Core 1: Health Priorities in Australia

How are priority issues for Australia’s health identified?

- Measuring health status
  - Role of epidemiology
  - Measures of epidemiology (mortality, infant mortality, morbidity, life expectancy)

**Epidemiology:** The study of **patterns** of illness and disease in a population

**Role of Epidemiology**

Gathering and interpretation of statistics regarding health and causes of disease. Aims to:

- Identify Risk Factors of a disease
- Determine the extent of a disease within a community
- Evaluate prevention strategies
- Provide suggestions for public policy (Governments)

Findings are used to:

- Determine health priorities for a population → aspects of health which need to be a focus for health promotion and disease prevention
- Checking reliability and source of statistics is important before using
- Consider limitations

e.g. - From 1979-1988, infant mortality rates more than halved for both males and females

**Measures of Epidemiology**

- Mortality • Death
- Morbidity • sickness

<table>
<thead>
<tr>
<th>Measure</th>
<th>Definition</th>
<th>Trend in Australia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mortality</td>
<td>Death rates within a population from a specific cause in a given period of time.</td>
<td>Decreasing</td>
</tr>
<tr>
<td>Infant Mortality</td>
<td>Annual number of deaths of children under 1 in a population, per 1000.</td>
<td>Decreasing Medical progress/ simple measures Placing baby on back when sleeping</td>
</tr>
<tr>
<td>Morbidity</td>
<td>Measure of disease in a population.</td>
<td>Decreasing for major health conditions or occurring later in life</td>
</tr>
<tr>
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<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>Prevalence - number of current disease cases</td>
<td>Increases in diabetes/ mental health issues</td>
</tr>
<tr>
<td></td>
<td>Incidence - number of new cases</td>
<td></td>
</tr>
<tr>
<td>Life Expectancy</td>
<td>Average number of years a person can expect to live.</td>
<td>Increasing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Changes in care and lifestyle Improvements in medicine</td>
</tr>
</tbody>
</table>

What can epidemiology tell us?
- Risk factors of a disease
- Extent of disease within a community
- Suggestions for public policy
- Helps determine protective factors and prevention strategies
- Causes of disease
- Areas affected
- Evaluating effect of prevention/treatment

Who uses these measures?
- **INDIVIDUALS**
  - Raise awareness
  - Allows to work out what is done good/poorly and make modifications if necessary
- **BUSINESSES**
  - Target certain groups
  - Promote healthier lifestyle through product development
- **PEOPLE WORKING IN HEALTH FIELD**
  - Health promotion strategies
- **GOVERNMENTS**
  - Policy development/ legislation

Limitations:
- Doesn't show peoples circumstances
  - Socioeconomic status
  - Housing
  - Weather
- Doesn't show peoples lifestyle
  - Bad habits
  - Foods eaten exercise routines
- Doesn't show socio cultural factors contributing to negative behaviours
- People can be misinterpreted
  - E.g. females see doctor more therefore higher morbidity rates

Use tables and graphs from health reports to analyse current trends in life expectancy and major causes of morbidity and mortality for the general population and comparing males and females.

**GRAPHS AND CRAP HERE**
- Identifying priority health issues
- Social justice principles
- Priority population groups
- Prevalence of condition
- Potential for prevention and early intervention
- Costs to the individual and community

- Governments work towards identifying priority health issues within Australia.

- AIM: to focus public attention and health policy on risk factors and causes of illness and death that contribute significantly to the burden of disease in Australia.

Aspects taken into consideration when identifying priority health issues:

When governments make decisions relating to health, to identify priorities and how best to spend money, they apply the criteria:

- Social Justice Principles
- Priority Population Groups
- Prevalence of the Condition
- Potential for Prevention and early Intervention
- Costs to the Individual and Community

Social Justice Principles
- Aims to decrease or remove inequity
- About justice being achieved in all areas of society
- Based on human rights and equality
  - EQUITY:
    - Fairness
    - Does not mean equal
    - Giving priority to those most at risk/need
    - Recognising marginalised
  - DIVERSITY:
    - Multicultural
    - Recognising and accepting cultural differences (beliefs, values, morals, ethics etc)
    - Health promotion must be inclusive of diversity
    - Recognising contribution of various groups
  - SUPPORTIVE ENVIROMENTS:
    - Physical and social surroundings
    - Refers to where person lives/home/community
    - Enables access to resources needed for healthy living/opportunities for empowerment
    - Many dimensions

Aims at equality for all people
Equality of rights:
- Eliminated discrimination
- Freedom

Equality • Equal
Equity • Fair
- Enables political rights

**Equality of opportunities:**
- Level playing field

**Equity in living conditions:**
- Funding where most needed

**Inequalities may include:**
- Income
- Employment
- Work
- Education
- Knowledge
- Life expectancy
- Health care
- Safety
- Pollution
- Infant mortality

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**Priority Population Groups**

- Closely tied to social justice principles
- Groups more affected by causes of illness/ death → priority

**e.g.**
- ATSI
- Socioeconomically disadvantaged/ low SES
- People in rural and remote areas
- Australians born overseas/ migrants
- Elderly
- Disabled

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**Prevalence of the Condition**

- Number of cases of disease in a population at a certain time
- Prevalence of disease is high → priority

Epidemiology shows 7 disease priorities contributing to Australians mortality/ morbidity rate:

- **Cardiovascular disease**
  - Declining but still leading cause of death
  - Ageing population= CVD Increase

- **Cancer**
  - Second leading cause of death
  - Incidence increasing
  - Improved technology= more survivors

- **Diabetes**
  - Increasing
  - Large cause of deaths directly/ indirectly (complications of)

- **Respiratory Diseases: Asthma**
  - Major course of morbidity
  - Improved management, early diagnosis, increased awareness → decrease in
deaths
- Injury mortality is declining
- Mental illness

Potential for Prevention and Early Intervention
- Priority health issues - when disease is preventable / disease impact can be reduced by early detection / intervention
- Identify how to stop disease if we get in early enough
- Major causes of illness (CVD, Cancer, Type 2 Diabetes) - due to modifiable lifestyle behaviours - easily prevented
  - lifestyle-related conditions: need education awareness of risk factors → behaviour change / reduction in incidence
  - e.g. smoking, drink driving, sun exposure → shaded areas, beef / low fat milk (CHD)
- Not lifestyle related - limited change potential - research, medical advancements
- Environmental, social, cultural, political factors must be addressed in order for health status to improve
- Health problems are social issues that are directly related to the society in which people live
- Prevention for many people is limited and, in some cases, non-existent.

