University of the
Highlands and Islands
Oilthigh na Gàidhealtachd
agus nan Eilean

Education for a Low carbon Future

Opportunities and challenges

Dr Gary Campbell

20 minutes: lots of questions!

- Why not just carry on as we are?
- What could a low C life look like?
- What is the role of education?
- Where is sustainability in education now?
- What are the challenges and opportunities?

Why not continue as we are?

- Population growth
- Peak everything!
- Ecosystem services
- Sustainable growth?
- End of cheap oil
- **Climate change**

http://www.flickr.com/photos/hertzen/5409635963/

New Scientist

22nd October 2011

Do know

- GHGs warm the planet
- Other pollutants cool the planet
- The planet is going to get a lot hotter
- Sea level is going to rise many meters
- There will be more floods & droughts

Don't know

- How far GHG levels will rise
- How great cooling effects are
- Exactly how much hotter it will get
- How quickly sea level will rise
- How the climate will change in specific regions
- If & when tipping points will be reached

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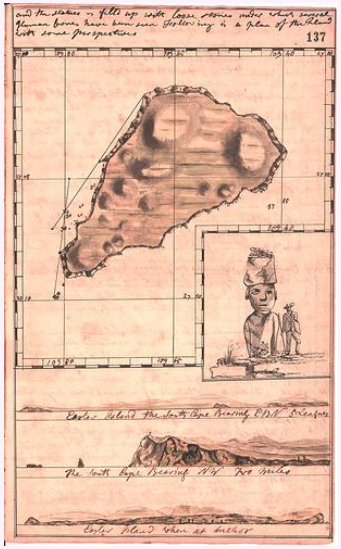
Easter Island analogy

"The person who cut down the last tree must have known. They still cut it down"

John Flenley, Massey University, New Zealand



Pollen studies – Easter Island was palm covered. (AD700)

Wood - canoes (fish for food) & *Moai* - total deforestation. (1720)

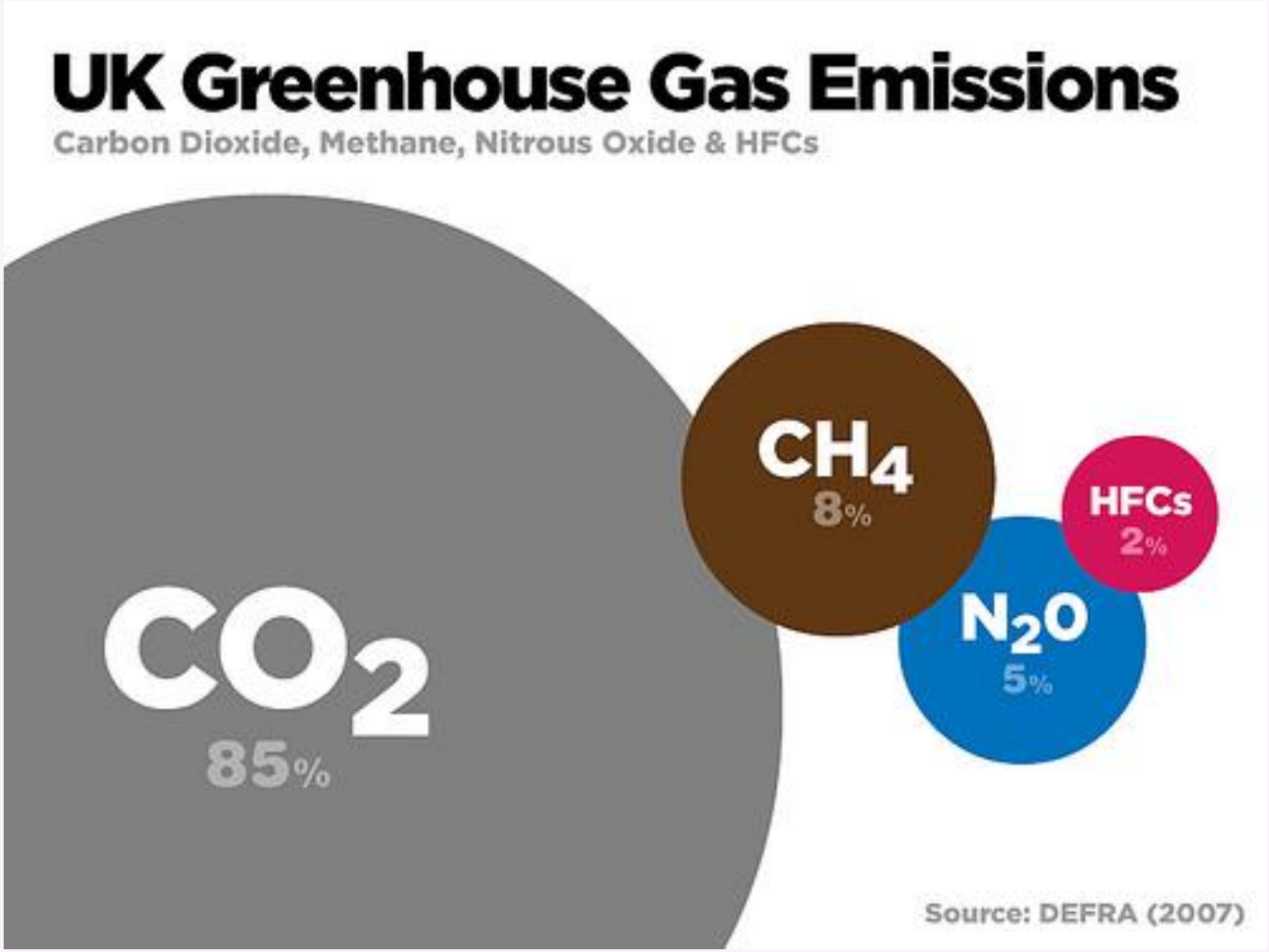
Obsession with an abstraction.

