greek Pantheon - 447 BCE.

Primary Source

1789 Illustration of Ancient Roman Water Pump.

Secondary Source

Ancient Hieroglyphic Script
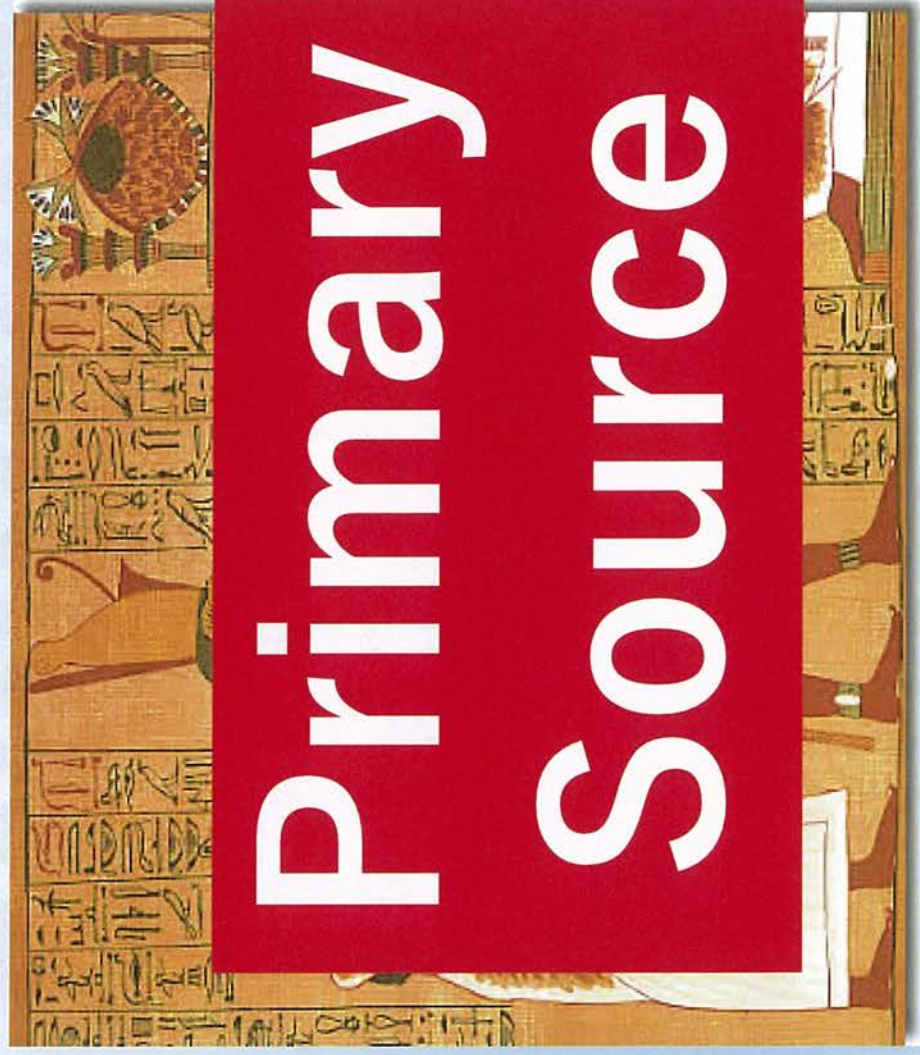
Primary Source

Peruvian Earth Drawings

Primary Source

Map showing the site of ancient Peruvian Earth Drawings

Secondary Source

Remains of the Titanic

Primary Source

Thucydides - Ancient Greek General: Writing about the Peloponnesian War at the time.

Primary Source

YOU - Creating a screencast on the Peloponnesian War.

Secondary Source

Sun

Mon

Tues

Wed, had pizza

Tues,

Went to Johns

How to Perform a Source Analysis?

Identify if the source you are looking at is a **Primary Source** (source created at the time or event your studying) or a **Secondary Source** (source created after the time or event you are studying).

P	Purpose	What is the purpose of the source? Why was it created?
O	Origin	When was the source created? Where was it created?
T	Type	What is the source? It's a common source or is it a rare source?
B	Bias	Is there any indication that there is a bias towards any one side?
L	Limitations	What limitations does the source have?
A	Audience	Who was the source intended for? Who is most likely to respond to this source?
C	Context	What is the context in which the source was created?

Human Rights and Equal Opportunity Commission Report

Bringing them Home

Report of the National Inquiry into the Separation of Aboriginal and Torres Strait Islander Children from Their Families
April 1997
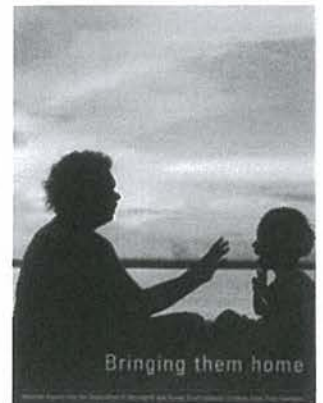
Part 3 Consequences of Removal

Chapter 11 The Effects

› The effects of separation from the primary carer
› The effects of institutionalisation

The Effects

Why me; why was I taken? It's like a hole in your heart that can never heal.
Confidential evidence 162, Victoria.

Actually what you see in a lot of us is the shell, and I believe as an Aboriginal person that everything is inside of me to heal me if I know how to use it, if I know how to maintain it, if I know how to bring out and use it. But sometimes the past is just too hard to look at.
Confidential evidence 284, South Australia.

Evidence to the Inquiry presented many common features of the removal and separation practices. Children could be taken at any age. Many were taken within days of their birth (especially for adoption) and many others in early infancy. In other cases, the limited resources available dictated that the authorities wait until children were closer to school age and less demanding of staff time and skill. Most children were institutionalised more typically with other Indigenous children and with primarily non-Indigenous staff. Where fostering or adoption took place, the family was non-Indigenous in the great majority of cases.

Because the objective was to absorb the children into white society, Aboriginality was not positively affirmed. Many children experienced contempt and denigration of their Aboriginality and that of their parents or denial of their Aboriginality. In line with the common objective, many children were told either that their families had rejected them or that their families were dead. Most often family members were unable to keep in touch with the child. This cut the child off from his or her roots and meant the child was at the mercy of institution staff or foster parents. Many were exploited and abused. Few who gave evidence to the Inquiry had been happy and secure. Those few had become closely attached to institution staff or found loving and supportive adoptive families.

In this Part we detail the evidence and the research findings relating to the effects of these experiences. The Inquiry was told that the effects damage the children who were forcibly removed, their parents and siblings and their communities. Subsequent generations continue to suffer the effects of parents and grandparents having been forcibly removed, institutionalised, denied contact with their Aboriginality and in some cases traumatised and abused.

It is difficult to capture the complexity of the effects for each individual. Each individual will react differently, even to similar traumas. For the majority of witnesses to the Inquiry, the effects have been multiple and profoundly disabling. An evaluation of the following material should take into account the ongoing impacts and their compounding effects causing a cycle of damage from which it is difficult to escape unaided. Psychological and emotional damage renders many people less able to learn social skills and survival skills. Their ability to operate successfully in the world is impaired causing low educational achievement, unemployment and consequent poverty. These in turn cause their own emotional distress leading some to perpetrate violence, self-harm, substance abuse or anti-social behaviour.

Warning: The following link may contain images of deceased Aboriginal and Torres Strait Islander persons.

Click here to view a photo on
(/sites/default/files/content/social_justice/bth_report/report/images/7_ch11.JPG)

Garadjari baby - a fortnight old
(/sites/default/files/content/social_justice/bth_report/report/images/7_ch11.JPG)

Courtesy Battye Library BA 368/8 3/7A
(/sites/default/files/content/social_justice/bth_report/report/images/7_ch11.JPG)

've often thought, as old as I am, that it would have been lovely to have known a father and a mother, to know parents even for a little while, just to have had the opportunity of having a mother tuck you into bed and give you a good-night kiss - but it was never to be.
Confidential evidence 65, Tasmania: child fostered at 2 months in 1936.

t never goes away. Just `cause we're not walking around on crutches or with bandages or plasters on our legs and arms, doesn't mean we're not hurting. Just `cause you can't see it doesn't mean ... I suspect I'll carry these sorts of wounds `til the day I die. I'd just like it to be not quite as intense, that's all.
Confidential evidence 580, Queensland.

Eric

Eric's story is told by his psychiatrist.

Eric was removed from parental care in 1957 when he was aged one.

[All of his mother's children were eventually removed: one younger sister went to live with her grandmother; the other sister and a brother were fostered and later adopted. Eric and his older brother Kevin were placed in an orphanage in South Australia.]

Eric recalls being in an institution from the age of two and a half to six before he and Kevin were placed in the care of foster parents who Eric stayed with until the age of 11. Apparently he was then transferred to the care of an uncle and aunt. Kevin in the meantime had become `out of control', and Eric and Kevin had been separated, with Kevin being sent to a boys' home while Eric remained in the care of his foster mother.

When Eric was sent to his uncle and aunt he stayed with them until about the age of 13 or 15 when he recalls running away because `there was too much alcohol and violence'. He ran back to Adelaide and refused to return to the care of his uncle and aunt. He was then placed in a further foster placement which he remembers as being slightly better for the next 3-4 years, but left there at the age of 17.

At 17, Eric became a street kid and once again he met up with his brother Kevin. Not surprisingly, Eric felt very attached to his brother Kevin because it was the only family contact available to him at that time. He tells me that Kevin was mixing with criminals in Adelaide and that in 1972 Kevin just disappeared. Eric never saw him again, but Eric then returned to stay with his foster parents for a while at the age of 18 or 19. He then recalls becoming an itinerant for a few years ... When he returned to South Australia, he was told that Kevin had died in the custody of police in Castlemaine whilst an inmate of the prison there.

