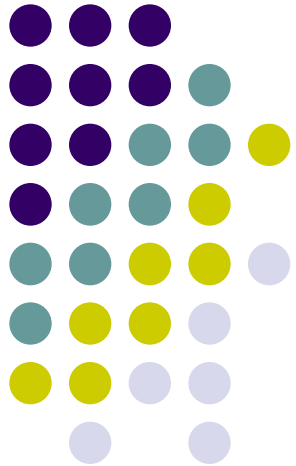
“That’s mad! There’s More Calories in Nutella than Crisps”

Using Inquiry to Teach Nutrition to Students from Disadvantaged Backgrounds

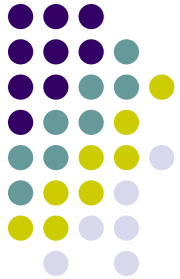
Elaine Doyle



My Context

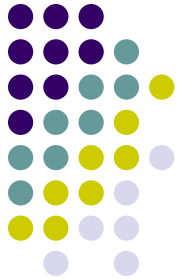
- A small, all-girls Urban DEIS school
- DEIS – “Delivering Equality In Schools”, it means “opportunity” in Irish
- DEIS schools are schools that have been designated disadvantaged by the Department of Education and Skills
- Characterised by learning and behavioural difficulties
- Multi-ethnic mix of students

My challenges



- Classroom practice not meeting pupil needs
- Relevance of Science syllabus to pupil needs
- Improvement needed in pupil
  - behaviour
  - motivation
  - test scores

Inquiry Based Science Education IBSE



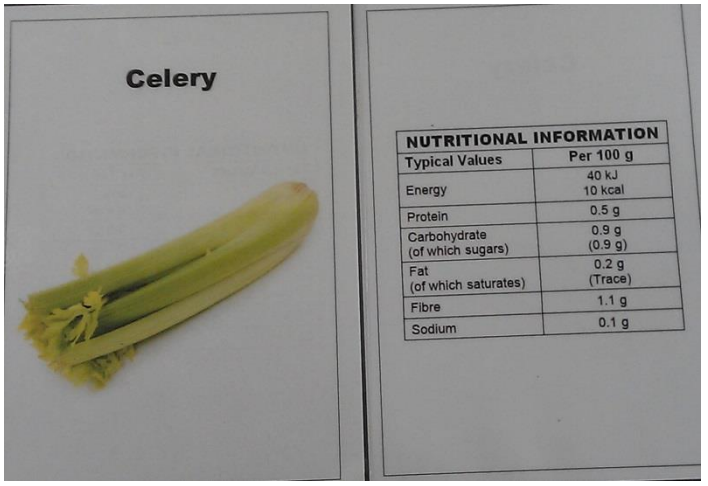
- Rocard Report, 2007
- IBSE
  - "…increases children's **interest** in science learning activities"
  - "… has been shown to have a positive impact on **students' attainments**, with an even stronger impact on … those from **disadvantaged** backgrounds"
  - "… **girls** participate more enthusiastically in the activities and develop a better level of self-confidence than with the traditional approaches to teaching science"

Overcoming challenges

- Enrolled in Amgen sponsored CPD, facilitated by CASTeL
- SAILS project
  - Adaptation of suggested teacher resources
  - Incorporation of higher order thinking skills into my practice – Bloom's Taxonomy

