GCSE psychology – Unit 1: Perception and Dreaming

Topic A: How do we see our world?

How do we see?	Monocular Depth cues	Gestalt laws	Gregory's Perspective theory

How do we see?

The optic nerve and the brain
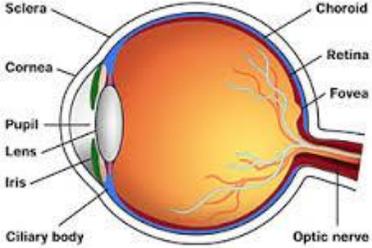
Structure of the eye: Know the following:

retina (light sensitive – rods and cones),
rods (light sensitive cells),
cones (cells that detect colour)
optic nerve (bundle of cells at the back of the eye
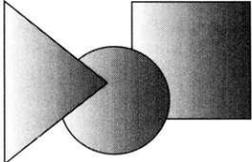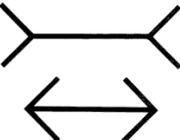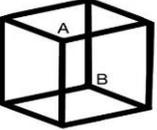**Blind spot:** no rods or cones

Visual information to the brain
Optic chiasma: information crosses from left and right eye in brain

Visual cortex: back of brain that interprets information

Seeing Depth
Depth cues: monocular and binocular – stereopsis (dominant eye –map image)

Size constancy: close to retina = (**scale down**) , far away from retina (**scale up**)

Monocular Depth cues
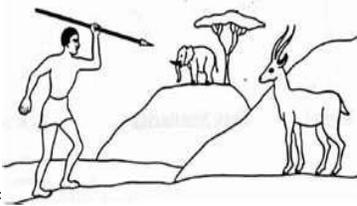
= **relative size**

Linear perspective
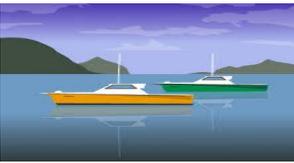
Height in the plane

Texture gradient
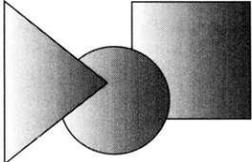
Superimposition

Gestalt laws

- Uses all **stimulus** to make the whole image
- as a whole to perceive image
- Laws of **closure, proximity, continuity and similarity**
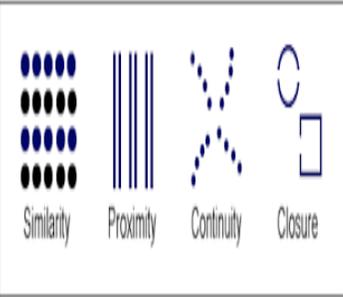
Figure ground

Figure-ground (figure = complex, smaller, symmetrical. Ground = simple, larger, disorganized)

Stereopsis – **seeing depth using both eyes:**
Stereopsis = our view through each eye is different and so our brain combines both images. One image is **dominant** and the other image is mapped on to it.

Gregory's Perspective theory

o Uses **size constancy, depth cues (linear perspective)** and **angled lines** to explain
o Object far away = **scale up** as small image in retina. Object near = scale down as bigger image on retina

The lines of perspective make us think that the top white line is further away (so we scale it up to make it appear bigger) and the bottom white line we scale down so it is perceived as being smaller. This is why we believe the top line is longer than the bottom line.

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Illusions = stimuli which trick our brains into perceiving the wrong thing.	<u>**Gestalt theory of illusions**</u>	**Gregory's perspective theory of illusions**	**Research Method - Experiments**
<u>**Distortion Illusion**</u> **Ponzo Illusion**	**Weakness of this Theory** It can't explain other distortions other than then Muller - Lyer (Gregory can)	**Strength of this theory** Good at explaining the Ponzo illusion due to depth and angled lines (of perspective) = we apply linear perspective due to the lines converging at the top	**Hypothesis** – what you predict will happen in the experiment **Aim** – what the researcher wants to find out. **IV** – The variable you change (manipulate) – two conditions. **DV** – The variable you measure **Controls** – Things the researcher does to keep variables the same in the conditions. **Ethics** – **Informed consent**: agreeing to take part in the research because you know what it is about.
<u>**Distortion illusion**</u> **Mulley-Lyer**	**Strength of this theory** Explains the **Muller – Lyer (distortion)** with fins and circles as using the whole image	**Strength of this theory** Good at explaining Ponzo and Muller-Lyer (fins) due to depth and angled lines. **Weakness of this theory** Can only explain Muller-Lyer with fins not circles as the fins give lines of perspective – the circles don't.	**Right to withdraw**: Every participant should be able to leave the experiment at any time. **Ethical guidelines:** The rules that psychologists have to follow when carrying out research so as not to harm the participants. **Experimental designs** • **repeated measures** – participants take part in **both** conditions • independent measures design – participants take part in only one of the conditions
<u>**Ambiguous Figure**</u> **Leeper's Lady**	**Strength of this theory** Can explain ambiguous illusions such as Leeper's lady because we can't tell what is the figure or ground. Also the same with Rubin's vase – see figure- ground picture above.	**Strength of this theory** Can explain some ambiguous (wart on Leeper's lady) - gives us lines of perspective.	**Evaluating experiments** – • **strengths** = right to withdraw; informed consent; controls; measuring DV (shows cause and effect) • **Weaknesses** – hiding aims; deception; failure to represent real life (low in ecological validity)
<u>**Ambiguous figures**</u> **Necker Cube**	**Strength of this theory** Can explain ambiguous illusions such as the Necker because we can't tell what is the figure or the ground.	**Strength of this theory** Can explain the Necker cube because we scale up and down the straight lines A and B. – because of depth cues and perspective and scaling up and down each line.	<u>**Descriptive statistics**</u> <u>**Central tendency:**</u> **Mean** – add up scores and divide by the number of participants. Used for mathematical scales e.g., seconds millimeters etc… **Median** – put all scores in order and then find the middle number (if two middle numbers = middle of these). Used if scores are on a rating scale. **Mode** – this is the most common score. Used when the data is in categories.
<u>**Fictions**</u> **Kaniza triangle**	**Strength of this theory** Explains fiction illusions such as the **Kaniza triangle** due to law of closure and using all the stimulus **Weakness of this theory** For the Kaniza triangle we should see the 6 pointed star if we are to perceive it as a 'whole'	**Weakness of this theory** Cannot explain all fictions. Fictions are better explained using Gestalt theory	<u>**Dispersion**</u> Range – shows the spread of results. Find the biggest and smallest scores in a set of data. <u>**Presentation of data:**</u> Bar charts – a way of showing the results of an experiment. Conditions of the experiment along the bottom (x-axis) and the total or average scores up the side (y-axis). There should be a gap between each bar).