Eric is brought easily to tears as he recalls the events in his life. In his own words, the most significant pain for him has been the loss of family and the separation from his own kin and his culture. When speaking of members of his family he feels a great emotional pain, that in fact he doesn't believe that there is anyone left close to him, he feels as if he has been deprived of contact with his mother and his siblings by the separation at a young age,

and he feels acutely the pain of his brother's death in custody. The cumulative effects of these events for him are that he feels a great difficulty trusting anyone. He finds that when he turns to his own people their contact is unreliable. Whilst at some levels supportive, he doesn't feel able to trust the ongoing contact. His brothers have no long term training to be part of a family so that from time to time, out of their own aching, they will contact Eric, but they do not maintain contact. Eric finds these renewed contacts and separations from time to time painful because in a sense they give him a window of what was available to him in the form of family support and what has been taken from him. In some ways he yearns to be closer to his family and in other ways he feels that whatever contact he has, always ends up being painful for him.

He tells me that he feels constantly afraid with a sense of fear residing in his chest, that he is usually anxious and very jumpy and uptight. He feels angry with his own race, at the hurt that they have done to him, he feels that particularly the members of his own tribe exposed him to a life of alcohol, drugs and violence which has quickly turned against him.

He says looking within himself that he's a kind-hearted person, that it's not him to be angry or violent, but he certainly recalls a period of time in his life when it was the only behaviour that he felt able to use to protect himself ... He feels that throughout his life he has had no anchor, no resting place, no relationship he could rely on or trust, and consequently he has shut people out of his life for the bigger proportion of his life. He tells me that the level of rejection he has experienced hurts immensely. In fact, he says, `it tears me apart'. He tries very hard not to think about too much from the past because it hurts too much, but he finds all the anger and the hurt, the humiliation, the beatings, the rejection of the past, from time to time boil up in him and overflow, expressing itself in verbal abuse of [de facto] and in violent outbursts.

Eric often relates feelings of fear. He remembers from his childhood, feelings of intense fear. He has related to me incidents from his foster mother who he was with from the age of 6-11. He specifies particular details of physical cruelty and physical assault as well as emotional deprivation and punishment that would, in this age, be perceived as cruel in the extreme. Eric describes to me that, throughout his childhood, he would

receive punishment for these problems. He lived in fear of his foster mother. When he was taken away from her and brought again before the welfare authorities he was too afraid to tell them what had happened to him. At that stage, he and his brother Kevin were separated and Eric found that separation extremely painful because he was too frightened to be left alone with that foster mother.

One of the effects that Eric identifies in himself is that, because of the violence in his past, when he himself becomes angry or confused, he feels the anger, the rage and the violence welling up within him. He tells me `I could have done myself in years ago, but something kept me going'.

In the light of the research findings, Eric's experiences of separation were both highly traumatic for him and also occurred at an age when he would have been most vulnerable to serious disturbance. For Eric too the separation involved a disruption to his cultural and racial identity.

It is apparent to me that a fundamental diagnosis of Post-Traumatic Stress Disorder is fitting. Eric's symptomatology is obviously severe and chronic. In addition, it is clear that he deals with many deep emotional wounds that do not clearly fit [this] diagnostic classification. His deep sense of loss and abandonment, his sense of alienation, and his gross sense of betrayal and mistrust are normal responses to a tragic life cycle. Having said this, it is also apparent that he deals from time to time with Major Depressive Episodes.

Confidential submission 64, Victoria.

The effects of separation from the primary carer

It has been argued that early loss of a mother or prolonged separation from her before age 11 is conducive to subsequent depression, choice of an inappropriate partner, and difficulties in parenting the next generation. Anti-social activity, violence, depression and suicide have also been suggested

Health submission 699 page 3 citing Bowlby 1988 page 174; supported by Dr Nick Kowalenko, Director of Child and Adolescent Psychiatry at Royal North Shore Hospital, NSW, evidence 740).

Attachment

The quality of an individual's future social relationships is profoundly affected by a baby's first experiences (Wolkind and Rutter 1984 page 34). As early as 1951, John Bowlby identified infant separation from the primary carer and institutionalisation as causally connected to a variety of psychiatric disorders in adulthood ranging from anxiety and depression to psychopathic personality (Bowlby 1951, Wolkind and Rutter 1984 page 34). The reason for this seems to be that the primary carer was not replaced by a person with whom the child could form a loving attachment. (This is not to deny that sometimes the infant's primary care-giver poses risks to the child and must be replaced.)

> ... there is a substantial body of evidence to show that discordant or disruptive family relationships in early life, and a marked lack of parental affection, are both associated with a substantially increased likelihood of both emotional disturbance and personality disorders in adult life (Wolkind and Rutter 1984 page 38).

The biological 'purpose' of an infant's instinct to form an attachment is 'to provide emotional security and social autonomy'. The relationship between an infant and his or her primary carer has been described as 'a secure base (a) from which to explore and learn about the world and (b) to which the infant can retreat when "danger" in the form of novelty, fatigue, illness or other distress threatens (Australian Association of Infant Mental Health submission 699 page 2).

The strong and healthy bond that a child develops towards family in early years is the foundation for future relationships with others, and for physical, social and psychological development. When a child has a strong and healthy attachment to family, both trust in others and reliance on self can develop.

Most families provide growing children with stories of their past that help children gain a sense of self, belonging and a sense of history.

Attachment helps the child to:

- achieve full intellectual potential
- attain cultural identity
- sort out perceptions
- know the importance of family
- think logically
- develop a conscience
- become self reliant
- cope with stress and frustration
- handle fear and worry
- develop future relationships (Swan 1988 page 4)

The evidence establishes that attachment occurs in infancy and that disruption to the process of attachment at this stage of development is most damaging. Between one-half and two-thirds of children forcibly removed were removed in infancy (before the age of five years). The following table summarises the available information on age of removal among clients surveyed by the Aboriginal Legal Service of WA and among witnesses to the Inquiry.

Age at removal

<

Age at removal	ALSWA clients*	Inquiry witnesses	
< 1 year	na	83	22.4%

1 - < 2 years			28	7.5%
0 - < 2 years	57	11.8%		
2 - 5 years	137	28.4%	97	26.1%
6 - 10 years	147	30.4%	86	23.2%
11 - 15 years	33	6.8%	34	9.2%
Not recorded	109	22.6%	43	11.6%
Total	483	100%	371	100%

*Submission 127 page 44.

Skills and learning

Separation can affect a range of skills. Some developmental stages regress only temporarily while others can be permanently depressed. Dr Nick Kowalenko, Director of Child and Adolescent Psychiatry at Sydney's Royal North Shore Hospital, summarised some of the research in evidence to the Inquiry.

In the last 30 or 40 years there has been a lot of work in the psychological and psychiatric spheres particularly in looking at what we call attachment theory. The issues of bonding between parents and their children have been a lot more closely examined originally from observing the separation of infants and younger children from their parents when they were hospitalised. Observations were made about how deleterious even those kind of quite minor infringements on the day-to-day ongoing contact that sustained children's capacity for security and which also allowed them to feel safe enough to explore the world.

What was observed just in the hospital setting was that children would start off yearning very much for their parents. They would protest and they would demand to have the nurses contact their parents or whatever. Eventually they would reach a state where they would just be bereft and not move and become very still and not explore their environment. So one of the responses of kids who may not talk about it is that they cease their exploration of their environment. It greatly impacts on their new learning, their psychological development, their sense of trust ... They learn that the world from an emotional point of view may be quite unreliable ... They will often be disrupted in terms of their previous level of skills. So if they had been toilet trained they might lose that skill for a while. Those kinds of impacts is a sort of snapshot compared to the kind of film that Aboriginal dispossession probably represents (evidence 740).

Psychotherapist Sue Wasterval and her colleagues from the Victorian Koori Kids Mental Health Network told the Inquiry that learning difficulties experienced by many Indigenous children at school may be attributable to resistance to being taught (ie to authority figures) and/or to developmental delays of cognition and language (submission 766 page 7).

When a severe disturbance occurs in the organization of attachment behaviour, it is likely to lead to learning difficulties, poor ego integration and serious control battles with the care giving adults (submission 766 page 6).

When the infant's attachment must be transferred to a large number of ever-changing adults on the staff of an institution or because of multiple foster placements, the objective of attachment behaviour is defeated. `It is not the separation as such that causes persistent psychiatric disturbance. Rather, the

motion a train of other adverse experiences, or because the separation itself stems from a pattern of chronic psychosocial adversity' (Wolkind and Rutter 1984 page 46).

While this may explain, in part, the diversity of `outcomes' or long-term effects reported to the Inquiry by people who had experienced separation, the act of separation and its immediate aftermath were frequently traumatic for Indigenous children. Subsequent `carers' rarely responded appropriately to trauma reactions and grief felt for the loss of family.

Unresolved trauma and grief has its own severe consequences. There is an association between bereavement in childhood and later psychiatric disorder (Wolkind and Rutter 1984 page 47). The circumstances and consequences of bereavement render the child vulnerable to stresses, perhaps damaging the child's self-esteem and self-efficacy and often resulting in depression in adolescence and adulthood. The bereavement experienced by many forcibly removed Indigenous children was traumatic and later they were often told they had been rejected or that family members were dead (typically neither was true). They could be punished for expressions of attachment or grief.

I remember when my sister come down and visited me and I was reaching out. There was no-one there. I was just reaching out and I could see her standing there and I couldn't tell her that I'd been raped. And I never told anyone for years and years. And I've had this all inside me for years and years and years. I've been sexually abused, harassed, and then finally raped, y'know, and I've never had anyone to talk to about it ... nobody, no father, no mother, no-one. We had no-one to guide us. I felt so isolated, alienated. And I just had no-one. That's why I hit the booze. None of that family bonding, nurturing - nothing. We had nothing.

Confidential evidence 248, South Australia: woman removed as a baby in the 1940s to Colebrook; raped at 15 years in a work placement organised by Colebrook.

