



Kent Community Health **NHS**
NHS Trust

Testing Visual Perceptual Skills Using Eye Gaze

10 May 2012



What is Visual Perceptual Performance

- Perception is the integration of sensory impressions into psychologically meaning information.
- Visual Perception is the interpretation of visual stimuli.



7 Areas of Visual Perceptual Performance

- Visual discrimination
- Visual memory
- Visual spatial relationships
- Visual form constancy
- Visual sequential memory
- Visual figure ground
- Visual closure

Visual Discrimination



Visual Memory



Visual spatial awareness



1



2



3



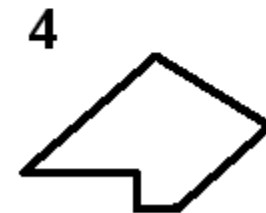
4



5

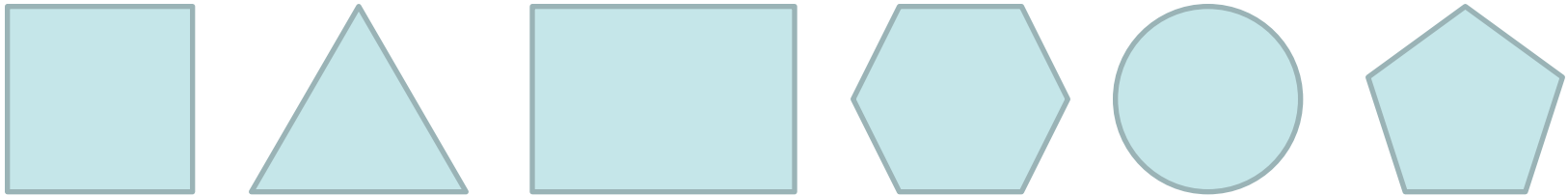
Visual form constancy

Which shape was cut out of the box?
The shape can be turned.





