Why, who, what and how?

Workshop on science communication
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Agenda

- The Institute of Physics
- My background
- Communicating (about) science - why, who, what and how?
- Some examples:
  - IOP
  - UKAEA
- Suggestions for effective communications

The Institute of Physics

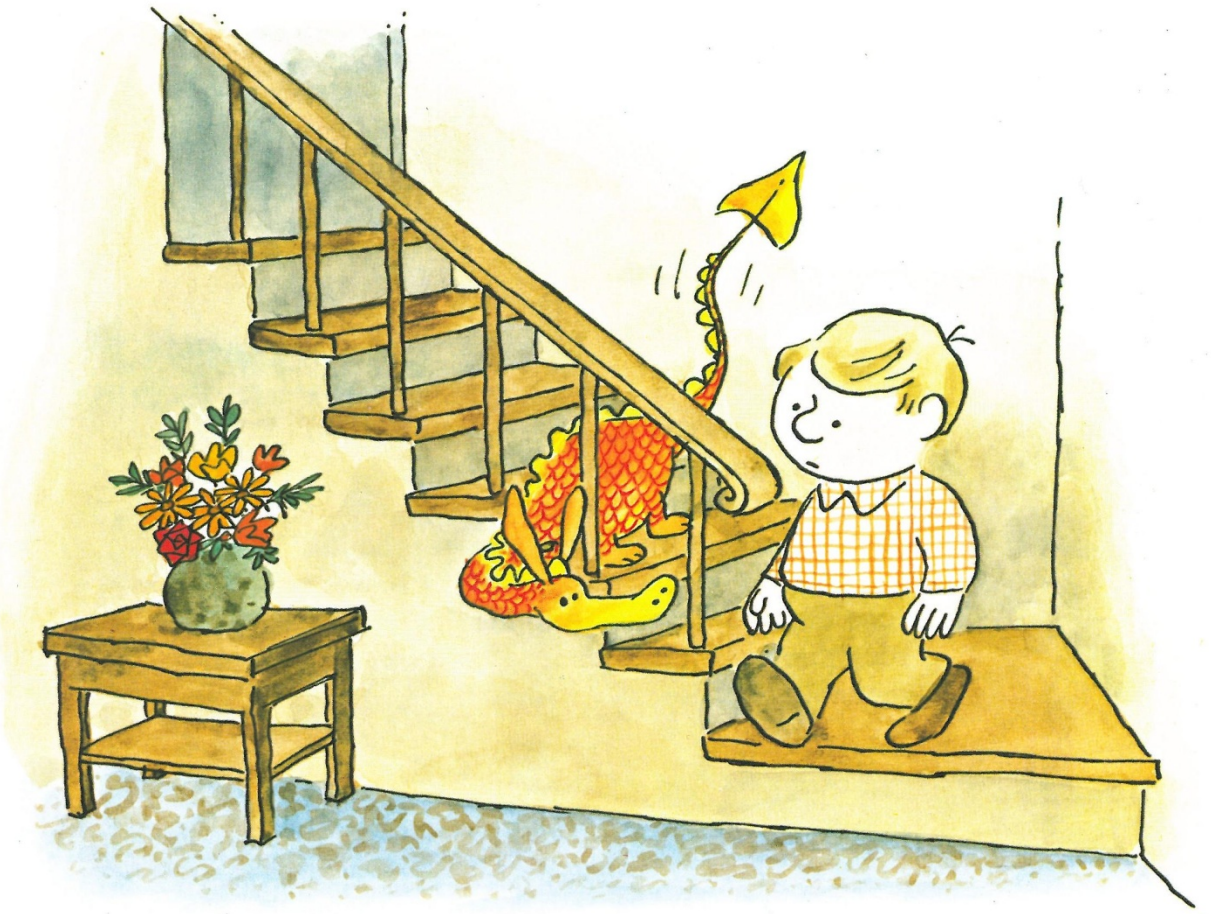
- Scientific membership society
- Mission: to advance physics for the benefit of all
- More than 42 000 members worldwide
- IOP Publishing is a world leader in scientific publishing and electronic communication
- Institute provides member services, educational resources and training, **advocacy and outreach**
- Small but growing Physics for Development programme

