

<p><b>Pohutu Geyser</b></p> <p>Read your clue aloud to the group, but do not show it to anyone.</p> <ul style="list-style-type: none"> <li>• At Whakarewarewa, Kate observes the top of Pohutu.</li> </ul>	<p><b>Rarotongan Holiday</b></p> <p>Read your clue aloud to the group, but do not show it to anyone.</p> <ul style="list-style-type: none"> <li>• A Boeing 777 takes off from Auckland International Airport.</li> </ul>
<p><b>Pohutu Geyser</b></p> <p>Read your clue aloud to the group, but do not show it to anyone.</p> <ul style="list-style-type: none"> <li>• Kate is 9 metres from its base.</li> </ul>	<p><b>Rarotongan Holiday</b></p> <p>Read your clue aloud to the group, but do not show it to anyone.</p> <ul style="list-style-type: none"> <li>• It climbs in a straight line at an angle of <math>48^\circ</math> before it turns.</li> </ul>
<p><b>Pohutu Geyser</b></p> <p>Read your clue aloud to the group, but do not show it to anyone.</p> <ul style="list-style-type: none"> <li>• According to the guide, Pohutu is playing to a height of 14m.</li> </ul>	<p><b>Rarotongan Holiday</b></p> <p>Read your clue aloud to the group, but do not show it to anyone.</p> <ul style="list-style-type: none"> <li>• Before it starts turning the plane travels a distance in the air of 5500 metres.</li> </ul>
<p><b>Pohutu Geyser</b></p> <p>Read your clue aloud to the group, but do not show it to anyone.</p> <ul style="list-style-type: none"> <li>• Kate is 1.62 metres tall, according to her passport.</li> </ul>	<p><b>Rarotongan Holiday</b></p> <p>Read your clue aloud to the group, but do not show it to anyone.</p> <ul style="list-style-type: none"> <li>• Calculate the height of the Boeing before it starts turning.</li> </ul>
<p><b>Pohutu Geyser</b></p> <p>Read your clue aloud to the group, but do not show it to anyone.</p> <ul style="list-style-type: none"> <li>• Calculate the angle of elevation of her eye.</li> </ul>	<p><b>Rarotongan Holiday</b></p> <p>Read your clue aloud to the group, but do not show it to anyone.</p> <ul style="list-style-type: none"> <li>• Write your answer to the nearest metre.</li> </ul>

<p><b>Flagpole in a Pentagon</b></p> <p>Read your clue aloud to the group, but do not show it to anyone.</p> <ul style="list-style-type: none"> <li>• A five-metre flagpole stands on level ground.</li> </ul>	<p><b>The Roof</b></p> <p>Read your clue aloud to the group, but do not show it to anyone.</p> <ul style="list-style-type: none"> <li>• The cross-section of a roof is an isosceles triangle.</li> </ul>
<p><b>Flagpole in a Pentagon</b></p> <p>Read your clue aloud to the group, but do not show it to anyone.</p> <ul style="list-style-type: none"> <li>• • The flagpole is at the centre of a regular pentagon.</li> </ul>	<p><b>The Roof</b></p> <p>Read your clue aloud to the group, but do not show it to anyone.</p> <ul style="list-style-type: none"> <li>• The width of the roof is 9.7 metres.</li> </ul>
<p><b>Flagpole in a Pentagon</b></p> <p>Read your clue aloud to the group, but do not show it to anyone.</p> <ul style="list-style-type: none"> <li>• Five guy wires are fixed to a point one metre from the top of the pole.</li> </ul>	<p><b>The Roof</b></p> <p>Read your clue aloud to the group, but do not show it to anyone.</p> <ul style="list-style-type: none"> <li>• The length of one of the pitched sections is 5.2 metres.</li> </ul>
<p><b>Flagpole in a Pentagon</b></p> <p>Read your clue aloud to the group, but do not show it to anyone.</p> <ul style="list-style-type: none"> <li>• The five wires are secured to pegs at the vertices of the pentagon. Calculate the distance between pegs.</li> </ul>	<p><b>The Roof</b></p> <p>Read your clue aloud to the group, but do not show it to anyone.</p> <ul style="list-style-type: none"> <li>• Find the pitch of the roof.</li> </ul>
<p><b>Flagpole in a Pentagon</b></p> <p>Read your clue aloud to the group, but do not show it to anyone.</p> <ul style="list-style-type: none"> <li>• Each guy wire measures 5.6 metres.</li> </ul>	<p><b>The Roof</b></p> <p>Read your clue aloud to the group, but do not show it to anyone.</p> <ul style="list-style-type: none"> <li>• The pitch is the angle that the roof makes with the horizontal.</li> </ul>