Soil erosion – farming collapse.

No canoes no escape. Trapped in a hell of their own making, the Islanders turned on each other.

Self-inflicted ecological disaster.

Not just Carbon



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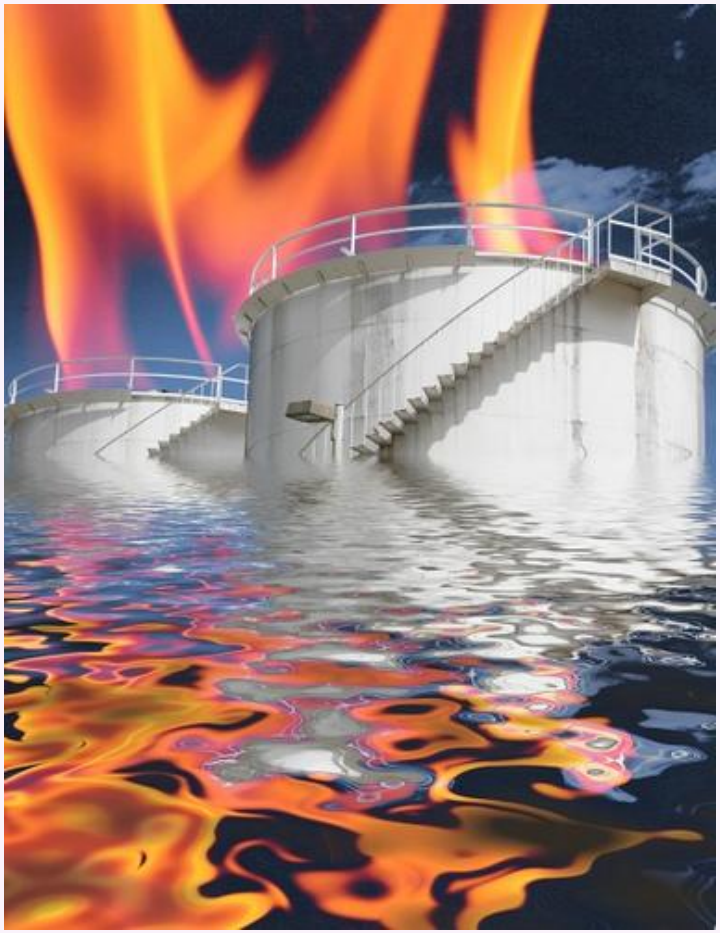
Climate change