Disrupted parenting in infancy or early childhood renders the person less secure and more vulnerable to adolescent and adult psychological and emotional disturbances. International expert on trauma, Professor Beverley Raphael, advised the Inquiry that due to the trauma they had experienced many separated children would be likely to have difficulties in relationships because their feelings would be numbed (evidence 658). A number of witnesses spoke of this effect on them and of their inability to trust others.

There's still a lot of unresolved issues within me. One of the biggest ones is I cannot really love anyone no more. I'm sick of being hurt. Every time I used to get close to anyone they were just taken away from me. The other fact is, if I did meet someone, I don't want to have children, cos I'm frightened the welfare system would come back and take my children. *Confidential evidence 528, New South Wales: man removed at 8 years in the 1970s; suffered sexual abuse in both the orphanage and foster homes organised by the church.*

It's wrecking our relationship and the thing is that I just don't trust anybody half the time in my life because I don't know whether they're going to be there one minute or gone the next.

Confidential evidence 379, South Australia: woman fostered at 9 years in the 1970s.

I've always been sorta on the outside of things. I've always had my guard up, always been suspicious and things like that, I guess.

Confidential evidence 168, South Australia: man removed to a boys' home at 6 years in the 1950s.

The consequences can be extremely severe. Bowlby concluded that `childhood loss of mother is likely to lead a person to become excessively prone to develop psychiatric symptoms and to do so especially when current personal relationships go wrong' (1988 page 174).

The youngest member of our family, Jill, was perhaps more traumatised through all this process because she grew up from the age of 9 months being institutionalised the whole time. She actually had some major trauma illnesses and trauma manifestations of institutional life evident in her life and yet nobody knew the root of it, or the cause of it, let alone knew the remedy to it. [The cottage mother] used a lot of mental cruelty on Jill - I mean, through cutting all of her hair off at one time to exert authority and to bring submission and fear into you ... making the kids look ugly and dress like boys. She did that to the younger children - well Jill in particular because she was younger and more impressionable. Jill died because of those policies in law. She committed suicide. She was 34 and death was the better thing.

Confidential evidence 265, Victoria.

Warning: The following link may contain images of deceased Aboriginal and Torres Strait Islander persons.

Click here to view a photo on
(/sites/default/files/content/social_justice/bth_report/report/images/8_ch11.JPG)

(/sites/default/files/content/social_justice/bth_report/report/images/8_ch11.JPG)The Governor
Sir Charles and Lady Gairdner with Abbot Gomez
(/sites/default/files/content/social_justice/bth_report/report/images/8_ch11.JPG)
inspecting the children of St. Joseph's Orphanage, New Norcia, WA
(/sites/default/files/content/social_justice/bth_report/report/images/8_ch11.JPG)

Courtesy Battye Library 74244P
(/sites/default/files/content/social_justice/bth_report/report/images/8_ch11.JPG)

I remember all we children being herded up,
like a mob of cattle, and feeling the humiliation
of being graded by the colour of our skins
for the government records.

Confidential submission 332, Queensland: woman removed in the 1950s to Cootamundra Girls' Home.

The effects of institutionalisation

» Institutional and other placements Inquiry witnesses

We had been brought up on the surrogate mother of the institution and that whole lifestyle, which did not prepare us at all for any type of family life or life whereby in the future we would be surviving or fending for ourselves; and then the survival skills that we needed in order to survive in the mainstream community, because those survival skills are certainly not skills that you learn in a major institution. And the whole family value system wasn't there and then the practice that comes with that wasn't there and put in place.

Confidential evidence 265, Victoria: four Victorian sisters who were taken into care from their father and grandmother in a brief period of parental marriage difficulties during the early 1960s.

The use of institutions for Indigenous children varied somewhat across Australia. Yet even where foster care was preferred, Indigenous children often spent time in institutions before being fostered. In Western Australia 85% of the 438 clients surveyed by the Aborignal Legal Service had spent at least part of their childhood in a mission following removal. Seventy-five (15.5%) had spent time in a government institution. Only 2.8% had been in foster care and only 3.5% had been adopted (submission 127 pages 46-49). The following table details the placement experiences of witnesses to the Inquiry for whom the information could be retrieved.

Institutional and other placements Inquiry witnesses

Placement types	Number	%
Indigenous children's institution(s)	94	25.5

Mixed children's institution(s)	71	19.2
Indigenous & mixed children's institutions	30	8.1
Foster care	28	7.6
Adoption	27	7.3
Institution followed by foster/adoption	89	24.1
Foster/adoption followed by institution	15	4.1
Other, not recorded	15	4.1
Total	369	100.0

Child and adolescent psychiatrist, Dr Brent Waters, has interviewed a number of Koori adults who were removed and institutionalised as children in New South Wales in the 1940s.

> There was an active discouragement of any kind of personal attachments between the children themselves to some extent, and particularly between the children and carers, and of course there was a turnover of staff as well. There was no positive affirmation of Aboriginal identity nor indeed personal identity (submission 532 page 2).

The 1940s were `the days of the hygiene movement' when the focus was on `discipline and hygiene': `whether you were clean, whether you had clean habits and whether you adhered to the program'. There was no interest in `noticing individuality, individual feelings and individual needs among children'. If an infant's expressions of his or her feelings are not responded to by carers, the child will not experience validation of those feelings as they develop. The result will be suppression of feelings and the child loses `the desire to feel and to communicate feelings and expressions to other people' (Dr Brent Waters evidence 532).

The effects of institutionalisation can be noticed immediately.
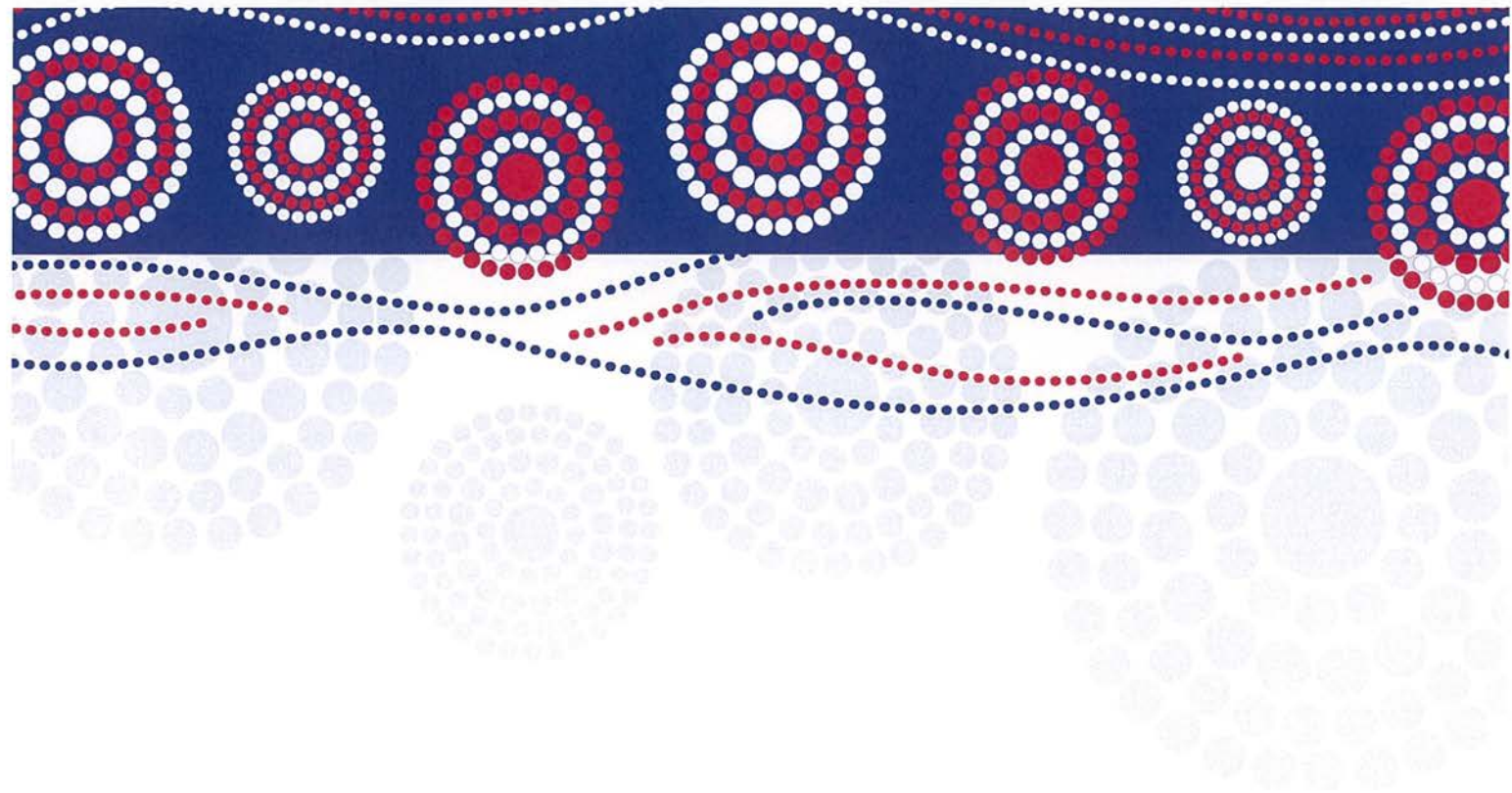
ART

