Age 11+ Level ★
Worksheet 1 – Solutions

1. **Potatoes**

   SƎOTATOᑫ

   nrich.maths.org/6249/solution

2. **Flag-tastic**
   There are 8 different possible pictures.
   If the squares are numbered 1 to 6, the possible pairings are:

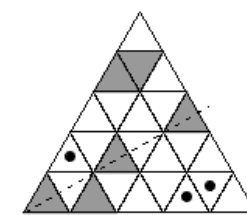 | 1 | 3 | 5 |
   |---|---|---|
   | 2 | 4 | 6 |

1 and 4	2 and 5
1 and 5	2 and 6
1 and 6	3 and 6
2 and 3	4 and 5

   nrich.maths.org/5010/solution

3. **Symmetriangle**
   The lowest number of small triangles which
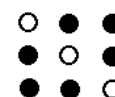   must be shaded is 3

   nrich.maths.org/2518/solution

4. **Grid Without Lines**
   Remove the three points along either diagonal:
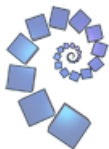   nrich.maths.org/7134/solution

5. **Peri the Winkle**
   Peri will end the journey at (2,0)
   nrich.maths.org/10127/solution

These problems are adapted from UKMT (ukmt.org.uk) and WMC (competition.ac) problems.
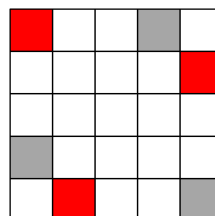
Age 11+ Level ★★
Worksheet 1 – Solutions

1. **Doubly Symmetric**
   The minimum number of extra squares
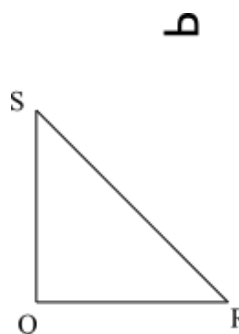   that need to be shaded is 3

   nrich.maths.org/11634/solution

2. **Reflected Back**
   The final image should look
   like this:

   nrich.maths.org/10166/solution

3. **Reading from Behind**
   The time will look the same from both sides at 05:20
   nrich.maths.org/7175/solution

4. **Turning N Over**
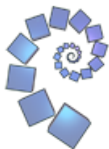   The diagram will end up
   looking like this:

   nrich.maths.org/2870/solution

5. **Semaphore**
   The number actually signalled is 42635
   nrich.maths.org/6264/solution

Age 14+ Level ★★
Worksheet 1 – Solutions

1. **Back in Time**
   The display and its reflection give the same time on 96 occasions
   nrich.maths.org/10177/solution

2. **Similar Perimeter**
   The possible perimeters are 26, 39, and 52
   nrich.maths.org/13777/solution

3. **Rotation and Area**
   The area of the triangle is $8\sqrt{2}$
   nrich.maths.org/13393/solution

4. **Pendants**
   Exactly $\frac{1}{4}$ of each pendant will be blue
   nrich.maths.org/12965/solution

5. **Climbing Ropes**
   The approximate weight of the rope will be 8.1kg
   nrich.maths.org/13694/solution

These problems are adapted from UKMT (ukmt.org.uk) and WMC (competition.ac) problems.