<table>
<thead>
<tr>
<th>Individual</th>
<th>Community</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical, social, emotional</td>
<td>Over $30 billion</td>
</tr>
<tr>
<td>Minor pain / disability, death</td>
<td>Cardiovascular disease = $1 = $5.9 billion</td>
</tr>
<tr>
<td>Minor - overcome quickly</td>
<td>AUSTRALIAS EXPENDITURE ON HEALTH</td>
</tr>
<tr>
<td>More serious - longer / permanent. E.g. loss of limb, spinal injury</td>
<td>- Constant over last 20 years</td>
</tr>
<tr>
<td>Social isolation</td>
<td>- Feared increase in future years due to:</td>
</tr>
</tbody>
</table>
  - Inability to work / socialise in sport / hobby |
| Long term hospitalisation / lack of mobility | An aging population: |
  - Increase financial pressures |
  - Isolate individual |
| Pressure on relationship / family | - Life expectancy increasing |
  - Care and rehab at home = pressure |
<p>| Emotions e.g. depression, loss of self esteem, questioning (why me?) | Potential burden with morbidity amongst elderly |
| Emotional trauma | More informed population: |
| | - Due to health promotion and illness prevention |
| | - May increase use of health services |
| | - Encourages people to use more medical services |
| Increased use of Medicare: | Increased use of Medicare: |
| - Burden on health budget | - Burden on health budget |
| - Health costs increasing due to overuse of doctors (people using doctors due to ease of use) | - Health costs increasing due to overuse of doctors (people using doctors due to ease of use) |
| - Some doctors may 'over service' | - Some doctors may 'over service' |
| Advances in medical technology: | Advances in medical technology: |
| - Improved technology = wider range of treatment | - Improved technology = wider range of treatment |
| - Expensive | - Expensive |
| - E.g. organ replacement / open heart surgery | - E.g. organ replacement / open heart surgery |</p>
<table>
<thead>
<tr>
<th>Direct:</th>
<th>Indirect:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital/ medical expenses</td>
<td>Not directly related to health system</td>
</tr>
<tr>
<td>Treatment</td>
<td>Absenteeism</td>
</tr>
<tr>
<td>Pharmaceuticals</td>
<td>Loss of productivity</td>
</tr>
<tr>
<td>Money spent on research</td>
<td>Health insurance</td>
</tr>
<tr>
<td>Prevention programs</td>
<td>Home care</td>
</tr>
<tr>
<td>education</td>
<td>Loss of income</td>
</tr>
<tr>
<td></td>
<td>Illness prevention</td>
</tr>
<tr>
<td></td>
<td>Burden of careers/ family</td>
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<tr>
<td></td>
<td>Lost quantity/ quality of life</td>
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<tr>
<td></td>
<td>Emotional trauma</td>
</tr>
<tr>
<td></td>
<td>Witness counselling</td>
</tr>
<tr>
<td></td>
<td>E.g. Can’t drive- taxi costs</td>
</tr>
</tbody>
</table>

**DISCUSSION QUESTIONS**

**What are the Priority Issues for Improving Australia’s Health?**

- Research and analyse ABTSI peoples and people in R&R areas
  - The nature and extent of health inequities
  - Sociocultural, socioeconomic, environmental determinants
  - Roles of individuals, communities, governments in addressing health inequities

**ABTSI**

**Nature and Extent**

<table>
<thead>
<tr>
<th>Lower life expectancy (approx 17 years less)</th>
<th>Increased levels of morbidity</th>
<th>High rates of mortality (gap between Indigenous/ non Indigenous increasing)</th>
<th>Infant mortality decreasing</th>
<th>Youthful population group (med age=20)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poorer levels of mental health and social/ emotional wellbeing</td>
<td>Engage in more health risk behaviours</td>
<td>High rates of unemployment Lower income</td>
<td>Low SES status → lower levels of private health insurance</td>
<td>High levels of violence</td>
</tr>
<tr>
<td>More live in R&amp;R areas → difficult to access health services</td>
<td>Poorer communication and language skills</td>
<td>Poorer education levels</td>
<td>Rate their health as poor/ fair</td>
<td>Increasing disability rates</td>
</tr>
<tr>
<td>Require help for everyday living needs</td>
<td>Poorer dental health</td>
<td>Increased hospitalisation</td>
<td>Increased disability rates</td>
<td>Experience reduced quality of life</td>
</tr>
</tbody>
</table>
Modern History: Albert Speer

BACKGROUND:

FAMILY BACKGROUND AND EDUCATION:
- Albert Speer was born on the 19th of March 1905
- Father (Albert) was an architect and property owner, mother care from a rich family
  - Yet 2002 “[his parents] were virtually strangers to him”
- Middle child of three boys — testosterone and competition?
  - Christopher Corden stipulated that his brothers "used to beat him up" and that each of his parents favored one of his brothers, while the Jewish-Jenaite family liked Speer
- Moved from Mannheim to Heidelberg in 1918 due to air raids
- Wanted to study mathematics, but his father convinced him to study architecture
- 1923 enrolled at the Karlsruhe Institute of Technology (Due to infatuation
  - Left very influenced (Bauhaus) under Heinrich Tessenow

