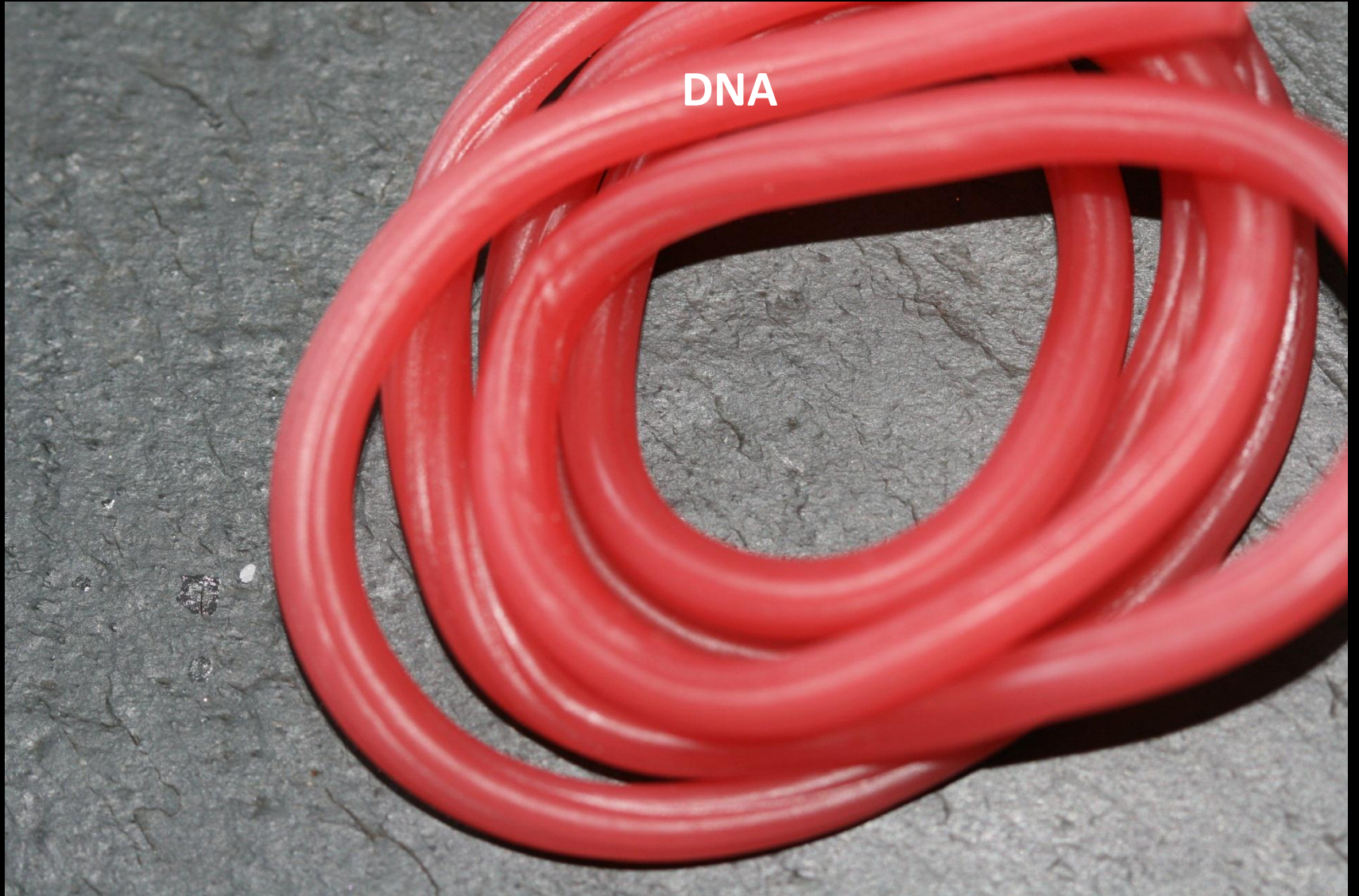




The basic constituents
of our genetic material

