Toynbee Curriculum
KS4 Knowledge Maps

PSYCHOLOGY

Toynbee School

Knowledge Map: Memory

This topic looks at the how memory works, it's accuracy and the factors that effect the quality of our recall.

Memory	Perception	Development	Research methods	Social influence	Language thought and communication	Brain and neuropsychology	Psychological problems

Multi-store model of memory	Murdock's serial position curve study	Reconstructive memory	Bartlett's 'war of the ghosts' study

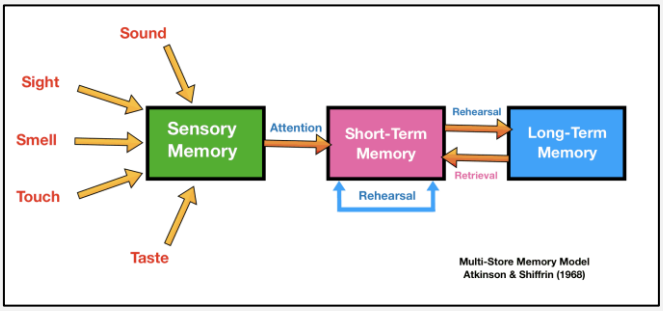
Processes of memory
Encoding, storage and retrieval

Encoding	Visual encoding
	Acoustic encoding
	Semantic encoding
	Other encoding (tactile, olfactory)
Storage	Declarative: Episodic memory
	Non-declarative: Semantic memory
	Non-declarative: Procedural memory
Retrieval	Recognition
	Cued recall
	Free recall

Declarative - conscious
Non-declarative – without consciousness

Brain scans	Brain scans (PET, fMRI) show that when memories are accessed blood flow is increased to specific areas. • Episodic memory – right prefrontal area • Semantic memory – left prefrontal area • Procedural memory – motor area
Reductionist	Some ideas are seen as reductionist – they oversimplify complex ideas.
Amnesia	Patients suffering from amnesia (such as Clive Wearing) show a link between damaged areas of the bran and they type of memories affected.

Structures of memory
Modelling to describe the process of memory



Supporting research	Baddeley's research on encoding and Murdock's serial position curve study supports the multi-store model.
Reductionist	Some ideas are seen as reductionist – they oversimplify complex ideas.
Artificial methods	Many studies that support the multi-store model use word lists which some see as not reflecting how memory is used in real life.

Memory as an active process
Reassembling memories during recall

Reconstructive memory	People rebuild memories as an active process.
Inaccurate	Memories are not an exact reproduction of experiences.
Reconstruction	A person records pieces of information which are then recombined.
Social and cultural influences	Storage and recall are affected by the world/culture we live in.
Effort after meaning	We focus on the meaning of events and make an effort to make sense of the fragments of memory.

Realistic	Using stories to test memory is far more reflective of real life.
Accuracy	Not all recall is inaccurate.
Application	Explains why eyewitness statements have been shown to show variation.

Factors affecting the accuracy of memory
How memories become more or less accurate

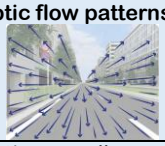
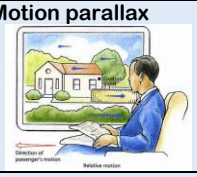
Interference Participants found it more difficult to remember a list of synonyms than a list of antonyms. Interference is caused by trying to recall two or more similar things (McGeoch and Donaldson, 1931)	**Information isn't forgotten** Participants have been able to recall information, previously thought forgotten, when given cues (Tulving and Psotka, 1971)
False memories 25% of participants recalled a false story as if it had really happened to them suggesting our memories are highly suggestable (Loftus and Pickrell, 1995)	**Ethical issues** Participants may be left with implanted false memories, causing distress. **Application** Implications for eyewitness statements and police questioning.
Context Participants who learn information in the same place it is then recalled show increase recall. The environment acts as a cue (Godden and Baddeley, 1975)	**Artificial methods** Many studies use word lists which some see as not reflecting how memory is used in real life.

Knowledge Map: Perception

This topic looks at how we perceive the world around us and how that perception is affected by motivation, emotion, expectation, and expectation.

Gibson's direct theory	Gregory's constructivist theory	Gilchrist & Nesberg's study of motivation	Bruner & Minturn's study of expectation

Theories of perception
Nature vs. Nurture

Gibson's direct theory (Nature)	
Sensation and perception are the same	
Optic flow patterns 	When moving towards objects they remain stationary while everything else rushes past.
Motion parallax 	When moving objects in the distance appear to move slowly while objects that are closer appear to move more quickly.
Affordances	We instinctively know what an object is for. An objects use is afforded by its properties.

Gregory's constructivist theory (Nurture)	
Sensation and perception are not the same	
Construction	The brain uses incoming information (sensation) with previous knowledge/experience to guess what is happening.
Inference	The brain fills in gaps (or infers) to create a conclusion about what it has seen.
Visual cues	While Gibson's theory cannot explain visual illusion Gregory's theory explains that illusions occur when the brain makes an incorrect conclusion.
Experience	Perception is learned from experience. The more we interact the more sophisticated our perception.

