

Using cooperative learning for biology revision

Aim

- (i) to take a different teaching approach to revision of genetics and
- (ii) to enhance the learning of students in a mixed ability class by encouraging peer teaching.

The following is a table of the possible DNA codons for amino acids. Also included are the stop and start codons. Write out the amino acid sequence of the protein from the gene in the diagram.

TTT	Phe	TCT	Ser	TAT	Tyr	TGT	Cys
TTC	Phe	TCC	Ser	TAC	Tyr	TGC	Cys
TTA	Leu	TCA	Ser	TAA	STOP	TGA	STOP
TTG	Leu	TCG	Ser	TAG	STOP	TGG	Trp
CTT	Leu	CCT	Pro	CAT	His	CGT	Arg
CTC	Leu	CCC	Pro	CAC	His	CGC	Arg
CTA	Leu	CCA	Pro	CAA	Gln	CGA	Arg
CTG	Leu	CCG	Pro	CAG	Gln	CGG	Arg
ATT	Ile	ACT	Thr	AAT	Asn	AGT	Ser
ATC	Ile	ACC	Thr	AAC	Asn	AGC	Ser
ATA	Ile	ACA	Thr	AAA	Lys	AGA	Arg
ATG	MET	ACG	Thr	AAG	Lys	AGG	Arg
GTT	Val	GCT	Ala	GAT	Asp	GGT	Gly
GTC	Val	GCC	Ala	GAC	Asp	GGC	Gly
GTA	Val	GCA	Ala	GAA	Glu	GGA	Gly
GTG	Val	GCG	Ala	GAG	Glu	GGG	Gly

Method

The class was divided into groups of three or four. Initially it was on basis of where they were sitting but later I planned who would work with whom.

A mixture of the following were used:

- A worksheet – fishbone diagram
- Exam Question
- Activity Sheet
- DNA jigsaw
- Question on the blackboard



Teacher Comments:

- Students were initially very positive about this approach especially when the Principal spoke to them about the idea of being involved in a project. Most students like working in groups.
- However, a number of the 'A' students did not appear to like this type of class work.
- If a number of students in the group did not understand the topic there was a negative atmosphere in the group. If a group finished before the others they chatted which distracted the others.
- I had to ensure that the best combination of students and that there was enough but not too much work so that all groups were kept busy all the time. The planning became very time consuming. But many of the work sheets can be used with other classes therefore in the long term it was very useful.
- Two students improved their grades in the class test that followed the group exercise.