INTRODUCTION TO NAZISM AND REASONS FOR JOINING:
- Speer was invited by some classmates to go to a Nazi Rally
  in December 1930, he was impressed by the way that Hitler spoke
  - Speer as a member of Nazi youth culture
- Joined the party on the 1st of March 1931
- Possible reasons for joining:
  - Middle class movement against the communists (and, hence towards the right wing)
  - Sebastian Haffner suggested that “Speer would have joined any party” if it had offered employment (1944)
  - Speer’s Memoirs stress Hitler’s charisma and its captivating power: “To be in his presence for any length of time made me tired, exhausted and无力” (1976)
  - Van der Ust suggests he must have felt something towards Nazi politics, as he joined not before the "bavarian"
  -
RISE TO PROMINENCE:

EARLY WORK FOR THE NAZI PARTY:
- Speer joined the NSKK (car club) where he met Karl Hofmeister who asked him to redecorate some buildings purchased after winning the Reichstag Election.
  - Such as Goebbels' Propaganda Ministry and the 1933 May Day commemorations.
- Speer fell out with Rosenberg, who described his architecture: "Do you think you have created something? It's silly, that's all!"
- Speer meets Hitler while presenting a design for the Nuremberg Rally, 1933.
  - Speer to Speier (1945): "I was dizzy with excitement." Speer later gets to know Hitler as a liaison on Paul Troost's redesign of the Chancellery.

APPOINTMENT AS 'FIRST ARCHITECT OF THE REICH':
- Speer was appointed in 1934 (after Troost's death).
- The first job was the Zeppenberg Stadium (Nuremberg Parade).
  - 340,000 people, the 'Cathedral of Light'.
  - Documented in drei Rijenbild's 'Triumph of the Will'.
- The plan for the 1936 Berlin Olympics was modified by Speer to have a store exterior ('main store').
- The 1937 Pomo World Fair entry (a tall tower with a golden eagle looking over the Soviet display).

THE 'GERMANIA' PROJECT AND THE NEW CHANCELLORY:
- The 'Germania' Project was the rebuilding of Berlin as the capital of the Third Reich.
  - Speer was named Head of the project in 1937.
  - Plans included an Arc de Triomphe 3x larger than Pomo's, as well as the clearance of about 52,000 people.
- Speer designed the New Reich Chancellery.
  - Shiny, polished marble floors were designed to make foreigners feel sick at Hitler's feet.
  - Speer was efficient (built the Chancellery in 12 months).
WORK AS ARMAMENTS MINISTER:

- Speer became Minister of Armaments in 1942 after the sudden (surprising?) death of Fritz Todt.
- Unified the industry through a Central Planning Board as well as a system of committees for different weapons and materials.
- Spear: "The most important war economy measure of all"
- Factories ran virtually around the clock.
- Lack of workers = slave/fixed labor.
- 27%. ↑ in gun production; 97%. ↑ in ammunition production; and 25%. ↑ in tank production (Koppel).
- Hitler and Speer began to disagree (Chorens, production, 'Schwerdtfeld'.
- At Nuremberg, Speer was charged with conspiracy, preparation of a war of aggression, war crimes, and crimes against humanity.

SIGNIFICANCE AND EVALUATION:

RELATIONSHIP WITH HITLER:

- Speer definitely admired Hitler.
  - To say "Here I was... totally insignificant in my own eyes, sitting next to him... I was awed with excitement."
- Ioachim Fest believes that Speer also was admired by Hitler, as the first to be asked to live near him in the Berghof.
  - Hitler referred to Speer as a "genius."
- Towards the end of the war, Speer began to break off the relationship.
  - Speer wanted to use women in factories.
  - Speer wanted production to be better suited to the needs of the Army. "Hitler rejected Speer's design for the Panther Light Tank and Speer disagreed with the amount of research Hitler put into developing an all-weather weapon such as the V2 Rocket"
ANTI SEMITIC ACTIVITIES IN RELATION TO 'GERMANIA':

- The 'Germania Project' involved clearing 52,000 Jews in Berlin, most of these Jews were in Jewish districts.
- Speer was Head of the Main Resettlement Division (he moved Anger whose homes had been demolished into the houses of Jews).
- The office chronicled entitled pages related to Speer's approval of the resettlement of 75,000 Jews in Berlin.

USE AND ABUSE OF FORCED LABOUR:

- In August 1942 Hitler ordered Speer to obtain labourers from occupied overseas territories.
  - 1944: 32,000 at the Krupp factory in Auevitz.
- From September 1942 Concentration Camp prisoners were employed by the Ministry of Armaments.
- Russian POWs were used from 1943.
- In 1944 Dora Concentration Camp prisoners were used underground due to air raids.
  - For every V2 rocket produced, six men died (Chappell).
- Speer argued to Göring that he wanted conditions improved to increase efficiency.
- Speer visited Dora (Chappell).
- Speer was busy at Nuremberg for the use of forced labour.

KNOWLEDGE OF AND LINKS WITH CONCENTRATION CAMPS:

- Speer visited the Mauthausen camp in Austria in 1943 (as recorded in a letter to Himmler); this was not an extermination camp.
- Was Speer present at the Rosen Conference in 1943, he actively spoke at the evening session?
- In 1944 Speer received a letter from Himmler.
  - (to Speer) "He advised me never to accept an invitation to inspect a concentration camp in Upper Silesia ... I did not want to know what was happening there."
  - Speer (1979) "[Himmler] said that it was a secret which we had to hide with us to the grave.
  - Von der Vest believes the use of "we" implies Speer's presence/knowledge.
REACTION TO HITLER’S ‘SCORCHED EARTH’ POLICY:

- Speer acted against the policy of destroying all of the German infrastructure.

- Nethers (1998) “Speer’s determination to thwart the destruction of German industry was motivated partly by a genuine concern for the future of the German people and partly, no doubt, by an attempt to rehabilitate himself in the eyes of German’s conquerors.”

- Van der Val (1995) “His overseeing eye was fully engaged in a campaign for the preservation of Albert Speer.”

SIGNIFICANCE OF SPEER’S WORK AS MINISTER OF ARMS AND MASTERS FOR THE GERMAN WAR EFFORT:

- Speer prolonged the war for Germany.