Visual cues and constancies
Information used to navigate the world

Binocular depth cues	
Retinal disparity	Difference between the view of the left and right eye is more pronounced as an object becomes closer.
Convergence	Following an object as it comes closer causes our eyes to point closer together. This causes strain on muscles.

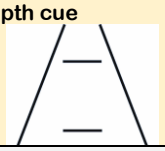
Constancies	Objects are the same even if we view it from different angles.

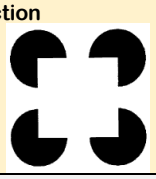
Monocular depth cues	
Height in plane	Objects that are further away appear higher up
Relative size	Objects that are further away appear smaller
Occlusion	Objects that are closer obscure objects that are further away
Linear perspective	Parallel lines such as roads, paths or rivers converge as they get further away.

Factors affecting perception
Perceptual set – the tendency for the brain to notice some things more, less or not at all.

Culture	Emotion	Motivation	Expectation
Social world we live in affects what our senses pick up.	The tendency for our brain to notice exciting things and block threatening or embarrassing things.	Wanting something increases our awareness to it.	Beliefs based on past experiences can affect how we perceive things.

Visual illusions
Why visual illusions occur

Explaining visual illusions	
Size consistency 	Objects perceived as constant size despite size on the retina changing with distance.
Misinterpreted depth cue 	Objects apparently in the distance scaled up by the brain to look normal size.

Explaining visual illusions	
Ambiguous figure 	Two possible interpretations of the image.
Fiction 	Illusionary contours cause us to see something that isn't there

Knowledge Map: Development

This topic looks at the development of the brain and how it effects our learning. We also look at learning techniques and there bases in science and psychology.

Memory	Perception	Development	Research methods	Social influence	Language thought and communication	Brain and neuropsychology	Psychological problems

Piaget's stage theory of cognitive development	McGarrigle and Donaldson's naughty teddy study	Hughes policeman doll study	Dweck's mind-set theory	Willingham's learning theory

Piaget's theory

Logical thinking matures in stages

Piaget's theory	
Changes in thinking over time. Children think differently to adults.	
Stages	Different kinds of thinking/ occur at each stage.
Schemas	Mental structures containing knowledge. Schemas become more detailed through assimilation and accommodation.
Assimilation	Adding new information to a schema.
Accommodation	New information that drastically changes a schema or a completely new schema.

Stages of cognitive development		
Sensorimotor	0-2	Learn to coordinate. Develop objet permanence.
Pre-operational	2-7	Cannot think logically. Egocentric and lack conservation.
Concrete operational	7-11	Develop conservation. Logical thinking about physical objects only.
Formal operational	11+	Draw logical conclusions about abstract concepts. Inferential reasoning.

Egocentric	Conservation
Seeing the world from your own point of view.	Although appearance changes quantity remains the same.

Application in education

Readiness	Discovery	Individual	Stages
Only teaching students when they are 'biologically ready'.	Children should play an active role. Teachers should challenge schemas.	Children go through the same stages at different rates.	Sensorimotor – stimulating environment Pre-operational – Discovery Concrete operational – Physical materials Formal operation – scientific experiments

Early brain development

How the brain develops in the womb

The brain – structure and function	
Brain stem	Highly developed at birth Connects the brain to the spinal cord Responsible for autonomic functions
Cerebellum	Matures much later Near the top of the spinal cord Co-ordinates sensory and motor
Thalamus	Deep inside the brain Receives and send signals around the brain.
Cortex	Very thin, pinkish grey, cover Thinking and processing Contains – visual, auditory, motor areas

Nature and Nurture	
Roles	Nature refers to inherited factors Nurture refers to environmental influences
Smoking	Leads to smaller brains if mother smokes during pregnancy
Infection	German measles during pregnancy leads to hearing loss
Voices	Babies learn to recognise mothers voice and in some cases particular stories

Effects of learning on development

What makes a person work hard and in what situation?

Praise	
<u>Positive effect of praise</u> Reward. Makes us feel good so behaviour is repeated.	<u>Internal motivation</u> Praise destroys internal motivation (Lepper) <u>Low self-efficacy</u> Stereotype threat lowers performance. Members of a subgroup effected by stereotypes underperform if reminded of subgroup (Steele and Aronson). <u>Application</u> Students criticised for effort performed better in test (Dweck)
<u>Praise effort</u> Praising effort enables control. Praising performance may be demotivating.	
<u>Self-efficacy</u> Understanding your own ability. Changes future success.	
<u>Motivation</u> High self-efficacy gives more effort, persistence, performance and resilience.	

Learning styles	
Verbaliser	Focus on words. Learn by reading, listening or talking.
Visualizer	Focus on spatial relationships. Learn by using diagrams, mind maps or graphs.
Kinaesthetic learners	Focus on active participation. Learn by making things, physical activities etc.

<u>Learning in the correct style should improve performance.</u>
There is no evidence that learning in the correct style improves performance.
There are now over 70 learning styles meaning it is impossible to match every learner with their exact style (Coffield).

Knowledge Map: Research Methods

This topic focuses on the design of psychological research and its analysis.

Memory	Perception	Development	Research methods	Social influence	Language thought and communication	Brain and neuropsychology	Psychological problems

Research design

How to design research which is valid, reliable and ethical.

