

SYNAESTHESIA IN CHILDREN

A parent-led information sheet for teachers and other educators

THIS INFORMATION SHEET PROVIDES A BRIEF OVERVIEW OF SYNAESTHESIA AND ALLOWS PARENTS TO RECORD ANY SYNAESTHETIC EXPERIENCES THEIR CHILD MAY HAVE. IF YOU WOULD LIKE TO DESCRIBE YOUR CHILD'S SYNAESTHESIA TO HIS/HER SCHOOL, THIS FORM IS DESIGNED TO BE PRINTED OUT AND GIVEN TO TEACHERS AND OTHER EDUCATORS. BELOW WE PROVIDE EDUCATORS WITH A LINK TO OUR INFORMATION WEBPAGE, WHERE THEY WILL FIND SUGGESTIONS FOR HOW TO SUPPORT CHILDREN WITH SYNAESTHESIA IN THE CLASSROOM.

WHEN YOUR CHILD'S TEACHER HAS HAD THE OPPORTUNITY TO LOOK AT THIS ONLINE INFORMATION, PARENTS CAN BE EMAILED WITH A CONFIRMATION (SEE BELOW). THE SMALL REFERENCE NUMBERS IN THE TEXT BELOW REFER TO THE SCIENTIFIC REPORTS USED IN WRITING THIS INFORMATION SHEET, AND THESE REPORTS ARE LISTED ON PAGE 2. FOR A FULL OVERVIEW OF OUR SYNAESTHESIA RESOURCES FOR PARENTS, EDUCATORS, CLINICIANS AND RESEARCHERS, PLEASE GO TO OUR WEBSITE, AT WWW.SYNTOLKIT.ORG

This information sheet contains:



Information about synaesthesia



A checklist for parents



A web-link resource for teachers & other educators



A unique anonymous reference code to link parent and educator

What is synaesthesia

Synaesthesia is a condition that causes an unusual 'merging of the senses'¹. For example, hearing sounds might cause taste sensations in the mouth (eg. a doorbell might trigger the taste of salt)². Other synaesthetes might experience letters, numbers or words as coloured in some way (eg. 'A' might be red, 'Monday' might be green) and so on. Synaesthesia has many different forms³, is equally common in boys & girls⁴, has a neurological^{5,6} & genetic basis^{7,8} and is recognised by health bodies such as the NHS (UK National Health Service)⁸ although its exact causes are still being researched. Below is a checklist for parents; please check any boxes that apply to your child.

Synaesthesia checklist for parents. My child has told me:

- that he/she perceives numbers, letters or words in colour (eg. A might seem red; 7 might seem blue; Monday might seem yellow).
- that certain sounds produce an odour, or taste in his/her mouth (eg., a particular word or sound might taste salty).
- that he/she feels physical sensations when watching someone else get hurt.
- that he/she perceives colours or abstract shapes during everyday activities like eating.
- that hearing music produces an experience of colour for him/her (eg. the note middle C on the piano might be green).
- that he/she sees numbers, days etc. in a 'spatial landscape' or pattern around the body (eg. zigzag, circle).
- that he/she has other experiences that may be linked to synaesthesia. Add details here:

(checklist cont.) My child is affected by:

- visual distractions (eg. sounds cause colours that block child's view of the whiteboard).
- visual confusions (eg. child confuses numbers and colours when doing sums or other calculations).
- difficulty in classroom environment (eg. alphabet posters show 'wrong' colours for him/her).
- experiencing pain when witnessing others in pain.
- anxiety or repetitive behaviours, such as fixed repetitive routines or an urge to check things repeatedly¹¹.
- other disturbances (or benefits) that may be linked to synaesthesia. Add details here:

What can teachers do to support children with synaesthesia?

We have created an information page for teachers, special educational support officers and other educators at www.syntoolkit.org/teacher, which takes approximately 5 minutes to read. When educators access this webpage in response to a specific request from a parent (eg. via this information sheet) they should please enter the parent's anonymous reference code when prompted to do so (see below).