Gorokan High School
Learn from Home Unit

The World Outside My Window

Year 8 Visual Arts
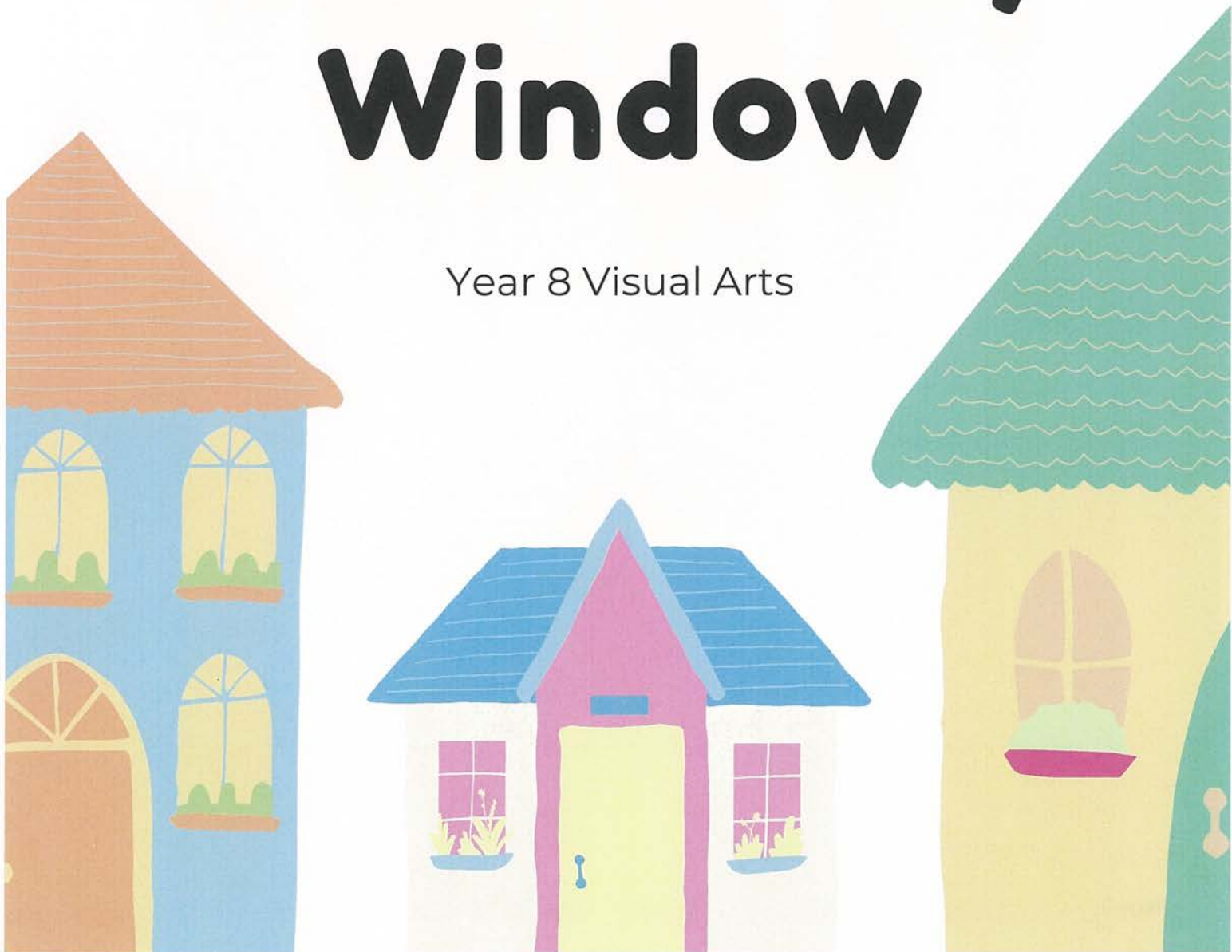
Syllabus Outcomes

Our Learn At Home 'The World Outside My Window' unit of work aligns to our Stage 4 Visual Arts Syllabus:

- 4.4 recognises and uses aspects of the world as a source of ideas, concepts and subject matter in the visual art;
- 4.6 selects different materials and techniques to make artworks; and
- 4.7 explores aspects of practice in critical and historical interpretations of art.

Unit Learning Intentions

To investigate and interpret the world around you as a source of inspiration for art-making.

To study artists who have used their view and immediate surroundings as subject mattre for their masterpieces

The world from my Window

'The world from my window' looks at artists who created artworks inspired by a view outside their window - perhaps from a holiday or even from their studio.

Learning Activities

1 Artist Research - Brief image research in to the work of artists who have used what is outside their window as inspiration for their artworks. (Page 4

2 Phone photography activity - set up a scene for your 'the world from my window' artwork and photograph the scene so you can draw/paint from it later. **Take two different photographs**

3 Drawing - based on your photographs, lightly sketch up your 'World outside my Window' scene using a **sharp lead pencil**

4 Creating - Once you have sketched your design, use the colour palette sheets and any materials you have available to you at home to create your final artwork.

Overview of Weekly Tasks

Week 2: Title Page
During Week 2, you will be focussing on your new title page for the unit of work. 'The World Outside My Window'.

Week 2: Phone Photography Activity
Throughout your Visual Arts lesson, your focus for the week will be composing and capturing various photos within your household. These photos must be from various perspectives within your house, focussing on what is outside your windows/doors. Begin by setting up a scene by your window, and capture it from various angles. You must upload a minimum of 4 scenes to Google Classroom by the end of the week.

Week 3 and 4: Artist Research
Throughout art history, different artists have used what's outside their windows as inspiration for their artworks.

Some of these works are masterpieces, you may even recognise them! Using the template provided within this booklet, research the artworks below to find the following information for each piece:

1. An image of the artwork
2. The country the artist was born in
3. Birth and death of the artist
4. A two sentence subjective frame description of the artwork (does the work feel peaceful? Stressful? Energetic? mysterious? What feelings do you get when you look at the artwork?

To investigate and research the work of artists who have used the world outside their windows as inspiration in their art-making.

- 'Girl reading a letter at an open window' by Vermeer
- 'Still life in front of a window' Picasso
- 'Interior in Yellow' Grace Cossington Smith
- 'The blue window' Matisse

Week 5 and 6: Artmaking – Initial Sketches

Using your photographs from Week 2, sketch up your 'World outside my Window' scene using a sharp lead pencil, coloured pencil, artline felt tip pen, charcoal etc. You must draw create minimum of 4 different scenes. Don't forget to upload your progress to Google Classroom.

After you have completed your 4 scenes, take one of your sketches, to create a more detailed artwork using your VAPD, a small canvas or chosen materials as discussed with your classroom teacher.

Extension activity: Create an artwork in the style of Matisse using the examples and resources provided in this booklet.

Week 1: Title Page

Construct a title page in your Visual Arts Process Diary

The World Outside My Window

Week 2: Phone Photography

Throughout your Visual Arts lesson, your focus for the week will be composing and capturing various photos within your household. These photos must be from various perspectives within your house, focussing on what is outside your windows/doors. Begin by setting up a scene by your window, and capture it from various angles. You must upload a minimum of 4 scenes to Google Classroom by the end of the week.

Tips and tricks:

Get creative with your angle: Crouching down and shooting from ground level can transform a dull scene.

Look for the light: Photography needs light, and no camera can take beautiful photos in total darkness. When the sunlight drops, you need to find your own light.

Use leading lines: In some photos, there's a line that draws the viewer's eye toward a certain part of the frame. Those are called leading lines. They can be straight or circulinear; leading lines are great for creating a sense of depth in an image, and can make your photo look purposefully designed - even if you just happened to come upon a really cool shape by accident.

Take full control: The standard camera apps on most phones are ideal for quick shooting - particularly on the iPhone with its minimal controls. But if you want to get a bit more creative, it's worth slowing things down by taking manual control of the camera's settings to achieve your artistic goals.

Avoid zooming in: When you take a photo from a distance, it's tempting to zoom in on something specific you're trying to capture. But it's actually better not to zoom in -- doing so can make the photo appear grainy, blurry, or pixelated. Instead, try to get closer to your subject

Edit for more impact: There's a lot more you can do with your image after you've pushed the camera button. It's often the editing process that can take a ho-hum snap and turn it into an "Oh, wow!" piece of art. It could be as simple as cropping out the mess!

Never stop shooting: With your phone always in your pocket or purse, there's no reason to miss a good photo. Shoot as often as you can — it's great practice, especially if you're new to photography.

Inspiring Artists: Brett Whiteley

'Sitting Room Window, Lavender Bay' (1991)

'View of the Garden'
(1997)

"The Window, Lavender
Bay' (1980)

Inspiring Artists: Henri Matisse

'The Egyptian Curtain' (1948)

'Open Window' (1905)

'Window at Tangier' (1912)

Week 3 and 4: Research

Learning Intention: To investigate and research the work of artists who have used the world outside their windows as inspiration in their art-making.

Throughout art history, different artists have used what's outside their windows as inspiration for their artworks. These works are masterpieces, you may even recognise them!

Task Description:

Research the artworks below to find the following information for each piece, use the Artist Insights page to help you with each artwork.

You may chose to submit this either in your VAPD where you will need to take a photo of your responses and upload to Google Classroom or create a digital presentation of your research.

1. An **image** of the artwork
2. The **country** the **artist** was born in
3. The **birth** and **death** of the **artist**
4. A **four sentence subjective frame description** of the artwork
   What feelings do you get when you look at the artwork?