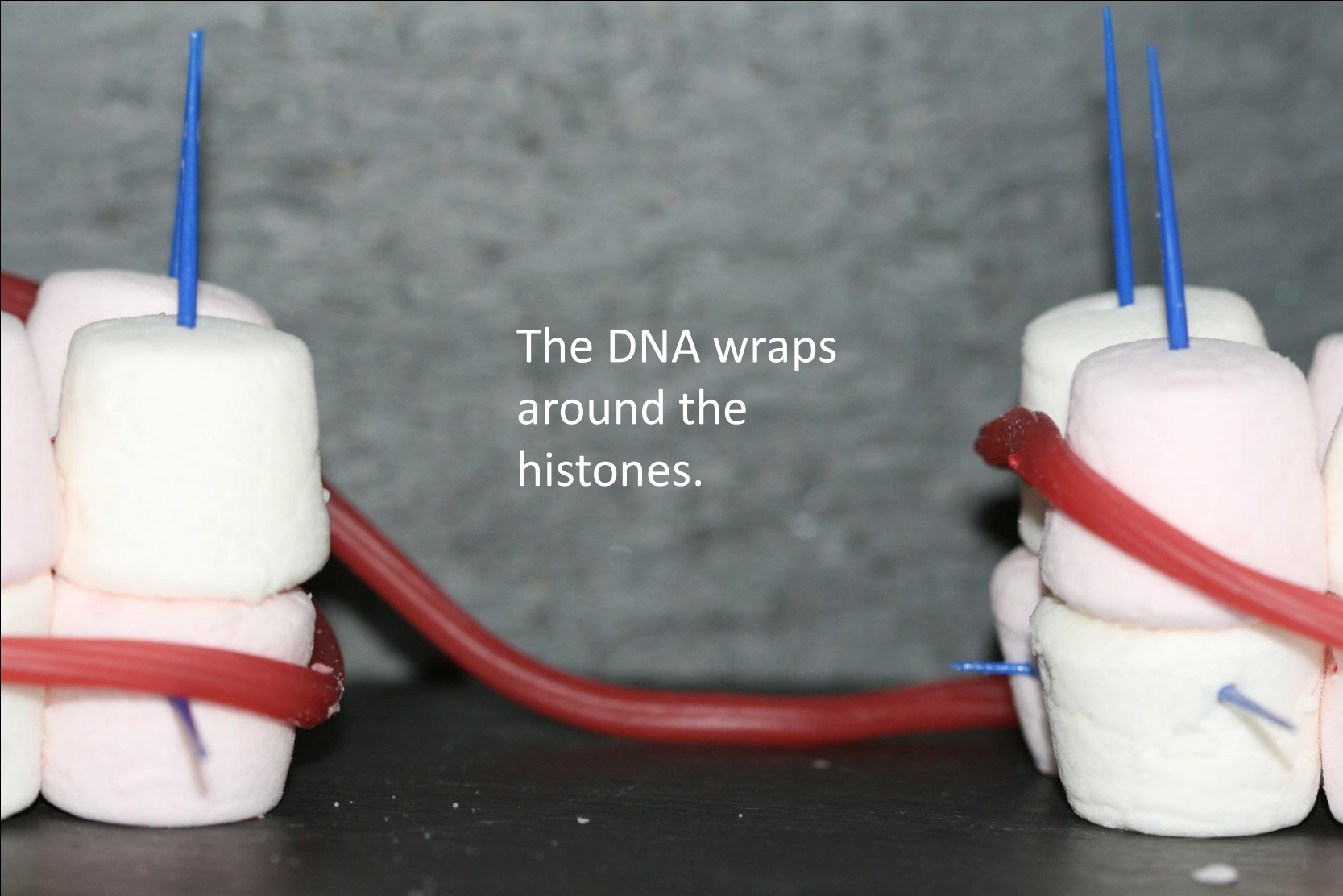


DNA



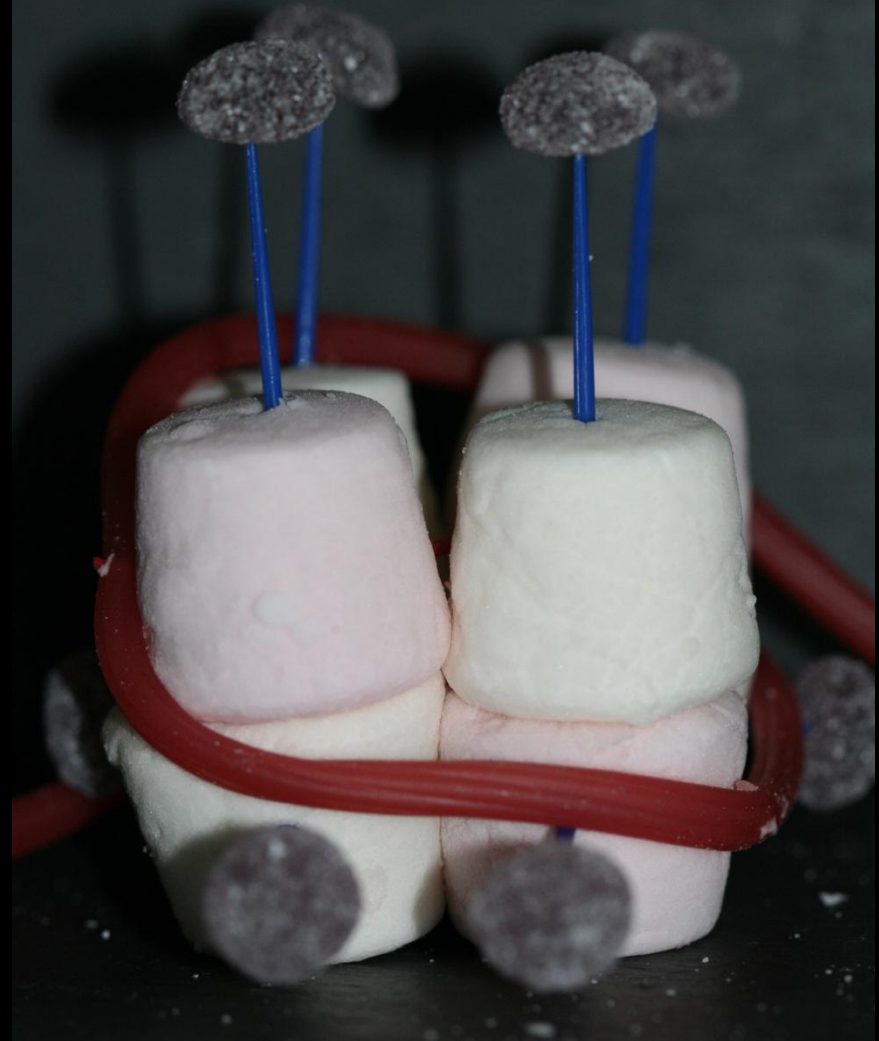
