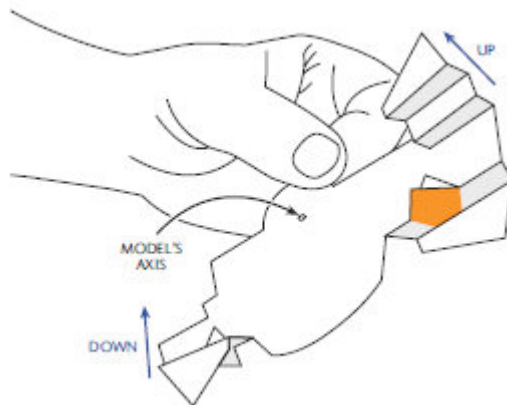


Modelling the Helix

INSTRUCTIONS

Prepare your base-pair:

1. Colour the template *before* cutting it out: Cytosine=Blue; Guanine=Yellow; Adenine=Green; Thymine=Red
2. Cut around the thicker, outer lines.
3. Make two small cuts into the card by the phosphate groups where indicated. *Optional: use a sharp craft knife to make cuts above the oxygen of the deoxyribose molecules where shown.*
4. Carefully punch a small hole in the cut-out where shown. This will be the axis of the DNA model through which the string will be threaded. Don't make these holes too big!
5. Fold the sugar-phosphate 'backbones' where indicated by dotted lines, as shown below. These folds must be made in the directions shown.



Take care not to make left-handed DNA!

Add your base-pair to the model:

6. Cut an *exactly* 25mm long piece of drinking straw.
7. Orient your base-pair the same way up as the others in the growing chain.

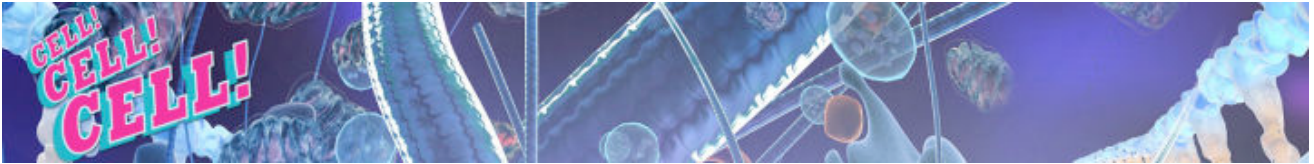
Remember that the sugar-phosphate chains run in opposite (anti-parallel) directions

8. Thread the end of the string through the drinking straw, and then through the hole in your base-pair.
9. Glue the phosphate group on the end of the chain to the deoxyribose of your base-pair. Do the same with the opposite sugar-phosphate strand. The orientation of the letters on the card should help you to assemble the model correctly.