Artwork 1: 'Girl reading a letter at an open window' by Vermeer

Artwork 2: 'Still life in front of a window' by Picasso

Artwork 3: 'Interior in Yellow' by Grace Cossington Smith

Artwork 4: 'The blue window' by Matisse
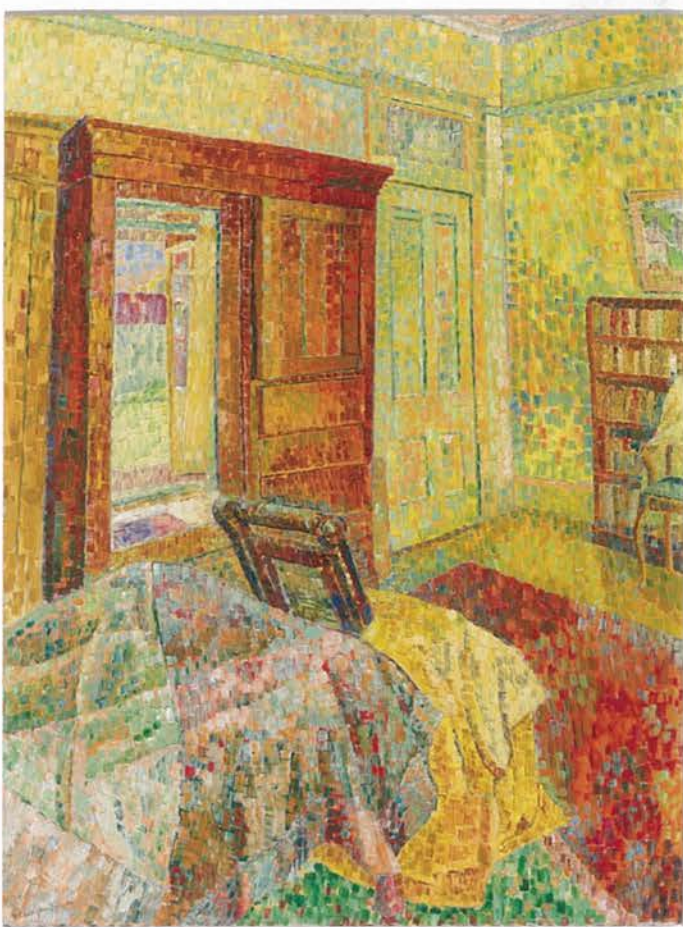
Using the subjective frame for your artwork description:

Artwork description - On first impression this painting looks like a normal bedroom scene, with bookcase, patterned rug, as well as clothing in the wardrobe the main focus of the painting. Someone has left the wardrobe door open, and the mirror reflects what is happening in the outside world - the veranda, the lawn outside and the gum trees in the distance.

The painting reminds me of sunny summer afternoons, a tranquil peaceful bedroom and house.

Title – Girl reading a letter at an open window
Year – 1657 - 1659
Artist – Johannes Vermeer
Media - Oil paint
Size – 63.8cm x 83cm
Nationality - Dutch
Born - 1632, Delft, Netherlands
Died - 1675, Delft, Netherlands

Background information
Johannes Vermeer, a Dutch artist who created paintings that are among the most beloved and revered images in the history of art. Although only about 36 of his paintings survive, these rare works are among the greatest treasures in the world's finest museums. Vermeer began his career in the early 1650s by painting large-scale biblical and mythological scenes, but most of his later paintings—the ones for which he is most famous—depict scenes of daily life in interior settings. These works are remarkable for their purity of light and form, qualities that convey a serene, timeless sense of dignity. Vermeer also painted cityscapes and allegorical scenes.

Bibliography: https://www.britannica.com/biography/Johannes-Vermeer

Title - Still life in front of a window at Saint-Raphael
Year - 1919
Artist - Pablo Picasso
Media - Oil paint on canvas
Size - 35cm x 24cm
Nationality - Spanish
Born - 1881, Malaga, Spain
Died - 1973, Mougins, France

Background information

Pablo Ruiz or Pablo Ruiz Picasso was a Spanish expatriate painter, sculptor, printmaker, ceramicist, and stage designer, one of the greatest and most-influential artists of the 20th century and the creator (with Georges Braque) of Cubism (created between 1907 and 1914). The Cubist style emphasized the flat, two-dimensional surface of the picture plane, rejecting the traditional techniques of perspective, foreshortening, modelling, and chiaroscuro, and refuting time-honoured theories that art should imitate nature. Cubist painters were not bound to copying form, texture, colour, and space; instead, they presented a new reality in paintings that depicted radically fragmented objects.

Bibliography: https://www.britannica.com/biography/Pablo-Picasso
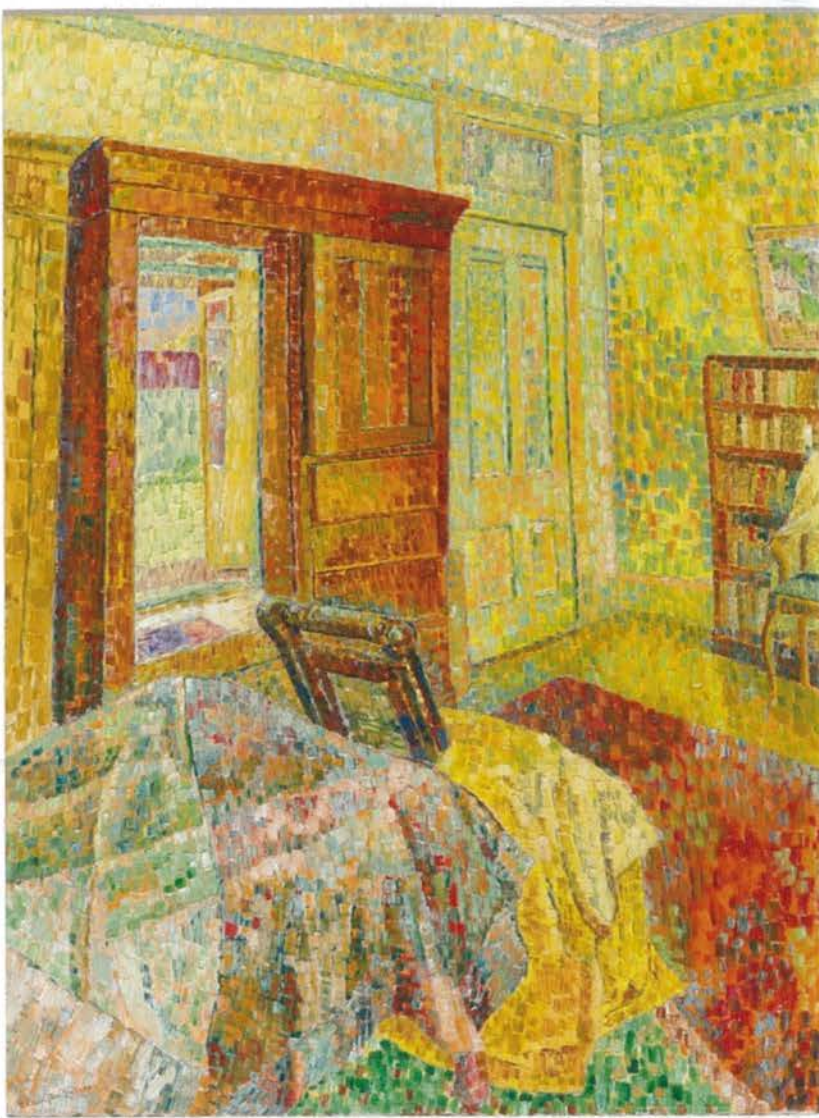
Title - Interior in yellow
Year - 1962 -1964
Artist - Grace Cossington Smith
Media - Oil paint on board
Size – 121.7 h x 90.2 w cm
Nationality - Australian
Born - Neutral Bay NSW Australia 1892
Died - Sydney, NSW, Australia 20 Dec 1984

Background information
Grace Cossington Smith is one of Australia's most celebrated 20th century painters. An important early exponent of modernism in Australia, her work formed part of the first significant wave of Australian responses to European post-impressionism. A brilliant colourist, she drew her subject matter from the familiar surroundings of her home and her experience of Sydney city life, which she transformed into vibrant images of light-infused colour.

Bibliography: https://www.artgallery.nsw.gov.au/collection/artists/cossington-smith-grace/

Title - The blue window
Year - 1913
Artist - Henri Matisse
Media - Oil paint on canvas
Size - 131cm x 90cm
Nationality - French
Born - 1869, Le Cateau, Picardy, France
Died - 1954, Nice, France

Background information
Henri Matisse, in full Henri-Émile-Benoît Matisse, an artist often regarded as the most important French painter of the 20th century. He was the leader of the Fauvist movement (about 1900), and he pursued the expressiveness of colour throughout his career. Fauvism is a style of painting that flourished in France around the turn of the 20th century. Fauve artists used pure, brilliant colour aggressively applied straight from the paint tubes to create a sense of an explosion on the canvas. Matisse's subjects were largely domestic or figurative.

Week 5 & 6: Final Artwork

1 Using a piece of paper within your VAPD or use a piece of plain white paper from home.

2 Rule a 15x20cm rectangle in the centre of your page, this will form the border for your artwork. By this time you should know which artist you are going to be inspired by.

3 Lightly sketch your scene, starting with the geometric lines of your widnow sill to give shape and scale to your drawing. Think about using the Elements of Art (shape, line, colour, texture, tone, form, space) similar to the artist you've chosen as your inspiration.

4 Clean up your line work without pressing down too hard with your pencil, you don't want your pencil marks to be too strong and dark!

5 Think about the media you have available to you; paints, textas, colour pencils, crayons, etc. Use what you have to mimic the style of your inspiring artist nd their work. Set up your artmaking area, using towel or newspaper to protect the surfaces aroud you.

6 Using your knowledge of colour and the colour mixing guides on the following pages, begin to fill in the background of your artwork first. Paying attention to your application of your coloured medium and the texture it creates.

7 When you have finished the background, move onto the next 'layer of information' in your artwork. This will be the elements within the mid- and foreground of your composition. Always leave the foreground and details to last!