My background

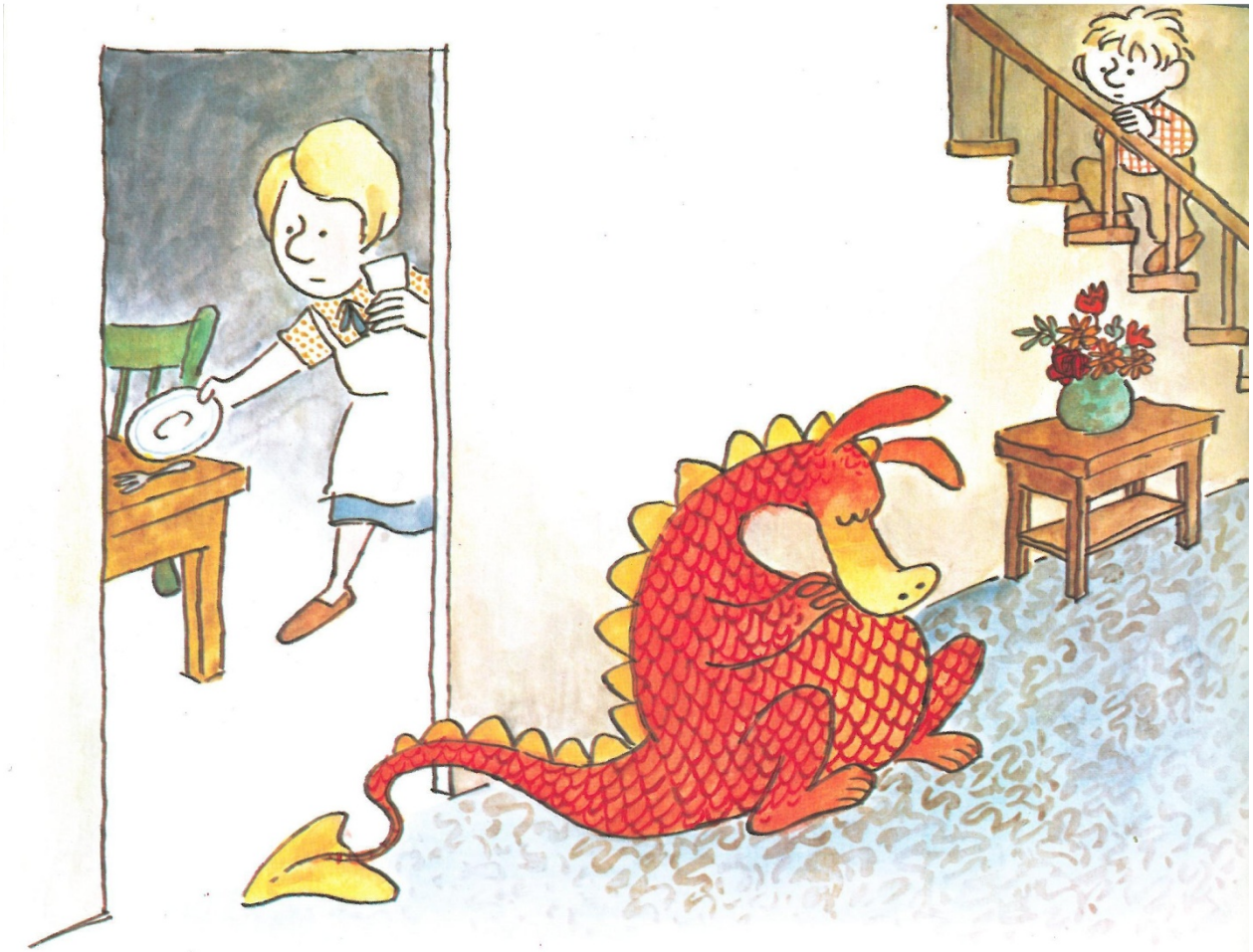
- Degree in natural sciences; PhD in mineralogy
- Civil servant, UK Department of Energy
- Energy policy consultant, Los Alamos National Laboratory
- Energy analyst, UK Atomic Energy Authority
- UKAEA corporate strategy team
- Head of Communications, UKAEA
- Director of Communications, IOP

Billy went downstairs to tell his mother.