Bottom line: we cannot allow the mean global temperature to increase by any more than 2 degrees Celsius

http://www.flickr.com/photos/energy_pictures/3686146355/sizes/m/in/photostream/

Counting the cost of carbon:

Low carbon economy index 2011 Price Waterhouse Coopers

- *"Last year the carbon intensity of the world economy increased for the first time in many years, this reversed the trend of gradual decarbonisation of economies. Instead of moving too slowly in the right direction, we are now moving in the wrong direction.*

- *Achieving the 2 degrees Celsius goal will now require reductions in carbon intensity of at least 4.8% every year until 2050. This compares with a 2% per year reduction in carbon intensity, to meet this goal, had we started in 2000."*

http://www.pwc.co.uk/renewables-low-carbon/publications/counting-cost-of-carbon-low-carbon-economy-index-2011.jhtml

Alternatives

What would life be like in a low C economy?

Basic / primitive?

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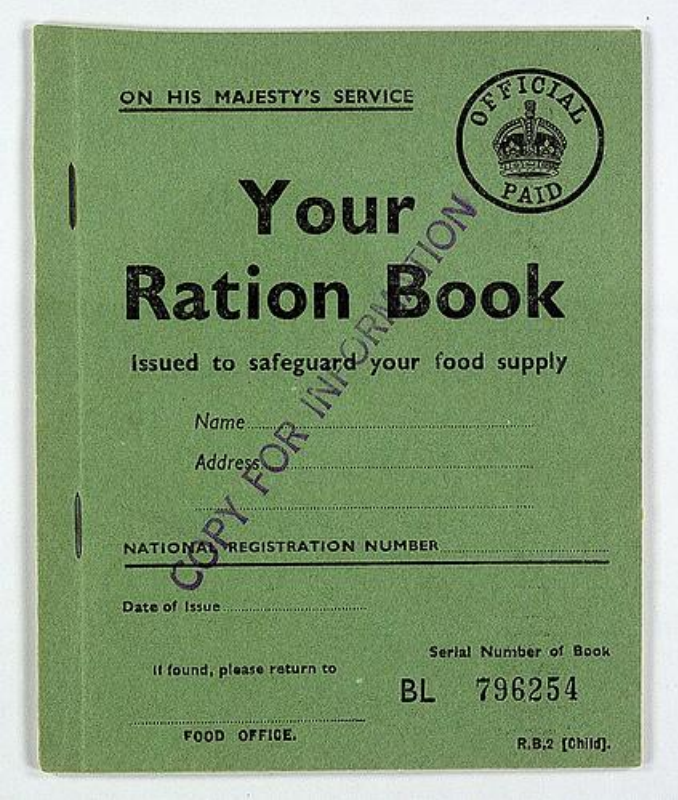
Like 1940's Britain?



http://www.flickr.com/photos/nationalarchives/3182090345/

The Goodlife?

http://www.flickr.com/photos/cicada/4611605594/sizes/m/in/photostream/

Findhorn?

http://www.flickr.com/photos/usnationalarchives/3815040607/sizes/m/in/photostream/

Likely mix, including...

- Reduced consumerism
- Modified economies
- Use of low C technologies
- Modified expectations
- Greater understanding of our impacts
- Greater global citizenship

Water Restoration Technology
& Urban Ecosystem Infrastructure
BIOMATRIX
WATER

BIOMATRIX
WATER

BIOMATRIX
WATER

Education's role

- Changing attitudes
- Providing awareness
- Providing skills
- Knowledge exchange
- Research
- Others...something for today?