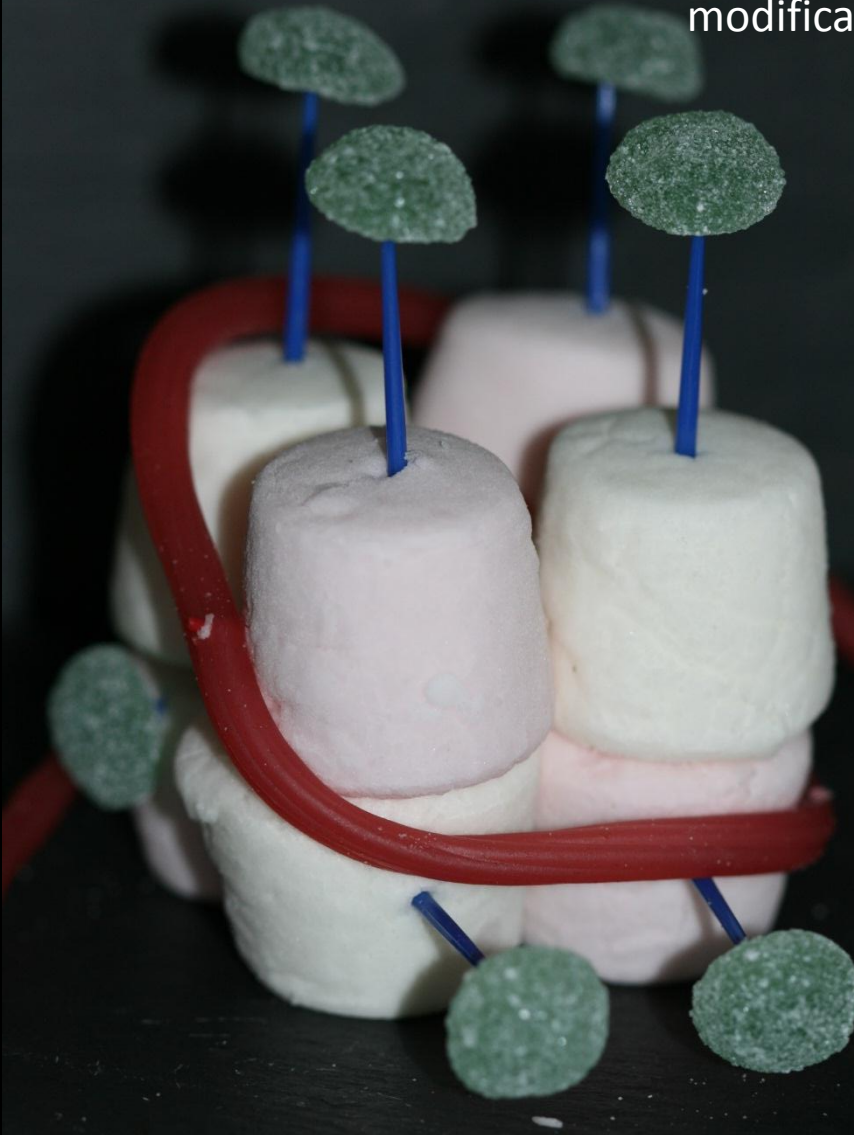
**8 proteins called
histones, joined
together, with
their tails
sticking out**