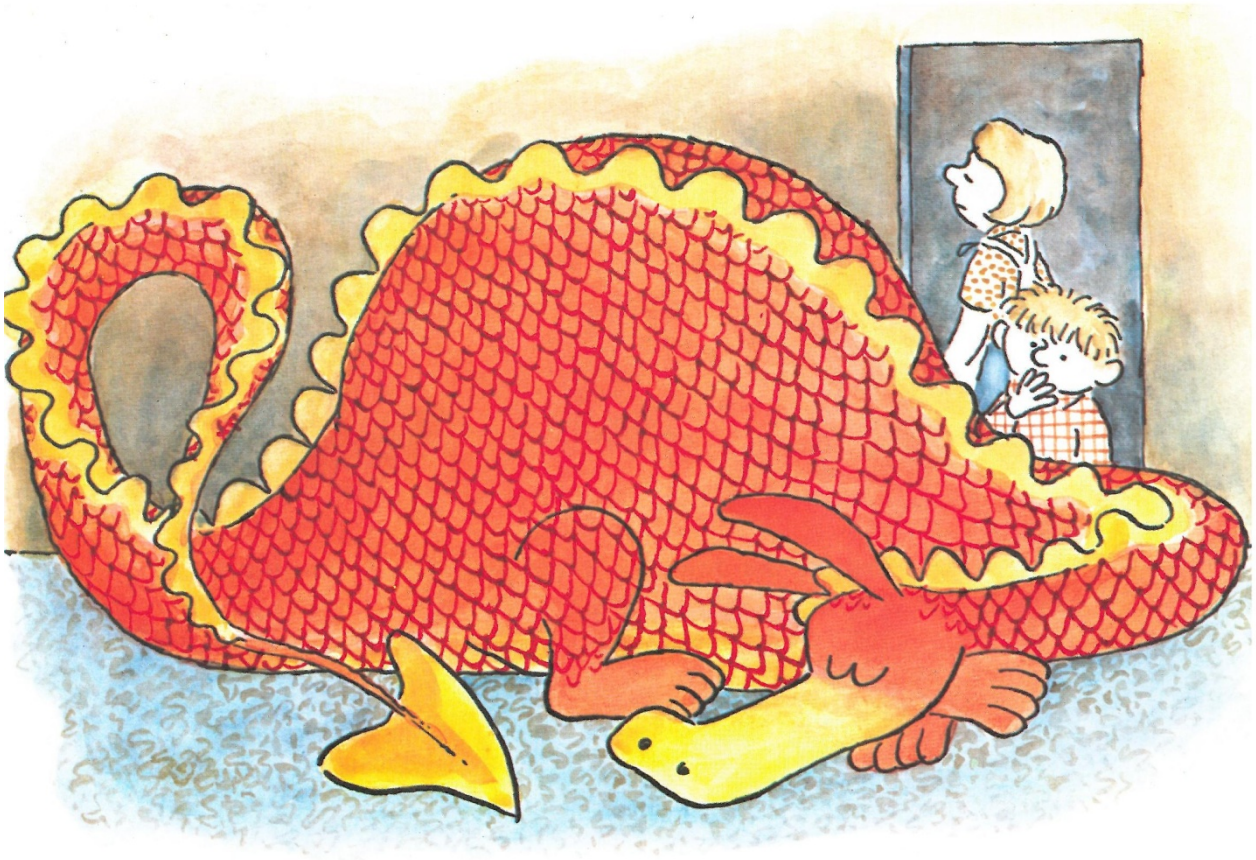
"There's no such thing as a dragon!" said Billy's mother. And she said it as if she meant it.



Billy washed his face and hands and went
down to breakfast. The dragon went, too.
It was bigger now, almost the size of a dog.



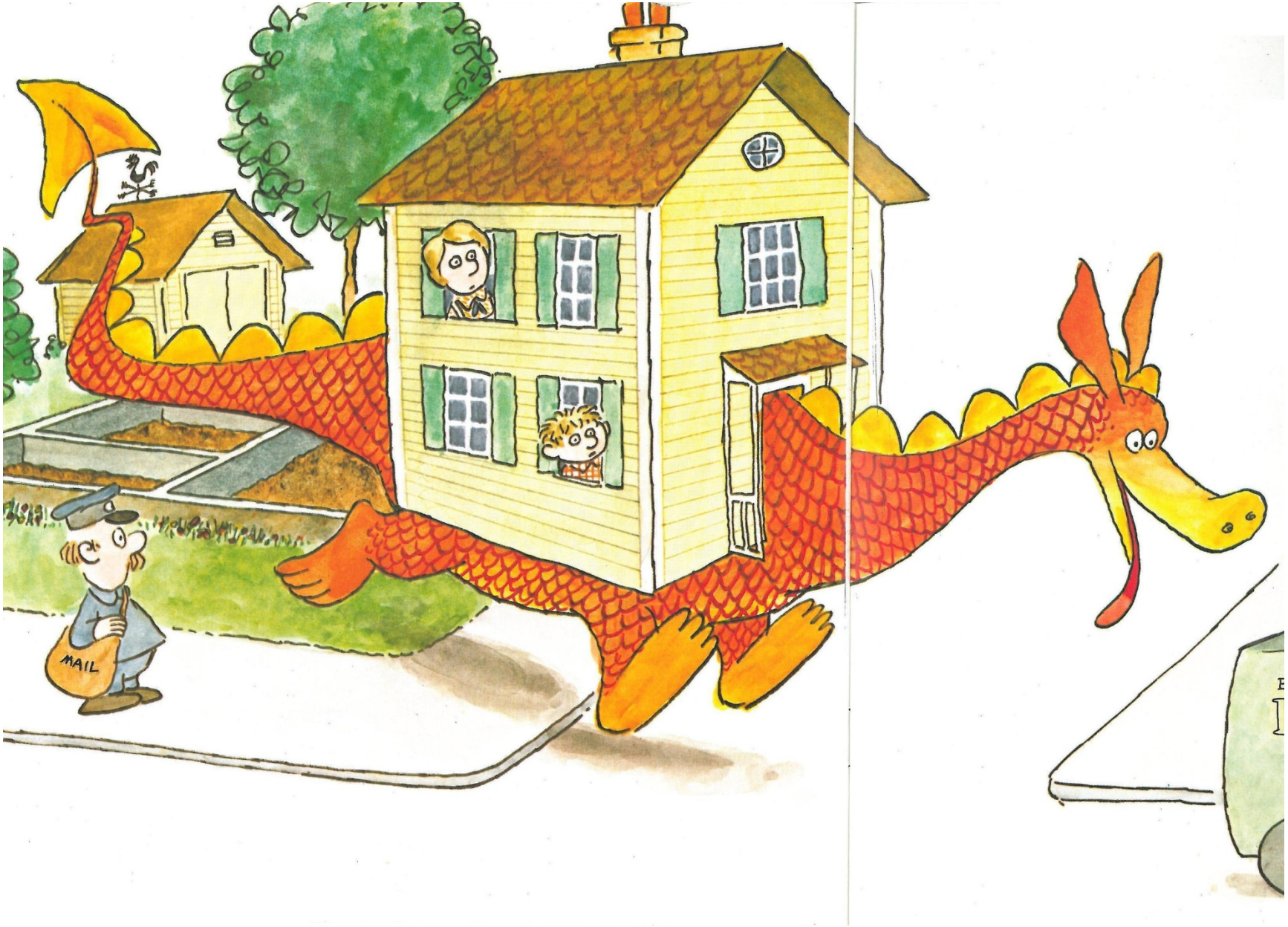
Billy went upstairs to brush his teeth. Mother started clearing the table. The dragon, who was quite as big as Mother by this time, made himself comfortable on the hall rug and went to sleep.