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Key studies. Remember – 1 point = 1 mark		
Palmer (1975): does context affect perception?	**Bartlett (1932) – schemas and remembering stories**	**Carmichael et al (1932): do words affect recall?**
Aim – whether context affects perception. **Method** – 64 students, lab, shown visual scenes for two seconds and provided a context, then shown an object. **IV** = appropriate, inappropriate similar object, inappropriate different object, no context. Repeated measures design. **DV** = correctly identified objects. **Results** – participants correctly identified most objects after seeing an appropriate context and the least after seeing inappropriate context. **Conclusion** – expectations affect perceptual set.	**Aim** – investigate how information changes. **Method** – folk tale 'The War of the Ghosts'. **Serial reproduction task** = participants read then waited 15-20 minutes then told the next person. **Repeated reproduction** = each participants tested separately. Read story and at intervals retold story. **Results** – few participants recalled story accurately. Details such as names are lost, events made less complex, inaccurate details are put in. **Conclusion** – unfamiliar material changes when it is recalled and becomes shorter and simpler. We do this because we add information from our own schemas and **our memories are reconstructive** (we don't remember information like a video record).	**Aim** – whether words shown with pictures would affect the way the pictures were remembered. **Method** – lab experiment, 95 participants split into three groups. 1 = picture + word very different from picture 2 = picture and word similar to picture 3 = control group = picture and no word Shown 12 pictures followed by a word, 'they next stimulus resembles a...' Independent groups design. Ps asked to draw the picture they had seen and were compared to the original. **Results** – over 3000 reproductions and 905 put into category into almost changed. List one 73% resembled word given, list two 74% resembled word given. Control group only 45% resembled either one of the words. **Conclusion** – **context does affect the recall** because the memory of the word alters the way the picture is represented.

Evaluation of the studies. Remember 1 point = 1 mark		
Strengths – • controlled length of time seeing objects, • participants had instructions - consistent **Weaknesses –** • Participants told what they were doing = could be demand characteristics. • **only students** used so hard to generalize the results to all people	**Strengths –** • both **repeated** and **serial** reproduction tasks were done many times – gets reliable data because of this. • same story 'War of the Ghosts' used so can easily compare the results **Weaknesses –** • choosing unfamiliar material, Bartlett could not be sure that the changes he found would happen with familiar information. Bartlett did not always test the **repeated reproduction** participants after the same time intervals.	**Strengths –** • Control group used, two groups (lists) showed clearly that the verbal labels affected people's drawings. • repeated lots of times so lots of data to compare **Weaknesses –** • Study not very life like – **low in ecological validity.** • Another study showed that verbal labels didn't affect recognition – so Carmichael's study might not apply very widely.

Schemas and eyewitness testimony (memory and recall)			
Schema = knowledge we have in our heads about a situation or person. This influences our perception and memory of an event or person. Our schemas are created by our experience of people, things or situations.	**Eye -witness memory-** eyewitnesses are important in crimes. What we see or hear can affect what is recalled – our expectations, and schemas. **BUT** what we see can be influenced by or schemas.	Evidence to show how schemas affect eye-witness testimony **Tuckey and Brewer (2003)** what was typical of bank robbers. Showed participants a video of a bank robbery that contained three kinds of facts: fitted the schema, opposite of the schema and irrelevant of the schema. When asked, they found that they remembered the facts that fitted the schema or were opposite well.	Evidence to show how schemas affect eye-witness testimony **Boon and Davis (1987)** – showed participants slides of a violent knife attack – white man on London Underground. When asked to recognize the scene many participants wrongly chose the image with the black man holding the knife.