- Speer’s actions resulted in a production and the establishment of a war economy like that of Britain and the USA (who already had 24 hour factories)

- Van der Val argued that he was not very significant as production began at very low levels (ie before Speer had power)

EVALUATION:

- Be good Nazi is too-prayed
  - A real Nazi, or someone who is good at being a Nazi

- "An innate but gifted young man caught up in the prejudices and mores of his day." —Kest

- "Speer was not an absent-minded, eye-sent, erstwhile non-expert of Nazi anti-Semitism but an active participant.” — Van der Val

- Speer’s cross examination with Justice Jutten made no mention of the Jew state, accepted that Hekel was responsible.
  - Were the Atheist after one good Nazi?"
<table>
<thead>
<tr>
<th>Word list- Blueprint of Life</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Adaptive radiation</td>
<td>The development of many different forms from an originally homogenous group of organisms as they fill different ecological niches. The evident effects of natural selection on organisms results in them diversifying over time, e.g. natural selection and Darwin's finches. The best suited genes become more frequent in the species population. Over time the same species can diversify into other species; each trying to be as adaptive as possible in their environment. Term was investigated by Darwin.</td>
</tr>
</tbody>
</table>
| Allele                      | One member of a pair of genes occupying a specific spot on a chromosome (called locus) that controls the same trait.  
E.g. A pair of alleles controlling the same trait, i.e. eye colour: one allele codes for blue eyes, another allele for brown eyes. |
| Archaeopteryx               | A fossil bird of the Jurassic period which has a long tail of many vertebrae with feathers along each side, and jaws armed with teeth, with other reptilian characteristics. |
| Artificial Insemination     | The introduction of semen into the vagina other than by coitus (sex). The occurrence where the sperm mother cell fuses with the mother egg cell in fertilisation |
| Biochemistry                | 1. The organic chemistry of compounds and processes occurring in organisms.  
2. The effort to understand biology within the context of chemistry.  
3. The study of metabolic pathways and in general, the chemistry of organisms  
4. The scientific study of the chemistry of living cells, tissues, organs and organisms |
| Biodiversity                | The existence of a wide range of different types of organisms in a given place at a given time. The diversity of plant and animal life in a particular habitat. |
| Biogeography                | The study of the distribution of different species of organisms around the planet and the factors that influenced that distribution |
| Chromosome                  | A threadlike linear strand of DNA bonded to various proteins in the nucleus of eukaryotic cells, or as a circular strand of DNA (or RNA in some viruses) in the cytoplasm of prokaryotes and in the mitochondrion and chloroplast of certain eukaryotes. |
| Cloning                     | The process whereby clones are established asexually, where cells are genetically identical, to a single ancestor. |
| Co-dominance                | A condition in which the alleles of a gene pair in a heterozygote are fully expressed thereby resulting in offspring with a phenotype that is neither dominant nor recessive |
| Comparative Anatomy         | The comparative study of animal structure with regard to homologous organs or parts |
| Comparative Embryology      | The comparative study of the embryo and its development from a single cell zygote (fertilised ovum) to the establishment of form and shape. Studies the formation and early development of living organisms. The study of embryos and related factors. |
| Convergent evolution        | A kind of evolution where in organisms evolve structures that have similar structures or functions in spite of their evolutionary ancestors being different |
| Crick                       | Francis Crick → English biologist born in 1916 who was one of the 3 people to win the Noble Prize in 1962 for the category of physiology |
Blueprint of Life

1. Evidence of evolution suggests that the mechanisms of inheritance, accompanied by selection allow change over many generations

Plan, choose equipment or resources and perform a firsthand investigation to model natural selection

AIM:
To model the process of natural selection

PROCEDURE:
1. Work in small groups. Count and record the number and colour (type) of lollies in your group
2. Each group member should take one lolly
3. Count and record the number and type of lollies that remain. Record your results in a table.
4. Repeat steps 2 and 3 until each member has taken 6 lollies

RESULTS:

CONCLUSION:
After each person had their selection of lollies the percentage for each brand of lolly changed. Overall, the Fantails were the most popular and the Minties were left with the greatest population. Therefore, the Minties as a ‘species’ would survive and reproduce.

DISCUSSION QUESTIONS:

- What does selection of the lolly by each person represent?
As each person selects a lolly, it represents a predator choosing its prey.

- Explain how this is a simple model of natural selection
This models natural selection as it shows that the lollies that were least selected would have ‘favourable characteristics’ and therefore be able to survive and reproduce.

DOT POINT ANSWER:

To model natural selection we used a 50x50cm quadrant of artificial grass and a selection of different coloured toothpicks (red, green, blue, yellow, purple). Ten toothpicks of each colour were randomly scattered on the quadrant. Using tongs, we had to pick up as many toothpicks as we could in 30 seconds. The results were recorded in a table. The experiment was repeated 6 times and the average number of each colour picked was calculated. An analysis of results showed that green toothpicks were least chosen. This models natural selection as it shows the green camouflage would be a ‘favourable characteristic’ and over time there would be greater numbers of ‘green toothpicks’ in the population. An example for this model would be natural selection favouring green caterpillars on green grass.
Outline the impact on the evolution of plants and animals of:

- Changes in physical conditions in the environment
- Changes in chemical conditions in the environment
- Competition for resources

Environmental Change and Competition

- Abiotic (non-living) environment includes:
  - Physical conditions: Temperature, availability of water, light, wind, slope, tides
  - Chemical Conditions: Presence/absence of gases, pH, salt concentration

- Environmental change → sources become limited → competition between organisms
- Change in environment of a population influences evolution because it results in selective pressures including:
  - Environmental change
  - Competition
  - Predation
  - Disease
- Survivors pass on genes to next generation

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An individual does not develop an adaptation in response to environmental change-the organism already possesses the random variation that gives it an advantage. The variation is therefore called an adaptation.

