

**Year 7 Transition Task - MATHEMATICS**

Above are 5 brown frogs and 5 green frogs sitting on their lily pads. You need to swap them over so that the

green frogs are all sitting on the left hand side and the brown frogs are all sitting on the right hand side.

Rules:

Frogs cannot move backwards (i.e. brown frogs can only jump to the right and green frogs can only jump to the left).

Frogs may only jump over one frog of a different colour at a time.

Frogs may only jump one square at a time unless they are ‘leapfrogging’ over another frog of a

different colour.

When investigating different amounts of frogs, make sure there is always just one lily pad empty in between the groups of each colour.

Investigate.

What is the **smallest number of moves** required to swap all of the 5 brown frogs with all of the 5 green frogs?

 You may find it helpful to start on a smaller scale with fewer frogs.

What if there are an uneven number of brown and green frogs?

What if there are more than 5 brown and green frogs?

Can you make predictions or spot any patterns?

Extension: Can you come up with a rule for the least moves possible with algebra that always works?

You may find the following link helpful. If it doesn’t work, search for ‘nrich frogs’ on google and you

should find it.

 [https://nrich.maths.org/content/00/12/game1/frogs/index.html#/student](https://nrich.maths.org/content/00/12/game1/frogs/index.html%23/student)

Task.

 Present your findings as a poster on one side of A4 paper.

 Use diagrams and colours to make your work attractive.

 Bring your work to your first Maths lesson in September and hand it in to your Maths teacher.

 You will be awarded Urmston Grammar ‘Stars’ for good presentation of accurate work.