8 Upload a photo of your progress and finished artwork to your Google Classroom!

tips

- Don't use too much water in your painting, particularly on paper
- Always start with the background when painting, let sections dry before starting the next layer
- Use a colour wheel (you can google one!) to help with colour mixing
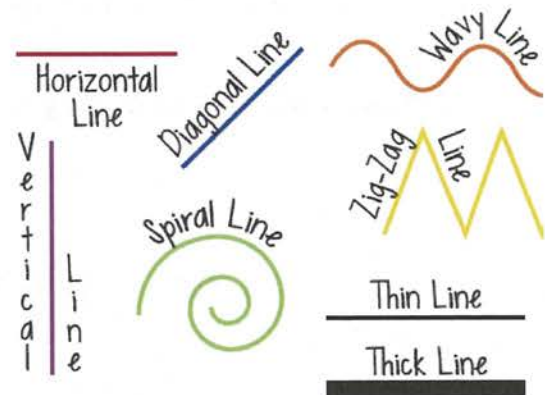
Matisse Colour Palette

Use this colour mixing guide to create an Henri Matisse inspired painting from your window.
These colours are very similar to the colours Matisse uses in his paintings
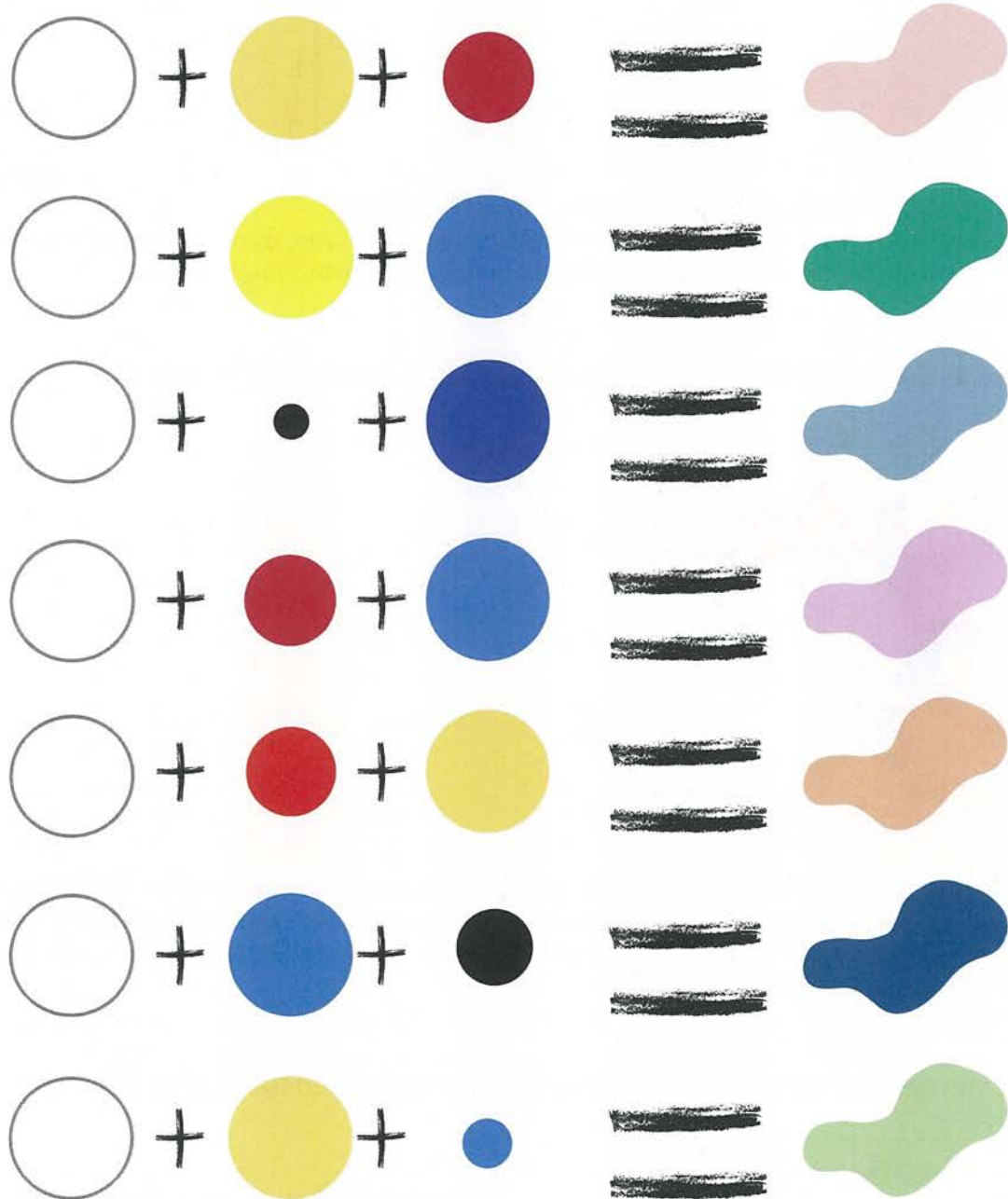
Elements of art

Line - An element of art defined by a point moving in space. Line can be two or three-dimensional, descriptive, implied or abstract.

Line descriptor words - Thick, thin, tapered, uneven, short, long, continuous, broken, horizontal, vertical, diagonal, oblique, curved, perpendicular, parallel, radial, sharp, blurry, irregular, pointy, zigzag, jagged, graceful, smooth, wavy, wiggly.

Colour - An element of art made up of three properties – hue value and intensity.
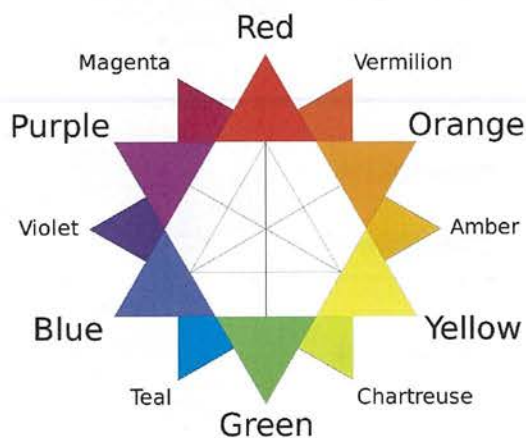
Colour descriptor words - Bright, dull, muted, opposite, many, few, warm, cool, hot, cold, disturbing, light, dark, soft, blurry, harmonious, discord, uneasy, unified, blended, primary, secondary, tertiary, rainbow, red, yellow, blue, green, orange, purple, maroon, violet, indigo, scarlet, gold, black, white, grey, brown, khaki, beige, ochre, tan.

Shape - an element of art that is two-dimensional, flat or limited by height and width.

Shape descriptor words - Organic, geometric, man-made, natural, unnatural, round, square, rectangular, triangular, big, small,   area, large, tiny, irregular, regular, closed, open, two-dimensional, solid, unified, opposite, angular, soft, hard, unusual.

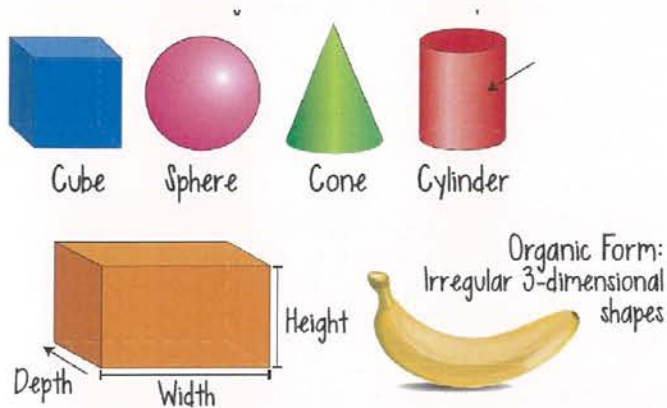Form – An element of art that is three-dimensional and encloses volume, includes height width and depth. Form can be geometric or free flowing,

Cube   Sphere   Cone   Cylinder

Height
Depth   Width

Organic Form:
Irregular 3-dimensional shapes

Form descriptor words- Three-dimensional, statuesque, organic, natural,

man-made, geometric, unusual, regular, cube, pyramid, prism, rectangular, octagonal, hexagonal, pentagonal, cone, cylinder, sphere, hemisphere, width, length, breadth.

Tone – An element of art that describes the amount of lightness or darkness on an object from a light source.

2D Shape

Value can be used to create the illusion of form.

Value Scale

Lightest ----------------------- Darkest

Hatching and Cross-hatching

Stippling
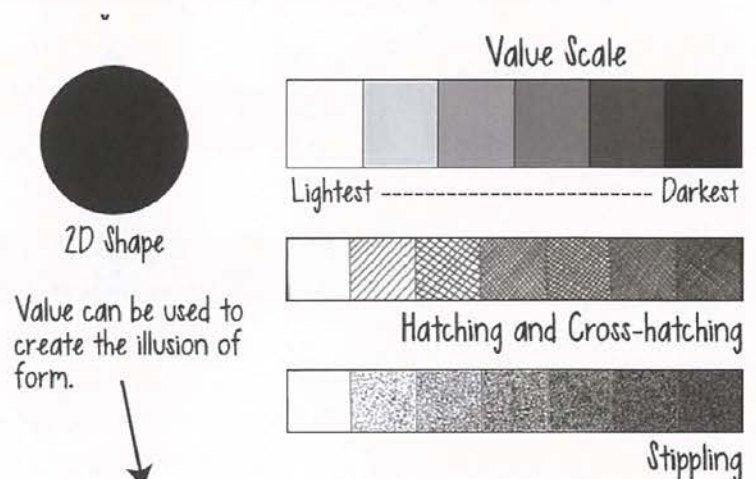
Tone descriptor word - Dark, light, mid-tones, unnatural and unrealistic.

Texture – An element of art that refers to the way things feel or look.

Texture descriptor words - Smooth, rough, shiny, soft, hard, realistic, looks like…, natural,   man-made, strange, unusual, feels like…., sticky, prickly, hot, cold, metallic, stone, icy, warm, fur, hair, plastic, material, silk, satin.

Historical and Critical Studies Assessment

Week 7-9: Assessment

Due: Week 9, T2

You are to submit your assessment by the date above to your Classroom Teacher through your Google Classroom Assessment Portal.

Task Description:

Using the template provided, select one artwork from the list below and write an Artwork Analysis of your selected artwork. Follow Steps 1- 4 closely, we have provided an example using Frida Kahlo's Self-portrait with Monkeys to help you answer each step.

Artwork 1: 'Girl reading a letter at an open window' by Vermeer

Artwork 2: 'Still life in front of a window' by Picasso

Artwork 3: 'Interior in Yellow' by Grace Cossington Smith

Artwork 4: 'The blue window' by Matisse

Step 1: Describe

In this step you must, describe n detail the subject matter of the artwork you have chosen.

