# Origami DNA

Activity Guide

**This hands-on activity allows you to create your own paper model of a DNA double helix.**

**Origami model designed by Alex Bateman, inspired by designs by Thoki Yenn.**

Suitable for: age 10+
Estimated duration: 15 minutes

**You will need (for pre-coloured origami DNA):**

- **printed Origami DNA sheets**
- **scissors to cut the worksheets to size**

**You will also need (for blank origami DNA):**

- colouring pens, pencils or crayons
- **pairing rules printout**

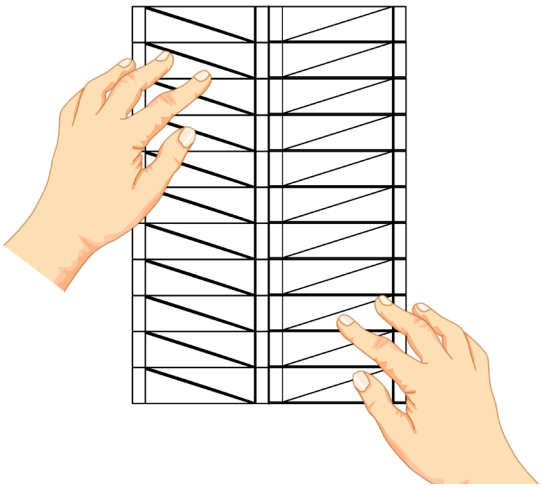
## Introduction

DNA has a ‘double helix’ structure. Much like a spiral staircase, it has two single strands that join and twist together. The ‘steps’ of the staircase are made up of the four bases of DNA (adenine, cytosine, guanine and thymine). These bind together in complementary pairs (A with T, C with G).

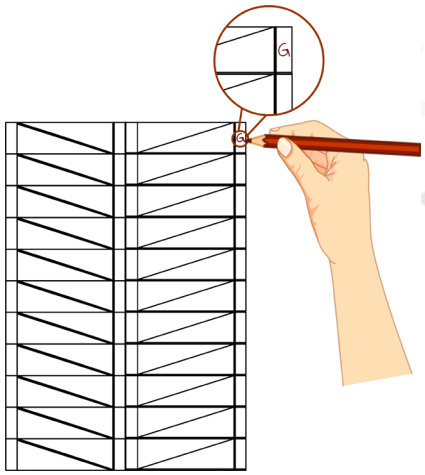
This activity explores the structure of DNA in a paper-based form. You can also use the blank version to explore the pairing rules of DNA, by colouring in each base pair using the pairing rules printout.

# Origami DNA
Activity Guide

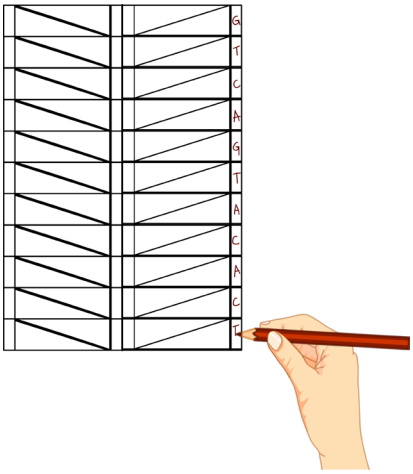
## Instructions - blank template



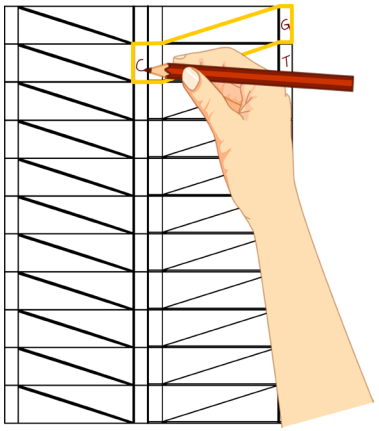
1. Lay out the blank DNA origami template



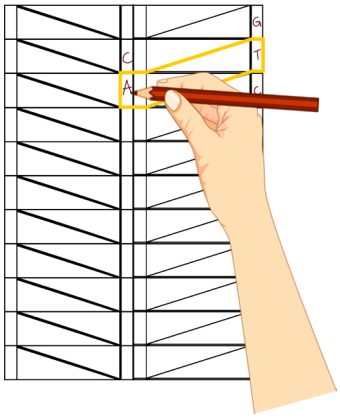

2. Start by writing the first letter of your DNA sequence (A, T, C or G) in the rop right corner



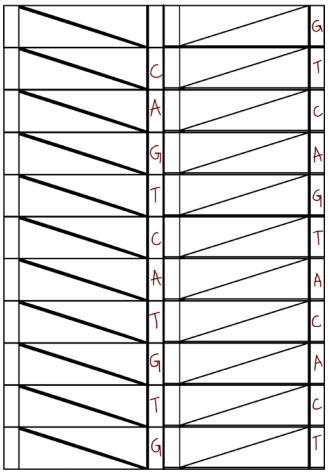

3. Continue your sequence down the column on the right.




4. Write the corresponding complementary bases in the boxes diagonally across from your sequence as shown.




5. Continue the complementary sequence until you reach the bottom; and fill in the top box of that column with any letter.s




