14.9: Thinking about the material

14.9.1: Reflect and research

1. Look up a video of the Tacoma Narrows bridge failing, and explain what happened.
2. Why do airlines ask you to turn off your electronic devices during take-off?
3. Is it true that there is no sound in space?
4. What type of wave was first observed in 2015?

14.9.2: To try at home

1. Confirm that the reflected pulse from a rope on a string is inverted when the end of the rope is fixed.
2. Think of different ways you could create a standing wave at home and try one of them out. How many harmonics can you create? How can you modify your set-up to create more harmonics?

14.9.3: To try in the lab

1. Propose an experiment to verify the relation $v = \lambda f$.
2. Propose an experiment which uses diffraction to measure small distances.
3. Propose an experiment to determine the chemical composition of the sun using a CD.
4. Design a device which acts as a echolocator and test its effectiveness in different scenarios.
5. Propose an experiment to observe triboluminescent x-rays produced by ripping scotch tape off of a surface.
6. Investigate and model refraction.
7. Investigate and model the doppler effect.
8. Investigate and model how standing waves behave on a stretched string, tube, or 2D medium.
9. Investigate and model audible beats.
10. Investigate and model double-slit interference.