

Sponsoring IUPAC Bodies:

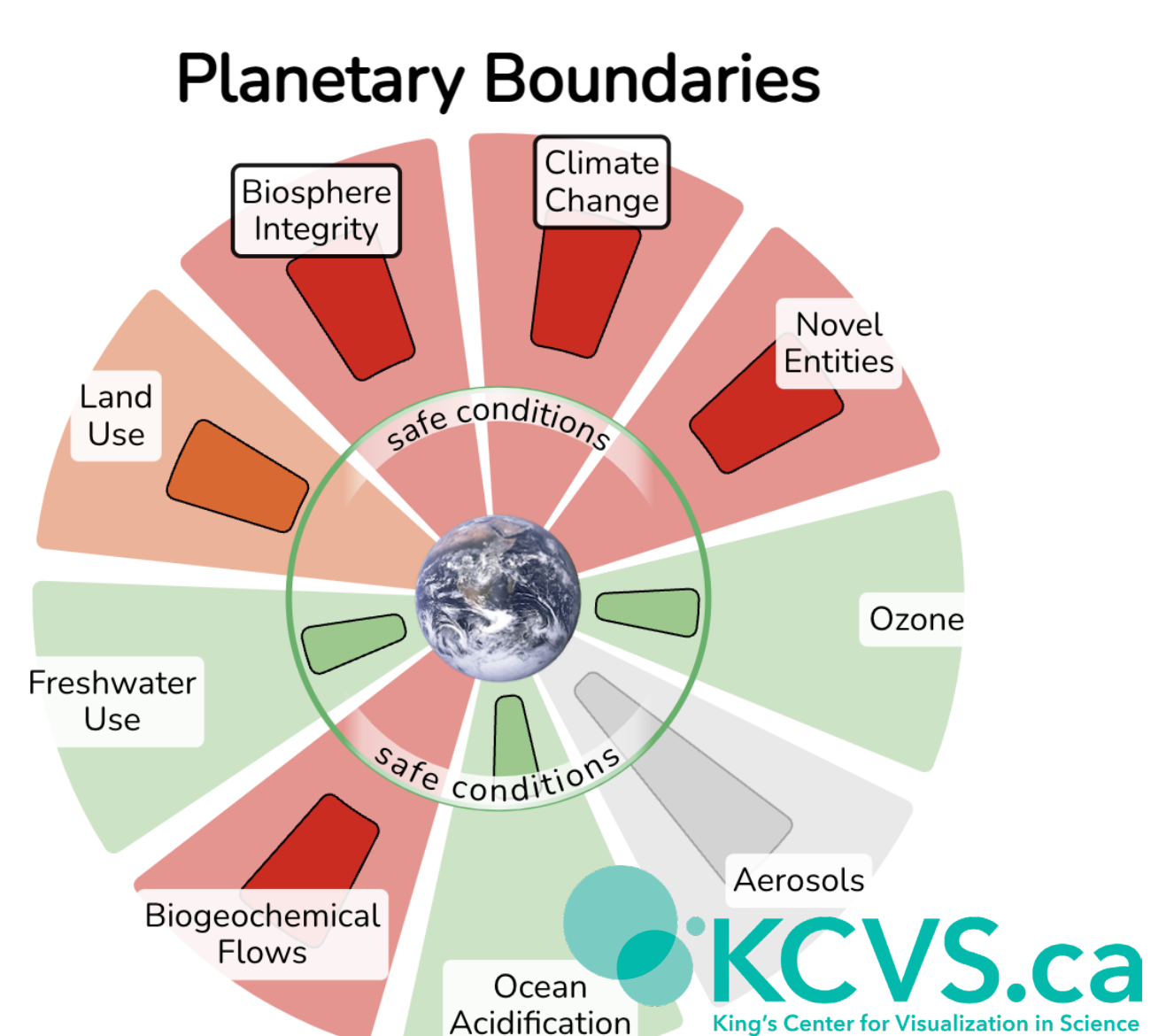
- Committee on Chemistry Education (CCE) – Project lead
- Committee on Chemistry and Industry
- Interdivisional Committee on Green Chemistry for Sustainable Development

Objectives:

