

Video question script: From an orange to the whole Earth

Question/Activity	Likely response	Rationale
Demonstrating how elements of an object with different densities can have different properties through the 'From an orange to the whole Earth' Earthlearningidea		Considering the evidence for the Earth's core
Show that you have some oranges and a transparent tank of water		Concrete preparation: introduction to the materials
Ask if the oranges will float	<ul style="list-style-type: none"> • Most will think that oranges do float – and they usually do (although if dried out, they may sink) 	
Peel one of the oranges, trying to keep the peel intact, and ask what will happen to the two separate parts, the peel and the centre of the orange, when placed in water	<ul style="list-style-type: none"> • Many will correctly think that the peel will float and the centre will sink 	Construction: pattern seeking Cognitive conflict: what will happen?
Ask how this activity simulates the Earth	<ul style="list-style-type: none"> • Some will recall that one of the pieces of evidence for the Earth having a dense core, is that the density of the whole Earth is much greater than the density of the crustal rocks. • The centre of the orange therefore simulates the more dense core, whilst the peel simulates the less dense mantle and crust 	Bridging: from the model to the whole Earth
Provide pupils with the figures: <ul style="list-style-type: none"> • crustal rocks have a mean density of 2.7-2.9 gcm⁻³ • mantle rocks have a density of 3.3 – 5.7 gcm⁻³ • the core (outer and inner) has a density of 9.9 – 13.0 gcm⁻³ • the whole Earth has a density of 5.5 gcm⁻³ 		