

The slide features a brown background with a wavy, topographic pattern. In the top right corner, there is a logo consisting of five white, wavy lines of varying heights, followed by the text "AUSTRALIAN EARTH SCIENCE EDUCATION" in white, uppercase letters. The main title "Savoury Snack Tectonics" is centered in a large, white, sans-serif font. In the bottom left corner, there is a small logo of a white map of Australia with the text "Resourced by" above it and "EARTH SCIENCE WESTERN AUSTRALIA" below it. In the bottom right corner, the website address "ausearthed.com.au" is written in a small, white, sans-serif font.

Title Slide

Materials

- Sheet of baking paper
- 2 rice crackers or other
- 2 pieces of thick wholemeal bread (appx 3 cm x 6 cm x 1 cm)
- Heaped tablespoon of hummus
- Butter or margarine
- Spoon
- Butter knife



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Any thin, crisp cracker biscuit can be used. If too thick or thin, it may not break well.

A dessert spoon works well for distributing hummus.

Model A

- Break rice cracker in half.
- Place halves together with edges touching.
- Slide the pieces in opposite directions past each other. The broken edges should rub.



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Describe what happened. Students should note the friction of the rough edges as halves slide past each other. Some hummus may ooze through the crack.

What type of plate boundary is modelled? This is modelling a transform boundary.

What do the different materials represent? The hummus is the asthenosphere and the cracker is the crust.

What are major differences from reality? There is no decompression melting or magma production at real transform boundaries.

Model B

- Place cracker halves back together on top of hummus
- Gently push down on the outer edge of both sides (opposite break), moving slightly outward.



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Describe what happened. The centre becomes a ridge and hummus oozes up between the halves of the biscuit.

What type of plate boundary is modelled? This is a model of a mid-ocean ridge (oceanic divergent boundary).

What do the different materials represent? The hummus is the asthenosphere and the cracker is the crust.

What are major differences from reality? The magma produced at a mid-ocean ridge is not directly from the asthenosphere. Instead, it is from decompression melting of the lower crust and/or upper mantle. The 'magma' does not cool and harden as it would at a real mid-ocean ridge. The cracker is stiff and sinks into the hummus in a much more pronounced manner than real oceanic crust interacting with asthenosphere.

Model C

- Place two pieces of bread on hummus with narrow edges touching.
- Slide the bread pieces toward each other.



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Describe what happened. The pieces of bread fold upward where they collide.

What type of plate boundary is modelled? This is a model of a continental collision (continent-continent convergent boundary).

What do the different materials represent? The bread is continental crust and hummus is the asthenosphere.

What are major differences from reality? Real rocks develop folds and faults. Crust is forced both upward, as well as sliding across and under the other plate.

Model D

- Spread butter thickly on the remaining rice cracker.
- Place the cracker and piece of bread on hummus with edges touching.
- Slide them toward each other, angling the edge of the cracker so that it goes into the hummus under the bread.



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Describe what happened. The edge of the cracker angled down into the hummus and the butter was scraped into a wedge along the front edge of the bread.

What type of plate boundary is modelled? This is a model of an ocean-continent convergent boundary.

What do the different materials represent? The cracker is oceanic crust, butter is sediments on the ocean floor, bread is continental crust and hummus is the asthenosphere.

What are major differences from reality? Real oceanic crust bends at a subduction zone. The continental crust is deformed and forms a coastal mountain range, like the Andes.



Contact Slide