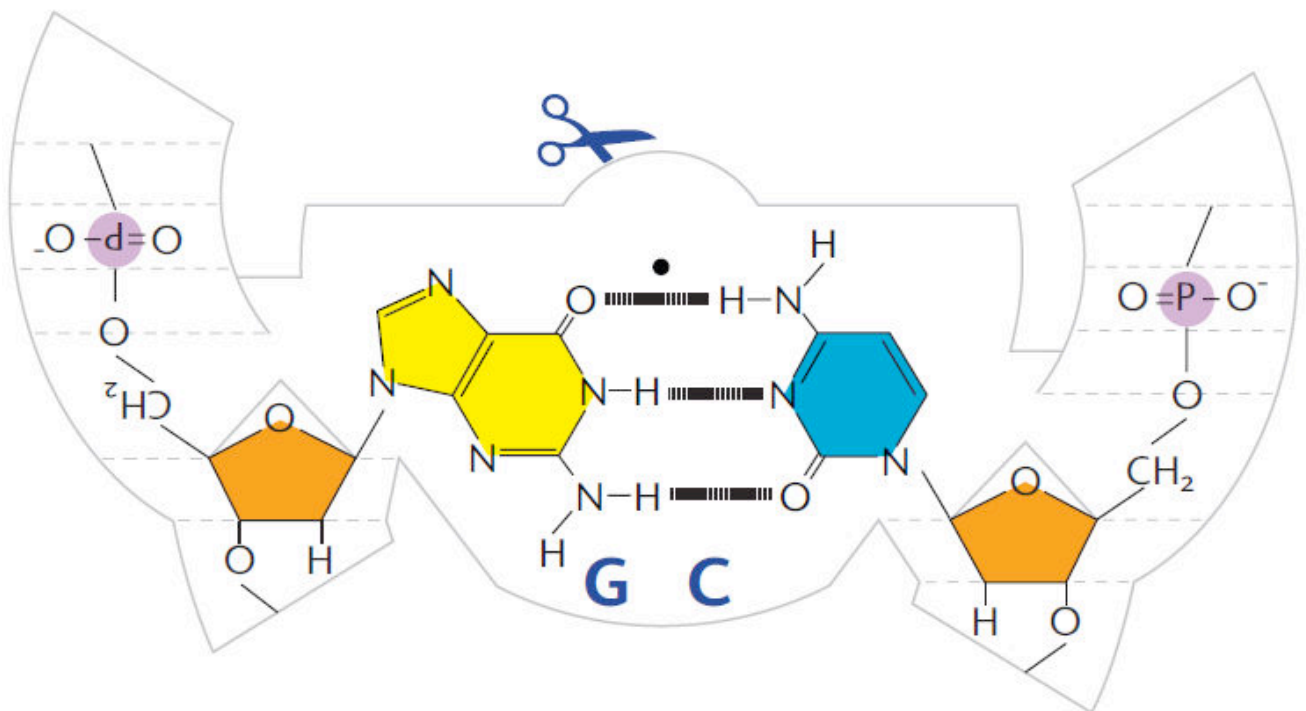
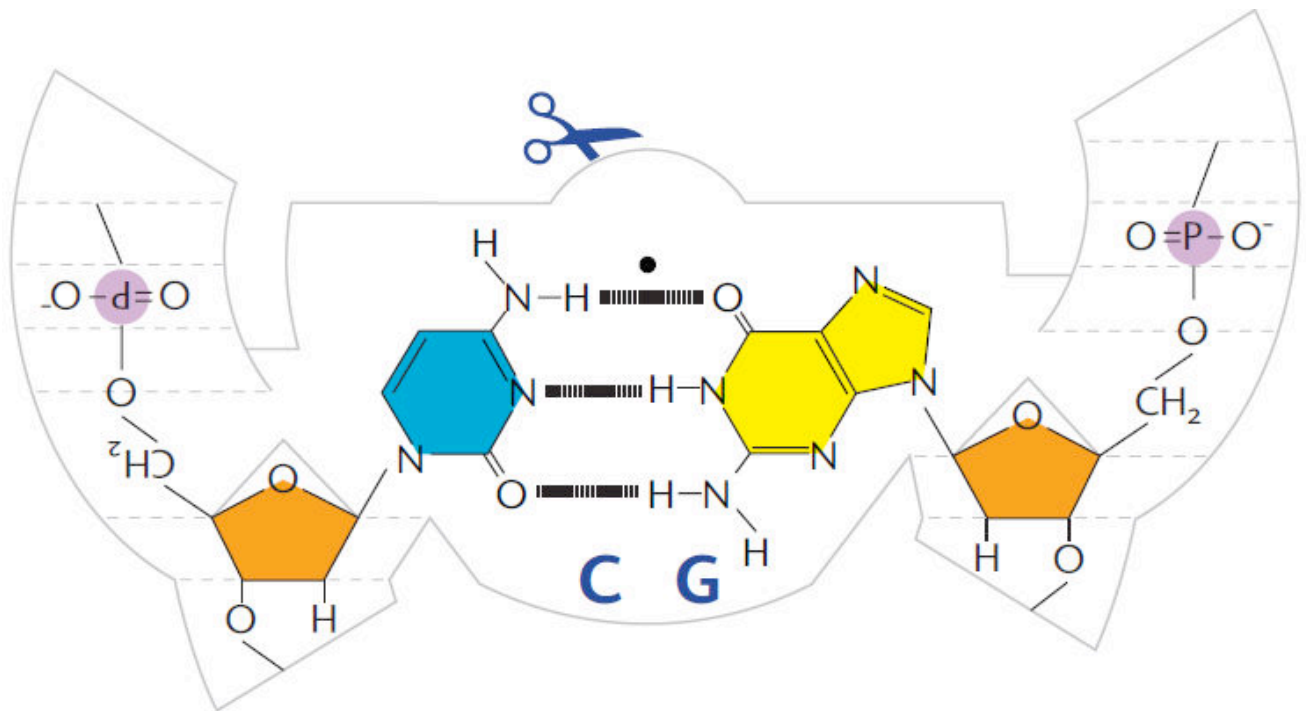
Complete the model (when all base-pairs have been added):