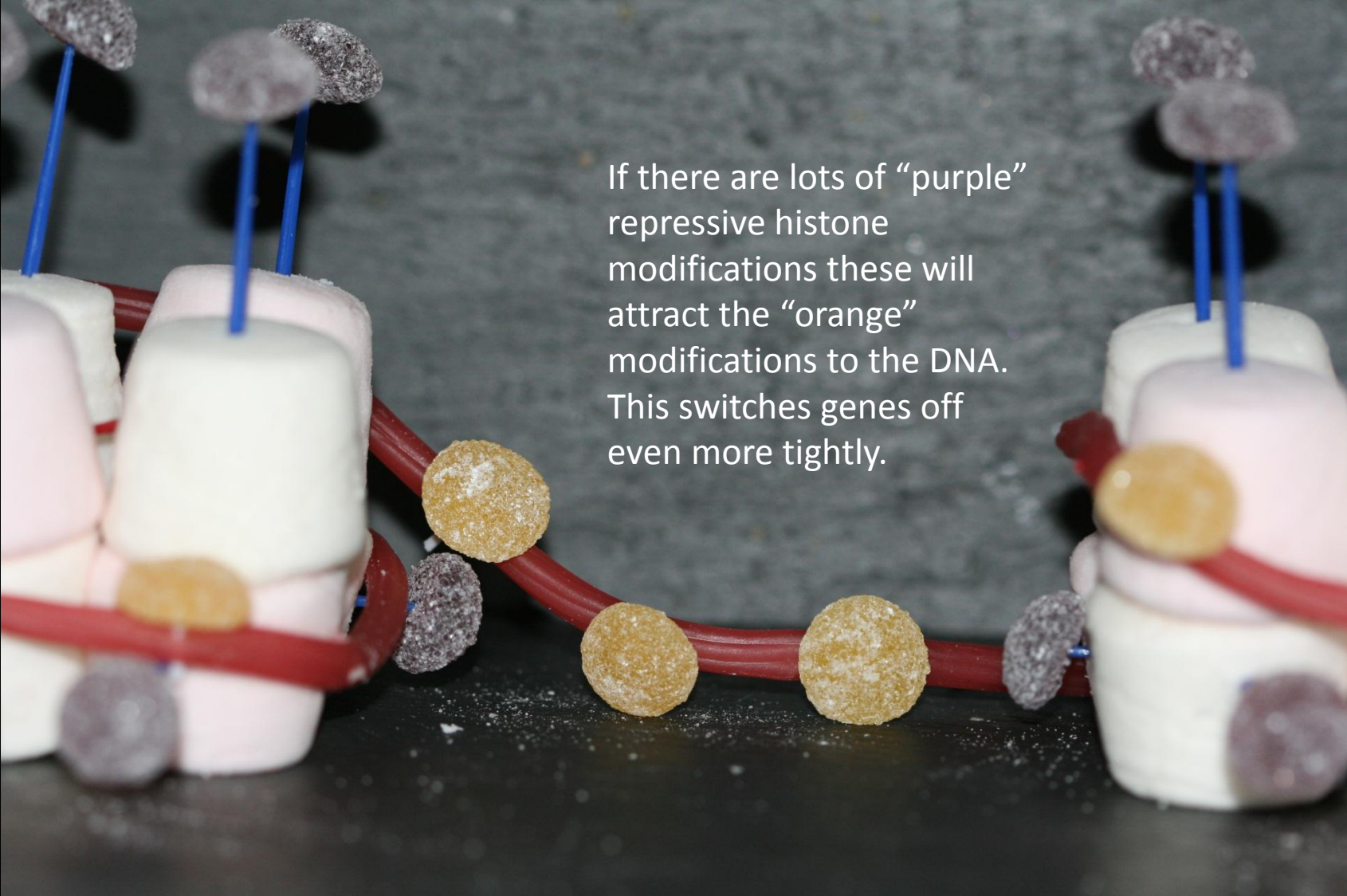


A photograph of a model representing DNA packaging. Two stacks of marshmallows, representing histones, are positioned on a dark surface. Each stack is held together by a blue toothpick. A red rubber band, representing DNA, is wrapped twice around each stack of marshmallows. A single red rubber band connects the two stacks, curving between them. The background is a textured, grey surface.

The DNA wraps
around the
histones.


Small chemical groups get added to the histone tails.
“Green” modifications switch genes on. “Purple”
modifications switch genes off.





The image shows a model of a DNA double helix, represented by a red string. The DNA is wrapped around histone cores, which are made of pink and white marshmallows. Blue sticks are inserted into the marshmallows. Various colored beads are attached to the DNA: purple beads represent repressive histone modifications, and orange beads represent activating histone modifications. The text explains that a high concentration of purple beads attracts orange beads, leading to a more tightly packed DNA structure.

If there are lots of “purple” repressive histone modifications these will attract the “orange” modifications to the DNA. This switches genes off even more tightly.



Some regions of DNA get completely smothered
in these repressive “orange” modifications.

These regions get squashed up tightly and it's almost impossible to switch on the genes here.