Education context: Scotland

- Curriculum for Excellence
- New uses of the 6th year
- Radical changes to Higher Education
- Increasingly integrated tertiary education
- Regional planning

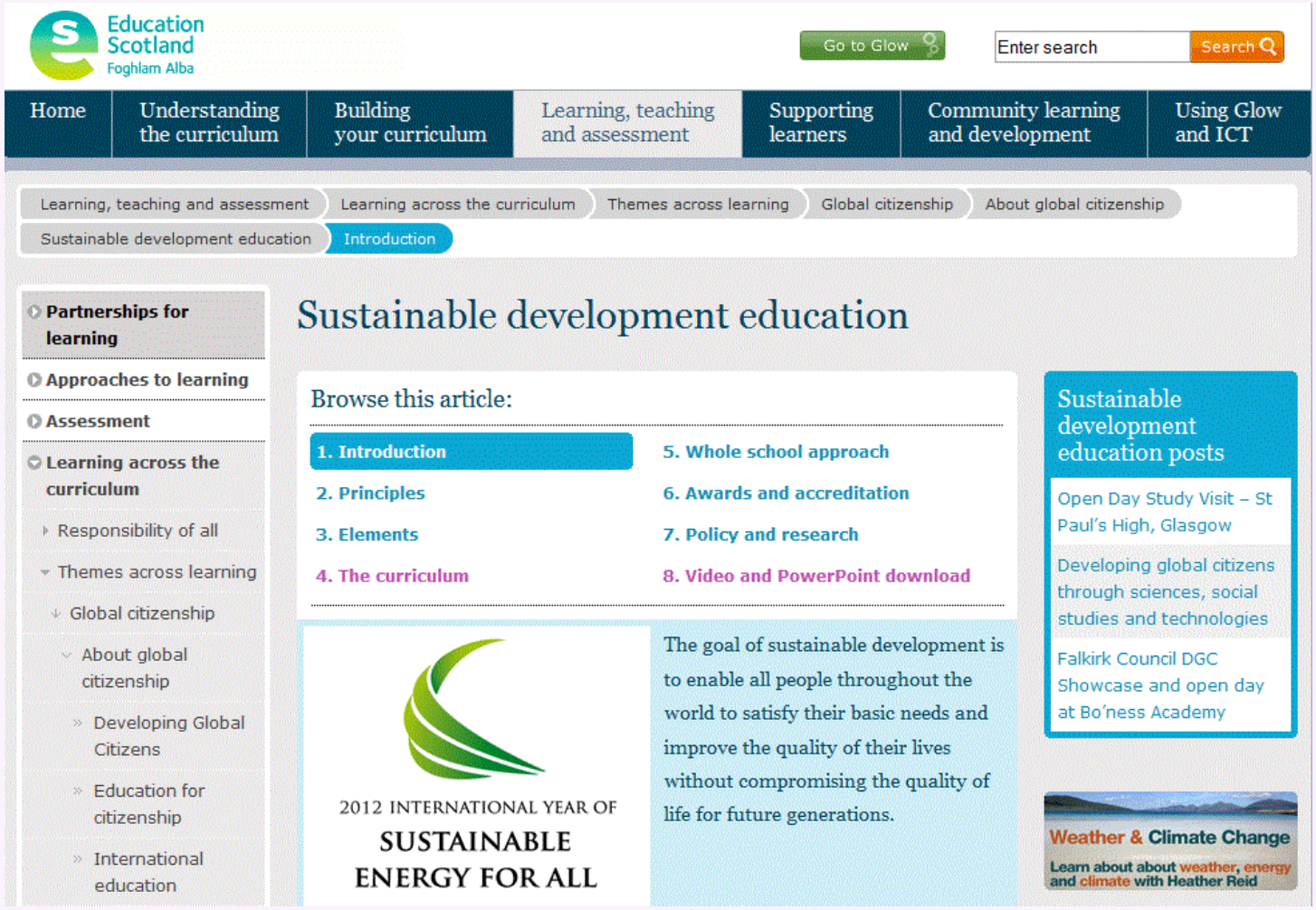
HEA's Education for sustainable development

- Vision: develop curricula and pedagogy that enhance graduates' capabilities to contribute to sustainable and just societies via:

- R&D to influence policy & practice
- Capacity building of individuals, communities & institutions
- Development of strategic cross-sector partnerships
- Stimulating dissemination.

http://www.heacademy.ac.uk/education-for-sustainable-development

Curriculum for Excellence



http://www.ltscotland.org.uk/learningteachingandassessment/learningacrossthecurriculum/themesacrosslearning/globalcitizenship/about/sustainabledevelopment/introduction.asp

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Sustainable Development Education

Developing global citizens within Curriculum for Excellence

http://www.ltscotland.org.uk/learningteachingandassessment/learningacrossthecurriculum/themesacrosslearning/globalcitizenship/about/sustainabledevelopment/introduction.asp

Learning +Teaching Scotland

Sustainable development education seeks to ensure that learners:

- Acquire knowledge of the principles of sustainable development
- Develop understanding of the relevance of the principles to their own lives and to the lives of others
- Develop the skills needed to take decisions guided by these principles
- Value the importance of these principles in sustaining their own wellbeing in addition to the wellbeing of our society, economy and planet.

©HELG 2008

Learning +Teaching Scotland

The challenges facing educators in the transition

- It's the economy stupid!
- Jobs! Jobs! Jobs!
- Short term vs long term
- I want to be an engineer, why do I need to know about the environment
- Lack of joined-up approach

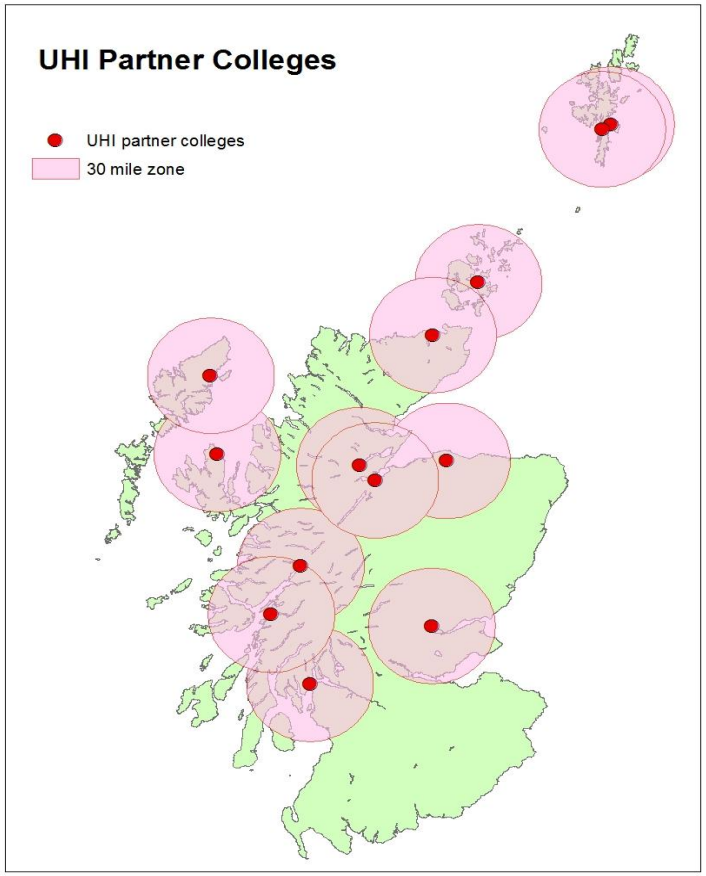
Opportunities

- P3 to PhD
- Students demanding future-proof skills
- Employers demanding sustainably-literate graduates
- Research and knowledge exchange
- Low carbon delivery

What UHI is doing / planning

- Specific awards e.g. BSc Sustainable Development and PDA Renewable Energy
- Research and knowledge exchange e.g. SAMs, CMS and ERI
- Developing 6th year input
- STEM activity in Schools
- Estates and delivery