10. Cut out the genetic code discs, and glue the two sides together onto the string at the bottom of the model. The weight of the discs will help the model to hang vertically.

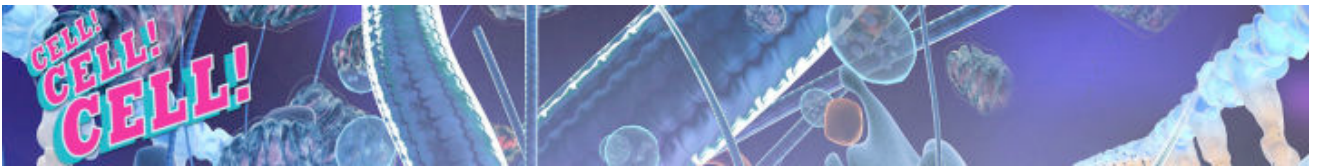
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Modelling the Helix TEMPLATE 1

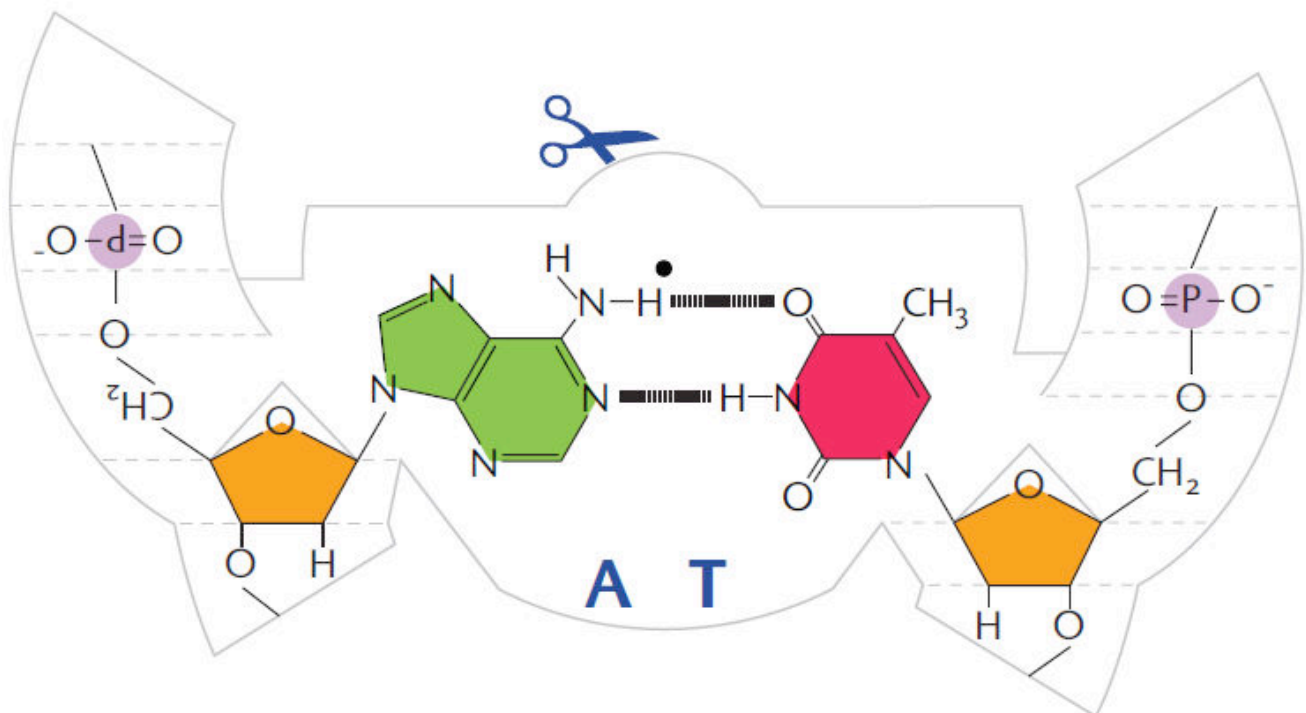
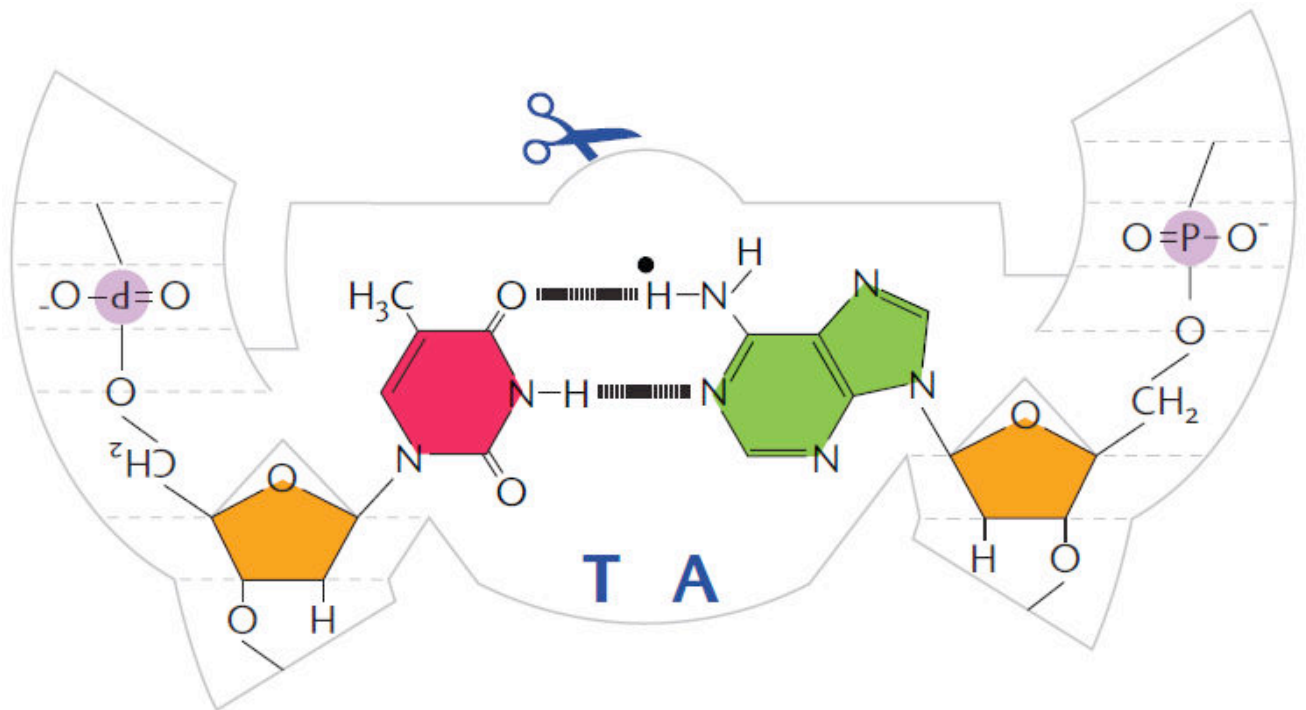


