

Programming Energy	Grade 1 Energy in Our Lives
Handout Solutions	


**Geothermal Energy**

Geothermal energy uses the heat from the earth to make electricity. Steam created from the heat of the earth turns turbines to generate electricity.

**Challenge**

Choose the most efficient route to get from the start to the end of the map.

The most efficient route is the one with the fewest number of steps. Our energy supply is limited, we don't want to use more than we need.

													<p>1. What route did you take?</p> <p>Route: B &amp; C or D</p> <p>2. How many steps did you take?</p> <p>Steps: 16</p> <p>3. How many steps was the longest route?</p> <p>Steps: 18</p>
		7	8	9	10	11	12	13	14				
		6									15		
		5										16	
		4										17	
		3										18	
	1	2		8	9	10	11						
		3		7				12				16	
		4	5	6				13	14	15			
		5										14	
		6	7	8	9	10	11	12	13				

**Extension**

Break the route you took into smaller steps.  
 For example, to start route A, the first two steps are:

2 steps →

5 steps ↑

										Route breakdown:  2 steps right  4 steps down  7 steps right  3 steps up
		7	8	9	10	11	12	13	14	
		6							15	
		5							16	
		4							17	
		3							18	
	1	2		8	9	10	11		12	
		3		7			12		16	
		4	5	6			13	14	15	
		5							14	
		6	7	8	9	10	11	12	13	