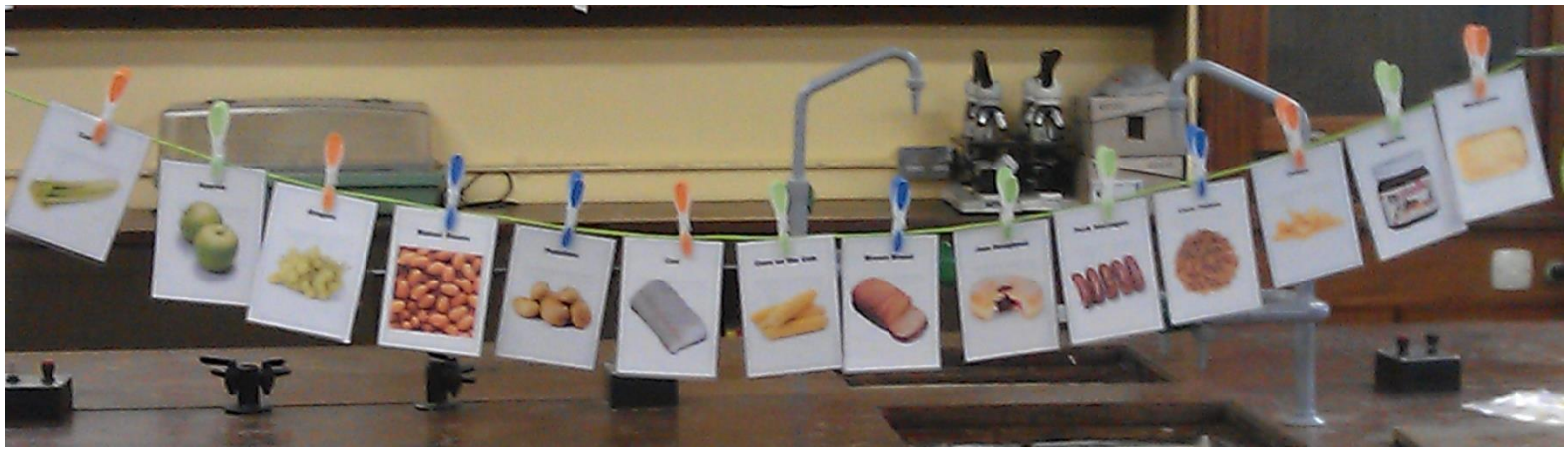
Module - Investigating Food

- Food Cards (flashcards)
  - Photograph with nutritional information on the reverse
  - Designed to maximise the potential comparisons that could be made between foods

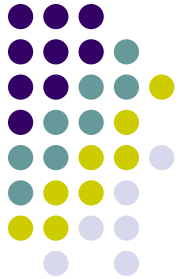


Module - Investigating Food

- The Washing Line
  - String, two retort stands, pegs and a set of food cards
  - A washing line made by suspending the string from the two retort stands



Food Card Student Activities



- In small groups, students:
  - examined a small number of cards
  - commented on any trends they could identify in the nutritional information provided for each food
  - identified foods whose labels may give misleading or inadequate information
  - justified their selections
  - designed their own food labels to include all nutritional information that they thought was necessary

The Washing Line Activity

- Three groups - carbohydrate, energy, fats
  - Hung their cards on the washing line in order
  - From the lowest to the highest carbohydrate, energy or fats value
- Whole class
  - Compared and commented on the order of the foods on each line
  - Identified which nutrient, carbohydrate or fat, was responsible for the energy values of the selected foods
- Small Groups
  - Identified junk foods on the washing lines and
  - Defined what a junk food is

Formative Assessment

- Observation of students during activities
  - Motivation and behaviour
    - All Students:
      - participated in the activities
      - were on task for the duration of the activities
      - were enthusiastic
      - after initial prompting by teacher questions, classroom dialogue was driven by the students

- Peer observation by a science teacher*
  - Critical dialogue on learning outcomes

Summative Assessment

- Written exam
  - Immediately at conclusion of topic
    - No significant difference in student test scores versus others taught in a more traditional, didactic manner
  - End of term exam (6 weeks later)
    - Students scored 20% higher (on average) on questions on the food module than they did on other topics

Conclusions

"That's mad! There's More Calories in Nutella than Crisps"

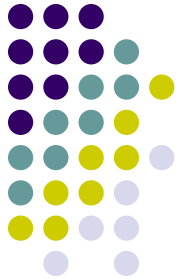
- Formative testing showed general improvements in pupil behaviour, motivation and attention in class
- Summative testing showed improved pupil learning, that was embedded over time (including end-of-year exam results)
- Is the improvement a one off?

Discussion 1

- Inquiry based learning is difficult to assess – learning is so broad and unintended outcomes
- Remember that I began changing my pedagogy primarily to try to improve my students' attitudes towards science – I need more quantifiable evidence of this
- Encouraging higher order thinking skills through IBSE can have 'snowstorm' of unintended learning outcomes
- Sharing our work is important – ***teacher*** learning

Discussion 2

- Impact of inquiry based education on other teachers *“When I tried it out in my own classroom, it was fantastic”
- IBSE (food) module suggestions focus on lower cognitive order thinking skills – need to use full range.
- Syllabus needs ‘space’ to make pupil learning more relevant.
- Effort needed
- More pleasant teaching and learning environment through inquiry base learning approach (initial aim of project)



Thank You!

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