Science Overviews Term 4 - 2022 Biological Science

This term in the science lab, we will be focussing on the Australian Curriculum Science sub-strand of Biological Sciences. In essence, Biological Sciences is the area of science concerned with understanding living things. The key concepts developed within this sub-strand are that: a diverse range of living things have evolved on Earth over hundreds of millions of years; living things are interdependent and interact with each other and their environment; and the form and features of living things are related to the functions that their body systems perform. Students investigate living things, including animals, plants and microorganisms, and their interdependence and interactions within ecosystems. They explore their life cycles, body systems, structural adaptations and behaviours, how these features aid survival, and how their characteristics are inherited from one generation to the next.

Student exploration of human endeavour will be explored in a range of ways as this supports students to develop their understanding and make connections through linking tangible examples of science in their world with the scientific relevance of the concept being taught.

Students will continue to develop their Science Inquiry Skills through such actions as questioning, investigating, researching, comparing, measuring, observing, predicting, testing ideas, collaborative group work and conducting experiments. Comparing, contrasting, reflection and evaluation will also be a key part of their work.

During week one all classes will participate in "The Aussie Backyard Bird Count'. This important observation task involves counting and attempting to identify the birds that we see around our beautiful school. This data will help BirdLife Australia develop an understanding of local birds in the Aldgate area, whilst supporting students to get to know the birds in our backyard. We will also explore ways we impact on the bird population at our school and how we can encourage great diversity of native bird life through positive change practices.

Junior Primary - Who needs that and where do they get it from?

This term we will be undertaking an inquiry based unit of work that explores and identifies the basic needs of humans, animals and plants. They will make predictions, and with guidance start to develop a basic understanding of the concept of fair testing. Students will investigate to observe and record the effect of water on plant growth, analysing and comparing results to form a conclusion. They will develop the understanding animals and plants live in environments where their basic needs are met in order to aid survival.

Science as a Human Endeavour will be explored through investigating how First Nations Australians understand the needs of plants and animals and have long cared for the living things in their environment.

Science based STEM Challenge - Students will work in collaborative learning teams and utilise the information they have developed over the unit to create a 3D model of a native animal found locally and describe the connection between basic needs and the environment the animal lives in. This will include exploring how human interference of some environments of living things around our local area has negatively impacted on their access to basic needs. They will then use aspects of the engineering design process to develop a range of possible solutions to the identified problems. Students will justify their claims via sharing and evaluation based on agreed criteria.

Middle Primary - Follow that food

This term students will further develop their understanding of the needs of living things, in the context of food chains. They will consider the variety of ways living things obtain the energy and nutrients they need for survival and classify living things as producers, consumers and decomposers. Students will begin to understand that consumers can be identified as herbivores, carnivores and omnivores based on the types of food that they eat, and as predators or prey based on their interactions with other consumers. They will explore the impacts of invasive species and conduct research to determine how science is being used to reduce the negative effects of these species. Students will further develop their capability in critical and creative thinking as they plan, conduct, analyse and evaluate fair testing methods to investigate the effect of sunlight levels on plant growth. They will also investigate the actions of decomposers.

Science as a Human Endeavour will be explored through students sourcing information using the Atlas of Living Australia to identify some of the native species that are utilised as food by First Nations peoples.

Science based STEM Challenge - Students will work in collaborative learning teams and utilise the information they have developed over the unit to identify the different types of invasive species present at our school. They will then use the engineering design process to design and develop a range of practical solutions to ethically reduce the negative effects of these species. Students will justify their claims through peer sharing and evaluation based on agreed criteria.

Upper Primary - Mould Madness and 'S'mores Galore'

This term, students will build on prior knowledge and prior experience to develop an understanding that the growth and survival of living things are affected by the physical conditions of their environment. Mould will be used as a model organism for demonstrating this concept. Through research and a range of hands on experiments, students will further develop their fair testing skills by designing their own experiments using scientific inquiry skills to test their predictions about mould growth inhibitors.

Science as a Human Endeavour will explore First Nations Australians uses of fungi and western scientific discoveries that have led to the use of mould for different purposes.

Science based STEM Challenge - Students will utilise the engineering design process to design a solar oven that will generate enough energy/heat to make a 'S'more' (S'mores are made with **biscuits, marshmallows, and chocolate**. They're warmed until melted and gooey.). They will reflect and critique their designs based on agreed criteria that we have developed within the classes. Students will utilise the knowledge they developed around mould growth to justify if the 'S'more' is ultimately safe to eat.

Feedback and Student Voice - Students will regularly be provided with constructive feedback and given opportunities to provide feedback to each other and the teacher. This will be both verbally and in written form. Students will also participate in peer, teacher and self-assessment processes.

Student voice will be evident through such areas as curriculum ongoing design, science room values and expectations development, personal feedback, reflection and science based STEM challenges.

Science Room Health and Wellbeing - Personal development through exploration and practical application of our school values and Growth Mindset principles will be embedded into our science lessons.

Differentiation – Approaches to teaching and learning will be differentiated to meet the needs of individual learning styles.