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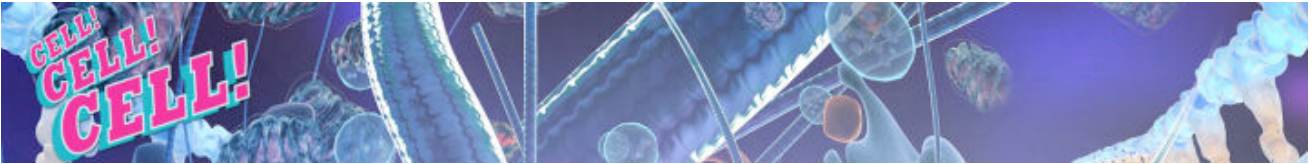


Modelling the Helix

TEMPLATE 2



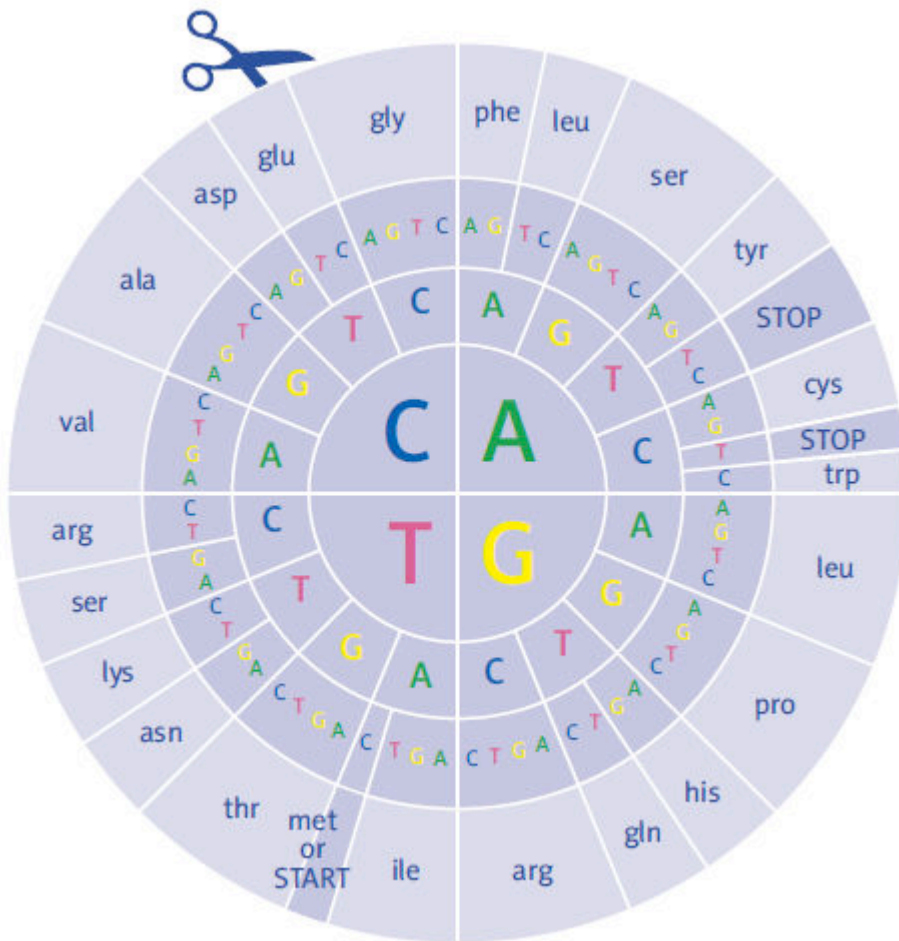
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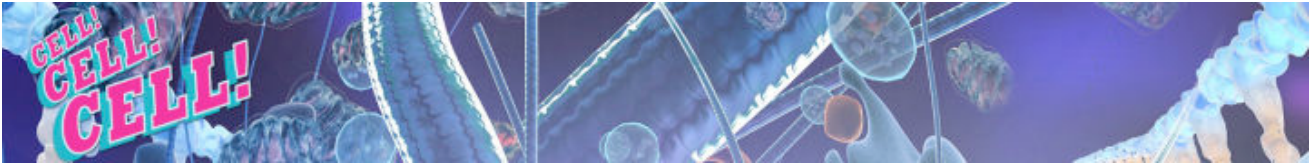
Modelling the Helix