By the time Billy came back downstairs the dragon had grown so much he filled the hall. Billy had to go around by way of the living room to get to where his mother was.

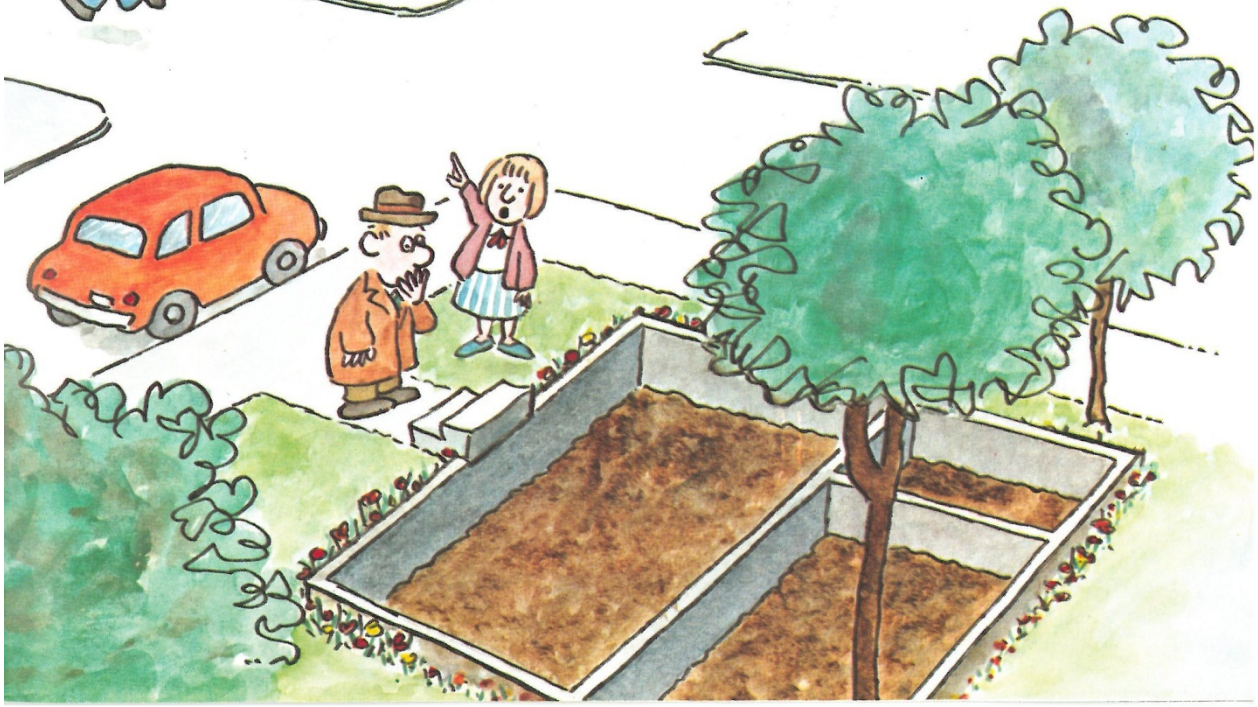
"I didn't know dragons grew so fast!" said Billy.