<p><b>Fishing</b></p> <p>Read your clue aloud to the group, but do not show it to anyone.</p> <ul style="list-style-type: none"><li>• Ella and her friend Mara are fishing off Rangitoto Island in a 3 metre boat.</li></ul>	<p><b>The Train Trip</b></p> <p>Read your clue aloud to the group, but do not show it to anyone.</p> <ul style="list-style-type: none"><li>• The train leaves Lowville Station at 8.05 am. Marita has to run to catch it.</li></ul>
<p><b>Fishing</b></p> <p>Read your clue aloud to the group, but do not show it to anyone.</p> <ul style="list-style-type: none"><li>• They anchor at their favourite fishing spot. There is a strong current. The length of the anchor rope is 14.5 metres.</li></ul>	<p><b>The Train Trip</b></p> <p>Read your clue aloud to the group, but do not show it to anyone.</p> <ul style="list-style-type: none"><li>• Marita's college at Highville is opposite the station. Highville is 1500 metres away from Lowville along the railway lines.</li></ul>
<p><b>Fishing</b></p> <p>Read your clue aloud to the group, but do not show it to anyone.</p> <ul style="list-style-type: none"><li>• They notice that the rope makes an angle of <math>45^\circ</math> with the horizontal. Their first fish is a kahawai.</li></ul>	<p><b>The Train Trip</b></p> <p>Read your clue aloud to the group, but do not show it to anyone.</p> <ul style="list-style-type: none"><li>• The train climbs from Lowville at an angle of <math>10^\circ</math>. A gale-force wind is blowing.</li></ul>
<p><b>Fishing</b></p> <p>Read your clue aloud to the group, but do not show it to anyone.</p> <ul style="list-style-type: none"><li>• While they are fishing, they talk about the depth of water beneath the boat. Mara says it is more than 10 metres, but Ella says it couldn't be. Who is right?</li></ul>	<p><b>The Train Trip</b></p> <p>Read your clue aloud to the group, but do not show it to anyone.</p> <ul style="list-style-type: none"><li>• The journey takes 8 minutes. Through what vertical height does the train rise to get to Highville?</li></ul>

**Navigation**

This is your clue to help solve the group's problem.

Read your clue aloud to the group, but do not show it to anyone.

- A ship's navigator observes a lighthouse on a cliff. She knows from a chart that the top of the lighthouse is 41.6m above sea level.

**Problem:** Is the ship safe?

**Navigation**

This is your clue to help solve the group's problem.

Read your clue aloud to the group, but do not show it to anyone.

- Using her sextant vertically she focuses on the lighthouse, then (through a system of mirrors) sets the image of the lighthouse and cliff below the actual lighthouse and cliff.

**Navigation**

This is your clue to help solve the group's problem.

Read your clue aloud to the group, but do not show it to anyone.

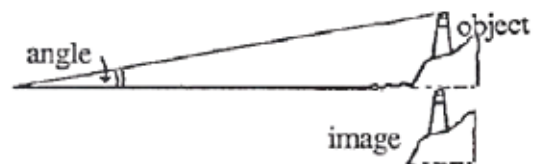
- The coast is particularly dangerous around this area and ships need to keep at least 4km from this lighthouse to be safe.

**Navigation**

This is your clue to help solve the group's problem.

Read your clue aloud to the group and sketch this diagram for them.

- The angle of elevation is  $0.5^\circ$

**Navigation**

This is your clue to help solve the group's problem.

Read your clue aloud to the group, but do not show it to anyone.

- The reading on the sextant gives the angle moved through to get the image below, which is called the angle of elevation.

