

Handmade DNA: a tactile model to explore the basics of DNA

Building instructions

Materials

- 1 wooden beam, size 1.8 cm × 4 cm × 80 cm (or similar)
- Saw such as a manual hacksaw, or saw, preferably with a band
- Sandpaper
- Drill
- 6 mm drill bit for wood
- L-shaped square tool or set square
- Colours (optional): cementite base, acrylics (4 colours)
- Roll of adhesive Velcro
- Roll of adhesive magnetic tape
- Chenille wire (chenille pipe cleaner) for DIY, 6 mm in diameter, preferably in two different colours

This material is enough to make a **complete set** of about 40 pieces to allow for a slight excess.

Procedure

Cutting wooden blocks

1. Make perpendicular marks on the four sides of the beam (using a square tool helps maintain the right angles) 1.8 cm from the edge of the beam.
2. Use the saw to make the cut; the final piece must have dimensions of approximately 1.8 cm × 1.8 cm × 4 cm.
3. Sand both cut ends with sandpaper.
4. Make a central mark, approximately 3–5 mm from the short side, to position the drill bit.
5. Drill as vertically as possible with the bit.
6. If necessary, smooth over the hole with sandpaper.
7. Repeat the process until you run out of available wood.

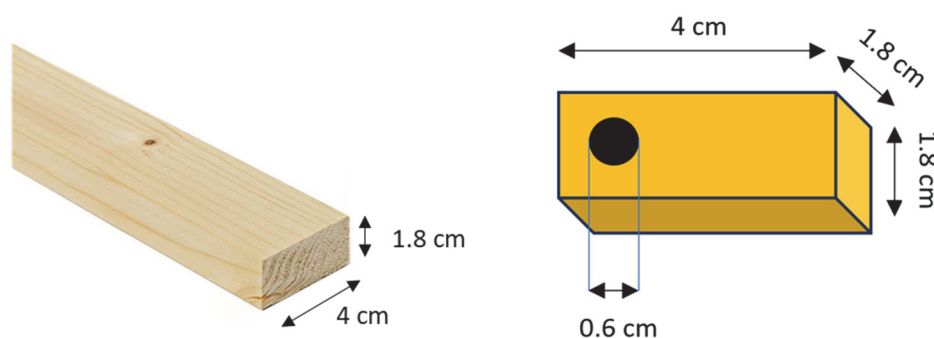


Image courtesy of the author

Colouring

1. Optional: Coat the blocks with cementite (enhances the brilliance of the colours).
2. Once dry, divide the blocks into four equal groups, and paint with four different acrylic colours. Leave to dry.
3. On each block in the four groups (by colour if they have been coloured), you can write the letter corresponding to one of the bases (e.g., green=A, red=T, yellow=G, blue=C).

Complete the model

1. Cut out squares of approximately 1.5 cm × 1.5 cm from the rolls of Velcro and magnetic tape.
2. On the small side opposite the hole of the blocks marked with A–T (or red and green), glue the two complementary adhesive parts of the magnetic tape.
3. On the small side opposite the hole of the blocks marked G–C (or yellow and blue), glue the two complementary adhesive parts of the Velcro.
4. For each block built, cut a portion of chenille wire approximately 13–15 cm long.

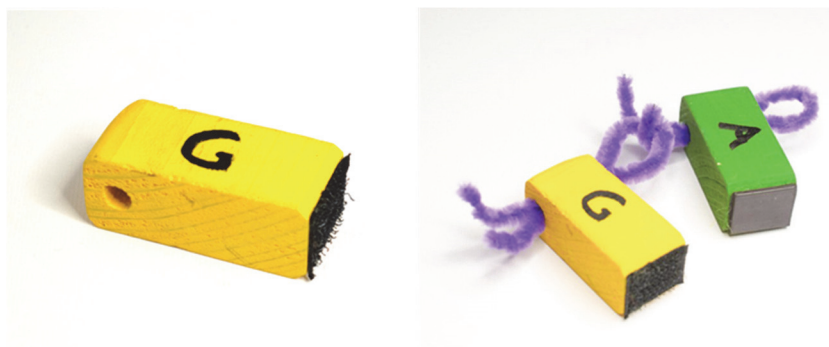


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