Formulating a hypothesis	
Independent variable	Deliberately changed.
Dependent variable	What is measured.
Operationalisation	Making variables clearly defined and measurable.
Hypothesis	Clear testable statement DV + two levels of the IV.

Research procedures	
Standardised instructions	Giving the same information about the study to all participants.
Standardised procedures	Using the exact same methods and procedures for participants in research study, this controls EVs.
Randomisation	Using chance to control effects of bias when designing a study.

Extraneous variables
The only thing that should cause a change in the DV is the IV
Unwanted variables that could affect the DV. Then the change in the DV is due to EV not IV.

Ethical issues	
Informed consent	Participants should be told the purpose of the research and that they can leave at any time.
Deception	Participants should not be lied to or misled about aims. Mild deception can be justified.
Privacy	Participants have the right to control information about themselves.
Confidentiality	Personal data should be protected and respected.

Target population	Group being studied
Sample	Participants chosen from the target population

Sampling	
<u>Random sampling</u> Each person has equal chance of selection.	No bias as everyone has an equal chance of selection. Takes time as need list of all members of the target population.
<u>Opportunity sampling</u> Selecting people who are available.	Quick and therefore cheap because participants are already available. Only represents the population from which it has been drawn.
<u>Systematic sampling</u> Selecting every nth person from a list of the target population.	Avoids researcher bias. May end up as an unrepresentative sample.
<u>Stratified sample</u> Selecting participants in proportion to their frequency in target population.	Personal data should be protected and respected.

Dealing with ethical issues			
<u>BPS guidelines</u> A code of conduct all psychologist in the UK follow.	<u>Dealing with informed consent</u> Participants sign a form that tells them what is expected.	<u>Dealing with deception and protection from harm</u> Participants receive a full debrief to explain the true aims of study.	<u>Dealing with privacy and confidentiality</u> Participants should be anonymous (given numbers or referred to by initials.

Validity – real world
<u>Sampling methods</u> Representativeness low in opportunity sampling and high in stratified sampling.
<u>Experimental design</u> Repeated measures: Order effects challenge validity, overcome by counter balancing. Independent groups: participant variables challenge validity, overcome by random allocation.
<u>Quantitative methods</u> Laboratory experiments: Task, setting, participant awareness challenge validity. High control. Field experiments: Task and control challenge validity. More natural. Methods producing numerical data (e.g., questionnaires) lack validity as they reduce behaviour to a score.
<u>Qualitative methods</u> Case studies have greater validity as they give deeper insight into behaviour. Difficult to analyse, which reduces validity.

Reliability - consistency
<u>Quantitative methods</u> Tend to be the most reliable. Laboratory experiment: Controlled and easy to repeat. Interviews/questionnaires: Same person should answer same questions in the same way. Closed questions are more reliable. Observations: One observer should produce the same observations. Two observers need to establish interobserver reliability.
<u>Qualitative methods</u> Less reliable. Case studies and unstructured interviews are difficult to repeat in the same way.

Knowledge Map: Research Methods

This topic focuses on the design of psychological research and its analysis.

Memory	Perception	Development	Research methods	Social influence	Language thought and communication	Brain and neuropsychology	Psychological problems

Research methods

Quantitative data is data that can be counted. Qualitative is data that can be expressed in words.

Correlations – how things are linked together	
Co-variables	Correlations are quantitative-continuous numerical data.
Scatter diagram	A special graph used to plot correlation data. One co-variable on the x-axis another on y-axis.
Types of correlation	Positive: As one co-variable increases the other increases. Negative: As one co-variable increases the other decreases. Zero: No relationship between co-variables.

Strengths	Good starting point for research. Can be used to research variables that would be unethical.
Weaknesses	Don't show cause and effect. No control of extraneous variables so conclusion drawn may be wrong. May not take account of third variables.

Experiments	
<u>Laboratory</u> Experimenter has high control over what happens.	S – EV can be controlled, so cause and effect can be established. Use standardised procedures permits replication, can demonstrate validity.
	W – Behaviour in lab is less normal/natural so difficult to generalise. Participants may change their behaviour because aware of being watched.
<u>Field</u> Take place in a natural setting. IV manipulated by experimenter.	S – More realistic than lab experiments as they are conducted in a natural environment. Can use standardised procedures so some control.
	W – May lose control of EV's so difficult to show cause and effect. Ethical issues because participants may not be aware of study.
<u>Natural</u> Takes place in a natural or lab setting. IV is not changed by experimenter. It varies naturally.	S – May have high validity because real-world variables. Can standardised procedures so some control over EV's.
	W – Few opportunities to do this kind of research as behaviours may be rare. May be EV's because participants not randomly allocated to conditions.

Design	Evaluation
<u>Independent groups</u> Different groups of participants for each level of the IV. Control and experimenter groups.	S – Order effects are not a problem because participants only do experiments once.
	W – Different participants in each group. Participant variables can act as EVs.
<u>Repeated measures</u> All participants take in all levels of the IV.	S – No participant variables. Fewer participants needed, so less expensive.
	W – Order effects reduce validity, e.g. practice effect.
<u>Matched pairs</u> Participants tested on variables relevant to the study. Participants then matched and one member of each pair goes into each condition.	S – No order effects. Fewer participant variables.
	W – Takes time to match participants. Doesn't control all participant variables.