Chemical and Physical Changes in the environment

- Responsible for evolution of organisms
- Biological (living) factors may also influence evolution. E.g. humans and hunting

<table>
<thead>
<tr>
<th>Macro Evolution</th>
<th>Micro Evolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over millions of years</td>
<td>Over shorter periods of time</td>
</tr>
<tr>
<td>Results in arising of new species</td>
<td>Results in changes within populations</td>
</tr>
<tr>
<td>E.g. evolution of the red wolf, jackal</td>
<td>Does not produce new species but rather</td>
</tr>
<tr>
<td>and dog from a common ancestor</td>
<td>variants or races</td>
</tr>
<tr>
<td></td>
<td>E.g. different breeds of dogs which all</td>
</tr>
<tr>
<td></td>
<td>belong to the same species</td>
</tr>
<tr>
<td>Physical Changes in the environment</td>
<td>Chemical Changes in the environment</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>Change in Australian Environment</td>
<td>Macro Evolution</td>
</tr>
<tr>
<td>Cool &amp; wet ➔ hot &amp; dry</td>
<td>First life forms lived in an anoxic environment</td>
</tr>
<tr>
<td>Affects change in vegetation</td>
<td>Primitive life forms developed CO₂</td>
</tr>
<tr>
<td>'s. change in animal life</td>
<td>Plants began to use CO₂ in metabolism and produce O₂ as a by-product</td>
</tr>
<tr>
<td>E.g. extinction of mega fauna and development of smaller marsupials</td>
<td>Increased O₂ levels in environment led to aerobic organisms (could use oxygen in respiration)</td>
</tr>
<tr>
<td>Lakes drying up</td>
<td>As aerobic respiration generates more energy, organisms grew larger, more complex ➔ diversity</td>
</tr>
<tr>
<td>Leading to evolution of plants/animals that can conserve water (e.g. water holding frog)</td>
<td></td>
</tr>
<tr>
<td>Fire</td>
<td></td>
</tr>
<tr>
<td>Survival of fire resistant organisms</td>
<td></td>
</tr>
<tr>
<td>Dust clouds (from meteorite on Earth)</td>
<td></td>
</tr>
<tr>
<td>May have reduced light leading to a lack of food for dinosaurs: ➔ extinction</td>
<td></td>
</tr>
<tr>
<td>Change in temperature, rainfall, landforms</td>
<td></td>
</tr>
</tbody>
</table>

![Diagram](image)
Analyse information from secondary sources to prepare a case study to show how an environmental change can lead to changes in a species

1. Snow gums and clines: the altitude at which trees grow have effected their height
2. Eucalypt trees grow all over Australia and come in all shapes and sizes. One of the toughest of these is the Snow gum, which grows on the higher areas of the Australian Alps. At lower altitudes these trees can be tall with straight trunks, but at the highest altitudes the trees are smaller and are usually twisted into shapes by the wind and elements. The bark can be very colourful, especially after rain, and in winter the trees can be covered in large amounts of snow and ice.

3.

![Snow gum at high altitude](image1)

![Snow gum at low altitude](image2)

4. The higher up, the higher the altitude. As the altitude that the plant is growing changes, the growth pattern of the plant itself is also altered. The higher in altitude the tree grows the wider and more twisted the plant is where as in low altitudes the Snow gum is seen to be tall and straight.

5. Physical change has occurred as the shape of the plant is physically changing due to different elevations. This is evident through its image and different growth structure in high and low altitudes

6. Altitude is the selective pressure acting on the organism as a result of the change. Altitude is the height of an object or point in relation to sea level or ground level.

7. Due to the increase in altitude up a mountain, structure of the snow gum changes.

8. Micro evolution
### Comparative Embryology

| Vertebrate embryos all have tails and | Supporting development and similar in their embryonic stage. Species that are related will be similar in their development. Studies of embryo development are important for understanding evolutionary relationships. |
| Relationships between the groups of vertebrates and land mammals show these groups had a common ancestor. The pentadactyl limb is found in all vertebrates. |

### Anatomy

| The study of similarities and differences in the structure of living things and the study of similarities and differences in the structure of isolated individuals must become a group of biologists to arise, a group of biologists. |
| Rhythms in South America. Orthoceras in South America. Kips. NZ. |
| Flightless birds (flightless) and Flightless birds (flightless) |

### Biogeography

| The study of the biogeographical distribution of both living and extinct organisms. |
| Examples that have been considered. |
| Transitions forms are not reliable. Some organisms may not be known as transitional forms. For some organisms there exist forms preserved in rock. |

### Paleontology

| Evidence of fossil remains in rock. |
| Rhythms of fossil remains. |
| Triassic fossils. |
| The deeper the rock, the older the evidence.
Biochemistry

The study of chemicals found in cells. Molecules and how they react. Comparing chemicals in body (blood, protein, DNA). Comparing the sequence of amino acids in a protein or nucleotide in DNA can show how closely related organisms are.

Technological developments (DNA hybridisation) and analysis of amino acid sequencing has increased ability to compare the molecular structure of different organisms.

Some changes in DNA amino acid sequences may not be identified if a particular change that occurred in the past has gone back to its original form in a more recent organism. Techniques are complex, expensive and rely on highly specialised technology (computers). Can only be performed in high technology laboratories.

DNA Hybridisation: 2 strands of DNA split and joined together, where they don’t join up is where there are differences.

Amino Sequencing: Proteins found in a wide range of organisms (Cytochrome c: respiratory chemical) is studied. Sequences of amino acids are analysed. Similarities show a shared ancestor. Differences show change.

---

2. Fossil Transition - The Horse

Small animals became much smaller. 4 toes to 3 toes, modern day horse has 1 toe. Narrow cheek span to large cheek span.

