NORFOLK
COUNTY COUNCIL
EDUCATION

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NEAS/ML/JCR

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Heads of Science in Secondary Schools
Key Stage 3 Science Coordinators in Middle Schools

Dear Colleague

Please find enclosed two documents generated from recent Key Stage 3 Strategy Science courses. One of the features of the Key Stage 3 Science Strategy has been teachers working together to share and produce materials and ideas. Networks are being established on an informal and occasionally formal basis to support one another in our work.

Document one is a review of the Scientific Enquiry Booster Lessons for Year 9. This includes suggestions on when and how to use the materials, including any modifications that would be helpful. I am grateful to the schools who assisted with this, the names of whom are included on each sheet.

Tim Mullis, Head of Science, at Notre Dame High School, Norwich has modified the materials and produced an “e-version” of them to use as a stand-alone programme or as a package on their web site. If you need a copy of this version, please email me. Again, I am very grateful for Tim’s help.

Document two is a list of the Action Points from different schools. The idea is that this should enable schools to share ideas (which might involve meetings or e-mail conferencing) and support one another in common areas to develop.

I notice a number of schools have “developing the QCA Scheme of Work” as an action point, and others ICT. It may be possible for the Key Stage 3 Science Team to cluster these schools to provide training and support as groups. I would like your comments about the desirability and feasibility of this approach

Finally, I would like to thank all schools who took part in ‘Celebrating Science’ and Norfolk Science Week activities. The event at The Forum as excellent and impressed upon Charles Clarke MP, and the leaders of the Council who attended, the importance of science to Norfolk and the quality of teaching and learning in our schools. Although other events that day reduced our exposure to the National Media, our live broadcasts on radio and television were featured all over the Eastern region of England. I continue to feel privileged to work with your in schools and the ‘Celebrating Science’ events merely reinforced that feeling

As you start to prepare Year 9 for their booster lessons and revision sessions, if I can help in anyway, please let me know.

I look forward to seeing you again at our forthcoming professional development units.

Yours sincerely

Mike Land
Key Stage 3 Science Adviser

Science Booster Lessons			
Lesson Number: 16	Title: How Scientists Work		
Names:Roger Norris, Tracey Moor, Elizabeth Jones		Schools: Aylsham High School, Wymondham College	
Positive Features	**Negative Features**	**Amendments**	**Notes**
Mostly suitable. Text - quite good language level. Qui9te good progression of scientific ideas on S16.4	Too much text not broken up initially but once started quite interesting text for pupils.	Need headings in bold. S16.2 probably extension work. Could save time by each pupil writing about 1 or 2 scientists then collecting them together and making clear the development of scientific idea. S16.5 Elemental history. Too much data – perhaps some selection needed here.	Correct coloured pens for resource

Lesson Number:	Title: Particles in Chemical Reactions		
Names: Rod Glenister		Schools: Caister High School	
Positive Features	**Negative Features**	**Amendments**	**Notes**
Good for visual learners – pictures of particles to help get a handle on demonstration/movement of particles.	Concept of diffusion high level + lower ability find word equations a foreign language.		

Science Booster Lessons			
Lesson Number: 20	Title: Conduction, Convection, Radiation and Evaporation		
Names: Pam Taylor/Richard Martin		Schools: Acle High/North Walsham High	
Positive Features	**Negative Features**	**Amendments**	**Notes**
<u>Starter Task</u> Everyday examples of science	No mention of what energy is.	Add in colour of mug in discussion.	
<u>Main Activity</u> Prac 1, 2 and 3 standard practice, but	Remove gauze from Prac 3. Centralise dye crystal and have connection Don't like p.91 handout S20.1. It shows al going up – none falling down.	Prac – use drawing pins on butter or wax, not just the substance. Substitute sentence writing with immediate discussion – tackle misconceptions immediately. Handout S20.2 should be an OHT not handout. Could split class into three groups – one statement each and see if they can justify their own statement as correct.	Questionable diagrams and one is wrong.

Science Booster Lessons			
Lesson Number:	Title: Drawing Information Together		
Names: Time Mullis/Ron Tuttle		Schools: Notre Dame High School/Thorpe High School	
Positive Features	**Negative Features**	**Amendments**	**Notes**
Starters workable	Can the students tell the difference between “Things we know and things we think?”	S17.2 needs rearranging and perhaps rewording.	

Lesson Number: 14	Title: Working with Variables		
Names:		Schools:	
Positive Features	**Negative Features**	**Amendments**	**Notes**
Gives you an idea as to what you could do. S14.3 and S14.2 are OK as they stand.	Venn diagrams – how many schools use these in science. Picture (14.1) not related to questions – bit misleading.		Look carefully before you use they may need lots of doctoring.

Lesson Number:	Title: Data Analysis and Interpretation		
Names:		Schools:	
Positive Features	**Negative Features**	**Amendments**	**Notes**
Focuses on <u>actual</u> data	Confusion over context of question. Plenary boring. <u>Blood Glucose Levels</u> Actual data OK on superficial level but interpreting as a biologist not enough data given<u>.</u>	Plenary Pupils produce three rules for reading a graph.	

Norfolk County Council
at your service

Education Advisory Service

Key Stage 3 - Evaluating and Target Setting in Science
Course Numbers 2SN041, 2SN042, 2SN043

- Improve the incorporation of "Ideas and Evidence" into teaching and schemes of work.
- Scheme of work including all resources and activities.
- Improve standards in Scientific Enquiry by developing communication aids specific to pupils' needs, e.g., symbol cards, key words, questions.
- Integration of ICT into teaching and learning.
- System for successfully monitoring and improving under-achieving pupils.
- Provide material to boost individual underachievers. (Notre Dame HS)
- Develop new KS3 course including improved use of ICT AND Multimedia Science (Acle HS)
- Develop ICT use across Key Stage 3 to identify key practicals to target Sc1 skills (Rosemary Musker HS)
- Incorporate QCA scheme into KS3 scheme of work – rolling programme; - look at CASE.
- Read the questions or information (Cliff Park HS).
- Improve quality of thinking (hypotheses) and recording.
- Improve the link between Sc1 activities and scientific knowledge and understanding. Pupils see experiments as separate from learning objectives (Methwold).
- Integrate Sc1 into teaching of QCA units (Aylsham, Long Stratton)
- Complete course by SATs (Long Stratton, Neatherd).
- Develop Schemes of Work which follow QCA and Londsdale, moving away from trying to cover KS3 in just 2 years.
- Complete Y8 Scheme of Work in line with KS3 strategy and QCA using existing schemes and Hodder Gold Texts.
- Improve the beginnings and endings of lessons through using this as a focus in lesson observation (A teaching target) (Downham Market HS)
- Continuing with literacy strand in Science (St Clements)
- Scheme of Work following QCA (St Clements)
- Develop new Scheme of Work based on QCA and external resources to support. (Methwold HS)
- Develop systems of assessment and self-assessment to inform planning and provision (Methwold HS).
- Review lesson planning for effective lessons (Methwold HS).
- Rewrite work schemes in line with QCA. To include use of new exploring science, building in CASE and technology status requirements on data collection, etc (Park HS)
- This year – Y7 Scheme of Work; introducing Hodder textbooks; highlighting scientific enquiry (Smithdon HS).