Observation
Natural/controlled. Natural: Record behaviour where it would normally occur. Controlled: Researcher manipulates aspects of environment.
Covert/Overt Covert: Participants not aware behaviour is being recorded Overt: Told in advance
Participant/Non-participant Participant: Researcher is part of the group Non-participant: Researcher remains separate
Categories of behaviour Target behaviour broken into separate observable categories.
Interobserver reliability Two observers should produce the same record of behaviour. Researchers watch at the same time and correlate data.
S – Greater validity because based on what people do. Real-life behaviour when participants not aware of being observed.
W – Ethical issues as can't gain consent if observing in a public place. Observer bias – Observers expectations affect validity.

Knowledge Map: Research Methods

This topic focuses on the design of psychological research and its analysis.

Interviews	Questionnaires	Case studies
<u>Structured interviews</u> Interviewer reads a list of preprepared questions. Can have prepared follow-up questions.	<u>Open and closed.</u> Open questions produce qualitative data. Closed questions have a fixed range of answers, e.g. rating scale or yes/no	<u>Qualitative</u> Collect information about people's experiences in words. May include quantitative data, e.g. IQ scores.
<u>Unstructured interviews</u> Some questions prepared before. New questions created depending on what interviewee says.		<u>Longitudinal</u> Often carried out over a long period so can see how behaviour changes. May also collect retroactive case history.
<u>Semi structured interviews</u> Some questions decided before, but follow-up questions emerge.		
<u>Strength</u> Produce a lot of information. Insight gained into thoughts and feelings. May be helpful if participants cannot read or write.	<u>Strength</u> Can gather information from many people. Easy to analyse as often use closed questions.	<u>Strength</u> Research lacks specific aims so researcher more open-minded. Best way of studying rare behaviours.
<u>Weaknesses</u> Data can be difficult to analyse. People feel uncomfortable talking face to face.	<u>Weaknesses</u> Social desirability bias. Questions may be leading, lack validity	<u>Weaknesses</u> Focus on one individual or event, so often can't be generalised. Subjective interpretation of events.

Data handling

The aim of research is to produce and then analyse data.

Data	
<u>Quantitative</u> Quantities (number) but can measure thoughts/feelings	Easy to analyse and draw conclusions. Lacks depth , not reflecting real-world complexity.
<u>Qualitative</u> Data in words but can be turned into numbers by counting themes.	More depth and detail. Difficult to analyse and summarise.
<u>Primary data</u> Data that as been obtained first hand.	Suits the aims of research, so more useful. It takes time and effort to collect.
<u>Secondary data</u> Second hand data from other studies or government statistics.	Easy and convenient to use, saving expense. It may not fit what the researcher s investigating.

Display
Scatter diagrams To display correlation. One co-variable on x-axis and the other on y-axis.
Frequency tables Frequency means the number of times it occurs. Frequency tables are a systematic way to organise data in rows and columns.
Frequency diagrams Histogram: continuous categories, no spaces between bars. Bar chart: Bars can be in any order.

Descriptive statistics	
<u>Range</u> Spread of data. Arrange data in order and subtract lowest from highest score.	Easy to calculate. Can be distorted by extreme scores.
<u>Mean</u> Mathematical average. Add up all scores and divide by the number of scores.	Uses all the data, so most sensitive measure. Can be distorted by extreme scores.
<u>Median</u> Middle value. Data put in order from lowest to highest.	Not effected by extreme scores. Less sensitive than the mean to variation in values.
<u>Mode</u> Most common score/s	Very easy to calculate. Can be unrepresentative.

Display
Normal distribution: Symmetrical spread forms a bell shape with mean, median and mode at peak.

Knowledge Map: Social influence

This topic looks at why social influence affects our behaviour how social factors and dispositional factors affect the likelihood of a change in our behaviour.

Memory	Perception	Development	Research methods	Social influence	Language thought and communication	Brain and neuropsychology	Psychological problems

Asch's study	Milgram's agency theory	Adorno's theory of the authoritarian personality	Piliavin's subway study

Conformity

Effect of real or unseen group pressure (majority influence)

Social Factors (Asch's study of conformity, 1956)
Group size The more people in a group the greater the pressure to conform. Asch found that with two confederates conformity to the wrong answer was 13.6%; with three it rose to 31.8%. Adding more had little difference.
Task When there is no obvious answer, there is no conformity until 8+ people.
Anonymity Conformity is lower if participant writes down answers rather than saying them aloud.
Stranger vs. Friend If participants are friends conformity rates are higher
Task difficulty If a task is harder, participants are more likely to conform.
Expertise People with more experience and ability are far less likely to be affected by task difficulty so will not conform (Lucas, 2006).

Dispositional factors
Personality High internal locus of control are likely to conform less (Burger, 1987).
Familiarity Locus of control is less important in familiar situations (Rotter, 1954).
Expertise People that are more knowledgeable conform less (Lucas, 2006).
Stranger vs. Friend Experts may conform in the presence of strangers, so the group accepts them (Lucas, 2006).