---

1. Fossil Transition - Crossopterygian Fish (lobe finned fish)

Bones in fins. Could drag selves onto land. Amphibians possibly arose from this line.
3. Archaeopteryx
Thought that it is a common ancestor for reptiles and birds and that they may have evolved from it
Bird like features: feathers, wishbone, keel bone for attachment of flight muscles
Reptilian features: teeth in beak, bones in tail, claws on forelimbs

5. Homologous structures
Pentadactyl limb

Pentadactyl limb means 5 digits
Similarities in structure show a common ancestor
Differences suggest evolution has occurred (original plan has been modified and variation allows limb to be used more efficiently in environment)
8. Amino Sequencing

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>1</td>
<td>0</td>
<td>9</td>
<td>8</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>11</td>
<td>10</td>
<td>6</td>
<td>0</td>
<td></td>
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<td>14</td>
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<td></td>
<td></td>
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<td></td>
<td>21</td>
<td>21</td>
<td>17</td>
<td>17</td>
<td>26</td>
<td>0</td>
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</tr>
<tr>
<td></td>
<td>31</td>
<td>30</td>
<td>26</td>
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<td>31</td>
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<td>0</td>
<td></td>
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<tr>
<td></td>
<td>45</td>
<td>45</td>
<td>46</td>
<td>47</td>
<td>47</td>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A Human
B Rhesus monkey
C Rabbit
D Duck
E Rattlesnake
F Tuna
G Moth
H Yeast

6. Embryotic development

7. DNA Hybridisation

- DNA from species 1
- DNA from species 2
- Hybrid (mixed) DNA molecule
- Heat is applied to the molecules to separate each into two single strands
- Separated strands of DNA from the two species are mixed
- Heat is applied again and the temperature required to separate them indicates how closely they are related. Higher temperature means more closely related (83.6°C for human and chimpanzee DNA).
Perform a firsthand investigation or gather information from secondary sources to observe, analyse and compare the structure of a range of vertebrate forelimbs  (coloured pentadactyl limb page)

<table>
<thead>
<tr>
<th>Function</th>
<th>Bone 10</th>
<th>Bone 9</th>
<th>Bone 8</th>
<th>Bone 7</th>
<th>Bones 1-6</th>
<th>Differences</th>
<th>Similarity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mole</td>
<td>Digging</td>
<td>Medium length</td>
<td>Long Fat</td>
<td>Medium length</td>
<td>Short Fat</td>
<td>Short and fat for strength when digging</td>
<td>Pentadactyl limb Carpals are short and fat</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Curved</td>
<td></td>
<td>Slightly</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Flat</td>
<td></td>
<td>concave Fat</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bat</td>
<td>Flying</td>
<td>Long</td>
<td>Long Very Thin</td>
<td>Short Thin</td>
<td>Short</td>
<td>Phalanges are elongated so there is a bigger surface for the wing</td>
<td>Pentadactyl limb</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Thin</td>
<td></td>
<td>Thin Curved</td>
<td>Thin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Human</td>
<td>Grasping</td>
<td>Long</td>
<td>Long</td>
<td>Long</td>
<td>Short</td>
<td>Long and thin, individual to grasp</td>
<td>Very similar</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Thick</td>
<td>Thin</td>
<td>Thin Curved</td>
<td>Flat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whale</td>
<td>Swimming</td>
<td>Short Fat/ wide</td>
<td>Short Wide</td>
<td>Short Wide/ fat</td>
<td>Very short</td>
<td>Short and thick to move through viscous water</td>
<td>Pentadactyl limb Carpals are short and fat</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Wide</td>
<td>Wide/ fat</td>
<td>Wide</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Horse</td>
<td>Running</td>
<td>Medium length</td>
<td>Short Thick</td>
<td>Long medium</td>
<td>Small</td>
<td>Only 1 digit as over time digits have combined.</td>
<td>Carpels are short and fat</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Concave</td>
<td></td>
<td>thickness</td>
<td>Short</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Large at ends</td>
<td></td>
<td>Short Fat</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Thick</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bird</td>
<td>Flying</td>
<td>Long</td>
<td>Long</td>
<td>Short Fat</td>
<td>1,2,3=</td>
<td>Carpals are different, less digits that are very short</td>
<td>Pentadactyl limb</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Thin Concave</td>
<td>Thin</td>
<td>Fat Rounded</td>
<td>short, small,</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>medium thickness.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6= short but longer than 1,2,3, thick</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This comparison of vertebrate forelimbs shows homology and the same basic pentadactyl limb structure.
1. Indicators were identified with the observation the color of some flowers depends on soil composition

Classify common substances are acidic basic or neutral

<table>
<thead>
<tr>
<th>Acidic</th>
<th>Basic</th>
<th>Neutral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vinegar</td>
<td>ammonia</td>
<td>water</td>
</tr>
<tr>
<td>Lemon juice</td>
<td>washing soda</td>
<td>sugar</td>
</tr>
<tr>
<td>Soda water</td>
<td>antacid</td>
<td>salt</td>
</tr>
<tr>
<td>Vitamin C (absorbic acid)</td>
<td>oven cleaner</td>
<td></td>
</tr>
</tbody>
</table>

Identify indicators such as litmus, phenolphthalein, methyl orange and bromothymol blue can be used to determine the acid or basic nature of a material over a range and that that range is determined by the colour

- Litmus: red in acid, blue in base
- Phenolphthalein: pink in slightly basic, colourless in pH <8
- Universal: ROYGBIV (red, orange, yellow, green, blue, indigo, violet)
- Bromothymol blue: acid=yellow, base=blue
Identify and describe some everyday uses of indicators including testing soils (5)

- Monitoring water into waterways (photographic film)
- Testing soil (hydrangeas, vegetables (basic/netural) used widely for testing soils in nurseries
- Testing pool water: as no to irritate skin and eyes= need to be approx neutral
- Pregnancy tests
- Aquariums and fish tanks

