| **Topic & specification ref: PSYB2 Cognitive Psychology. Perception 7: illusions & ambiguous figures** | | | |
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| **Lesson aim: To use illusions to help students understand perceptual processes and research methods and to think critically about their relationship with the 'real world'** | | | |
| **Material to be learned** | | | |
| Concepts | Facts | Skills | Metacognitive |
| Distortion illusion<br>Ambiguous figure | Misapplied size constancy explanations of distortion illusions and ambiguous figures. | Applying psychological concepts and using them to analyse phenomena. Designing scientific studies. | Reflection on own learning during problem solving task. Reflection on relationship between lesson content and own understanding of world. |
| **How will this lesson build on previous learning?** | Students will be applying concepts from previous sessions: monocular depth cues, size constancy and gestalts (for homework). These will be used to create new understanding of how visual illusions and ambiguous figures work. In the design task, students will need to recall and apply their prior learning about research methods. | | |
| **How will learners restructure their understanding?** | Students will learn how different perceptual processes interact to help us perceive the world – and misperceive it. They may start to rethink their naive realist assumptions about the 'real world' and their degree of access to it. | | |
| **How will learners be required to solve problems?** | Students will need to identify relevant prior learning and apply it to produce novel phenomena. They will need to create systematic variations on common visual illusions using a limited set of elements. | | |
| **How will learners get to practice?** | Two illusions require explanation; the first may scaffold the second. Practice at designing studies is a regular feature of the course. | | |

**Learning outcomes**

**AQA Psychology AS Specification B generic assessment objectives:**

- AO1: show knowledge and understanding of psychological concepts, theories, research studies and applications;
- AO2: show skills of commentary, criticism, analysis and evaluation of psychological theories, research studies and applications.
- AO3: show appreciation of How Science Works in psychology

**AQA Psychology Specification B PSYB2 subject content. 3.2.4 Perceptual processes**

- [Candidates may be expected to demonstrate AO1, AO2 and AO3 in relation to] distortion illusions including the Muller-Lyer and Ponzo Illusions. Ambiguous figures including the Necker cube and Rubin's vase. What distortion illusions and ambiguous figures tell us about perception.

By the end of the session **all** learners will be able to:

- LO1: Identify and sketch ML, P, NC and RV
- LO2: Explain ML and P in terms of misapplied size constancy
- LO3: Comment critically on own learning strategy (clue use)

**Most** will be able to:

- LO4: Analyse ML and P in terms of prior knowledge about depth cues and size constancy (with prompting)
- LO5: Design variations on either ML or P
- LO6: Outline how effects of changing ML or P could be investigated
- LO7: Comment on how our perception of the world may be constructed not directly perceived

**Some** will be able to:

- LO8: extrapolate from ML or P to create novel illusions
- LO9: design a systematic investigation of variations in an illusion

| | **Remember** | **Understand** | **Apply** | **Analyse** | **Evaluate** | **Create** |
|---|---|---|---|---|---|---|
| **Factual knowledge** | LO1 | LO2 | LO6; LO9 | | | |
| **Conceptual knowledge** | | | LO4 | LO4 | | |
| **Procedural knowledge** | LO1 | | LO5 | | | LO8 |
| **Metacognitive knowledge** | | | | LO3; LO7 | | |

| **Assessment strategies** | |
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| Question and answer | Throughout. Assertive strategy will be used with majority of questions being directly targeted. Wait time and discuss time will be used as necessary. See also section on differentiation. |
| Self assessment | Reflection on learning strategy used in problems solving task. |
| Peer assessment | |
| Observation of skill | During problems solving and design tasks. |
| Assignment/homework | Extends learning as students apply learning from this and previous session to ambiguous figures |
| Summative test | Illusions will feature on next summative assessment. |