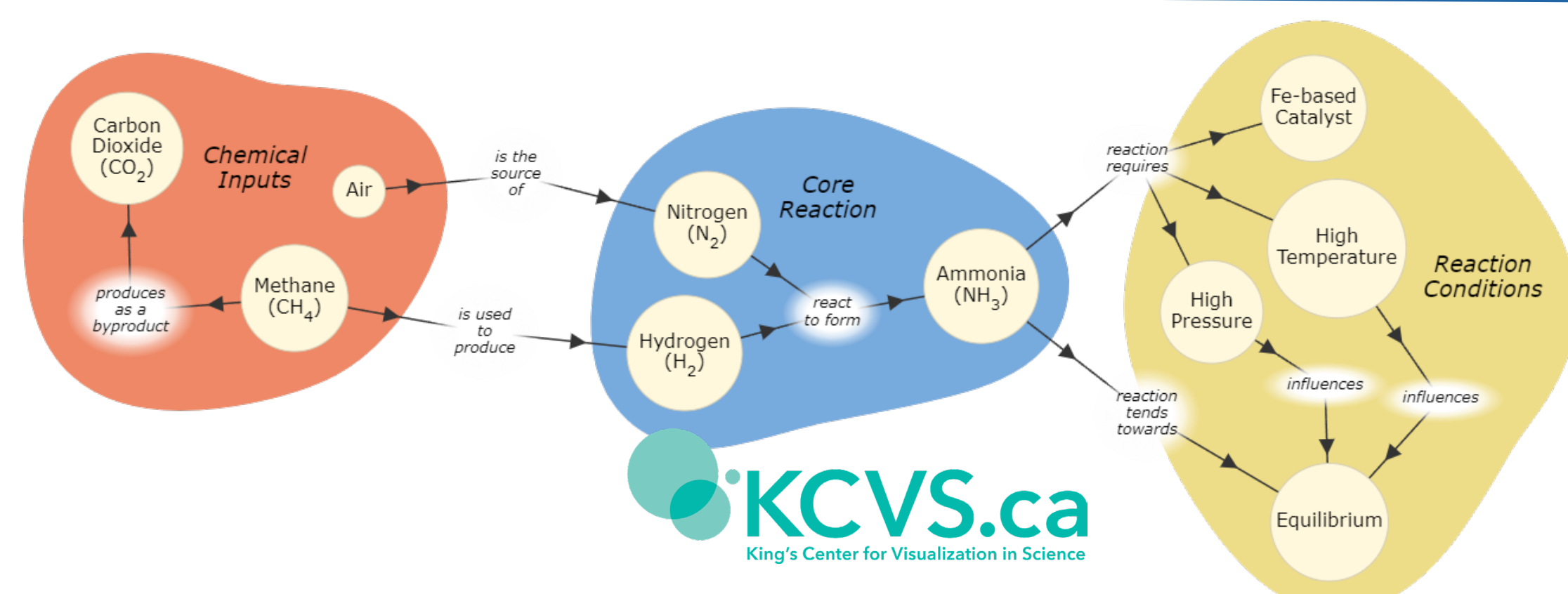
- Highlight and support inclusion of ST in chemistry education to emphasize chemistry as a central sustainability science
- Guide the use of ST in chemistry education
- Explore roles for chemical industry

Key Outcomes:

Featured project of IYBSSD2022-2023: “Systems thinking to link sustainability goals to chemistry education through the Planetary Boundaries framework.”

