

Workshop A: Implementation of the Matter-Energy Interface Unit

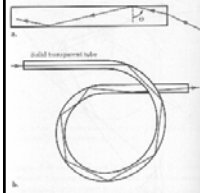


Dr Damian Pope, Director of Scientific Outreach, Perimeter Institute for Theoretical Physics

John Caranci, Physics Teacher (Ret.)

OAPT Saturday May 27, 2006
10:00am - 12:00pm

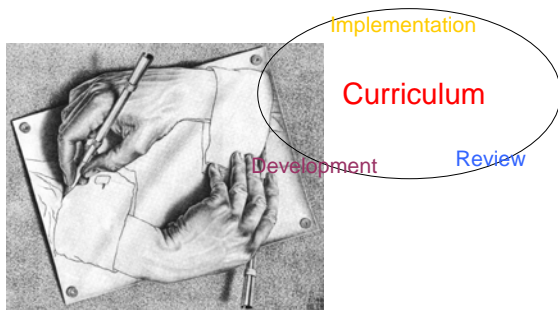
Agenda



- Overview
- CRDI Process
- Review the Unit
- Examples
- Research – CD-ROM
- Your experiences – four by six index cards, ideas, success, assessment and evaluation

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CRDI Process



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Review



The Grade 12 Matter Energy Interface

- What parts will be difficult to conceptually engage students?

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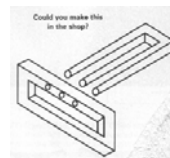
Items to look for



- Neat
- Cool
- Pithy ideas
- Intrinsically interesting objects
- Cognitive dissonance
- Discrepant events
- Everyday experiences
- Higher order thinking skills (especially Evaluation, synthesis and analysis)

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Examples



- Fields demonstration - tubes and magnets: gravity, magnetism, electricity
- Bubbles
- The electric wave
- $\Delta p \Delta x$ on a transparency
- Elastic Bands + heat
- Mobius
- Two experiments from Elgin Wolfe
- Teltron two experiments
- Clifford's Dry Wall Screw Experiment to replace oil drop
- Clothes hangers and string
- Levitation experiment - 250 windings of No 30 wire with a 120 AC current period the loop is about 30 cm in circumference.

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Items of Use

Direct experience

- Demonstrations – tube and magnets
- Projects – storybook
- Experiments – Milliken oil drop, Elgin's, teltron tube
- Lessons and problems

Metaphors

- Demonstrations – soap bubbles
- Projects – creative synthesis
- Experiments – Clifford drywall screw experiment
- Lessons and problems

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The Use of Metaphor



Choose a metaphor
for a quantum
mechanics topic and
present it to the
class in a visual
form.

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Avoid historical approaches

Both in content and pedagogy

UNLESS YOU REALLY KNOW THE
HISTORY OR ARE A GREAT STORY
TELLER

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Brainstorm



- Use index cards to record ideas
- Suggestions for timing and assessment
- Indicate if you have tried it
- Pedagogy

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