<p><b>The Bayly's Beach Picnic</b></p> <p>This is your clue to help solve the group's problem.</p> <p>Read your clue aloud to the group, but do not show it to anyone.</p> <p><b>Problem:</b> How high above the beach is the kite?</p> <ul style="list-style-type: none"><li>• The family are holidaying at Bayly's Beach, which is a very long and flat beach.</li></ul>	<p><b>The Bayly's Beach Picnic</b></p> <p>This is your clue to help solve the group's problem.</p> <p>Read your clue aloud to the group, but do not show it to anyone.</p> <p><b>Problem:</b> How high above the beach is the kite?</p> <ul style="list-style-type: none"><li>• Moana's family is having a picnic at the beach. She is <b>flying a kite</b>.</li></ul>
<p><b>The Bayly's Beach Picnic</b></p> <p>This is your clue to help solve the group's problem.</p> <p>Read your clue aloud to the group, but do not show it to anyone.</p> <p><b>Problem:</b> How high above the beach is the kite?</p> <ul style="list-style-type: none"><li>• Moana is lying on the beach holding the end of the string on the sand.</li></ul>	<p><b>The Bayly's Beach Picnic</b></p> <p>This is your clue to help solve the group's problem.</p> <p>Read your clue aloud to the group, but do not show it to anyone.</p> <p><b>Problem:</b> How high above the beach is the kite?</p> <ul style="list-style-type: none"><li>• Moana's mother made the kite for her birthday. The length of the string is 50m.</li></ul>
<p><b>The Bayly's Beach Picnic</b></p> <p>This is your clue to help solve the group's problem.</p> <p>Read your clue aloud to the group, but do not show it to anyone.</p> <p><b>Problem:</b> How high above the beach is the kite?</p> <ul style="list-style-type: none"><li>• The angle that the string makes with the sand is <math>40^\circ</math>.</li></ul>	

<p><b>The School Flagpole</b></p> <p>This is your clue to help the group solve the problem.</p> <p>Read your clue aloud to the group, but do not show it to anyone.</p> <p><b>Problem:</b> What is the height of the flagpole?</p> <ul style="list-style-type: none"> <li>Jane is 153cm tall. Using her calculator, she finds that the sine of <math>20^\circ</math> is 0.342.</li> </ul>	<p><b>The School Flagpole</b></p> <p>This is your clue to help the group solve the problem.</p> <p>Read your clue aloud to the group, but do not show it to anyone.</p> <p><b>Problem:</b> What is the height of the flagpole?</p> <ul style="list-style-type: none"> <li>Jane has measured the angle of elevation from the ground to the top of the flagpole as <math>20^\circ</math>. John is very tall.</li> </ul>
<p><b>The School Flagpole</b></p> <p>This is your clue to help the group solve the problem.</p> <p>Read your clue aloud to the group, but do not show it to anyone.</p> <p><b>Problem:</b> What is the height of the flagpole?</p> <ul style="list-style-type: none"> <li>Jane is 20m from the flagpole.</li> </ul>	<p><b>The School Flagpole</b></p> <p>This is your clue to help the group solve the problem.</p> <p>Read your clue aloud to the group, but do not show it to anyone.</p> <p><b>Problem:</b> What is the height of the flagpole?</p> <ul style="list-style-type: none"> <li>The tangent of <math>20^\circ</math> is 0.364. When John stands against the flagpole, he almost reaches the top of the blue.</li> </ul>
<p><b>The School Flagpole</b></p> <p>This is your clue to help the group solve the problem.</p> <p>Read your clue aloud to the group, but do not show it to anyone.</p> <p><b>Problem:</b> What is the height of the flagpole?</p> <ul style="list-style-type: none"> <li>The flag is raised at 8.30am each morning. The bottom quarter of the pole is painted blue.</li> </ul>	<p><b>Notes for teacher:</b></p> <p>When students produce a solution, ask them to check:</p> <ol style="list-style-type: none"> <li>Is this a reasonable height for a flagpole?</li> <li>Is your answer in sensible units?</li> <li>Is it to a sensible degree of accuracy?</li> </ol>