**Natural Indicators Practical**

**Aim:** To extract and prepare a natural indicator

**Method:**
1. Gather a selection of natural indicators such as various flowers and tea
2. Prepare the indicators by grinding them in a mortar and pestle
3. Add alcohol and sand to assist with the breaking down of the organic matter
4. Decant into a test tube and label
5. Begin testing the indicators against water (neutral), hydrochloric acid (strong acid), acetic acid (weak acid), Sodium hydroxide (strong base) and ammonium (weak base)
6. Record the before and after results of the colour of the indicators including changes if any.
7. Then, from prior results determine most effective indicator to determine whether unknown substances are acidic, basic or neutral
<table>
<thead>
<tr>
<th>Natural Indicator + Original Colour</th>
<th>Acetic Acid</th>
<th>Hydrochloric acid</th>
<th>Sodium hydroxide</th>
<th>Ammonium</th>
<th>Water</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tea (Brown)</td>
<td>-</td>
<td>-</td>
<td>Darker brown</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Rosehip Tea</td>
<td>-</td>
<td>-</td>
<td>Slightly darker red</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Curry Powder</td>
<td>-</td>
<td>-</td>
<td>Darker orange/brown</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Azalea (pink)</td>
<td>Pink</td>
<td>Pink</td>
<td>Light pink</td>
<td>Green</td>
<td>Light pink</td>
</tr>
<tr>
<td>Red rose</td>
<td>Pink</td>
<td>Pink</td>
<td>Green</td>
<td>Green</td>
<td>Clear</td>
</tr>
<tr>
<td>Yellow Rose (yellow)</td>
<td>Yellow separated in a layer on top</td>
<td>Same as acetic</td>
<td>Darker yellow</td>
<td>Pale yellow</td>
<td>Pale yellow</td>
</tr>
<tr>
<td>Red Cabbage (purple)</td>
<td>Light pink/purple</td>
<td>Dark pink magenta</td>
<td>Green/emerald</td>
<td>Light purple</td>
<td>Light purple</td>
</tr>
</tbody>
</table>

Results of adding cabbage juice to solutions of different pH values:

Acidic pH below 7
- Acidic acid
- pH 7
- pH 8-9
- pH 10-11
- pH 11-13
- Distilled water
- Sodium bicarbonate
- Ammonia

Conclusion: Cabbage and flower petals can be used successfully as natural indicators.

Discussion: Red cabbage was the most effective natural indicator. It was able to indicate not only acids and bases, but also the strength of the acids and bases by changing colour. For example, the red cabbage was light purple in ammonium (the weak base) but emerald green in NaOH (the strong base). This shows the strength of the different substances. It allows more a more specific classification through a range of colours such as pinks, greens and yellows. This wide colour range proves very effective in determining the strength of each solution.

2. While we usually think of the air around us as neutral, the atmosphere contains acidic oxides of carbon, nitrogen and sulfur, the concentrations of these acidic oxides have been increasing since the Industrial Revolution.

Identify oxides of non-metals which act as acids and describe the conditions under which they act as acids.
Acidic Oxides

- normally non-metals
- Na₂O
- React with H₂O
- React with base to form salt

Basic Oxides

- Normally metals
- SO₂, CO₂
- React with acids to form salts
- Don’t react with alkali solutions (NaOH or KOH)

Analyse the position of these non-metals in the periodic table and outline the relationship

between position and acidity and basicity of oxides

Acidic oxides are generally covalent compounds and tend to be to the top right side of the table

Basic oxides are generally ionic compounds and lie to the left.

Define Le Chateller’s Principle
"When a CHANGE is introduced into a CLOSED SYSTEM AT EQUILIBRIUM the system will ADJUST to try to MINIMISE the change"

Identify factors that can affect the equilibrium in a reversible reaction (4)

- Concentration
- Volumes
- Pressure
- Temperature

Note: catalysts alter the time taken to reach equilibrium, not the equilibrium position itself

<table>
<thead>
<tr>
<th>Concentration</th>
<th>Temperature</th>
<th>Pressure/Volumes</th>
</tr>
</thead>
<tbody>
<tr>
<td>↑ concentration of reactants = favours forward</td>
<td>↑ concentration of products = favours reverse</td>
<td>Endo: will shift to right if temp raise</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Exo: will shift to left if temp raised</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Increase pressure on left, shifts to right</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ratio should be 1:1</td>
</tr>
</tbody>
</table>

Describe the solubility of carbon dioxide in water under various conditions as an equilibrium process and explain in terms of Le Chatelier's principle

From air, CO₂ dissolves sparingly in water:

\[ CO_2(g) \rightleftharpoons CO_2(aq) \]

As temperature increases, CO₂ less soluble and is released back into the atmosphere.

We can illustrate the three ways of disturbing an equilibrium with our CO₂, H₂O, CO₃⁻ reaction:

1. If the pressure of CO₂ is increased (for example, by pumping more CO₂ into the reaction vessel), the equilibrium moves to the left, driving the system towards the reactants to counteract the increase in pressure. We say that the equilibrium, Equation 4.6, moves to the left.
2. If the temperature of the reaction is increased (for example, by heating the solution), the equilibrium moves to the right, driving the system towards the products to counteract the increase in temperature. We say that the equilibrium, Equation 4.6, moves to the right.
3. If the concentration of CO₂ is decreased (for example, by removing CO₂ from the solution), the equilibrium moves to the left, driving the system towards the reactants to counteract the decrease in concentration. We say that the equilibrium, Equation 4.6, moves to the left.

In Figure 4.4(d), in order to maintain a constant pressure we need to draw the piston back as CO₂ came out of solution.
Identify natural and industrial sources of sulfur dioxide and oxides of nitrogen

<table>
<thead>
<tr>
<th>( \text{NO}_2 )</th>
<th>( \text{SO}_2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Manmade</strong></td>
<td><strong>Manmade:</strong> combustion of fossil fuels and smelting of metals</td>
</tr>
</tbody>
</table>

Health effects and Environmental effects:

<table>
<thead>
<tr>
<th><strong>Sulfur Dioxide</strong></th>
<th><strong>2NO₂</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Health Effects</strong></td>
<td><strong>Environmental Effects</strong></td>
</tr>
<tr>
<td>○ Respiratory system</td>
<td>Acid Rain: ( 2\text{SO}_2 + \text{O}_2 \rightarrow 2\text{SO}_3 )  ( \text{H}_2\text{O} + \text{SO}_3 \rightarrow \text{H}_2\text{SO}_4 )</td>
</tr>
<tr>
<td>○ Breathing difficulties</td>
<td>Acid Rain: ( 2\text{NO}_2 + \text{H}_2\text{O} \rightarrow \text{HNO}_2 + \text{HNO}_3 )</td>
</tr>
<tr>
<td>○ Impact on people with asthma or emphysema</td>
<td>○ Photochemical smog is visually unattractive and health hazard</td>
</tr>
<tr>
<td>○ Aged people: v. bad</td>
<td></td>
</tr>
</tbody>
</table>

