KNOWLEDGE
1. What does LCD stand for?
2. When and how were liquid crystals first discovered?
3. Where can nematics be found in nature?

COMPREHENSION
4. What two properties of nematics make them useful for making computer screens?
5. How would you describe a free surface?
6. What happens to a nematic when a voltage is applied?

APPLICATION
7. How is it possible to fill a glass of water to slightly above the edge of the glass? (You can try this yourself!)
8. What shape would a water droplet have if it was in space? Why?

ANALYSIS
9. In what ways is a nematic like a solid crystal? In what ways is it like a liquid?
10. As an experimental physicist and an applied mathematician, why is it important that Akhshay and Joseph are collaborating on this project? Why could neither of them fully understand nematics if they worked alone?

SYNTHESIS
11. Paint, blood and ice cream are all examples of soft matter. How and why might a mathematician, physicist, chemist, biologist, engineer and social scientist each study these substances?

MORE RESOURCES
The University of Strathclyde runs Strath Science Scouts, in which Strathclyde science students visit local schools to run science activities: www.strath.ac.uk/science/strathsciencescouts

Fellow University of Strathclyde graduate Chris Smith on Twitter (@aap03012) for his #MathsNewsletter

The Universities of Strathclyde and Glasgow are involved in Maths Week Scotland, which organises outreach events throughout the year: www.mathsweek.scot

The University of Glasgow STEMM public engagement group works on a variety of public outreach events, including the Glasgow Science Festival: www.gla.ac.uk/myglagow/publicengagementgroupstemm/#glasgowsciencefestivalprojects

The Physics Department at Nottingham Trent University (www.ntu.ac.uk/course/physics) provides a wide variety of opportunities for school students who are interested in physics, including open dome events at their astronomical observatory (www.ntu.ac.uk/sat/facilities/trent_astronomical_observatory/outreach/index.html) and research placements with the Nuffield Foundation (www.nuffieldfoundation.org/students-teachers/nuffield-research-placements)

This video highlights an example of Nottingham Trent University’s outreach: www.youtube.com/watch?v=Gx9aDLfbdUg

This video (From carrot juice to TVs) explains the story of liquid crystals: www.youtube.com/watch?v=sArSMHk-EPAA&ab_channel=NigelMottram