TEMPLATE 3

You need only one copy of this per model.



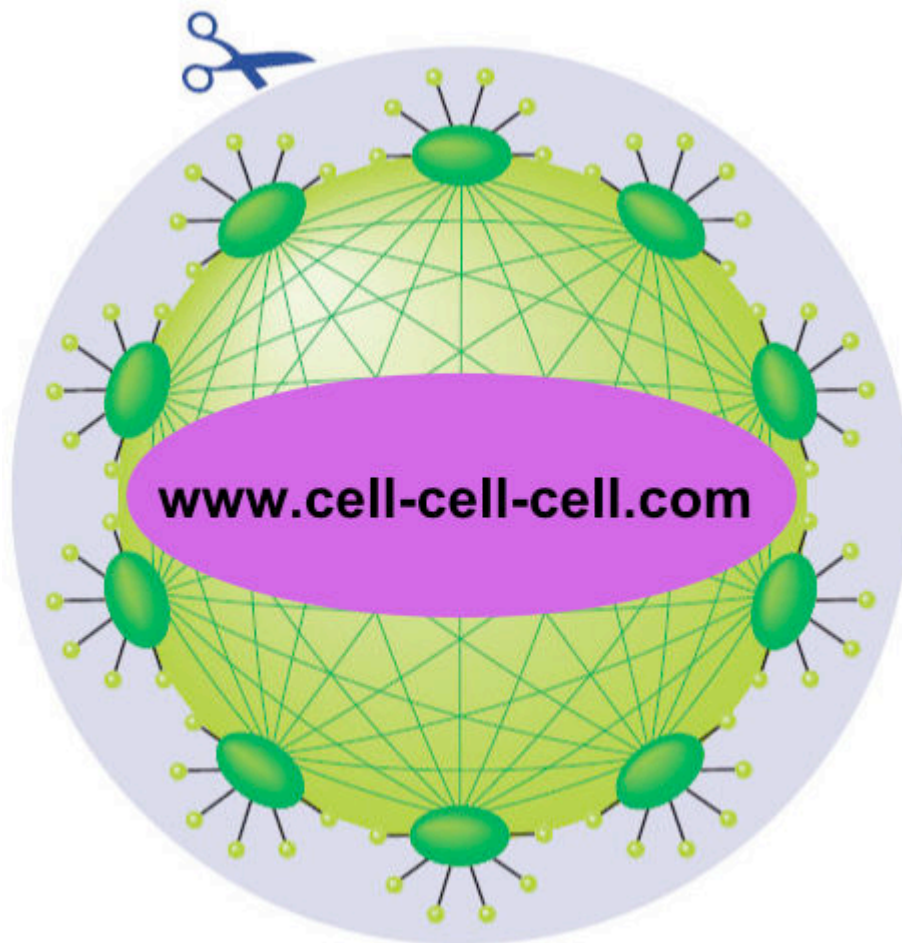
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TEMPLATE 4

You need only one copy of this per model.



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