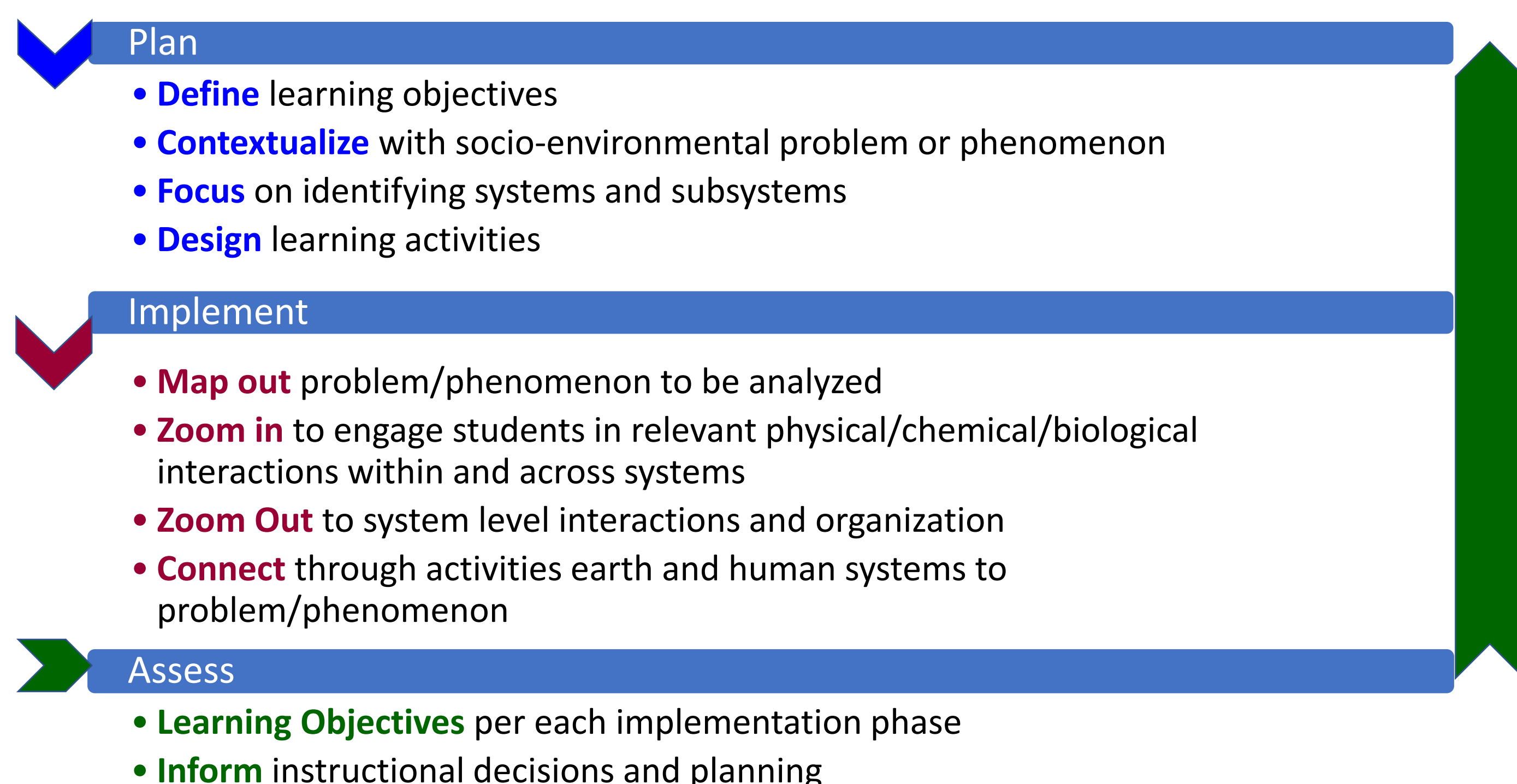


The KCVS planetary boundaries interactive visualization showing the status of the Earth system processes that keep the planet in balance and highlights the role for chemistry.