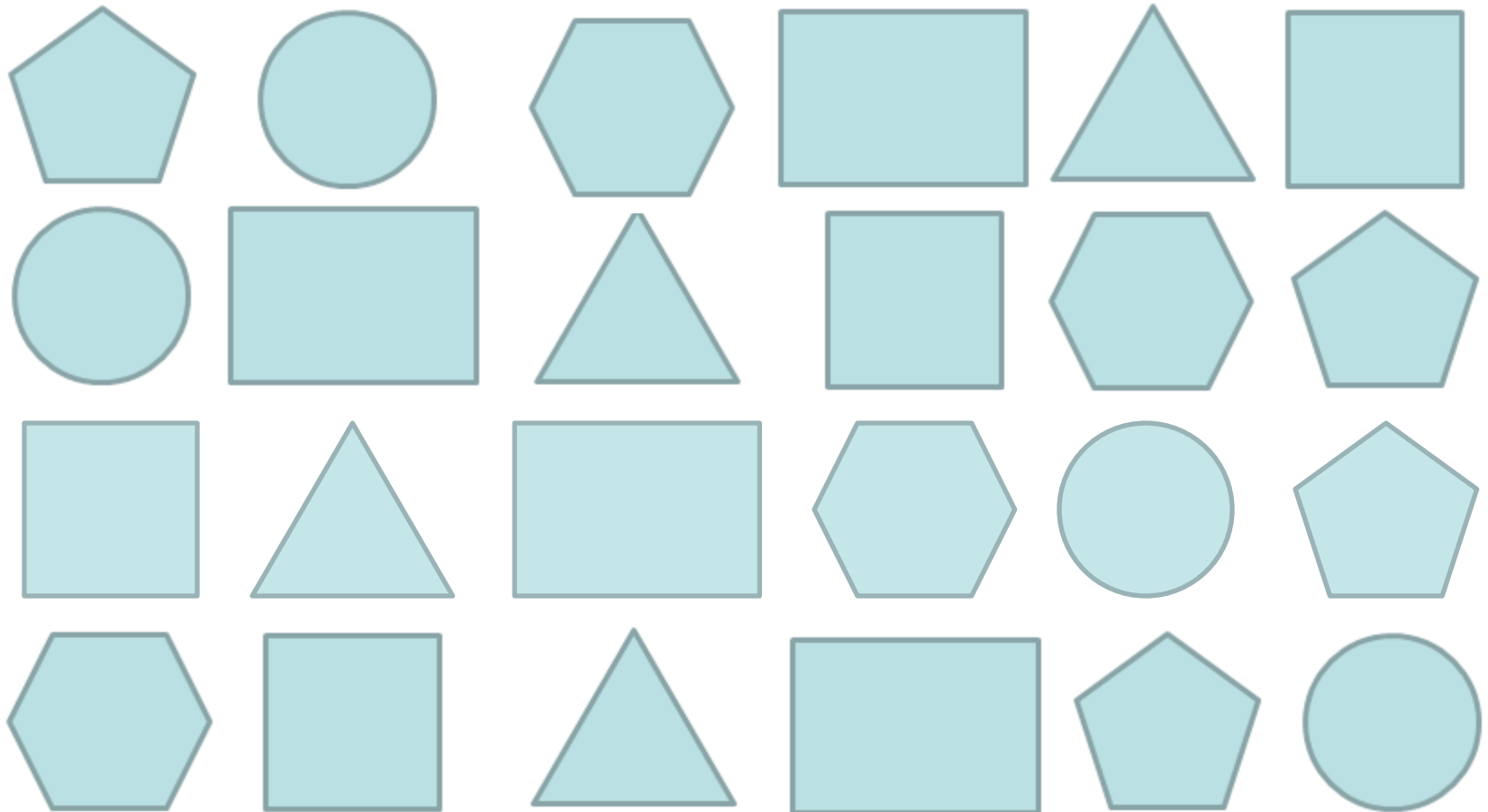
Visual sequential memory



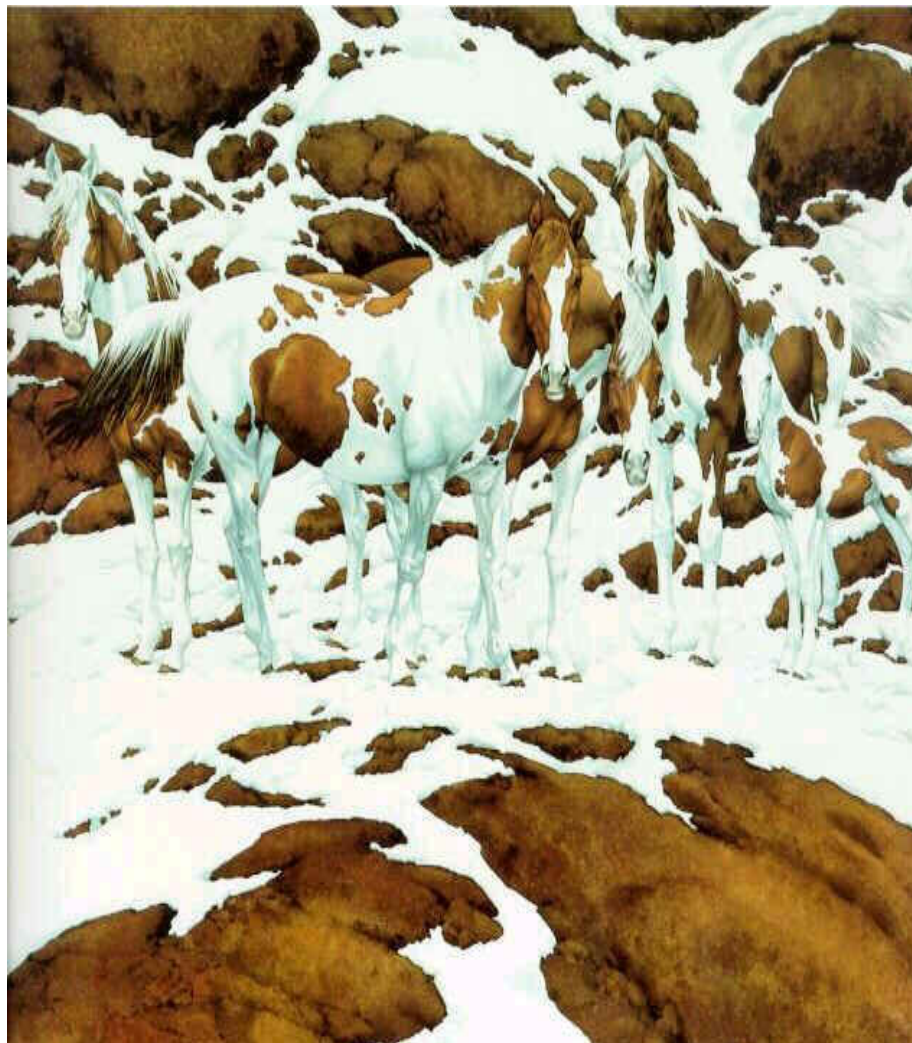


Visual Sequential Memory

Kent Community Health **NHS**
NHS Trust



Visual Figure Ground



Visual Closure



Impact of Visual Perceptual Difficulties

- Matching
- Learning and retaining information
- Spelling and sequencing of letters
- Slow in copying information
- Spacing of numbers and letters
- Difficulty finding way around a new environment
- AAC and

- Difficulty counting objects on a page
- Unable to recognize a symbol when it is presented in a slightly different way.
- Difficulty with categorizing or sorting objects.
- Difficulties with 2D and 3D images e.g. recognizing food objects from a picture.
- Difficulty recognizing a shape or symbol on a page when there are other symbols present.

Cerebral Palsy and Visual Perceptual Difficulties

- There is a high correlation between cerebral palsy and Visual perceptual difficulties.
- The relationship between visual impairment and damage to the Basal Ganglia. If visual impairment is significant there will be an impact upon learning and communication. (Jennifer Sargent, March 2012)
- The children with a severe form of cerebral palsy are most in need of an estimate of vision for communication (Mculloch & Dutton 2011)

Using Eye Gaze as a Medium to Test Visual Perceptual Skills

- Symbols were enlarged from the book (2 X 2 cm)
- Symbols laminated using matt pouches.
- Symbols placed in the 4 corners of an E-Tran frame (+ 1 in middle)
- Each subtest was scored
- Test completed over several sessions due to fatigue levels

- Took a little longer with cards
- Good correlation of results
- Tested cards and book with children with Cerebral palsy and with comparison group of mainstream children with no apparent physical difficulties.


- Provides information regarding cell sizes on grids
