BRAIN AND COGNITION WEEK 1- Cognition and cognitive neuroscience

(note the book)!!!

The central notion of theory- system of concepts and principles that organise data so as to explain human behaviour, though psych can't usually predict human behaviour=a problem

Scientific psych- explaining human behaviour Data---Theory---Prediction
(theory must be scientifically controlled)
KEY QUESTION- am I connected to reality or not?

Cog. Psych Prehistory- became a science in 19th century

INTROSPECTION- (Wundt 1874) used structuralism… But it has issues; most mental processes occur unconsciously
(William James) interested in function of consciousness… Non-experimental and speculative approach
(Behaviourism) wants objective data and quantify stimulus-reaction, same laws for animals and humans

COGNITIVE REVOLUTION- WW2 influenced (study attention and fatigue) –

Broadbent 1958 – The computer mind analogy

Miller 1956- magical number 7 capacity limited to 7 in STM

Bruner, Goddnow and Austin 1956

The info processing approach- Newell and Simon- both humans and computers manipulate symbols and carry out the same processing

Sensors---- perceptual processing---- conscious representation

Input---- Mechanisms----- Output (cognitive)

If you can change the way you think you can change how to behave eg advertisement

What is it to know someone? Create a theory about someone and hypothesise how they will behave- if they behave different to how we react we assume data is inaccurate or change our minds about them

Levels of explanation; Behavioural indicators (observation), Functional explanation and Biological level (genetic, neural, networks etc) – a good explanation must have all 3

Cognitive psych is the scientific study of mental processes

Cognitive neuroscience is the link between psychological functions and their biological underpinnings

APPLICATIONS- perception, aesthetics, memory distortions, language, eye witness testimony, profiling, intelligence tests etc ---- we know how the brain works so we can fix it 😊

The future: extended cognition, brain computer interfaces and virtual realities

E.g. when losing an arm, the neurons that control it are still there- we must teach them to control a prosthetic arm

Is conscious experience a reflection of reality? – what is the truth, how do we interpret the world

Ptolemy's theory that rays left the eye- believed because we couldn't prove wrong/test

The mind makes sense of the world through specific senses- but these senses only capture part of reality. Specific neurons are responsive to certain lines and some regions are responsive to specific objects

Automatic interpretation; we can see objects that don't exist (illusions)= we don't see a reality

We recognise things through the object of what we already know- knowledge stored in memory, we automatically detect patterns. This can make us think things that aren't real e.g. people on the moon

We automatically interpret people's emotions through their expression, identifies faces and link it to a particular emotion.
We use rules to interpret perceptual input (i.e. the illusion). But we use knowledge to modify how we make sense of things. Therefore to get a better understanding of reality we must challenge our beliefs with experiments- hence scientific method

CONCLUSIONS- we must have an objective method to develop theories of the mind and theories should be tested to be proved valid.