Science Curriculum Intent:
At QEGS, our Science Curriculum aims to provide engaging lessons and promotes teaching for understanding whilst covering the National Curriculum programmes of study. The Key Stage 3 content covers learning objectives in a logical order to lay strong foundations and to equip students for success at GCSE. To support all students toward fulfilling their potential, the KS3 courses balances the examined content with a mastery of ideas and skills. Students are then equipped to develop their knowledge, from understanding to application at GCSE.

Biology Year 8 Curriculum:
There are 6 main areas of Biology that will be covered in Year 8: **Cells and organisation:**- Using microscopes, cell organelle in plants and animal cells, diffusion, unicellular organisms and levels of organisation; **Reproduction**:- Structure and function of male and female reproductive systems, menstrual cycle, gametes, fertilisation, gestation and birth and the effects of maternal lifestyle on the foetus; **Gas exchange systems:-** Structure and function of gas exchange system in humans, breathing mechanism, impact of exercise, asthma and the effects of smoking; **Health**:- The effects of recreational drugs and substance misuse: **Skeletal and muscular systems: -** Structure and function of the human skeleton, biomechanics and the function of muscles: **Relationships in an ecosystem**:- interdependence of organisms in ecosystems, importance of plant reproduction through insect pollination, how organisms affect and are affected by their environment: **Working scientifically**:- experimental skills, investigations, analysis, evaluation and measurement .

Autumn Term:
1. Plant and animal cell structure
2. Using light microscopes
3. Functions of cell organelle
4. Specialised cells
5. Role of diffusion
6. Unicellular organisms
7. Levels of organisation
8. Human reproductive systems
9. Menstrual cycle
10. Fertilisation
11. Effect of maternal lifestyle

Key Objectives Autumn Term - To be able to:
1. Draw, label and compare plant and animal cells.
2. Prepare simple slide specimens, observe and record observations.
3. Recall the functions of the nucleus, cytoplasm, cell membrane, cell wall, vacuole, chloroplasts and mitochondria.
4. Identify specialised features in different types of cell such as RBCs, nerve, sperm and root hair cells.
5. Describe the process of diffusion; implement diffusion experiment and analyse results
6. Identify structural adaptations of unicellular organisms.
7. Recognise the hierarchical organisation of multicellular organisms; from cells, to tissues, to organs, to systems, to organism.
8. Label both the male and female systems, and then describe the structures and functions of both systems.
9. Describe and explain the stages in the menstrual cycle.
10. Describe the process of fertilisation.
11. Explain how some harmful substances that cross the placenta can affect the foetus.

Spring Term:
1. Human skeleton
2. Synovial joints
3. Biomechanics
4. Function of muscles
5. Aerobic respiration
6. Gas exchange in humans
7. Mechanism of breathing
8. Composition of inhaled and exhaled air
9. Impact of exercise
10. Impact of asthma
11. Impact of smoking
12. Effects of recreational drugs

Key Objectives Spring Term - To be able to:
1. Label the skeletal system and list its four main functions.
2. Describe the structure and function of synovial joints.
3. Understand how to calculate the size of a moment (force applied by a muscle).
4. Explain how antagonistic muscles work in pairs.
5. State the word equation for aerobic respiration.
6. Identify and describe the structure and function of gas exchange organs.
7. Understand the mechanisms of inhaling and exhaling.
8. Predict and compare the composition of inspired and expired air.
9. Explain the effect of exercise on the gas exchange and circulatory systems.
10. Understand how asthma makes it difficult to breathe.
11. Evaluate the long-term effects on human health.
12. Describe how drugs affect the body; suggest how the misuse of drugs can affect and individual and society.

Summer Term:
1. Food chains
2. Food webs
3. Energy transfer through ecosystems
4. Predators and prey
5. Pyramids of number
6. Importance of insect pollination
7. Bioaccumulation
8. Fieldwork using quadrats

Key Objectives Summer Term - To be able to:
1. Draw food chains, describing the organisms as either producers or consumers.
2. Draw a food web. Understand the ways organisms in a food web interact.
3. Explain how energy is transferred up a food chain; including terminology.
4. Describe and explain the adaptations of successful predators and prey.
5. Construct pyramids of number.
6. Explain the importance of bees in human food security.
7. Describe, with an example, how toxic materials accumulate in food chains.
8. Use a quadrat to measure how a physical factors affects the distribution of a plant or algae.

Key Performance Standards
1. Draw, label and compare plant and animal cells
2. Recall the functions of plant and animal cell organelle
3. Describe the role of diffusion
4. Describe the structure and function of the male and female reproductive systems
5. Describe the menstrual cycle
6. Describe the structure and function of the human gas exchange system
7. Understand the mechanism of breathing
8. Explain the impact of exercise, asthma and smoking on the respiratory system
9. Label and list the main functions of the skeletal system
10. Explain how antagonistic muscles work
11. Understand and be able to construct food chains and food webs
12. Construct pyramids of numbers
13. Measure the distribution of a plant or algae .