| **Teaching and learning techniques (tick as applicable):** | | | |
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| Whole class teaching | ✓ | Presentations | |
| Coaching and instruction | | Discussion | ✓ |
| Working in small groups | ✓ | Practical exercises | ✓ |
| Individual project work | | Practical demonstrations | |
| Role-playing exercises | | Copying notes | |
| Thought questioning | ✓ | Comprehension questions | ✓ |

| **About the learners** | |
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| | |
| **Inclusion:** | |
| SEN | N/A |
| G&T | Design task is open ended. Students can be scaffolded to more advanced understanding once basics have been established. |
| Differentiation | By **learning outcome**. Learning outcomes have been structured to ensure they cover a range of cognitive processes from low to high order. This does not in itself differentiate the learning but does provide a suitable context against which differentiation can be planned. By **questioning strategy**. High order/open questions will be favoured throughout the session. These allow a range of possible responses, ensuring that students' development of analytical and evaluative thinking is not constrained by a narrow focus on factual recall. Questions will be targeted at individuals (using a QPN strategy to ensure inclusion and involvement) and wait time/discuss time will be used to (a) ensure that all learners are given an opportunity to formulate responses and to facilitate peer teaching/learning, regarded as one of the most effective differentiators for high as well as low end achievers (the most able learners benefit most). Questioning will be scaffolded where appropriate/necessary and Socratic in general approach, emphasising students' ability to make their own connections between ideas (constructivism/instrumental conceptualism) and students will be encouraged at all times to take possession of ideas through speech in order to facilitate the incorporation of these into their own thinking. By **support**. There will be limited opportunities to differentiate by verbal support through some phases of the lesson. Ad hoc judgements will be made and interactions will be small group focused wherever possible to (a) spread 'face-time' and (b) facilitate peer involvement in the learning process. By **extension and response**. Additional questions designed to stimulate higher order, evaluative thinking will be made available to learners who finish the main analysis activity. There is a danger that these may inadvertently differentiate by workrate but this is an inherent risk in this type of approach. Feedback on learning tasks is AfL based, so an additional differentiator will be the nature of the feedback given which will be targeted at improvements that will facilitate the development of the individual learner. **Other** differentiation opportunities may arise that are developed on an ad hoc basis. |
| **Health & safety:** see departmental risk assessment. | |

| **Lesson sequence:** | |
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| Timing: | Content: |
| 0-10 | **Orientation:** show ML and P illusions. **Question:** what's going on here? Allow discussion, take suggestions from named students (most/all will have encountered previously). Brief explanation – encourage students to sketch and label with right names. Introduce **session aims.** |
| 10-25 | **Activity:** problems solving task. In fours, students must use what they know about perception from previous lessons to explain how the ML and P illusions work. They may ask for clues (sequenced, 1-4) *if* they think they need them. Allow 5+ minutes (up to 10; see how they get on). Circulate and observe. Select groups to explain P (first) then ML, as far as they can. |
| 25-35 | **Presentation:** misapplied size constancy – use illusions and photographs to illustrate. **Reflection:** did you use the clues? How many? Why? How might learning have been different if strategy was different? Allow 1 minute silent think time then ask named students to explain thoughts, can extend discussion outward if opportunity presents. |
| 35-50 | **Activity:** in pairs, use the elements to construct different versions of ML/P illusions. Outline how you could investigate whether changing illusions affects susceptibility. Allow 10 minutes; circulate during, scaffold and coach. At end, named pairs come to front and illustrate/explain how they would conduct investigation. Give feedback. Show example stimuli and outline how one such study could be done. |
| 50-60 | Explain **homework** task. Ask if they want a clue and why (not). If want a clue, suggest need to look at gestalt principles as well as cues/constancies. **Reflection:** what do distortion illusions tell us about our relationship with the 'real world'? Allow 1 min discuss time then ask for ideas. |

**Resources:**
Perception 7 slides
Clues cards for problem task – 6 sets.
Illusion design elements, photocopied onto acetate & cut out (12 sets)