Regional ambitions

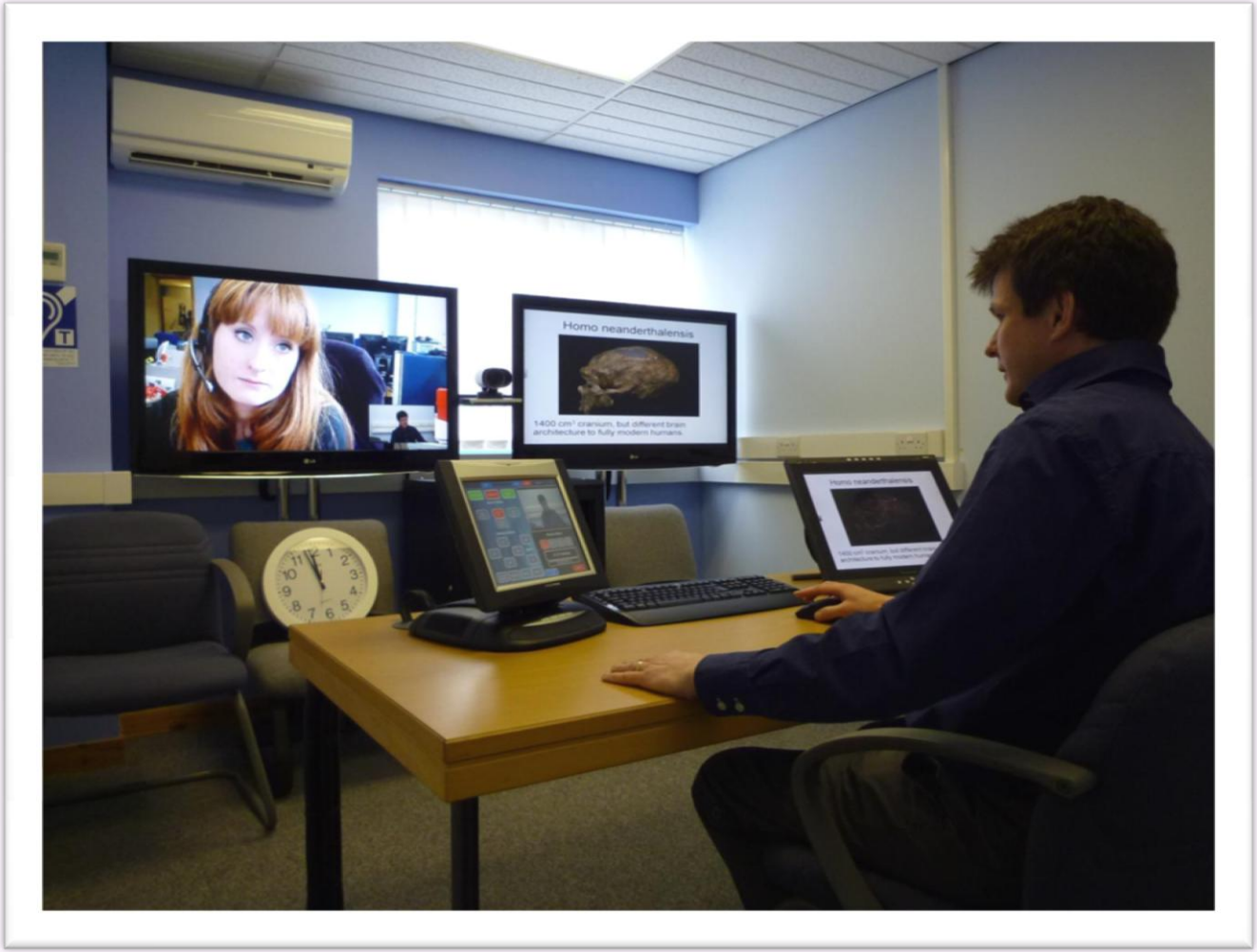


You are never more than 30 miles from.....

- 20 degrees (niche & regional core)
- Ten Masters programmes
- Vocationally focussed HNCs
- Work-based learning / CPD
- FE and links to schools

High quality & flexible learning for the region

VC use, reduced travel



Questions for schools

Where are we on our journey to becoming a sustainable school?

What opportunities exist to help us move forward on this journey?

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