Obedience

Response to a direct order from an authority figure

Social Factors (Milgram's agency theory, 1974)
Agency Agentic state: following orders with no responsibility Autonomous state: Own free choice
Authority Agentic shift: moving from making own free choices to following orders, occurs when someone in authority gives an order.
Culture – Social hierarchy Some people have more authority than others do. Expertise, wealth, power, job, and position in the social hierarchy affect a person's authority.
Proximity Being closer to victims of a destructive order causes moral strain and reduces obedience.

Dispositional factors (Adorno's theory of the Authoritarian Personality, 1950)
Authoritarian personality Some people have a strong respect for authority and look down on people of lower status.
Cognitive style Prone to rigid stereotypes and do not like change.
Childhood Strict parents who give conditional love when behaviour is correct. Internalised values view everyone as the same.
Scapegoating (displacement) Hostility felt towards parents for being strict/critical. Displaced anger at other people especially those of lower status or position in social hierarchy.

Prosocial behaviour

Behaviour that is beneficial to other people

Social Factors (Piliavin's subway study, 1969)
Presence of others The more people present the less chance an individual will help.
Cost of helping Includes danger to self or embarrassment. Cost of not helping includes guilt or blame.
Situation In serious emergencies, response correlates to the severity of the situation (Faul et al., 2016).
Interpretation of the situation Married couples arguing cause 19% to intervene. Strangers arguing 85% intervene (Shotland and Straw, 1976)

Dispositional factors (Piliavin's subway study, 1969)
Similarity to victim Help is more likely if the victim is more similar to others.
Expertise People with specialist skills are more likely to help (Cramer et al, 1988).
Quality of help Some studies have shown that non-experts are no less likely to help. Experts do, however, give better quality of help (Shotland et al., 1985)

Crowd and collective behaviour

A large gathering of people who may behave differently

Social Factors
Deindividuation Taking on a group identity. Group norms determine crowd behaviour (Zimbardo, 1969).
Social loafing When working in a group people put in less effort as you cannot identify individual effort (Latane et al, 1979).
Culture Collectivist cultures do not put in less effort when in groups (Earley, 1987).
Crowding Being packed tightly together may increase anti-social behaviour (Freedman, 1975)

Dispositional factors
Personality Internal locus of control enables individuals to be less influenced by crowd behaviour.
Morality Strong sense of right and wrong helps resist pressure from group norms (The story of Sophie Scholl 1921-1943).

Knowledge Map: Language, thought and communication (1)

This topic looks at how individuals and cultures develop language and its impact on thought process. It also looks at key differences between animal and human communication.

Piaget's theory of language and thought	Sapir-Whorf hypothesis	Von Frisch's bee study	Yuki's study of emoticons

Our view of the world

Do words influence how you think about the world?

Recall of events	
Native Americans: Hopi Hopi don't distinguish between past, present, and future which affects the way they think about time.	Native Americans: Hopi Only one individual was studied
Memory of pictures Carmichael et al. discovered that the recall of pictures was severely affected by written labels.	Memory of pictures Studies that use ambiguous pictures, such as Carmichael's study, do not replicate real life.

Recognition of colours	
Native Americans: The Zuni Zuni have only one word for shades of orange and yellow. Brown and Lenneberg found that The Zuni had more difficulty in distinguishing those colours.	Native Americans: The Zuni Non-English speakers, such as The Zuni, may not fully understand the task.
Language and recall Roberson et al. found that the Berinmo people, who only have 5 words for colour, had difficulty recalling colours.	Language and recall Rosch and Oliver found that the Dani people had no problem matching colours despite only have 2 words for colour.

Human and animal communication

The exchange of information between animals of the same species

Animal communication
Survival Vocal signals – Vervet monkeys communicate danger with an alarm call. Visual signals – Rabbits lift their tails and pin their ears back to communicate danger. The behaviour enhances the survival of the individual and the group.
Reproduction Peacocks stretch out the feathers to communicate genetic fitness and suitability to breed.
Territory Rhinos leave piles of dung to communicate territorial boundaries.
Food Ants leave pheromone trails to communicate the path to a food source.

Human communication
Plan ahead Humans can communicate things that aren't present or haven't happened yet. Animals focus on the present.
Creativity Humans can combine any number of words and physical actions together to communicate any subject (open system). Animals have a closed system that can communicate limited subjects.
Multiple channels Humans can use multiple channels to communicate – spoken, written, sign language, social media etc. Animals use few channels or even a single channel.

Non-verbal communication

Without words

Eye contact	
When two people look at each other's eyes at the same time.	
Regulating flow of conversation Participants look away when they are about to speak and make eye contact when they are about to finish.	Application People with autism are taught to increase eye contact to improve social skills.
Signalling attraction Conway et al. found that people who make eye contact are judged as being more attractive.	Rating scales Rating attractiveness using a scale can be subjective.
Expressing emotion Adams and Kleck found that emotions are judged more intense if faces are looking straight at them.	

Body language	
Communication through unspoken movements and gestures.	
Posture Closed -crossing arms and legs-shows disagreement. Open - uncrossed-shows acceptance McGinley et al. found that arguments given by a person with an open posture are more likely to be accepted.	Application People can use body language to build good relationships.
Postural echo Tanner and Chartrand found that rated a new product more highly when its presenter copied their body language.	
Touch Fisher found that participants rated a librarian more favourably if the librarian touched their hands.	