To do that:

1. Introduce the artwork by turning the citations into a complete sentence.

Tell who made the artwork, the **title**, the **date**, and **materials used**. This information can be stated in any order in a complete sentence.

2.Write about the **subject matter:**
Discuss what you see and recognise, the placement of objects, the setting and the style that the artwork was created in.
Avoid words like "beautiful" or "ugly." These should all be FACTS, not opinions.
Your description should be so detailed that someone not looking at the artwork can visualize it in their head.

EXAMPLE ONLY – Step 1:
Here is an example of how to write a response to Step 1:
I used the artwork 'Self-portrait with Monkeys' by Frida Kahlo

Artwork citation:
Frida Kahlo, Self-portrait with Monkeys, 1943, Oil on canvas

EXAMPLE RESPONSE:
Here are three examples of ways to turn the CITATION into a sentence:
1."In 1943, Frida Kahlo created Self-portrait with Monkeys using oil on canvas."
2."Frida Kahlo made Self-Portrait with Monkeys using oil on canvas in 1943."
3."Self-Portrait with Monkeys was made by Frida Kahlo in 1943 using oil on canvas."

Describing subject matter:
The woman in the painting is the artist because it is called a self-portrait. She is in the middle of the painting with four black and white monkeys around her. One monkey is in front of her while the other three are behind her. One monkey looks like it is hiding. There are leaves in the background with a plant called a 'Bird of Paradise'. The artist painted in a realistic style and I can see that the woman is wearing a white shirt with an orange symbol in the middle, which two monkeys appear to point at. The woman's face looks serious because she seems to be frowning and not smiling.

1. Describe (your turn)

Write your answer to Step 1 below, using the artwork you have chosen:

Step 2: Analyse

In this step you must, analyse the artwork you have chosen.

To do that:

1. **Select three 'Elements of Art'** the artist has used to create the artwork (LINE, SHAPE, FORM, TONE, TEXTURE, COLOUR).

2. **Give specific detail** as to what **each element looks like** and the **impact** each element has on the artwork. For example, colour- does it add a mood or feeling
   Refer to 'The Elements of Art' handout

EXAMPLE ONLY – Step 2:

Using the artwork 'Self-portrait with Monkeys' by Frida Kahlo
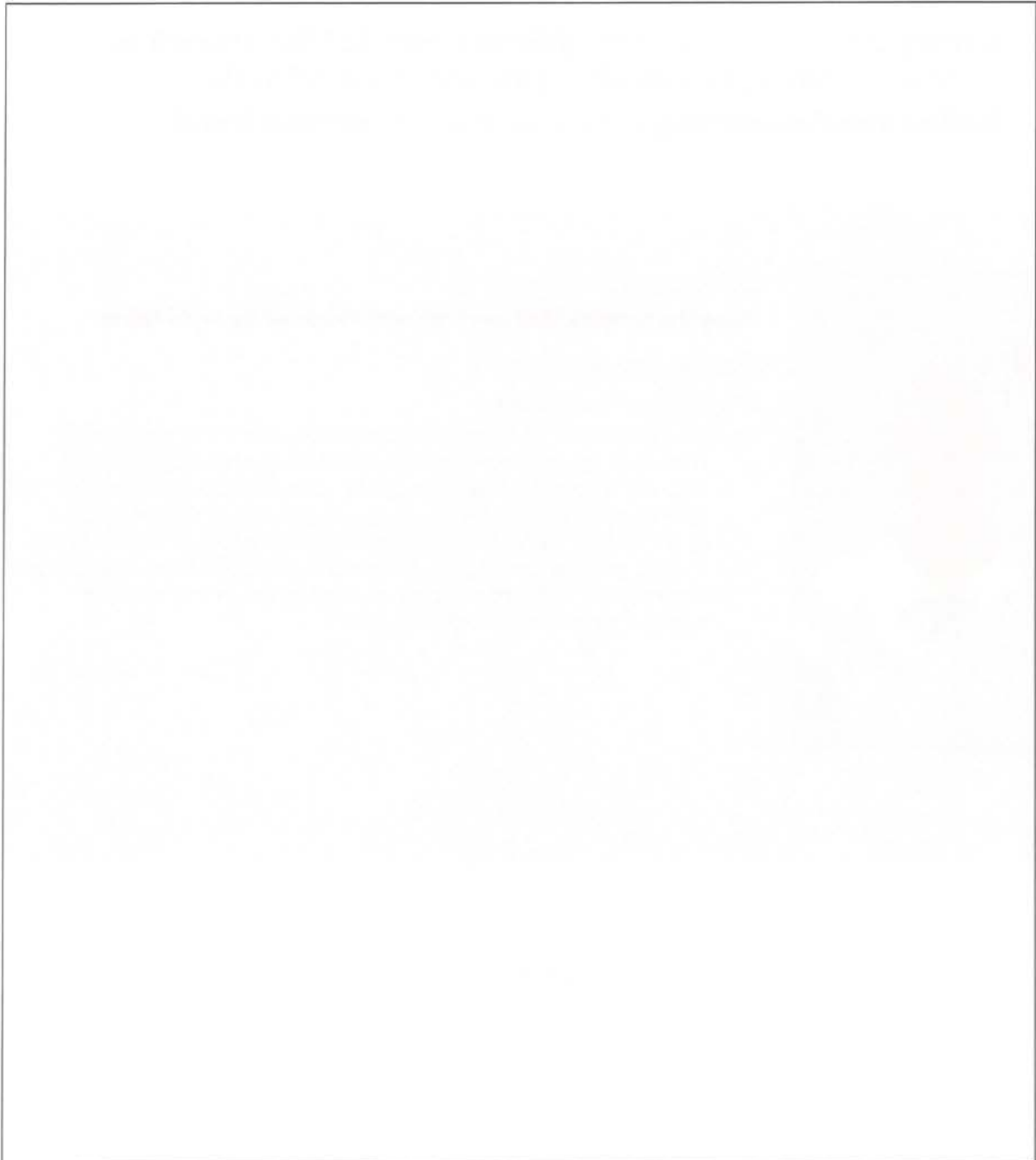
EXAMPLE RESPONSE:

Analysing the artwork:

The element of TONE is used in the artwork creating light and dark areas to give depth from the woman in the foreground to the leaves in the background. I see the element of TEXTURE used in the fur of the monkey's, making them look soft and friendly. The dominant COLOURS of orange and green contrast each other and make the 'Bird of Paradise' flower and the symbol on the woman's shirt stand out.

2. Analyse (your turn)

Write your answer to Step 2 below, using the artwork you have chosen:

Step 3: Interpret

In this step you must, interpret the artwork you have chosen.

To do that:

1. **Write** about the content **(the different parts) of the artwork** by explaining **what you feel when you look at the artwork.**

2. **What mood or meaning** is the artist trying to **communicate?**

EXAMPLE ONLY – Step 3:

Using the artwork 'Self-portrait with Monkeys' by Frida Kahlo
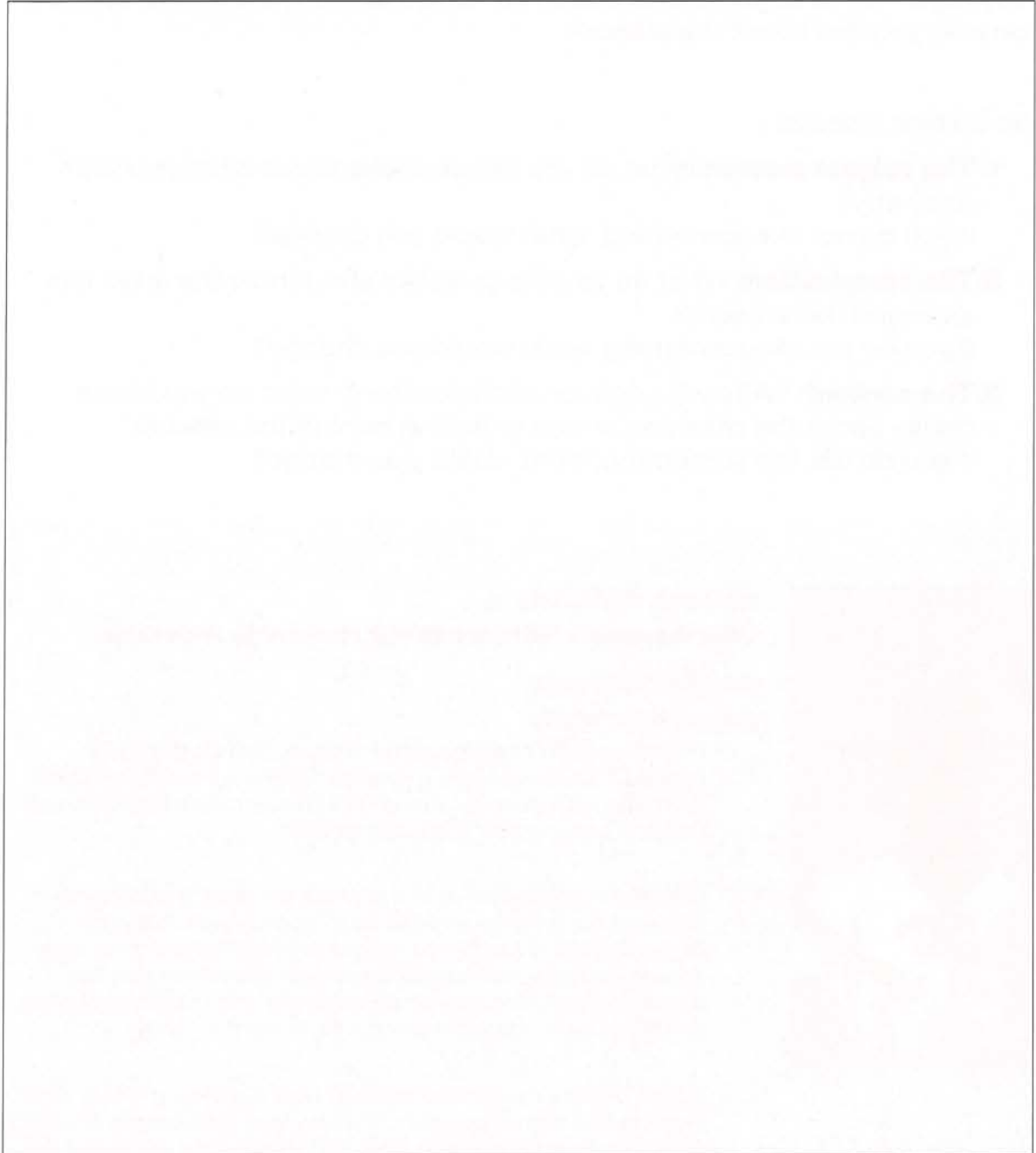
EXAMPLE RESPONSE:

Interpreting the artwork:

The woman in the artwork is placed in the centre, with the monkeys surrounding her. She looks like she is concerned about something because of her serious facial expression. This makes me curious about what is happening. The monkeys on the other hand have a surprised look on their faces, which makes me wonder if they have noticed something the woman has not seen. There are a lot of dark tones in the artwork, symbolizing a mysterious mood.

