**Human Biological Sciences Stage 2**

Revision for Final Examination

The final examination is based on all of the topics listed in the program that you were given at the beginning of the year. However greater weighting is given to topics covered in Semester 2 (especially genetics and reproduction).

The first two pages of the examination are attached to this sheet. These pages describe the format of the exam and what equipment you may take into the exam. Read them carefully.

* Metabolism
* Aerobic / Anaerobic respiration
* Cell structure and organelles
* Membrane transport
* Enzymes
* Structure of DNA
* Chromosomes / chromatids / genes / alleles
* Mitosis / meiosis / DNA replication
* Protein synthesis / transcription / translation
* Mitochondrial DNA
* Types of mutations
* Karyotype
* Microscope calculation / determining the size of object from a scale bar
* Graphing / graph interpretation
* Experimental design (variables / controls / placebo)
* Structure of heart / blood vessels
* Components of blood / blood clotting
* Gas exchange from air to blood
* Gas transport in the blood
* Diseases of the cardiovascular and respiratory systems
* Formation of urine by the kidney (including nephron structure)
* Role of the kidney and liver in excretion and deamination
* Role of enzymes in digestion
* Structure and function of the male and female reproductive system
* Artificial reproductive technology / contraception
* Development of the zygote, embryo and foetus
* Pregnancy (changes in mother and foetus / foetal circulation)
* Breastfeeding
* Birth process
* Hormones in the menstrual and ovarian cycles and pregnancy
* Stem cells
* Methods of prenatal diagnosis
* Ethical issues associated with stem cells and prenatal diagnosis
* Modes of inheritance (dominant, recessive, X-linked, autosomal)
* Pedigree interpretation
* Mutagen and teratogens / Genetic diseases: Huntingtons, cystic fibrosis, duchenne muscular dystrophy, sickle cell anaemia