Personal space	
The distance we keep between ourselves and others	
Cultural differences Sommer discovered that English peoples personal space ranges from 1.0-1.5m. Arabic peoples were less. Collet discovered that Arabic peoples like English people more if they stand closer.	Application Useful in everyday life – Doctors can use information to help deal with patients depending on culture or gender.
Gender differences Fisher and Bryne found that Women feel more uncomfortable if their space is invaded from the side. Males feel more uncomfortable if their space is invaded from the front.	
Status Zahn – People with similar status stand closer than those of unequal status.	

Knowledge Map: Language, thought and communication (2)

This topic looks at how individuals and cultures develop language and its impact on thought process. It also looks at key differences between animal and human communication.

Memory	Perception	Development	Research methods	Social influence	Language thought and communication	Brain and neuropsychology	Psychological problems

Piaget's theory of language and thought	Sapir-Whorf hypothesis	Von Frisch's bee study	Yuki's study of emoticons

Explanations of non-verbal behaviour

Nature vs. nurture

Evolutionary theory

Darwin
Genes for behaviours that promote reproduction or survival are passed on to the next generation.

Non-verbal communication
Animals evolved to express emotion. Baring teeth is adaptive as it reduces the chance of death in conflict.

Sensory deprived
An animal or human without sensory ability (blind and deaf).
Thompson found that blind children show similar facial expressions to sighted children.

Comparisons with human behaviour
Open eyes widely is adaptive as it allows more light in and gives a higher chance that a route to safety would be seen. This behaviour is passed to humans.

Serviceable habits
Behaviours – such as baring teeth – used by our ancestors and passed on. They may now not serve the same purpose.

Neonates
Neonate behaviour – smiling, disgust is present shortly after birth. Some of these behaviours cause other to provide care. They are therefore adaptive.

Cultural differences
Differences in personal space shows that some behaviour is learnt.

Knowledge Map: Brain and Neuropsychology

This topic looks at the structure and function of the brain and nervous system, its link to emotion, and its study in the field of cognitive neuroscience.

Memory	Perception	Development	Research methods	Social influence	Language thought and communication	Brain and neuropsychology	Psychological problems

The James-Lange Theory of emotion	Hebb's theory of learning	Penfield's study of the interpretive cortex	Tulving's gold memory study

Structure and function of the nervous system

The basics of the nervous system.

Structure of the nervous system
<u>The nervous system</u> Collects and responds to information. Coordinates organs including the brain.
<u>Subdivisions</u> CNS and PNS PNS = ANS + SNS ANS = sympathetic and parasympathetic CNS = brain and spinal cord

Autonomic nervous system
<u>Homeostasis</u> Keeping the internal body conditions in a stable state. Particularly applies to temperature control.
<u>Sympathetic nervous system</u> Physiological arousal, triggered when stressed – leads to fight or flight response.
<u>Parasympathetic nervous system</u> Produces the rest and digest response.

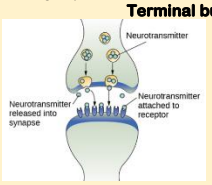
Functions of the nervous system
<u>Central nervous system</u> Right hemisphere controls the LHS of the body. Left hemisphere controls the RHS of the body. Conscious awareness and decision making carried out by the brain. Brain stem carries out autonomic functions.
<u>Peripheral nervous system</u> Peripheral nervous system carries information about our world to the CNS and then the information from the CNS to the muscles.
<u>Autonomic nervous system</u> Functions that we do not consciously control such as heart rate, breathing, digestion.
<u>Somatic nervous system</u> Voluntary movement of muscles and reflex responses. Controls messages to and from muscles and sensory organs.

The fight or flight response
<u>Brain detects threat</u> Hypothalamus identifies threat (stressor). Sympathetic division of the ANS triggered.
<u>Adrenaline</u> ANS changes from parasympathetic to sympathetic. Stress hormone released into the bloodstream.
<u>Fight or flight</u> Heart rate increase, digestion decrease, pupils dilate.
<u>Rest and digest</u> Parasympathetic nervous system takes over once the threat has passed.

Neuron Structure and function

Explaining how information moves around the body and brain.

Neurons
<u>Types of neurons</u> Sensory: from PNS to CNS. Long dendrite - short axon. Relay: Connects sensory to motor. Short dendrite – short axon. Motor: From CNS to muscles/glands. Short dendrite – long axon.
<u>Structure of neurons</u> Cell body: Nucleus containing DNA Axon: Carries signals, covered in myelin sheath which helps signal and protects the neuron. Myelin sheath: Fatty covering of axon with gaps, insulate neuron and speeds up signal. Terminal Button: End of axon, part of the synapse.
<u>Firing</u> Negative charge – resting state Charge changes causing neuron to fire – action potential

Synapses
<u>The Synapse</u> **Terminal button-Synaptic Cleft-Receptor**    Electrical signal causes vesicles to release neurotransmitter into synaptic cleft. Neurotransmitter in synaptic cleft attaches to receptor sites. Chemical message turns back into an electrical signal. Remaining neurotransmitter is reabsorbed.
<u>Excitation and inhibition</u> Excitatory neurotransmitter increases postsynaptic neurons positive charge and makes it more likely to fire. Inhibitory neurotransmitters increases postsynaptic negative charge and makes it less likely to fire.
<u>Summation</u>    More Excitatory than inhibitory factors cause the neuron to fire.