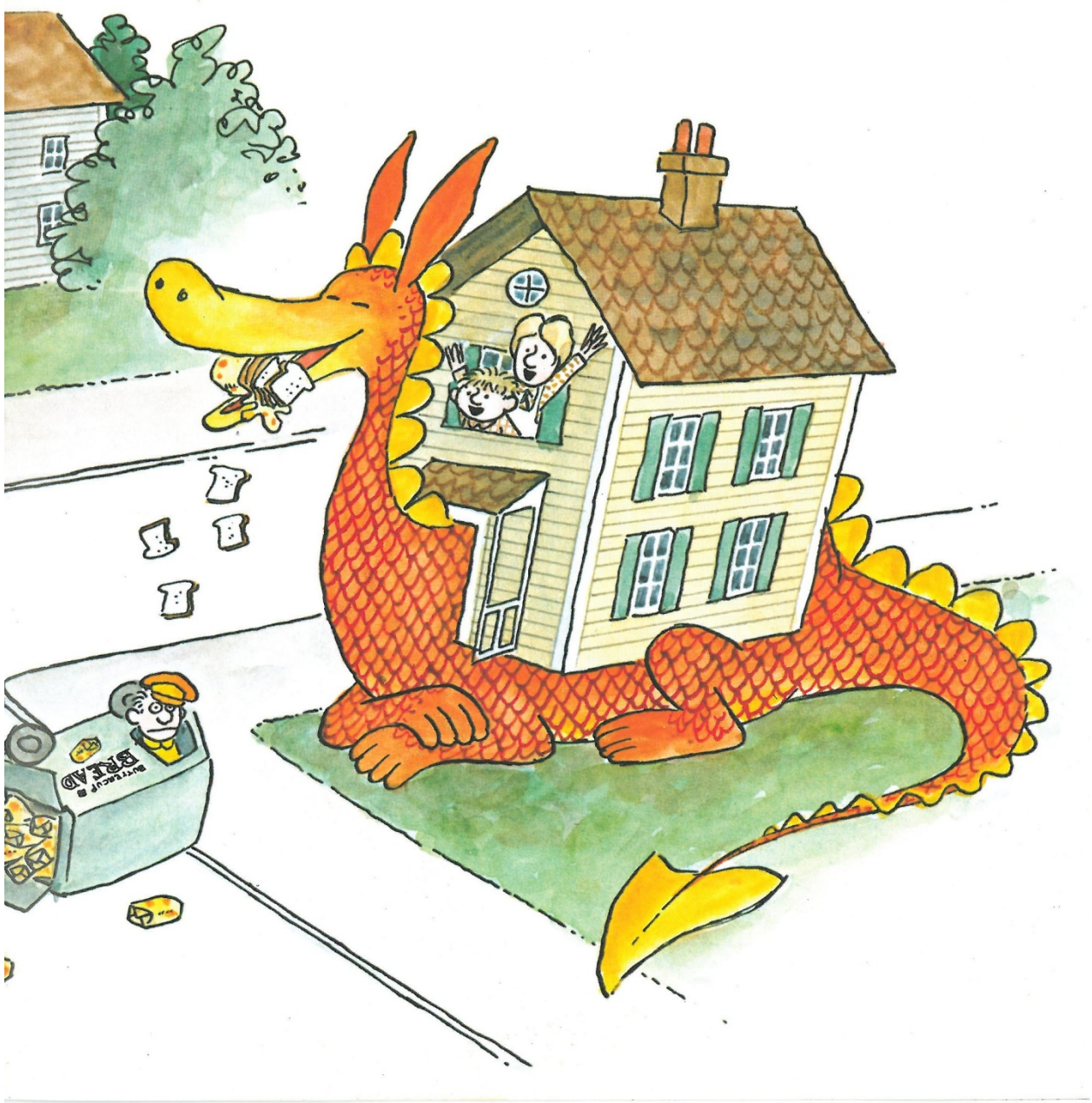
"There's no such thing as a dragon!" said Mother firmly.

