



Supporting Neurodiversity in Science Education

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What is Neurodiversity?

“An umbrella term for it encompasses a range of specific learning differences, including dyslexia, dyspraxia, dyscalculia, ADD/AD(H)D and Asperger’s. One or more specific learning differences may be present simultaneously...”

Grant (2009)

Dyslexia

“likely to be present at birth and to be lifelong in its effects. It is characterised by difficulties with phonological processing, rapid naming, working memory, processing speed and the automatic development of skills that may not match up to an individual’s other cognitive abilities. It tends to be resistant to conventional teaching methods, but its effects can be mitigated by appropriately specific intervention...”

(BDA, 2007)

Dyspraxia

“An impairment or immaturity of the organisation of movement. It is an immaturity in the way that the brain processes information, which results in messages not being properly or fully transmitted...Dyspraxia affects the planning of what you do and how you do it. It is associated with problems of perception, language and thought.”

(Dyspraxia Foundation, 2008)

How Neurodiversity affects Science Education

- Reading
 - Notes
 - Comprehension
- Writing
 - Speed
 - Organisation
- Drawing
- Physical Issues
 - Tiredness
 - Hand-eye coordination

Reading: Ways to Help

- Bullet points for smaller chunks
- Highlighting key information
- Colours for different aspects
- Sans serif fonts
- Notes before lectures/labs, electronic form (not pdf)
- New technical words with visual representation
- Department/module glossary
- Course textbooks chosen

Writing – Ways to help

- Writing speed

- Usage of a notetaker, or use of a laptop
- Having the appropriate software and electronic notes, inside or outside of lectures.
- Accommodating different learning strategies

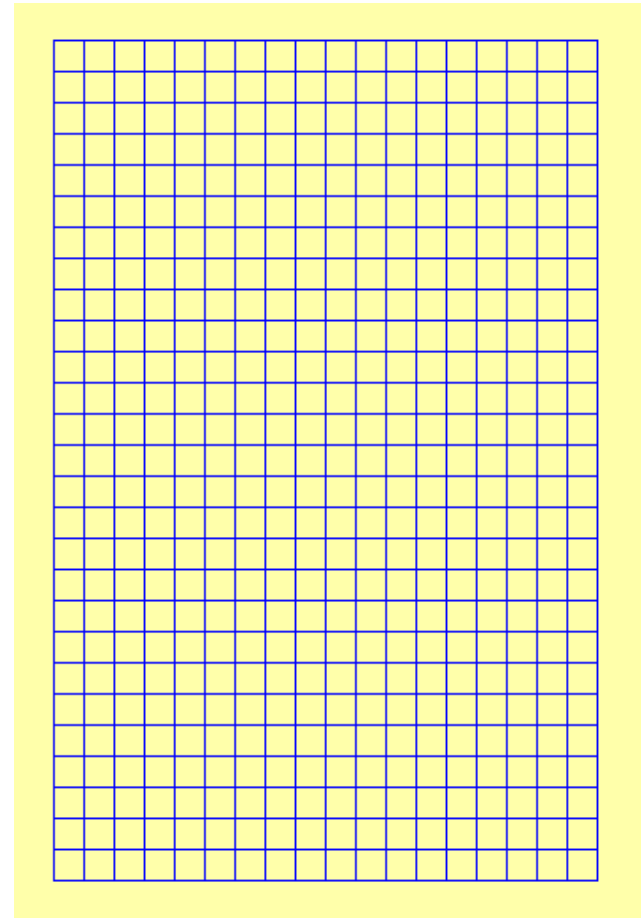
- Writing for organisation

- Glass marker pens for organising equipment
- Having the right pen – e.g Stabilo easy original pen
- Writing Slope
- Making proformas/templates for organising lab work & assignments
- Using Squared paper for separating equation terms (per square)





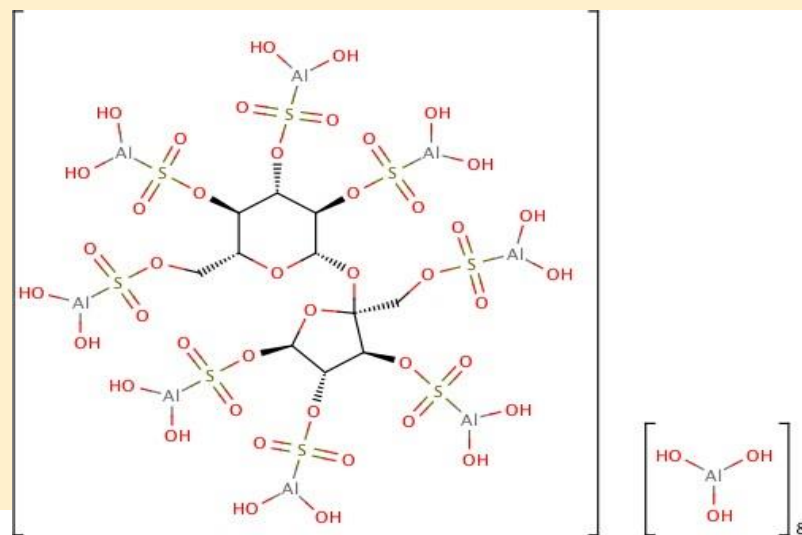
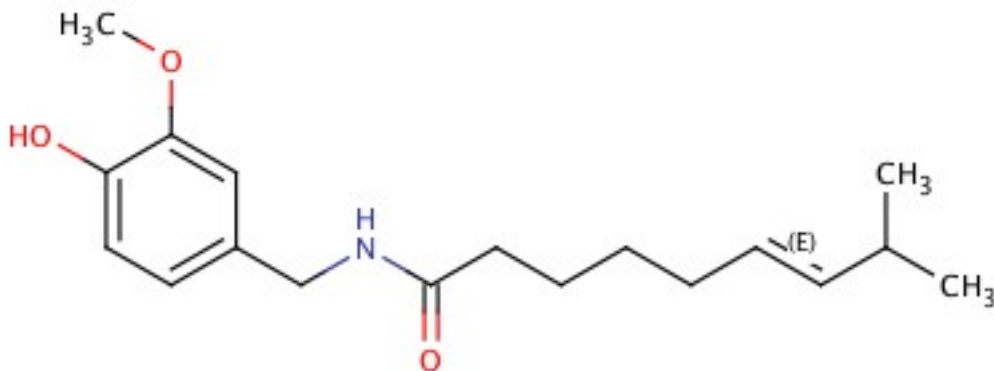
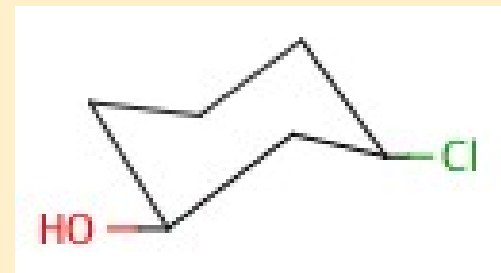
<http://incompetech.com/beta/plainGraphPaper/>



Drawing – Ways to help

- Coping with Drawing issues

- Subject Specific/ General Drawing Stencils
- Drawing Software (Marvin)
- Extra Time
- The Right pens and Pencils
- Squared and Dotted paper for drawing by hand
- Drawing tablets can be helpful, but require practice



Physical Issues

- **Hand-Eye Coordination**
 - Making sure time is taken to avoid spillages
 - Working to a sensible pace for yourself.
- **Physical Issues**
 - Making sure that breaks are possible,
 - A stool (if safety allows)
 - Access to computer for writing lab reports in situ (if safety allows)
 - Making sure clothes and shoes are comfortable for standing



references

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