

How to make your DNA bracelet

In this activity, each of the 4 DNA bases is represented by a different coloured bead. Refer to the 'DNA and base pairing rules' sheet for information.

The sequence that you are going to use to make your bracelet is part of the human *OCA2* gene. This gene encodes a protein important in pigmentation. Differences in this sequence can contribute to whether you have brown or blue eyes.

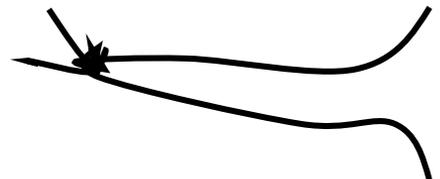
Segment of the human OCA2 sequence



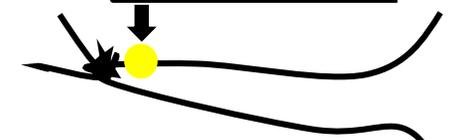
1. Get your 2 pieces of elastic string and different coloured beads ready.



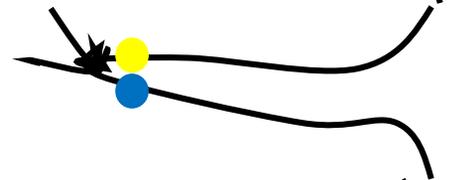
2. Tie a knot in each string about 5cm from the end. Now tie the 2 knots together.



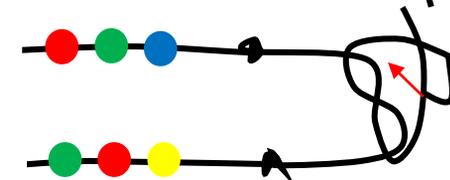
3. Using the sequence above, add your first bead to one of strings – this is the forward DNA strand.



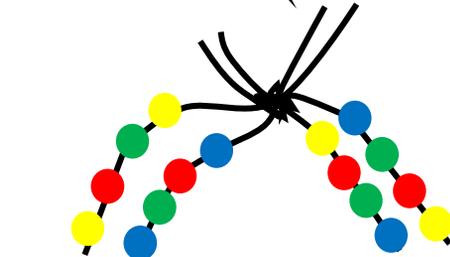
4. Now add the bead that pairs with it to the other string (this is the reverse strand). Continue to complete the sequence.



5. Once you have completed the sequence, tie a knot on each string at the end of the beads. Tie the 2 knots together.



6. You should now have double stranded DNA. To finish, tie the 2 ends together to make your bracelet.



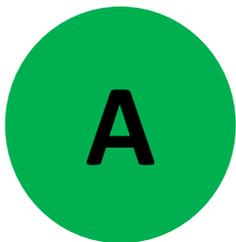
DNA and base pairing rules

DNA stands for **deoxyribonucleic acid**. It contains the genetic information for development, growth and functioning of all living organisms.

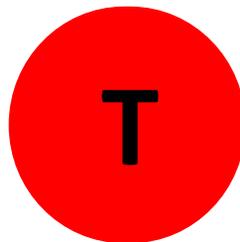
DNA consists of 2 strands (the forward strand and reverse strand), which are arranged into a spiral called a **double helix**.

The DNA strands are joined by bonds between the 4 DNA bases; **adenine (A)**, **thymine (T)**, **cytosine (C)** and **guanine (G)**. Each base can only form a bond with one of the other bases as shown below. This is known as **base pairing**. The order of these bases in a gene encodes for a protein.

Base pairing



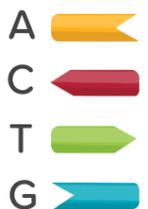
Pairs with



Pairs with



DNA double helix

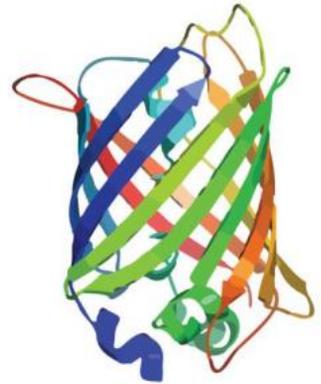


Tattoo my science

You will have received custom science illustration tattoos designed by scientists.

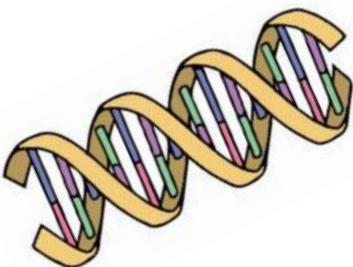
Have a guess what your tattoo may be!

1. Make sure that the skin is clean and dry.
2. Remove the clear top sheet and discard.
3. Place the tattoo face down, onto the desired area and soak the backing paper with a wet tissue.
4. Hold for 30 seconds and then **gently slide** (not peel) the paper away. Wash/wipe away the release gel.

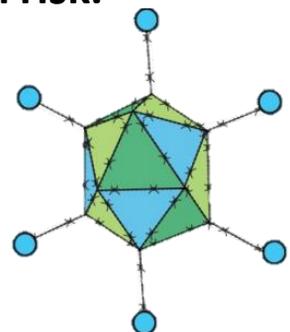


TO REMOVE: Use a cotton wool pad with baby oil or alcohol, place on the tattoo for 10 seconds and then rub until removed.

***Avoid the eye area, do not apply to sensitive skin and keep out of direct sunlight. All Inkwear designs are safe and non-toxic but are not recommended for ages 3 and below, if a reaction occurs simply remove with oil based products. Apply at own risk.**



#BSGCTtattoomyscience



Instructions are taken from the Inkwear website, the company that produces the tattoos.