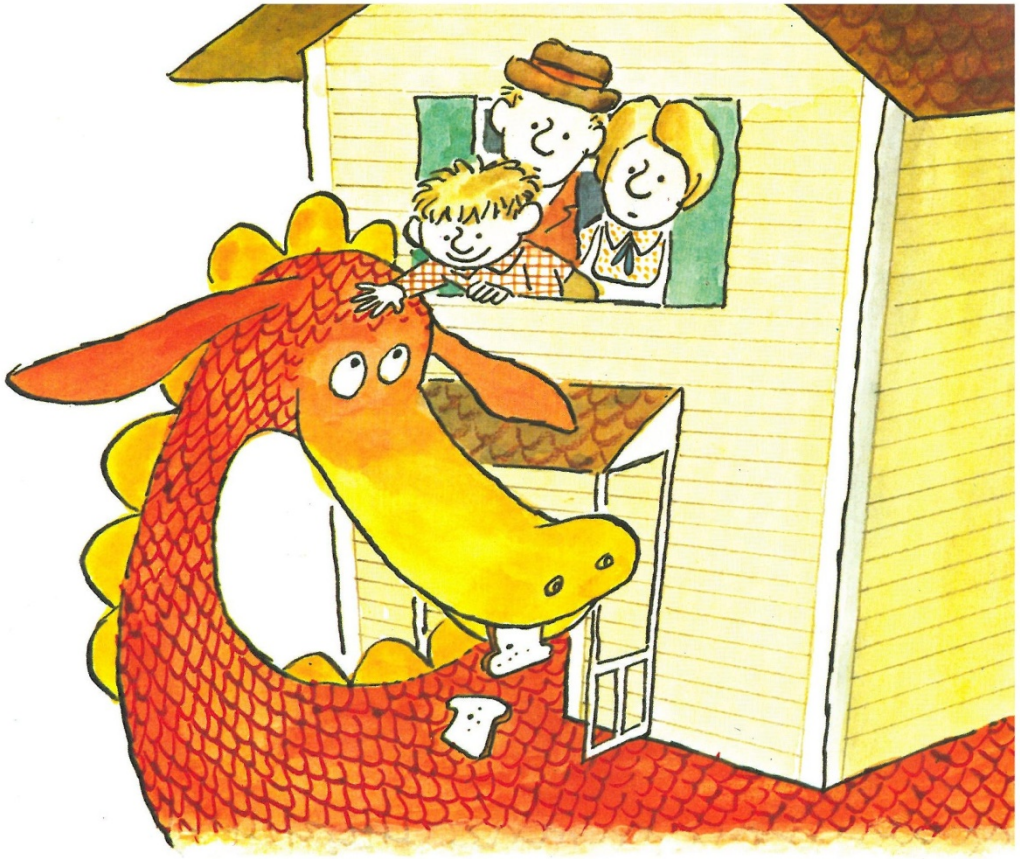

MAIL

When Mr Bixbee came home for lunch, the first thing he noticed was that the house was gone.

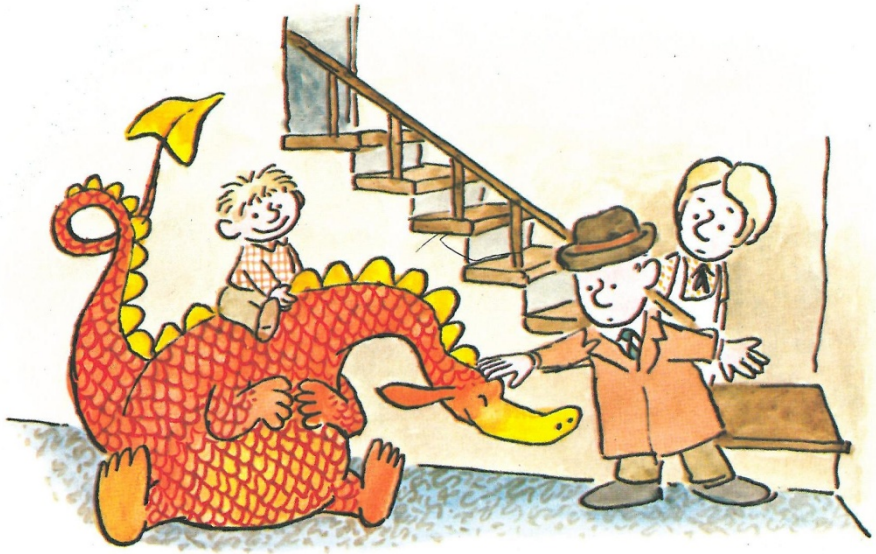
Luckily, one of the neighbours was able to tell him which way it went.




BUTTERCUP
BREAD



"How did this happen?" Mr Bixbee asked.
"It was the dragon," said Billy.
"There's no such thing . . ." Mother started to say.
"There IS a dragon!" Billy insisted. "A very BIG dragon!"
And Billy patted the dragon on the head.



Soon it was kitten-size again.

"I don't mind dragons THIS size," said Mother. "Why did it have to grow so BIG?"

"I'm not sure," said Billy, "but I think it just wanted to be noticed."

Why communicate?