Describe, using equations, examples of chemical reactions which release sulfur dioxide and nitrogen oxides

\[
\text{Acid Rain:} \\
2\text{SO}_2 + \text{O}_2 \rightarrow 2\text{SO}_3 \\
\text{H}_2\text{O} + \text{SO}_3 \rightarrow \text{H}_2\text{SO}_4
\]

\[
\text{Acid Rain:} \\
2\text{NO}_2 + \text{H}_2\text{O} \rightarrow \text{HNO}_2 + \text{HNO}_3
\]

Assess the evidence which indicates increases in atmospheric concentration of oxides of sulfur and nitrogen

- No significant build up as \( \text{SO}_2 \) and \( \text{NO}_2 \) are washed out by rain
- However, significant increases of \( \text{CO}_2 \) and nitrous oxide
- \( \text{CO}_2 \) increased 30% over last 150 years
- Nitrous oxide increased 15% over last 150 years
- Difficult to be sure about \( \text{SO}_2 \) and \( \text{NO}_2 \) as there is limited data prior to 1950
  - Evidence which does suggest increase is: trapped air bubbles in Antarctic, increasing occurrence of acid rain and more cities with photochemical smog

Calculating gas volumes
<table>
<thead>
<tr>
<th>PRIDE AND PREJUDICE</th>
<th>WELDON</th>
</tr>
</thead>
<tbody>
<tr>
<td>MARRIAGE</td>
<td></td>
</tr>
<tr>
<td>1. It is a truth universally acknowledged...</td>
<td>1. “Here rich land owners import Asian girls as wives”</td>
</tr>
<tr>
<td>2. “happiness in marriage is entirely a matter of chance”</td>
<td>2. “The record of Western marriage is not so hot”</td>
</tr>
<tr>
<td>3. “Are you out of your senses to be accepting this man...I love him”</td>
<td>3. “Elizabeth should marry for love...”</td>
</tr>
<tr>
<td>4. “The business of her life is to get her daughters married...”</td>
<td>4. Elizabeth brought neither land nor money to Darcy—but she bought intelligence, vigour and honesty”</td>
</tr>
<tr>
<td>WOMEN AND INDEPENDENCE</td>
<td></td>
</tr>
<tr>
<td>1. “Miss Lizzy, if you take into your head to go on refusing every offer of marriage in this way, you will never get a husband”</td>
<td>1. “with your green and black hair! You have no idea how the world has changed in forty years”</td>
</tr>
<tr>
<td>2. “A young woman without family, connections of fortune” and “Obstinate headstrong girl”</td>
<td>2. “That’s the point, you can have your own view on everything”</td>
</tr>
<tr>
<td>3. “walking was her only alternative”</td>
<td>3. “Do it yourself”</td>
</tr>
<tr>
<td>4. “What painter could do justice to those beautiful eyes?”</td>
<td>4. “male whims taking priority, then as now, over female happiness”</td>
</tr>
<tr>
<td>5. “Worry less about what people think of you, and more of what you think of them” (Weldon champions personal autonomy)</td>
<td>5. “Worry less about what people think of you, and more of what you think of them” (Weldon champions personal autonomy)</td>
</tr>
<tr>
<td>NOTE: her championing of the female, her travel reveals her autonomy, she draws upon Austen’s reaction</td>
<td></td>
</tr>
<tr>
<td>READING AND WRITING</td>
<td></td>
</tr>
<tr>
<td>1. “I declare after all there is no enjoyment like reading!”</td>
<td>1. “Daisy Ashford’s Young Visitors...dip into Satre”</td>
</tr>
<tr>
<td>2. &quot;a most negligent and dilatory correspondent.</td>
<td>2. “The really good builders...refresh and enlighten the reader”</td>
</tr>
<tr>
<td>3. “something more substantial, the improvement of her mind, by extensive reading...”</td>
<td>3. “You see, the born novelist. She is raising invention above description”</td>
</tr>
<tr>
<td>4. Miss Bingley’s attention was quite as much engaged in watching Mr. Darcy’s progress through his book, as in reading her own; and she was perpetually either making some inquiry, or looking at his page.”</td>
<td>4. “Man, and especially woman, does not live by bread alone: he has to have books”</td>
</tr>
<tr>
<td>5. “The writer writes out of a society...linking the past of that society, with its future”</td>
<td>5. “The writer writes out of a society...linking the past of that society, with its future”</td>
</tr>
<tr>
<td>6. “Women should not invent, but only describe what they know”</td>
<td>6. “Women should not invent, but only describe what they know”</td>
</tr>
<tr>
<td>EDUCATION: MORAL EDUCATION</td>
<td></td>
</tr>
<tr>
<td>1. “His manners, though well bred, were not inviting” (opposing conjunctions)</td>
<td>1. “Subversive reading, with its lessons in moral refinement”</td>
</tr>
<tr>
<td>2. He was the proudest, most disagreeable man in the world...” and “How despicably I have acted!”</td>
<td>2. “To be able to visit the City of Invention at Will...that is all, really, education is about, should be about”</td>
</tr>
<tr>
<td>3. “Mary wished to say something very sensible, but knew not how”</td>
<td>3. “I still maintain, that it better to read than not to read”</td>
</tr>
<tr>
<td>4. “Tolerable I suppose, but not handsome enough to tempt me”</td>
<td></td>
</tr>
<tr>
<td>STYLISTIC FEATURES</td>
<td></td>
</tr>
<tr>
<td>1. “it is a truth universally...”</td>
<td>1. “The writer writes out of a society...linking the past of that society, with its future”</td>
</tr>
<tr>
<td>2. “illiberally minded” = Mrs Bennet: use of caricature</td>
<td>2. “Jane Austen likes to see the division between nobility and gentry broken down”</td>
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<tr>
<td>3. “Tolerable I suppose, but not handsome enough to tempt me”</td>
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