Crack the Reindeer Code

Can you draw a reindeer based on the genetic code provided?

Genes are the instruction manual in our cells. They provide the code for individual characteristics, like eye colour. They are copied into messenger RNA which is then translated into protein. Proteins then carry out all the important jobs in your cells.

To translate mRNA into protein, you must read the code 3 letters at a time, then work out which amino acid it matches. Here's an example

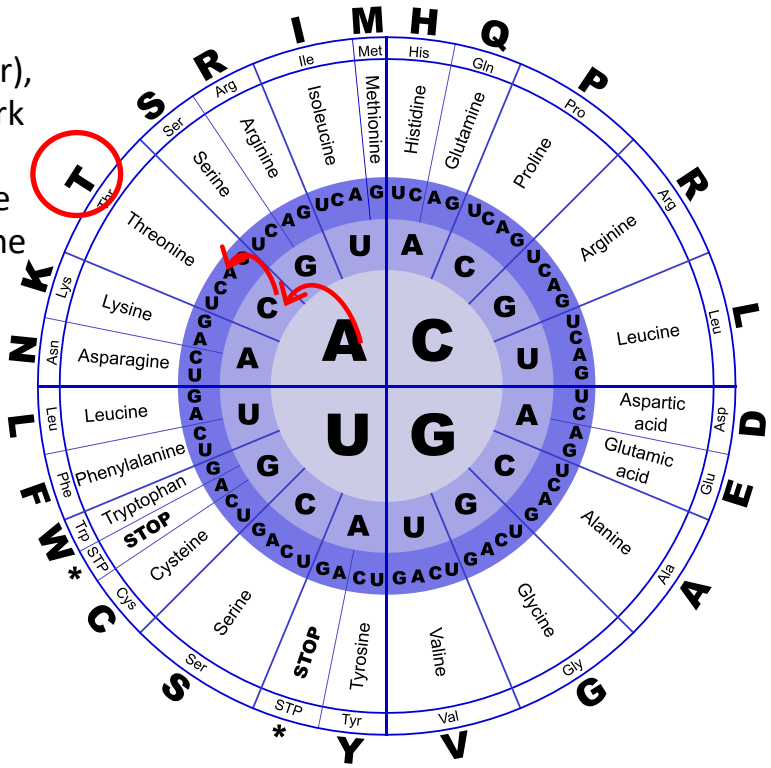
Starting mRNA code

ACAGAAUCGACC

Split into groups of 3

ACA GAA UCG ACC

Read the code from the diagram, starting from the centre (1st letter), then next ring (2nd letter) and dark blue ring (3rd letter). This will tell you the amino acid name and the one letter code (letters around the very edge)



Codon image credit: J Alves
https://openclipart.org/download/95203/genetic-code-RNA.svg

ACA GAA UCG ACC

T E S T

We have designed this activity so that the one letter codes spell a word to help you draw your reindeer!

Choose a reindeer to 'decode' on the next page and draw them according to the mRNA instructions. You can draw your own, or use the reindeer template provided.

Reindeer name	Eye colour	Nose colour	Antler length	Coat colour
CCCCGAGCGAAUUGUGAGAGA	GGGCGUGAAGAGAAU	UUUGCAUGGAAC	ACGGCCCUUCUC	CUGAUCGGGCACACC
GACGCAUCUCACGAACGU	UGUGCGCGAGCUAUGGAACUC	AGAGAGGAU	UCCAUGGCCCUACUG	GACGCGCGUAAA
GACGCCAACUGUGAGCGC	ACUGCGAAU	GAUGCCAGAAAA	ACCGCUCUACUA	CUAAUUGGCCACACG

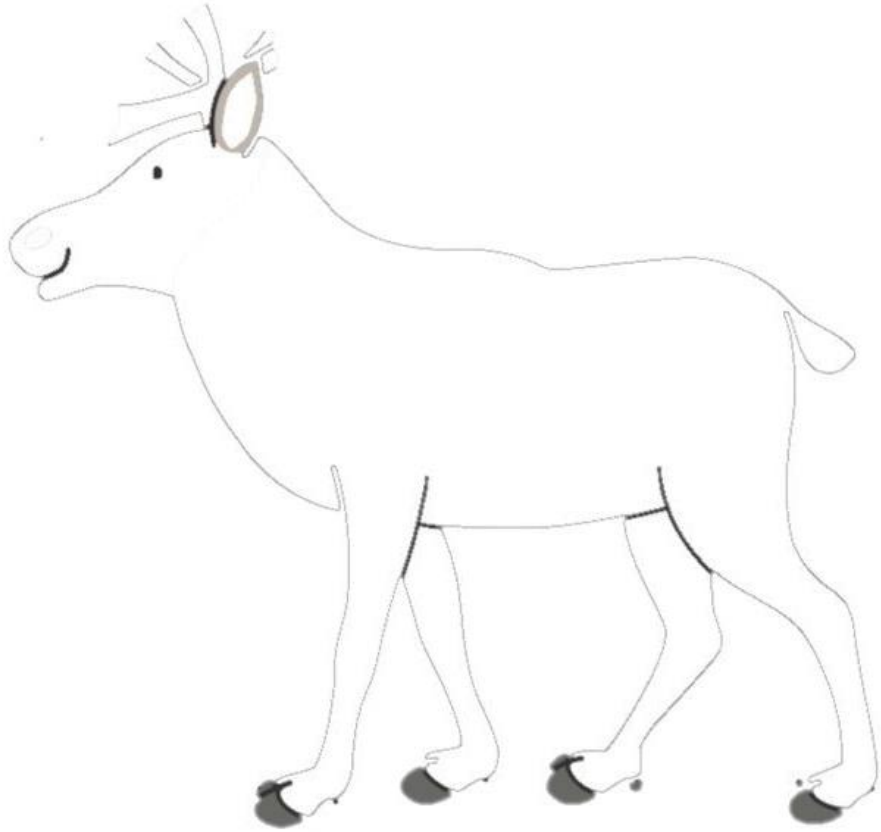


Image modified from oksmith
https://openclipart.org/detail/318473/reindeer-3

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