- To influence
- To empower
- To advertise
- To enthuse
- To educate

Exclusions

Two forms of communication not covered today:

- Research publications
- Teacher-led education

Both vital for the future health of science

Influencing

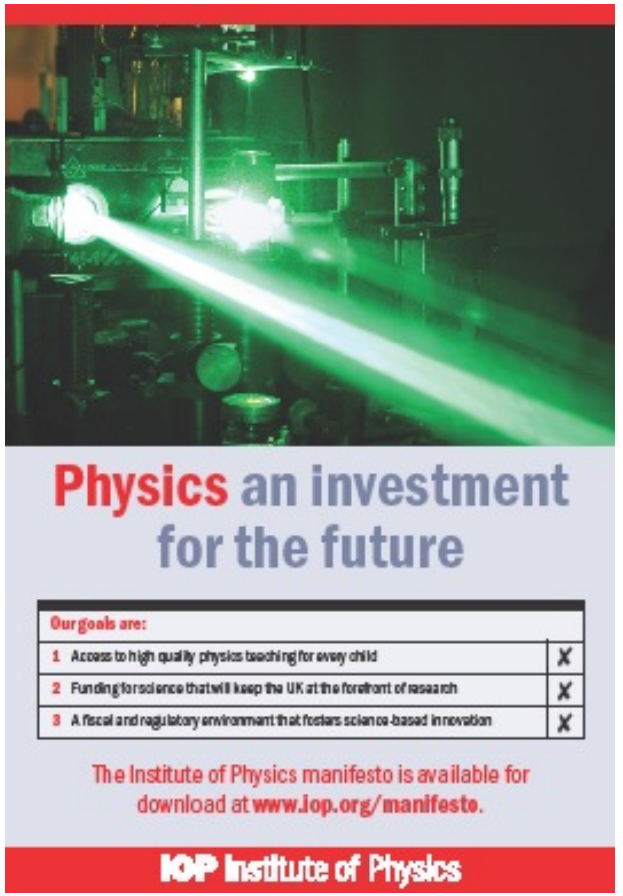
- Why? – to make the case for physics
- Who? – primary target is national and devolved governments
- How? –
  - Directly
  - Through those who influence them:
    - Parliamentarians
    - Civil servants/policy advisers
    - The media
    - The general public

Parliamentarians

- **What? - Value of fundamental research**
- Roundtable discussion
- Physicists, MP's, peers
- Wrote up conclusions
- Published in Science in Parliament magazine
- **Outcome – better understanding of long-term impact**

Parliamentarians

- **What? – political priorities for physics**
- Election Manifesto:
  - Access to physics for every child
  - Funding to keep UK at forefront of research
  - Business environment to foster innovation
- Sent to all candidates, ~90 replies, 24 elected
- **Outcome - core support group for physics**



Comprehensive Spending Review

- **What? – case for investing in science**
- Letter to Chancellor
- Meeting with Science Minister
- Mobilised members, especially businesses, to write to Chancellor/their MP's
- Interview/articles in business press
- **Outcome – best possible result for UK science**

Empowering

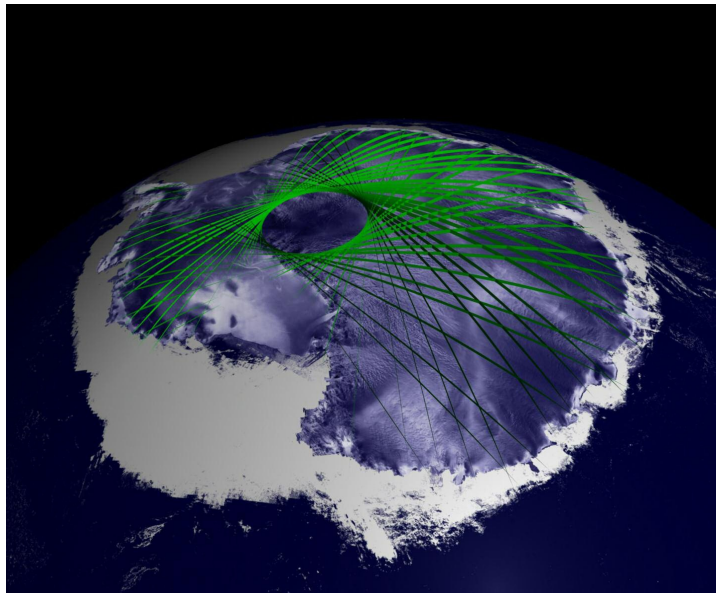
- Why? – to give people the understanding they need to make informed decisions
- Who? – primary target is specific sections of the public
- How? –
  - Directly
  - Mass media
  - New media

Decisions on managing radioactive waste

- **What? – pros and cons of different options for LLW (BPEO)**
- Web-based consultation
- Coverage in Scottish media
- Discussion with small groups of stakeholders
- **Outcome – public acceptance of new storage facility**

Debunking climate change myths

- **What? – basic physics behind global warming**
- Briefing note on physics and climate change
- Published on website
- Mailed to key audience
- Publicised via press release and social media
- **Outcome – better understanding of facts vs opinion**



Advertising

- Why? – to raise the profile of research
- Who? – primary target is mass media (science, environment etc correspondents)
- How? –
  - Press releases
  - Journalist briefings
  - New media – blog, Twitter and Facebook

Roberto Carlos 1997 free kick

- **What? – quirky paper in New Journal of Physics**
- Press released 2010
- Substantial national and international coverage:
  - BBC evening news
  - All major braodsheets
  - Brazilian TV news
- **Outcome – public interest in physics; media attention for NJP authors**