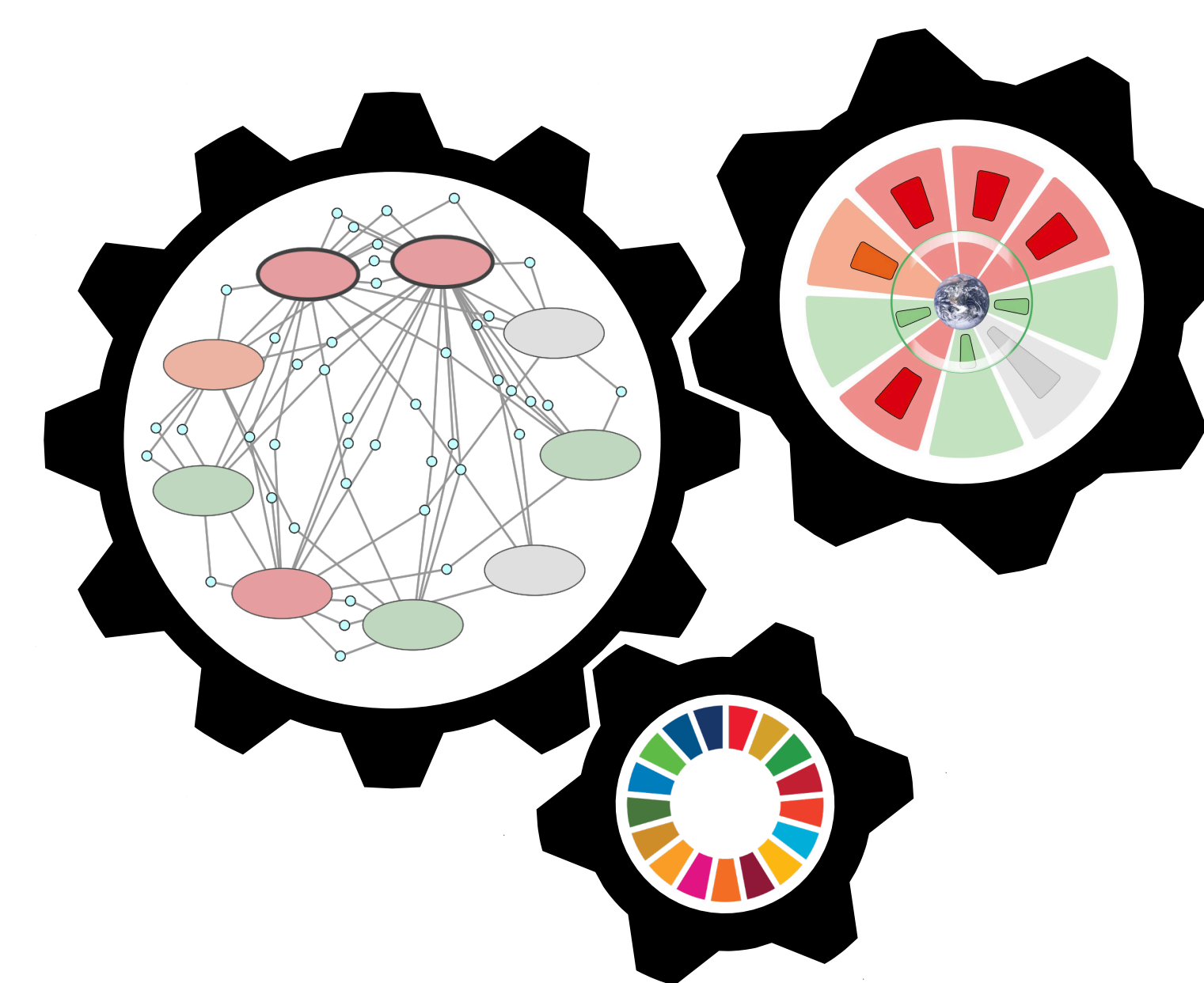
SOCKit, a KCVS dynamic interactive SOCME building tool for educators and students to connect concepts and subsystems together in a visual and interactive way.

Incorporation of “Systems Thinking” into chemistry teaching



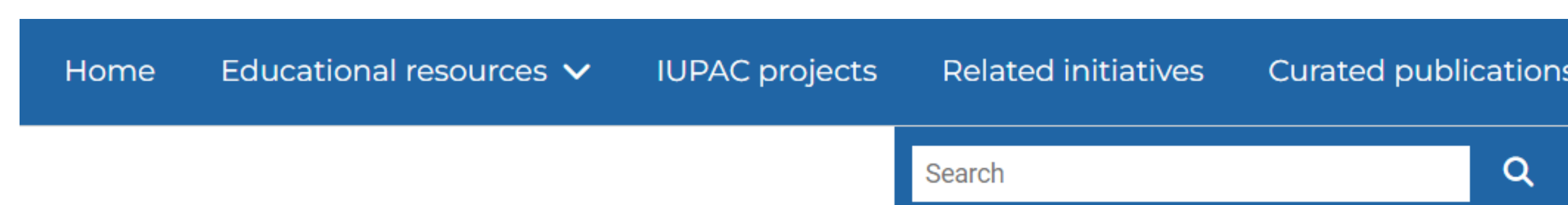
STICE Integration into chemistry teaching, a tool for educators created by Vicente Talanquer and the project group.

