

Approach: One to one

Focus: Geology

Resources: 3 sand samples, hand lens

Kupu: tōpata onepū = grains of sand arotahi = hand lens

Questions / instructions:

Hoatu te arotahi ki te ākongā me ngā onepū rerekē e toru. Ringia he paku onepū ki ia taupoki.

Ko te mahi i konei, he āta tiro tiro i ētahi momo onepū rerekē. Tirohia ngā onepū ināianei.

Give student hand lens and 3 sand samples. Tip a small quantity of sand in each lid.

In this activity we're going to look at different kinds of sand. You can have a close look at each of these sands now.



	% responses		% responses
1. I kohia mai ēnei momo onepū i ētahi wāhi rerekē o Aotearoa. Kei hea ngā wāhi e taea ana te kahi mai he onepū? <i>HE ĀWHINA: He wāhi atu anō?</i> These sands were gathered from different places in New Zealand. Where might you go to collect sand? <i>PROMPT: Anywhere else?</i>		3. Āta tirohia ngā onepū. Whakamahia te arotahi hei āwhina i a koe. He aha i rerekē ai ngā tae o ngā onepū? I want you to have a good look at the sands. Use the hand lens to help you. Why are the sands different colours? <i>come from different types/colours of rock/stone/shell</i>	
<i>ocean beaches, estuaries, mudflats</i>	94	<i>vague, but on right track (come from different places)</i>	21
<i>riverbeds, banks, lakes</i>	45		
<i>deserts</i>	4	4. He rerekē te rahi o ngā tōpata onepū. He aha te take he rahi ake ētahi o ngā tōpata onepū, he iti ake ētahi? The sands are different sizes. Why are some pieces of sand big and some pieces of sand small? <i>different materials and different stages of breakdown</i>	0
<i>places where there used to be a beach or river (including commercial sandpits)</i>	0	<i>different stages only</i>	13
<i>quarries where rock is ground up</i>	0	<i>different types only</i>	13
2. Pēhea e puta ai te onepū? He aha te tīmatanga mai? How do you think sand is made? <i>by rocks, stones, shells getting broken up</i>	38	Total score:	8–11 9
Mechanisms: <i>(rubbing against each other – e.g. in river beds; wind action; water/wave action)</i>			5–7 17
<i>really good account including at least 2 of these ideas</i>	4		2–4 40
<i>mentioned two ideas</i>	7		0–1 34
<i>mentioned one idea</i>	12		

Commentary:

Almost all of the students could identify appropriate sources of sand, but only about one third of them could explain how sand is made and why it varies in colour and size.