Crack the DNA code!

For teachers: Get four colours of beads or rubber bands. You can string the beads or hook the rubber bands together with S-hooks. If you want, you can get your class to string together a bracelet. Just stick to the four colours below and make sure there are multiples of 3. remember 3 DNA letters = one word (an amino acid).

DNA

Our bodies are made up of trillions of different cells — bone cells, muscle cells, brain cells etc.— all working together. Each cell follows a detailed set of instructions set out in our "DNA".

DNA facts:

- DNA stands for deoxyribonucleic acid
- DNA is passed down in families: we get half our DNA from our mum and half from our dad
- Traits like hair and eye colour are determined by our DNA, so are genetic diseases like muscular dystrophy

The code

The instructions in our DNA are written in a chemical code. We represent these chemicals by four letters:

A C G T

Read the 'letters' of three colours, the colours corresponding to the letters as above.

What do your three colours spell? CAT or TAG or ACT?

Your Letters:

_____ _____ _____

Is it a nonsense word like ATC? That's what happens with a genetic disease!

The code is wrong and the cell gets the wrong instructions.

street: 214 Hawkesbury Rd, Westmead NSW 2145 Australia | **postal:** Locked Bag 23, Wentworthville NSW 2145 Australia
ABN: 47 002 684 737 | **free call:** 1800 436 437 | **p:** +61 2 8865 2800 | **f:** +61 2 8865 2801
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CHILDREN'S MEDICAL RESEARCH INSTITUTE

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Want to see some REAL genetic code?

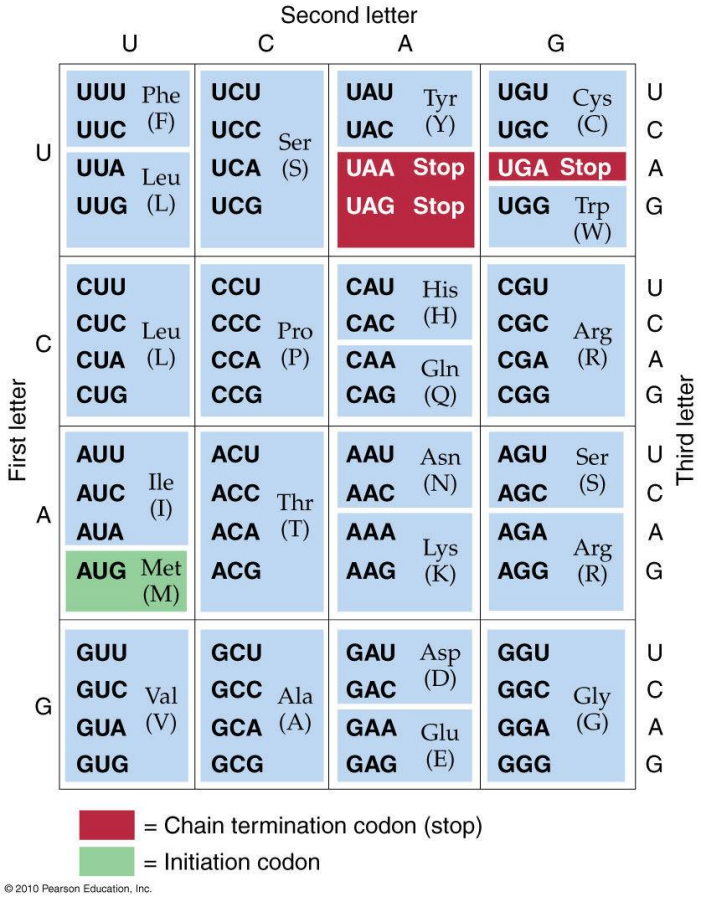
Here it is:

AACCTGTATATTCAGTGGCTGAAAGATGGCGGCCCGAGCAGCGGCCGCCCGCCGCCGAGC

The RULES

1. Read letters left to right in sets of three
2. Each three-letter code corresponds to an amino acid, such as "Leu" (see key)
3. **T = U** in the key*

Amino acids are strung together to make proteins, such as insulin and haemoglobin. Proteins help give cells their structure and are the machines that keep the cell functioning.



What is your protein?

Visit www.cmri.org.au/code to find out!

* Why does the key use "U" instead of "T"? Because DNA uses the molecule Thymine (T), but before DNA is read, it is transcribed into a format called RNA, which uses the chemical Uracil (U) instead of Thymine.

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