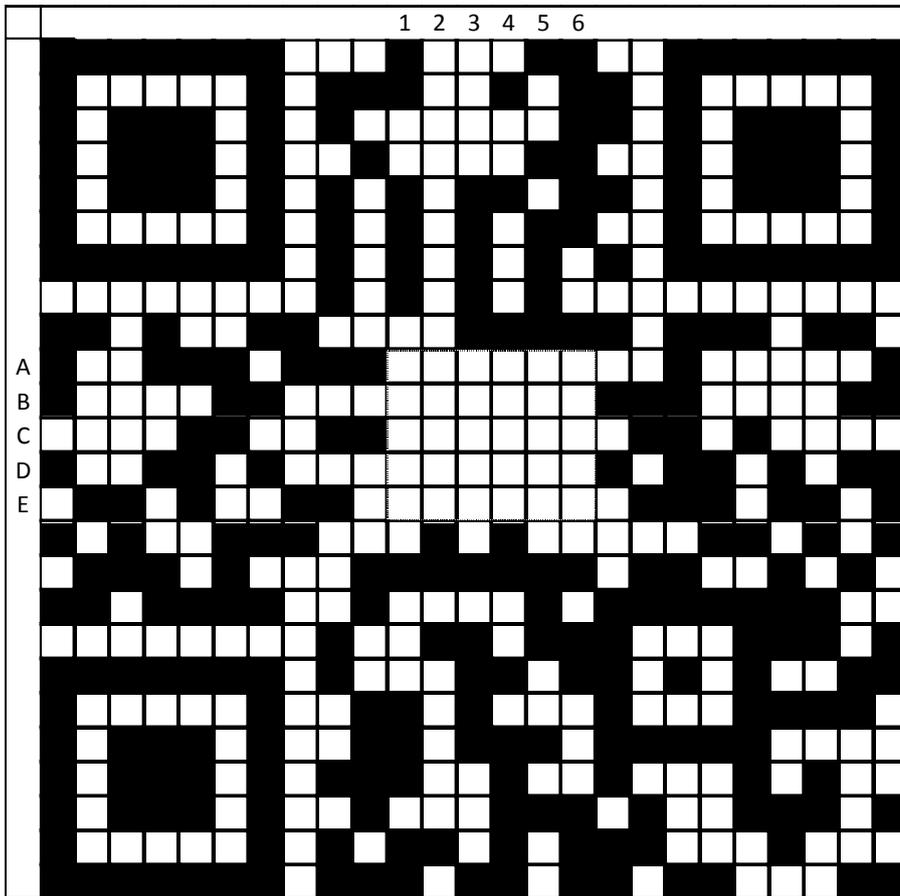


2D Barcode Quiz



What to do

1. Complete the grid, leaving squares blank if the statement is true, or colouring them in black if the statement is false
2. Once you've completed the quiz, use the barcode scanner app on your phone and you will be redirected to a webpage

- A1** TGAC is located on the Norwich Research Park
- B1** Thymine, Guanine, Adenine and Cytosine are the four bases or 'nucleotides' that make up DNA
- C1** Adenine and Guanine are Pyrimidines (6-point ring), Cytosine and Thymine are Purines (fused 5- and 6-point rings)
- D1** DNA has a triple helix structure
- E1** Adenine pairs with Thymine through 2 Hydrogen bonds, Cytosine pairs with Guanine through 3 Hydrogen bonds
- A2** Gregor Mendel was the first to suggest that heritable factors were passed from parent to offspring, determining characteristics
- B2** Genomics is the study of an organism's genome (its entire hereditary content)
- C2** Humans have the most complex genome of any living organism
- D2** The wheat genome (*Triticum aestivum*) contains approximately 16 thousand base pairs
- E2** The human genome contains approximately 3 billion base pairs
- A3** Genes code for proteins
- B3** Proteins are polymers consisting of building blocks called amino acids
- C3** All proteins begin with the amino acid Methionine
- D3** A codon is a series of four sequential nucleotides which codes for an amino acid
- E3** Polymerase is an enzyme which breaks down DNA molecules
- A4** Transcription is the process of making an amino acid sequence from messenger RNA
- B4** VNTR (Variable Number Tandem Repeat) is a type of mutation used in parental determination or DNA fingerprinting
- C4** Polymerase Copying Reaction ('PCR') is a technique used to synthesise new copies of a DNA template
- D4** Directed sequencing is determining the sequence of a piece of DNA in a particular direction
- E4** Regulatory sequence is a region of DNA which controls gene expression
- A5** Exogenous DNA is a deleted stretch of sequence from a genome
- B5** A primer is the first bit of DNA of a gene to be copied in a cell
- C5** Most PCR reactions utilise a polymerase which works best at room temperature
- D5** The Taq polymerase used in PCR was originally isolated from a bacterium called *Thermus aquaticus*
- E5** The replication of template DNA during PCR occurs in an exponential manner
- A6** A contig is a collection of copied sequences which represent overlapping regions of a particular chromosome
- B6** Bioinformatics is the application of advanced computing techniques to analysis of biological data
- C6** Annotation is the process of attaching biological information to a DNA sequence e.g. where genes are
- D6** Homology is similarity between DNA or protein sequences from individuals of the same species or different species
- E6** Protein and DNA sequences are used to construct phylogenetic trees which infer the evolutionary relationships between organisms