We will begin momentarily at 2pm ET

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Have Questions?

“Why am I muted?”
Don’t worry. Everyone is muted except the presenter and host. Thank you and enjoy the show.

Type them into questions box!

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Thursday, August 27, 2015

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VISUAL CHEMISTRY BY DESIGN

• Why communicate chemistry visually?

• How can we communicate chemistry to a non-specialist audience?

• How can we engage a non-specialist audience?

• What resources can be used to create infographics?

WHY COMMUNICATE CHEMISTRY VISUALLY?

• Chemical structures lend themselves to a visual approach.
• Provides clear and succinct summary of topics.
• Higher online engagement – images achieve greater reach and engagement than text.

IMAGES VS. TEXT: REACH AND ENGAGEMENT

<table>
<thead>
<tr>
<th></th>
<th>REACH</th>
<th>ENGAGEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Images</td>
<td>6604</td>
<td>3151</td>
</tr>
<tr>
<td>Text</td>
<td>7.0%</td>
<td>2.5%</td>
</tr>
</tbody>
</table>
AUDIENCE INTERACTIVE POLL

WHERE DO YOU USUALLY GET YOUR CHEM NEWS?
(You may choose multiple sources)

- Chemistry/Science-based news sites (e.g. C&EN, Chemistry World, Nature News, New Scientist)
- General news sites
- Scientific journals
- Social media-based sites (e.g. IFLS)

COMMUNICATING RESEARCH VISUALLY

- Some research articles and chemistry news articles include graphical abstracts or summaries, but they tend to be under-utilised.
GRAPHICAL ABSTRACTS — COMPARE & CONTRAST

Astaxanthin bound form

As uncooked crustaceans, the compound astaxanthin is bound to the protein crustacarin, the negatively charged carbon containing groups in the red colour.

Astaxanthin unbound form

The astaxanthin protein denatures when cooked, which releases the carotenoid from its bound state, leading to the blue or green appearance.

COOKED CRUSTACEAN COLOUR CHANGES

#TWICHEM: http://goo.gl/7R1z1

COMPOUNDCHEM.COM
POLL: WHICH INFO IS QUICKEST AND EASIEST TO INTERPRET?

<table>
<thead>
<tr>
<th>Color</th>
<th>Metal</th>
<th>Example compounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>Strontium (intense red)</td>
<td>Sr(NO₃)₂ (strontium carbonate)</td>
</tr>
<tr>
<td>Orange</td>
<td>Calcium</td>
<td>CaO₂ (calcium chloride)</td>
</tr>
<tr>
<td>Yellow</td>
<td>Sodium</td>
<td>NaNO₃ (sodium nitrate)</td>
</tr>
<tr>
<td>Green</td>
<td>Barium</td>
<td>Ba(NO₃)₂ (barium chloride)</td>
</tr>
<tr>
<td>Blue</td>
<td>Copper</td>
<td>Cu(NO₃)₂ (copper chloride)</td>
</tr>
<tr>
<td>Indigo</td>
<td>Cesium</td>
<td>CsNO₃ (cesium nitrate)</td>
</tr>
<tr>
<td>Violet</td>
<td>Potassium</td>
<td>KNO₃ (potassium nitrate)</td>
</tr>
<tr>
<td>Gold</td>
<td>Charcoal, iron, or tampoe</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>Titanium, aluminum, beryllium, or magnesium powders</td>
<td></td>
</tr>
</tbody>
</table>
THE CHEMISTRY OF GLOW STICK COLOURS

How do glow sticks produce light?
When glow sticks are heated, the inner glass tube breaks, releasing hydrogen peroxide solution. The then reacts with sodium iodide, producing CO₂ and oxygen, which escape. This causes the phosphors to change to different colours when the energy is absorbed by electrons in the molecules, which then fall back to their ground state, releasing energy in the form of light.

bit.ly/GlowstickChem

A Rough Guide to SPOTTING BAD SCIENCE

1. EDUCATIONAL HEADLINES
2. MOTIVATIONAL HEADLINES
3. OVERSIMPLIFIED EXPLANATIONS
4. CORRELATION VS CAUSATION
5. UNAPPROPRIATE CONCLUSIONS
6. PROBLEMS WITH SAMPLE SIZE
7. UNPROVIDED SAMPLE SIZE
8. INCONCLUSIVE RESULTS
9. UNCONVINCING LEADERBOARD
10. INCONVINCING INDEX

bit.ly/SpotBadSci

A Rough Guide to TYPES OF SCIENTIFIC EVIDENCE

1. ANCTRL & EXPERT OPINIONS
2. CASE SERIES & CASE STUDIES
3. CASE REPORTS & COHORT SERIES
4. COPROOF SERIES & COHORT SERIES
5. RANDOMIZED CONTROLLED TRAILS
6. SYSTEMATIC REVIEW

bit.ly/ScientificEvidence
INFOGRAPHIC GUIDELINES

- Avoid ‘long’ infographics – square or rectangular dimensions work best.
- A general audience needs a ‘hook’.
- Good balance of text vs. images.
- Sensible use of colour
- Sensibly sized text – avoid lower than size 12 where possible.
- Well-referenced information – the #ICanHazPDF hashtag is a useful one on Twitter if you don’t have access to particular journals containing studies of interest.
- For general audience: use technical terms sparingly, or accompanied by explanations.
- Consider license graphic will be shared under.
INFOGRAPHIC RESOURCES

ChemDraw
Chemical drawing program. Also allows tweaking of appearance of chemical structures.

Adobe InDesign
Desktop publishing program. Other, free desktop publishing programs are also available online.

Pixabay
Very useful resource for public domain pictures (freely usable). publicdomainpictures.com is another.

INFOGRAPHIC RESOURCES

Font Squirrel
Useful site for free font downloads. WhatTheFont.com allows image uploads to identify fonts.

Adobe Colour CC
Free online colour picker that will also automatically generate complementary colours or shades.

The Noun Project
Free icons for design projects. Most are CC licensed, though there are some public domain icons as well.
TAKE-AWAY IDEAS

• Consider the use of simple infographics to help communicate chemistry topics or research.

• Make use of free resources online to help produce visual communications.

• Avoid over-complication – keep communication as jargon-free as possible, and don’t over-crowd the design.

THE COMPOUND INTEREST BOOK
8 OCTOBER 2015 IN THE UK
EARLY SPRING 2016 IN THE US

Focusing on the chemistry of food and drink – clear chemical explanations for strange effects.

bit.ly/WhyDoesAsparagus
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