Knowledge Map: Brain and Neuropsychology

This topic looks at the structure and function of the brain and nervous system, its link to emotion, and its study in the field of cognitive neuroscience.

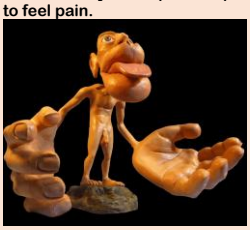
Memory	Perception	Development	Research methods	Social influence	Language thought and communication	Brain and neuropsychology	Psychological problems

The James-Lange Theory of emotion	Hebb's theory of learning	Penfield's study of the interpretive cortex	Tulving's gold memory study

Structure and function of the brain

Different parts of the brain control specific aspects of our behaviour

Structure and function of the brain
<u>Two hemispheres – 4 lobes</u> Cerebral cortex divided into 4 lobes.
<u>Frontal lobe (Including Broca's area) – motor area</u> Front of brain – thinking, planning and motor area controls movement. Broca's area plays a part in remembering and forming words.
<u>Parietal lobe, contains somatosensory area</u> Behind the frontal lobe, Somatosensory area is where sensations are processed.
<u>Occipital lobe, contains visual area</u> Rear of the brain, controls vision.
<u>Temporal lobe, contains auditory/language area (Including Wernicke's area)</u> Behind frontal lobe and below parietal lobe. Auditory are related to speech and learning. Wernicke's area plays a part in recognising language.

Localisation of function in the brain
<u>Motor area</u> Damage to the left hemisphere affects our movement on the RHS of our bodies. Damage to the right hemisphere affects out movement on the LHS of our bodies.
<u>Somatosensory area</u> Most sensitive parts of the body take up most space. Damage means less ability to feel pain. 
<u>Visual area</u> Damage to the left hemisphere affects the RHS of our vision. Damage to the right hemisphere affects the LHS of our vision.
<u>Auditory</u> Damage can lead to deafness.
<u>Language area</u> Usually in the left hemisphere only. Broca's area plays a part in remembering and forming words. Wernicke's area plays a part in recognising language.

An introduction to neuropsychology

*Scientific study of the influence **of** brain structures on mental processes*

Cognitive neuroscience
Aims to create a detailed map of localised functions in the brain.
<u>Structure and function of the brain relates to function</u> Frontal lobe and motor area – movement Temporal lobe and amygdala: processes emotion and aggression.
<u>Structure and function of the brain relates to cognition</u> Different types of memory
<u>Occipital lobe, contains visual area</u> Rear of the brain, controls vision.

Neurological damage
<u>Localisation</u> Cerebral cortex divided Damage to certain areas of the brain affect certain areas/behaviours.
<u>Stroke</u> When brain is deprived of oxygen areas of the brain die leading to effects on behaviour unless other areas take on the functions.
<u>Neurological damage & motor ability</u> Damage to motor area affects fine and complex movement.
<u>Behaviour</u> Broca's aphasia: problems producing speech. Wernicke's aphasia: problems understanding speech.

Scanning techniques	
<u>CT Scan</u> Takes lots of X-rays of the brain which are combined.	Quality is higher than tradition X-ray Only produces still images High levels of radiation
<u>PET Scan</u> Detects a sample of radioactive glucose that has been injected into the patient.	Shows brain in action and localisation of function Expensive Use of radiation may have ethical issues
<u>fMRI Scan</u> Measures blood oxygen levels and displays them as a 3D model.	Produces clear images without radiation Expensive Patient has to stay very still

Knowledge Map: Psychological problems

This topic looks at psychological problems, their biological and psychological explanation and there treatment. The topic looks closer at depression and addiction and treatments such as CBT, Aversion therapy and Self-management

Memory	Perception	Development	Research methods	Social influence	Language thought and communication	Brain and neuropsychology	Psychological problems

Wiles' study	Kaij's twin study	International classification of disease	CBT	Aversion Therapy	Self-help	12-step

Mental health
Understanding mental health problems and how they affect individuals and society

Trends in mental health
Incidence of mental health Per 100 people: Depression = 2.6, Anxiety = 4.7, eating disorders = 1.6 1 in 2 people will experience mental health problems.
Increasing statistics 2007: 24% of adults, 2014: 37% of adults.
Modern living Lower income households, more mental health problems. Greater social isolation increase loneliness and depression.
Cultural variation Culture bound syndrome occur in certain cultures.
Characteristics of mental health Subjective, arbitrary and difficult to measure.
Increased recognition Symptoms focused on illness rather than health. Less use of labels. Using the term mental health problems creates less stigma.

Mental health
These six categories were identified as characteristics of being mentally healthy

Jahoda's list
Self-attitude Having high self-esteem and a strong sense of identity
Personal growth and Self actualisation The extent to which an individual develops their full capabilities
Integration Being able to cope with stressful situations
Autonomy Being independent and self-regulating
Accurate perception Having an accurate perception of reality
Mastery of the environment Having the ability to love, have interpersonal relationships, adjust to new situations, solve problems and function at work.

