Year 13 Science: Investigating an Earth and Space Science issue in Aotearoa

Name: _____ Date: _____

Try these without your notes first, then check the answer key.

Practice

1. A town's land is rising at 1.0 mm a year. Using 0.56 m of global rise from 2005 to 2100, find the local rise.

2. How many times faster was global sea level rising in 2006 to 2018 (3.7 mm a year) than in 1901 to 1971 (1.3 mm a year)?

3. A property developer's blog says sea level rise is exaggerated, with no data. How should you treat it in your report?

4. A council plans to move houses away from an eroding coast over 30 years. Which type of response is this?

5. Why can parts of Wellington face a faster local rise than the global average?

Fix the mistake

6. Correct this statement: "Melting sea ice around Antarctica is a main cause of sea level rise."

7. Correct this statement: "My personal response: I think it is a big problem and someone should fix it."

8. Correct this statement: "Every source agreed, so I only needed three websites."

9. Correct this statement: "Local sea level will rise exactly as much as the global average."

Answer key (for parents and tutors)

1. A town's land is rising at 1.0 mm a year. Using 0.56 m of global rise from 2005 to 2100, find the local rise.
   Rising land reduces the local rise: 1.0 mm × 95 = 95 mm = 0.095 m, so 0.56 − 0.095 = 0.465 m, about 0.47 m.
2. How many times faster was global sea level rising in 2006 to 2018 (3.7 mm a year) than in 1901 to 1971 (1.3 mm a year)?
   3.7 ÷ 1.3 = 2.8 times faster.
3. A property developer's blog says sea level rise is exaggerated, with no data. How should you treat it in your report?
   As evidence of a stakeholder's view, not as scientific evidence: the author has a financial interest and gives no data, so check any claim against IPCC or NZ SeaRise data.
4. A council plans to move houses away from an eroding coast over 30 years. Which type of response is this?
   Managed retreat.
5. Why can parts of Wellington face a faster local rise than the global average?
   The land there is sinking, so the local rise is the global rise plus the subsidence.
6. Correct this statement: "Melting sea ice around Antarctica is a main cause of sea level rise."
   Floating ice already displaces its weight; the rise comes from warming water and from ice on land melting or sliding into the sea.
7. Correct this statement: "My personal response: I think it is a big problem and someone should fix it."
   Give a specific action, who should take it, and the evidence and values that support it.
8. Correct this statement: "Every source agreed, so I only needed three websites."
   Use a range of source types and say how reliable each is; disagreement between them is useful evidence to discuss.
9. Correct this statement: "Local sea level will rise exactly as much as the global average."
   Local rise is the global rise plus the effect of the land sinking or rising, which differs along the coast.