

Before deciding to do a presentation, check with Ms. Roberts if it is necessary.

- This project is intended for students who may want to ensure they are successful in the course or have had a recent decline in marks.
- **Choose One of the subjects below** (with a beside it)
- Develop a quick 5-10 minute presentation to do IN CLASS June 11, 12, 14, 15.
- Check with Ms. Roberts before you begin. Each block will only have one person do a topic (no repeats in the same class).
- If you have an area that you are interested in surrounding reproduction or the nervous system, check with Ms. Roberts to see if it fits with the curriculum below

You will be assessed on:

- Presentation skills – clear voice, eye contact, clarity of information.
- Preparedness - *Resources* (It is expected you either have a handout to show on the doc camera or a slide presentation)
- Preparedness - *Knowledge* (It is expected that you only refer to your notes occasionally and are able to answer questions. As well, be able to pronounce all words correctly)

BIOLOGY 12 CURRICULUM TOPICS TO CHOOSE FROM:

- identify the major components of a synapse, including – *Synapses and neurotransmitters*
 - synaptic ending
 - presynaptic and postsynaptic membranes
 - synaptic cleft
 - synaptic vesicle
 - calcium ions and contractile proteins
 - excitatory and inhibitory neurotransmitters (e.g., norepinephrine, acetylcholine ACh)
 - receptor
 - acetylcholinesterase (AChE)
- explain the process by which impulses travel across a synapse
- describe how neurotransmitters are broken down in the synaptic cleft
- describe the structure of a reflex arc (receptor, sensory neuron, interneuron, motor neuron, and effector) and relate its structure to how it functions

- compare the locations and functions of the central and peripheral nervous systems -
- describe the inter-related functions of the sympathetic and parasympathetic divisions of the autonomic nervous system, with reference to – *Fight or Flight or Relaxed State*
 - effect on body functions including heart rate, breathing rate, pupil size, digestion
 - neurotransmitters involved
 - overall response (“fight or flight” or relaxed state)
 - identify the source gland for adrenalin (adrenal medulla) and explain its role in the “fight or flight” response
- identify and give functions for each of the following: *anatomy of the male reproductive system*
 - testes (seminiferous tubules and interstitial cells)
 - scrotum
 - epididymis
 - ductus (vas) deferens
 - prostate gland
 - Cowper’s glands
 - seminal vesicles
 - penis
 - urethra
 - describe the path of sperm from the seminiferous tubules to the urethral opening
 - list the components seminal fluid (as contributed by the Cowper’s glands, prostate gland, and

- seminal vesicles), and describe the functions of each component -
- describe the functions of testosterone – *primary and secondary functions of testosterone*
 - describe the homeostatic regulation of testosterone levels by the hypothalamus, anterior pituitary, and testes – *Male reproductive hormones*
 - identify and give functions for each of the following: *General anatomy of the female reproductive anatomy*
 - ovaries (follicles and corpus luteum)
 - oviducts (fallopian tubes)
 - uterus
 - endometrium
 - cervix
 - vagina
 - clitoris
 - describe the functions of estrogen
 - describe the sequence of events in the ovarian cycle, with reference the follicular phase, ovulation, and the luteal phase – *the egg maturation within the ovary*
 - describe the sequence of events in the uterine cycle, with reference to menstruation, the proliferative phase, and the secretory phase – *the menstrual cycle*
 - describe the control of the ovarian and uterine cycles by hormones including gonadotropin-releasing hormone (GnRH), follicle-stimulating hormone (FSH), luteinizing hormone (LH), estrogen, and progesterone – *Hormones and how they impact egg production*
 - describe the hormonal changes that occur as a result of implantation, including –
Pregnancy
 - production of human chorionic gonadotropin (HCG) to maintain the corpus luteum
 - increased production of progesterone by the corpus luteum
 - describe a positive feedback mechanism involving oxytocin - *Childbirth*