Kings Priory School

Key Stage 4 Biology - Combined Science Curriculum

YEAR 9

Key Questions:

Why don't microscopes "zoom" in?

Why do cells have different types/amounts of organelles?

How do substances move across membranes?

Cell Structure & Transport

Key Questions:

Describe the process of & importance of cell division to living organisms.

What are stem cells & why are they of such interest to scientists & doctors?

Cell Division

Key Questions:

How are organisms organised?

What happens to food in our body?

How are enzymes a vital part of digestion?

Describe the route of food through our digestive system

Organisation & the Digestive System

Key Questions:

What are the functions of the organs that make up the circulatory system?

Explain in detail how a steep concentration gradient is maintained in the lungs & why it is needed.

Why do leaves have more stomata on the underside of the leaf?

Organising Animals & Plants

Key Questions:

Describe how pathogens can make a person unwell & the ways the human body defends itself against disease.

Explain how you would safely grow a culture of bacteria in the school laboratory.

Compare the effects of several diseases caused by viral & bacterial infections.

Commun-icable Disease

YEAR 10

Key Questions:

Describe how pathogens can make a person unwell.

Compare the effects of several disease caused by viral & bacterial infections.

Describe the different ways the human body defends itself against disease.

Commun-icable Diseases

Key Questions:

What is the difference between vaccines, antibiotics & painkillers?

What happens before drugs are available to the general public?

Preventing & Treating Disease

Key Questions:

What is a causal relationship?

How does lifestyle influence risk?

Non-Communicable Disease

Key Questions:

Describe how a leaf is adapted to allow photosynthesis to take place.

Explain why glucose is important for a plant to function correctly.

Photosynthesis

Key Questions:

How is energy released in organisms?

Respiration

Key Questions:

Explain how glands & hormones play a role in controlling blood glucose levels.

Describe the main hormones & their roles in puberty & the menstrual cycle.

Identify the main methods used to control fertility

Human Nervous System

Key Questions:

What is homeostasis & why is it so important?

Why are reflex action so important for survival?

What are the functions of the main areas of the brain?

Why do some people wear glasses?

Hormonal Co-ordination

YEAR 11

Key Questions:

Explain how glands & hormones play a role in controlling blood glucose levels.

Describe the main hormones & their roles in puberty.

Identify the main methods used to control fertility.

Hormonal Control

Key Questions:

Why do some cells divide by meiosis rather than mitosis?

Can you predict offspring phenotype?

Evaluate the statement "screening of all embryos should be offered to all pregnant couples".

Reproduction

Key Questions:

Explain why identical twins never looks exactly the same.

Is selective breeding humans determining natural selection?

Evaluate the pros & cons of genetics engineering.

Variation & Evolution

Key Questions:

How did science help us understand our genes?

How do we use fossils?

How do we group organisms?

Genetics & Evolution

Key Questions:

How many daisies are on the school field?

How are camels & cacti adapted to survive in the desert?

Adaptation, Interdependence & Competition

Key Questions:

Describe how energy is transferred from the sun to a cow?

Identify the main parts of the decay, carbon & nitrogen cycles.

Describe the factors that affect the rate of decomposition.

Organising An Ecosystem

Key Questions:

What are the effects of 7.5 billion people?

How can we limit the effect of humans on the environment?

How can we produce food more effectively?

Biodiversity & Ecosystems