3. Interpret (your turn)

Write your answer to Step 3 below, using the artwork you have chosen:

Step 4: Judge

In this step you must, judge the artwork you have chosen.

To judge means to give a final evaluation of the artwork using your opinions on how you feel about the artwork

To do that discuss:

1. **The subject matter:** What do you like or dislike about what you see? And, why?
   If you do not like something, what would you change?

2. **The composition:** What do you like or dislike about how the artist has arranged the artwork?
   If you do not like something, what would you change?

3. **The content:** Write your opinion of the content- what do you like or dislike about the meaning, mood or feeling behind the artwork?
   If you do not like something, what would you change?

EXAMPLE ONLY – Step 4:

Using the artwork 'Self-portrait with Monkeys' by Frida Kahlo

EXAMPLE RESPONSE:

Judging the artwork:

I like the subject matter of the artwork 'Self-portrait with monkeys' because I love monkeys. They are friendly and they like to be with people. I do not like the woman's face because she isn't smiling and she looks worried.

I like the composition of this artwork because the important figure of the woman and the four monkeys are in the centre of the picture. It has been created in a realistic painting style showing details such as the texture on the leaves and the monkey's fur. The colours look accurate and I can imagine the setting to be in the woman's garden or in the jungle.

I don't like the content because of how it makes me feel when I look at this painting. I want to know why the woman has such a worried look on her face. I wonder if someone upset her and if the monkeys will make her feel better.

4. Judge (your turn)

Write your answer to Step 4 below, using the artwork you have chosen:

Now put it all together: Steps 1-4

In this step you must, DESCRIBE, ANALYSE, INTERPRET, JUDGE the artwork you have chosen.

EXAMPLE ONLY – Pulling it all together:

Using the artwork 'Self-portrait with Monkeys' by Frida Kahlo

EXAMPLE RESPONSE:

Final artwork analysis ready to submit:

In 1943, artist Frida Kahlo created 'Self-portrait with Monkeys' using oil on canvas.

The woman in the painting is the artist because it is called a self-portrait. She is in the middle of the painting with four black and white monkeys around her. One monkey is in front of her while the other three are behind her. One monkey looks like it is hiding. There are leaves in the background with a plant called a 'Bird of Paradise'. The artist painted in a realistic style and I can see that the woman is wearing a white shirt with an orange symbol in the middle, which two monkeys appear to point at. The woman's face looks serious because she seems to be frowning and not smiling.

The element of tone is used in the artwork creating light and dark areas to give depth from the woman in the foreground to the leaves in the background. I see the element of texture used in the fur of the monkey's, making them look soft and friendly. The dominant colours of orange and green contrast each other and make the 'Bird of Paradise' flower and the symbol on the woman's shirt stand out.

The woman in the artwork is placed in the centre, with the monkeys surrounding her. She looks like she is concerned about something because of her serious facial expression. This makes me curious about what is happening. The monkeys on the other hand have a surprised look on their faces, which makes me wonder if they have noticed something the woman has not seen. There are a lot of dark tones in the artwork, symbolizing a mysterious mood.
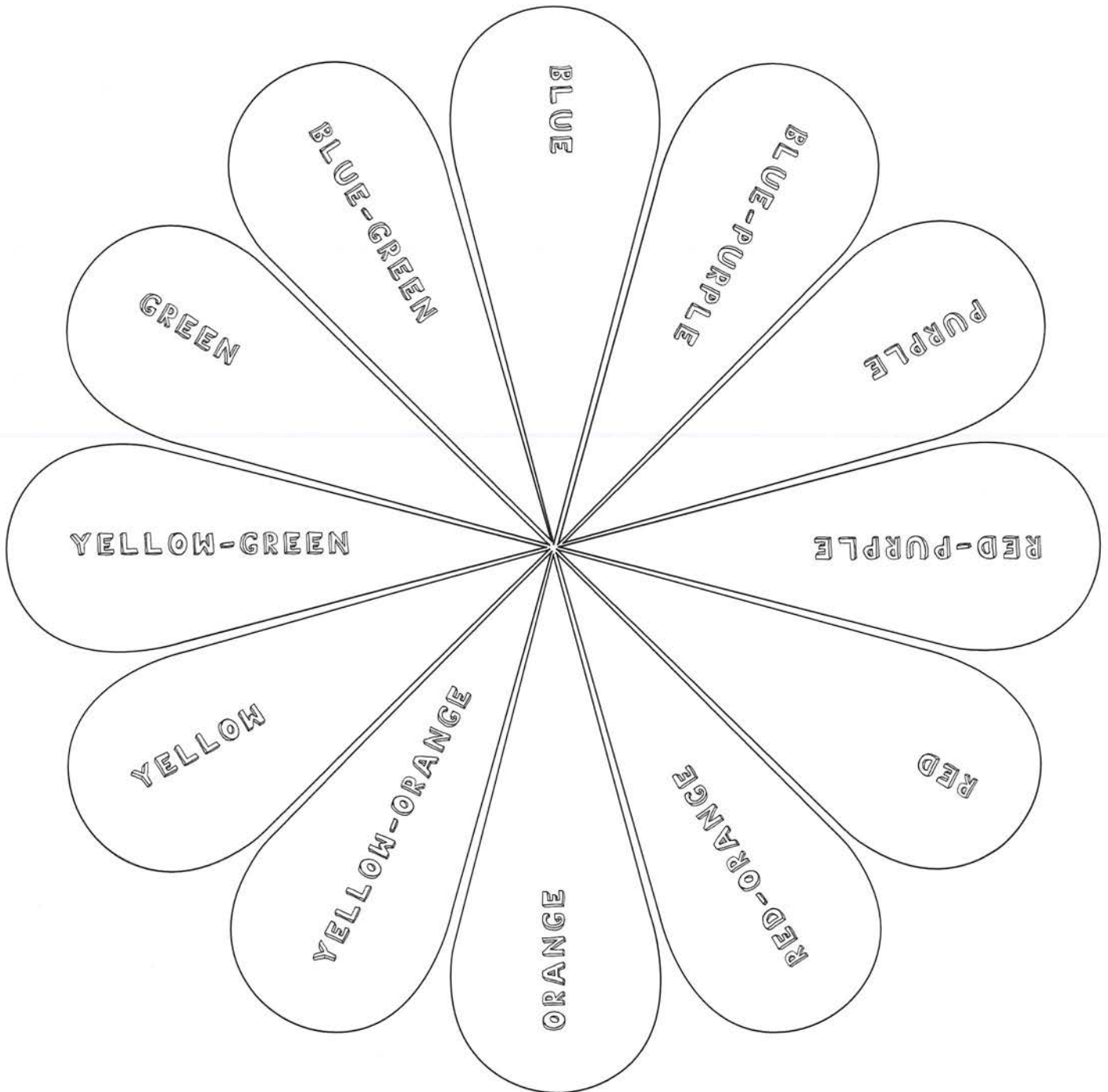
I like the subject matter of the artwork 'Self-portrait with monkeys' because I love monkeys. They are friendly and they like to be with people. I do not like the woman's face because she isn't smiling and she looks worried.

I like the composition of this artwork because the important figure of the woman and the four monkeys are in the centre of the picture. It has been created in a realistic painting style showing details such as the texture on the leaves and the monkey's fur. The colours look accurate and I can imagine the setting to be in the woman's garden or in the jungle.

I don't like the content because of how it makes me feel when I look at this painting. I want to know why the woman has such a worried look on her face. I wonder if someone upset her and if the monkeys will make her feel better.

Final Analysis: Steps 1-4:

Extension Activity

BLUE

BLUE-GREEN

BLUE-PURPLE

GREEN

PURPLE

YELLOW-GREEN

RED-PURPLE

YELLOW

YELLOW-ORANGE

RED

ORANGE

RED-ORANGE

The Colour Wheel

1. Colour is an _____ _____ _____, that is produced when light hits an _____, and is reflected back to the eye.

2. _____ is another word for colour.

3. The _____ colours, are a group of _____ colours that all other colours can be made by mixing. These are blue, red and yellow.

4. _____ colours are made by mixing two Primary colours, for example, red + yellow = orange.

5. A _____ colour is made by mixing a Primary and a Secondary colour, for example, blue + green = blue-green, which is also known as aqua.

6. When thinking about colour temperature, _____ colours are hues from red through yellow, browns and tans included; where as

7. _____ colours are blue, green, and purple.

8. Colour can also be used as a _____.

Word Bank:
Element of Art, Primary, Cool, Three, Warm, Secondary, Hue, Object, Tertiary, Symbol.

Well done!
You have completed your Visual Arts Booklet