Science: Year 3

I. CYCLES IN NATURE

A. SEASONAL CYCLES

- The four seasons and Earth's orbit around the Sun [Review from Year 1]
- Seasons and life processes
    - Spring: sprouting, sap flow in plants, mating and hatching
    - Summer: growth
    - Fall: ripening, migration
    - Winter: plant dormancy, animal hibernation

B. LIFE CYCLES

- The life cycle: birth, growth, reproduction, death
- Reproduction in plants and animals
    - From seed to seed with a plant
    - From egg to egg with a chicken
    - From frog to frog
    - From butterfly to butterfly: metamorphosis (see below: insects)

C. THE WATER CYCLE

- Most of the Earth's surface is covered by water
- The water cycle
    - Evaporation and condensation
    - Water vapour in the air, humidity
    - Clouds: cirrus, cumulus, stratus
    - Precipitation, groundwater

II. INSECTS

[Cross-curricular links with Year 3 Language and Literature: Poetry]

- Insects can be helpful and harmful to people.
    - Helpful: pollination; products like honey, beeswax, and silk; eat harmful insects
    - Harmful: destroy crops, trees, wooden buildings, clothes; carry disease; bite or sting
- Distinguishing characteristics
    - Exoskeleton, chitin
    - Six legs and three body parts: head, thorax and abdomen
    - Most but not all insects have wings
- Life cycles: metamorphosis
    - Some insects look like miniature adults when born from eggs, and they moult to grow (for example: grasshopper, cricket)
    - Some insects go through distinct stages of egg, larva, pupa, adult (for example: butterflies, ants)
- Social Insects
    - Most insects live solitary lives, but some are social (for example: ants, honeybees, termites, wasps)
    - Ants: colonies
    - Honeybees: workers, drones, queen

III. THE HUMAN BODY: CELLS, SYSTEMS AND HEALTH

A. CELLS

- All living things are made up of cells, too small to be seen without a microscope.
    - Cells make up tissues.
    - Tissues make up organs.
    - Organs work in systems.

B. THE DIGESTIVE SYSTEM

Teachers: Explore with children what happens to the food we eat by studying body parts and functions involved in taking in food and getting rid of waste. Children should become familiar with the following:

- Salivary glands, taste buds
- Teeth: incisors, canines, premolars and molars
- Oesophagus, stomach, liver, small intestine, large intestine

C. TAKING CARE OF YOUR BODY: A HEALTHY DIET

- The 'food pyramid'
- Vitamins and minerals

IV. MAGNETISM

Teachers: Magnetism was introduced in Year 1. Review and introduce new topics in Year 3, with greater emphasis on experimentation.

- Magnetism demonstrates that there are forces we cannot see that act upon objects.
- Most magnets contain iron
- Lodestones: naturally occurring magnets
- Magnetic poles: north-seeking and south-seeking poles
- Magnetic field (strongest at the poles)
- Law of magnetic attraction: unlike poles attract, like poles repel.
- The Earth behaves as if it were a huge magnet: north and south magnetic poles (near, but not the same as, geographic North Pole and South Pole).
- Orienteering: use of a magnetised needle in a compass, which will always point to the north

V. SIMPLE MACHINES

Teachers: Examine with children how specific tools are made to perform specific jobs- for example, hammers, screwdrivers, pliers, etc. Through observation and experimentation, examine with children how simple machines help make work easier, and how they are applied and combined in familiar tools and machines.

A. SIMPLE MACHINES

- Lever
- Pulley
- Wheel and axle
    - Gears: wheels with teeth and notches
    - How gears work and familiar uses (for example, in bicycles)
- Inclined plane
- Wedge
- Screw

B. FRICTION, AND WAYS TO REDUCE FRICTION (LUBRICANTS, ROLLERS, ETC.)

VI. SCIENCE BIOGRAPHIES

- Archimedes (ancient Greek mathematician, physicist, engineer, inventor, and astronomer) [Cross-curricular link with History and Geography]
- Aristotle (Greek philosopher: wrote on physics, biology, logic, poetry, theatre, rhetoric, politics and ethics)
- Anton van Leeuwenhoek (invented the microscope)
- The Curie Family including Marie Curie (discovered radiation and two new elements)