Mental health
Individual effects of mental health problems

Effects on the individual
Damage to relationships Mental health problems affect two-way communication
Difficulties coping Not looking after self, e.g. getting washed and dressed, socialising and making meals.
Physical well being Cortisol prevents immune system from functioning fully.

Mental health
Social effects of mental health problems

Trends in mental health
Social care Taxes fund social care, providing food, company, learning skills and self-care.
Crime rates 4 x more likely to commit a crime.
Economy Treatment of mental health problems costs 22billion a year.

Clinical depression
A mental disorder characterised by low mood and low energy levels.

Biological explanation
Neurotransmitters Transmit messages chemically across synapse
Serotonin Low levels → less stimulation of postsynaptic neuron → low mood Lack of concentration, disturbed sleep, reduced appetite.
Causes of low serotonin Genes and low levels of tryptophan from protein or carbohydrates.

Psychological explanation
Faulty thinking Irrational, negative or 'black and white' thinking creates feelings of hopelessness.
Negative schemas Negative schema of the self-causes a person to think of themselves negatively.
Attributions Negative ways of explaining causes of behaviour
Nurture Negative attributional style develops through processes such as learned helplessness.

Addiction
Use of a substance or engagement in a behaviour that becomes Compulsive and harmful

Biological explanation
Hereditary factors Genetic factors cause moderate to strong effect of addiction
Genetic vulnerability Multiple genes increase risk of addiction. Environmental stressors can act as a trigger.

Psychological explanation
Peer influence People who are equal in terms of age or experience.
Social learning We learn through observing others and imitate behaviours that are rewarded. We are more likely to imitate our peers.
Social norms We look to others to know what is 'normal' or acceptable.
Social identity theory We identify with social groups and want to be accepted by them. These creates pressure to conform.
Opportunity for addictive behaviours Peers provide opportunities or direct instruction.

Knowledge Map: Psychological problems

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Clinical depression

Types of depression and it's diagnosis.

Types of depression
Clinical depression The term for the medical condition
Sadness and depression Sadness = 'regular' emotion, can still function Depression = enduring sadness, stops ability to function.
Unipolar One emotional state of depression
Bipolar Depression alternates with mania, and periods of normality

Diagnosing depression
ICD -10 International classification of disease is used to diagnose mental and physical disorders.
Unipolar depression Diagnosed if 2-3 key symptoms are present plus 2 others. Symptoms must be present all or most of the time for 2 weeks.
Key symptoms Low mood, loss of interest and pleasure, and reduced energy levels.
Other symptoms Changes in sleep, changes in appetite, decrease in self-confidence, guilt, pessimism, self-harm.

Addiction

Symptoms and diagnosis of addiction

What is addiction
Griffiths Addiction becomes the most important thing.
Dependence vs. addiction Dependence = Psychological/Physiological reliance. Stopping will cause withdrawal symptoms. Addiction = Dependence + buzz or sense of escape (mood modification).
Misuse vs. abuse Misuse = not following the rules. Abuse: Using substances 'to get high' (buzz) or sense of escape.

Diagnosing addiction
ICD -10 International classification of disease is used to diagnose mental and physical disorders.
Addiction Diagnosed if 3 or more characteristics are present together during the previous year.
Characteristics Strong desire to use the substance, persisting despite knowing harm, difficulty controlling use, higher priority given to substance, withdrawal symptoms if stopped, evidence of tolerance (needing more to get the same effect).

Therapies for depression

Interventions for treatment

Antidepressant medication
SSRI Selective serotonin reuptake inhibitors increase serotonin levels in the synaptic cleft.
Presynaptic neuron Electrical signal causes vesicles to release serotonin into the synaptic cleft.
Synaptic cleft Serotonin locks into postsynaptic neuron receptor transmitting the signal from the presynaptic neuron.
Reuptake SSRIs block reuptake so there is more serotonin in the synaptic cleft.

Cognitive behaviour therapy (CBT)
Cognitive Aim to change negative thinking and catastrophizing into rational thought
Behaviour Doing pleasant activities creates positive emotions
Therapy Disputing negative irrational thoughts to develop self-belief and self-liking.
Diary Record unpleasant thoughts and emotions. Rational response to automatic thoughts is rated.

Therapies for addiction

Treating addiction with a reductionist approach or a more holistic approach

Aversion therapy (reductionist)
Aversion therapy Condition – association between addiction and unpleasant experience is learned.
Alcoholism Antabuse causes nausea/vomiting. Alcohol (neutral stimulus) is associated with vomiting (unconditioned response). Eventually vomiting becomes conditioned response.
Gambling Phrases on cards. Electric shock (unconditioned response) given for any gambling related phrase. Associated gambling with the pain (conditioned response).
Smoking Rapid smoking in a closed room causes nausea. Nausea associated with smoking (conditioned response).

Self-help (holistic)
12-step recovery No professional guidance e.g. AA
Higher power Give control to a higher power and 'let go'
Admitting and sharing guilt Group listens to admissions and accept sinner
Lifelong Recovery is never complete.