6. Now colour in your DNA and then fold!

# Origami DNA
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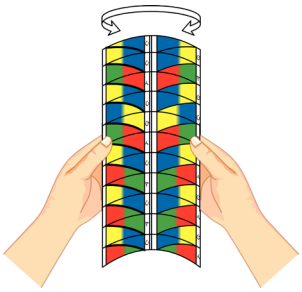
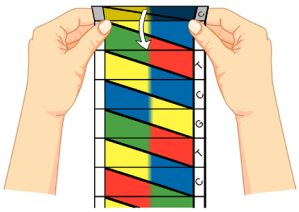
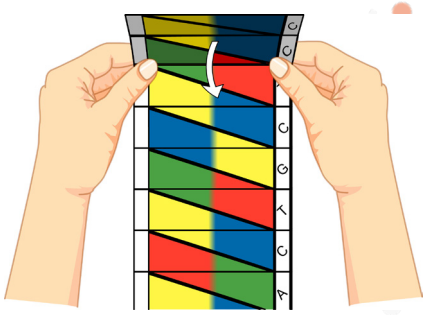
## Instructions - coloured template



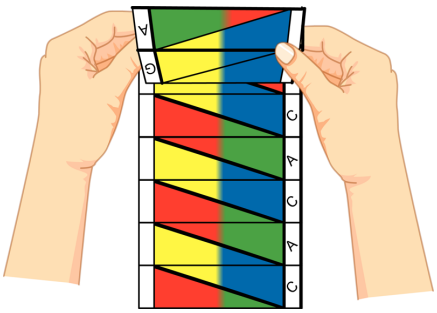
1. Fold in half lengthwise. Make all creases as firm as possible.



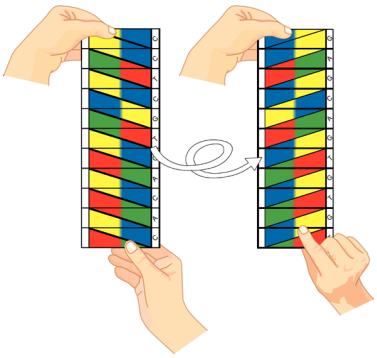
2. Hold the paper so that the thick lines are diagonal and the thin lines are horizontal. Fold the top segment down and then unfold.



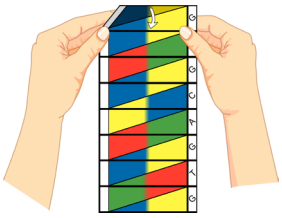
3. Fold the top two segments down along the next horizontal line. Unfold.



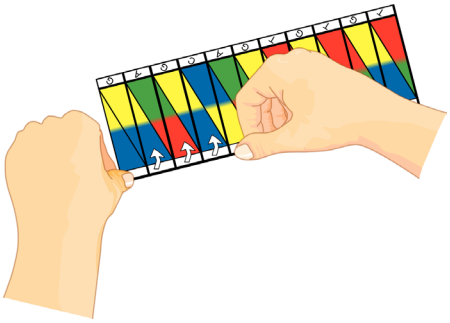
4. Repeat for all segments.



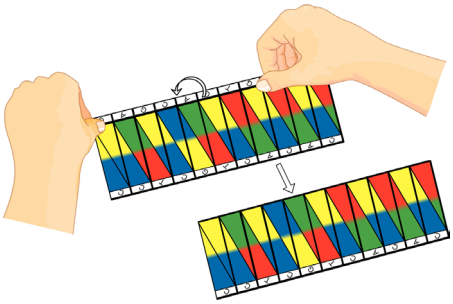
5. Turn the paper over.



6. Fold along the first diagonal line. Unfold and fold along the second diagonal line. Repeat for all diagonal lines.

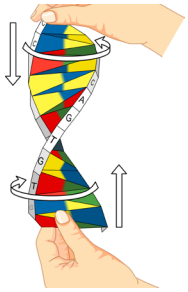


7. Fold the white edge without letters up.

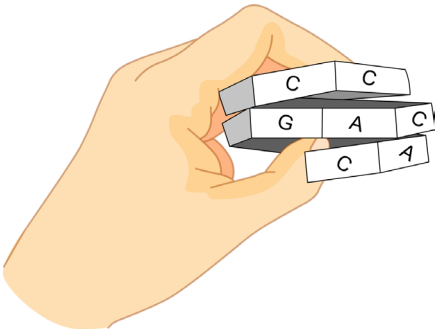


8. Fold the other edge away from you. Partly unfold both edges.

9. You can see how the model is starting to twist.



10. Twist and turn the paper while pushing the ends towards each other.




11. Now let go!

12. Admire your completed DNA double helix!