- Information on number of pages for navigation
- May provide information on symbol sets
- Information on background and foreground colours.
- Provides a guide and qualitative information.

- De standardised test – gives qualitative information but not quantitative information.
- Maybe difficult to replicate in future tests.



Cognitive assessment

Kristine Stadskleiv Psychologist Oslo University Hospital

Kent Community Health 
NHS Trust

Precise understanding/diagnosis:

- Easy to both over- and underestimate cognitive functioning when a child is not speaking
- Information about strengths and difficulties
- Information about general and specific cognitive problems
- Monitor cognitive development

Intervention:

- Knowledge about cognitive functioning supports AAC interventions
- The children are at risk of having problems in other areas of development:
 - social development/interaction with other children
 - quality of life
 - functional communication (often passive communication partners)
 - language development (no feedback and correction from own speech)
 - reading and writing



Challenges when assessing children with severe speech- and movement disorders

Kent Community Health 
NHS Trust

Kristine Stadskleiv Psychologist Oslo University Hospital

Most tests are designed for children with

- Good eyesight
- Ability to respond rapidly
- Good motor control (at least ability to point)
- Ability to produce speech (at least “yes”/”no”)

When the child cannot speak or point; standardized administration form impossible

Need to adapt the test



Three levels of assessment concessions:

Type of concession:	Example:	Estimated equivalence to original test:
Modifications	Easier instructions – change of content	Low
Adaptations	Translation to another language	Medium
Accommodations	Altered response mode Test session adjustments	High

(Alant & Casey, 2005)

Questions

