Long Range Grade 4
Science and Technology Plan

Term 3: Life Systems – Habitats and Communities

Specific Expectations

Understanding Basic Concepts

- identify, through observation, various fact ors that affect plants and animals in a specific habitat (e.g., availability of water, food sources, light; ground features; weather conditions);
- classify organisms according to their role in a food chain (e.g., producer, consumer);
- demonstrate an unders tanding of a food chain as a system in which energy from the sun is transferred eventually to animals, construct food chains of different plant and animal species (e.g., carrot'rabbit'fox), and classify animals as omnivore, carnivore, and herbivore;
- describe structural adaptations of plants and animals that demonstrate a response of the living things to their environment (e.g., the height of a plant depends on the amount of sunlight the plant gets; many animals that live in the Arctic have white fur);
- recognize that animals and plants live in specific habitats because they are dependent on those habitats and have adapted to them (e.g., ducks live in marshes because they need marsh plants for food and shelter and water for movement);
- classify plants and anim als that they have observed in local habitats according to similarities and differences (e.g., in shape, location).

Developing Skills of Inquiry, Design and Communication

- formulate questions about and identify the needs of animals and plants in a particul ar habitat, and explore possible answers to these questions and ways of meeting these needs (e.g., predict the structural adaptations, such as webbed feet, that help aquatic animals live in water);
- plan investigations for some of these answers and solutio ns, identifying variables that need to be held constant to ensure a fair test and identifying criteria for assessing solutions;
- use appropriate vocabulary, including correct science and technology terminology, in describing their investigations, explorati ons, and observations (e.g., habitat, population, ecological niche, community, food chain);

- compile data gathered through investigation in order to record and present results, using tally charts, tables, and labelled graphs produced by hand or with a computer (e.g., display data gathered in a population -simulation exercise, using a labelled graph; classify species of insects in the neighbourhood according to habitat, using a chart or table);
- communicate the procedures and results of investigations for specific purposes and to specific audiences, using media works, oral presentations, written notes and descriptions, drawings, and charts (e.g., prepare a poster illustrating the components of a local habitat; trace a food chain in an illustrated chart, using the sun as the starting point).

Relating Science and Technology to the World Outside the School

- describe ways in which humans are dependent on plants and animals (e.g., for food products, medicine, clothing, lumber);
- describe ways in which humans can affect the natural world (e.g., urban development forces some species to go elsewhere and enables other species to multiply too rapidly; conservation areas can be established to protect specific habitats);
- construct food chains that include different plant and animal species and humans (e.g., grass'cattle'humans);
- show the effects on plants and animals of the loss of their natural habitat (e.g., nesting sites of ducks may be destroyed when a dam is built);
- investigate ways in which the extinction of a plant or animal species affects the rest of the natural community and humans (e.g., chart the distribution of wolves on a world map and predict the effects if wolves were to become extinct; use a software program that simulates a specific environment to track the effects of the loss of a plant species).