Neuron research and hearing loss

- **What? – paper in Journal of Neural Engineering on potential to restore hearing loss**
- Press released, 2010
- Substantial national and international media coverage
- **Outcome – public appreciation of what physics can do for health care; media attention for JNE authors**

Enthusing

- Why? – to encourage young people to study physics
- Who? – primary target is young people who would not normally be interested in physics, and their families
- How? –
  - Face-to-face activities
  - Marketing materials
  - www.physics.org
  - Social media

Physics in the Field

- 14 events during 2010
- >20,500 people reached during 2010
- High quality interaction
- Wide demographic
- Makes use of student members as volunteers
- Delivery model taken up across the country

Spooky Science at Butlins

- At all three resorts during all school holidays in 2010
- Reached 35,000 visitors in family groups
- Evaluation shows families welcome science activities and want more
- Butlins very happy

Physics on buses, beer mats and bags

- Aim to get people talking about physics with their friends and colleagues
- Beer mats and buses very successful
- Rethinking messages for end year campaign “I owe physics for ….”

Educating

- Why? – to supplement school experience (often less than ideal)
- Who? – primary target is children in school
- How? –
  - In-school activities
  - Youth membership
  - Social media

Lab in a Lorry

- Experiments on wheels, parked in school play ground
- Staffed by volunteers – real working scientists
- Two lorries running in different regions of UK
- One lorry in process of being donated to South Africa
- Expensive – dependent on government/corporate donations
- www.labinalorry.org.uk

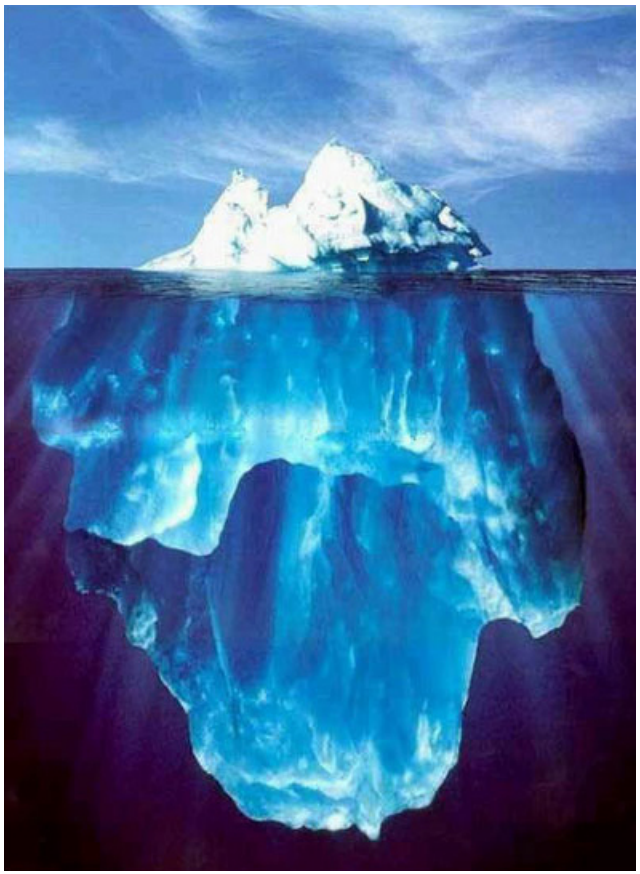
SciCast Physics www.planet-scicast.com

- Short film making competition to explain a principle of physics in less than 2.5 minutes
- Initiated by NESTA for all sciences – physics has been particularly strong
- Participation increasing 70% year on year

Presentation skills

Three things you really need

- **Belief** in your story, product, offer …….
- **Confidence** in your own authority
- **Preparation** – the iceberg effect



Presentation skills (2)

- Know your **audience**
- Big or small?
- Technical or lay?
- What do they really want?
- **Put yourself in their shoes**

Presentation skills (3)

- People learn in different ways
- Use **words, pictures, graphs, Q&A**
- Keep it **simple**
- Keep up the **energy level**

Some tricks to remember

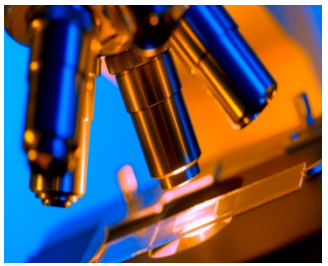
- **Make it memorable** – a striking analogy; a surprising statistic; a gesture …….
- **Follow up** immediately
- Make use of **third party advocates**

The magic power of three

- UKAEA mission - “faster, safer, cheaper”
- IOP’s strapline - **For physics * For physicists * For all**
- Key messages from today
  - know your audience
  - prepare your material
  - make it memorable (get noticed)

3





For physics ● For physicists ● For all