Your anonymous parent-teacher reference code

The reference number, shown here, is fully anonymous and unique to each parent. It allows the parent to be emailed when you, their teacher, have been kind enough to read the information webpage and have entered their code. With this update we hope to allow teachers and parents to automatically know they now share the same knowledge about synaesthesia. This code is known only between parent and teacher; we do not record any personal or identifying information.

A05866

THIS INFORMATION SHEET HAS BEEN PREPARED BY PROF. J. SIMNER, DR. D. CARMICHAEL, L. RINALDI & R. SMEES AS PART OF THE MULTISENSE RESEARCH INITIATIVE AT THE UNIVERSITY OF SUSSEX FUNDED BY THE EUROPEAN RESEARCH COUNCIL UNDER THE EUROPEAN UNION'S SEVENTH FRAMEWORK PROGRAMME (FP/2007-2013) /ERC GRANT AGREEMENT N. [617678]. IT REFLECTS THE VIEWS OF THESE AUTHORS AND IS SUPPORTED BY THE UK SYNAESTHESIA ASSOCIATION. FURTHER INFORMATION, AND ADDITIONAL SCIENTIFIC RESOURCES, CAN BE FOUND AT WWW.SYNTOLKIT.ORG.



European Research Council



Scientific sources used in the creation of this information sheet:

1. Ward, J. (2013). Synesthesia. *Annual Review of Psychology*, 64, 49-75.
2. Beeli, G. et al. (2005). Synaesthesia: when coloured sounds taste sweet. *Nature*, 434, 38.
3. Simner, J. et al. (2006). Synaesthesia: The prevalence of atypical cross-modal associations. *Perception*, 35, 1024-33.
4. Carmichael, D.A. et al. (2015). Validating a standardised test battery for synesthesia: Does the Synesthesia Battery reliably detect synesthesia? *Consciousness & Cognition*, 33, 375- 85. doi: 10.1016/j.concog.2015.02.001
5. Simner, J. & Carmichael, D.A. (2015). Is synaesthesia a dominantly female trait? *Cognitive neuroscience*, 6, 68-76.
6. Rouw, R., Scholte, H. S. & Colizoli, O. (2011). Brain areas involved in synaesthesia: a review. *Journal of Neuropsychology*, 5, 214-242.
7. Hubbard, E.M. & Ramachandran, V.S. (2005). neurocognitive mechanisms of synaesthesia. *Neuron*, 48, 509-520. doi: 10.1016/j.neuron.2005.10.012
8. Asher, J. et al. (2009). A whole-genome scan and fine-mapping linkage study of auditory-visual synesthesia reveals evidence of linkage to chromosomes 2q24, 5q33, 6p12, and 12p12. *The American Journal of Human Genetics*, 84, 279-285.
9. Tomson, S.N. et al. (2011). The genetics of colored sequence synesthesia: Suggestive evidence of linkage to 16q and genetic heterogeneity for the condition. *Behavioural Brain Research*, 223, 48-52. doi: 10.1016/j.bbr.2011.03.071
10. Nhs.uk (2014) Synaesthesia - NHS Choices, [online] Available from: <http://www.nhs.uk/conditions/synaesthesia/Pages/Introduction.aspx> (Accessed 13 June 2016).
11. Carmichael, D.A. et al. The comorbidities of synaesthesia: Wide-scale health screening of synaesthetes in the general population. (unpublished report, 2016, University of Sussex)

THIS INFORMATION SHEET HAS BEEN PREPARED BY PROF. J. SIMNER, DR. D. CARMICHAEL, L. RINALDI & R. SMEES AS PART OF THE MULTISENSE RESEARCH INITIATIVE AT THE UNIVERSITY OF SUSSEX FUNDED BY THE EUROPEAN RESEARCH COUNCIL UNDER THE EUROPEAN UNION'S SEVENTH FRAMEWORK PROGRAMME (FP/2007-2013) /ERC GRANT AGREEMENT N. [617678]. IT REFLECTS THE VIEWS OF THESE AUTHORS AND IS SUPPORTED BY THE UK SYNAESTHESIA ASSOCIATION. FURTHER INFORMATION, AND ADDITIONAL SCIENTIFIC RESOURCES, CAN BE FOUND AT WWW.SYNTOLKIT.ORG.

