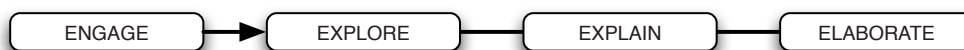


Structure and bonding



Background

These SPICE resources can be drawn together into a learning pathway for students to develop their understanding of structure and bonding and how they relate to the properties of materials. The pathway is structured around a constructivist model based on the 5-Es where teachers can:

- **Engage** students interest and minds in the concepts. Students watch a video that explains how chemists create a new structure.
- Provide opportunities for students to **Explore** what they know about the concepts. Laboratory-based activities lay the foundation for students to link properties of common materials with types of bonding.
- **Explain** the concepts. A learning object builds an explanation of the relationship between bonding, structure and properties of materials.
- Provide opportunities for students to **Elaborate** on the concepts. Here students can apply their knowledge in different contexts and extend their knowledge of and about science.
- **Evaluate** students' progress throughout the pathway.

The pathway has been designed for teachers of senior school chemistry but it may also be used with students in earlier years at the discretion of the teacher.

Learning pathway



Structure and bonding 1: Molecular structures

Molecular structures includes a videoclip, teachers guide and worksheet.

This resource engages students by showing the steps a chemist goes through to create a new structure. See the teachers guide for detailed information on the purpose and use of this resource.



Structure and bonding 2: Exploring conductivity

Exploring conductivity comprises a teachers guide, a worksheet and a procedure sheet.

In this resource students classify common substances into groups based on their conductivity in solid and liquid states, and aqueous solution. See the teachers guide for further information on the purpose and use of this resource.



Structure and bonding 3: Chemical bonds

Chemical bonds comprises a teachers guide, interactive learning object and student worksheet.

Students complete a worksheet that guides them through animations of different types of chemical bond. See the teachers guide for further information on the purpose and use of this resource.



Structure and bonding 4: Molecules by design

Molecules by design comprises a teachers guide and four fact sheets for students.

This resource shows how scientists use, make and break chemical bonds to create new materials and structures with required properties. See the teachers guide for further information on the purpose and use of this resource.

Acknowledgements

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