- How to get started incorporating systems thinking into teaching.
- Examples under development: ocean acidification, surfactants, and plastics.

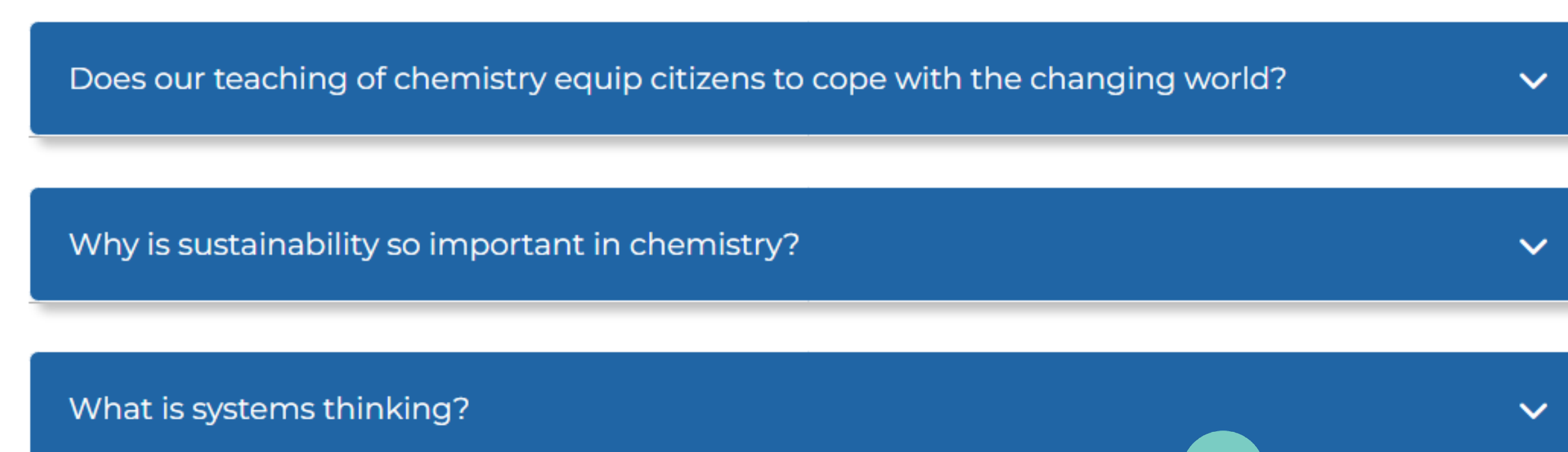


Dissemination:

- Featured on the IUPAC homepage to celebrate the International Day of Education with the theme “Changing Course, transforming education”. (Jan 2022)
- “Systems Thinking and Sustainability: Converging on chemistry’s role in the 21st Century” featured in Chemistry International. (Oct 2021)
- “Integrating Sustainability into Learning in Chemistry,” editorial in the Journal of Chemical Education to coincide with Earth Day. (Apr 2021)
- “An Interactive Planetary Boundaries Systems Thinking Learning Tool to Integrate Sustainability into the Chemistry Curriculum,” J. Chem. Educ. (Sep 2022)
- SaSTICE, a new website (link coming!) built by KCVS to provide educators with a hub for systems thinking and sustainability resources and tools. (2022-23)



Sustainability and Systems Thinking In Chemistry Education



Next steps:

Dissemination through web site, talks, and workshops
Project extension requested from CCE.

Project Members:

- | | |
|---------------------|-----------------------|
| Co-chairs: | Tom Holme |
| Peter Mahaffy | Klaus Kümmerer |
| Stephen Matlin | David Laviska |
| Marietjie Potgieter | Rachel Mamlok-Naaman |
| Bipul Behari Saha | MaryKay Orgill |
| Aurelia Visa | Jean Pelin |
| Members: | Michael Seery |
| Jan Apotheker | Alisha Szozda |
| Amy Cannon | Vicente Talanquer |
| Seamus Delaney | Jane Wissinger |
| Alison Flynn | Vivian W. W. Yam |
| Ruby Hanson | Sarah York |
| Felix M. Ho | Vânia G. Zuin Zeidler |

