**Windfields J.H.S.**





###### 2016 – 2017

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| COURSE NAME | Science and Technology (IB Sciences Year 2) | **GRADE** | 7 |
| **COURSE CODE** | SNC7N | **CREDIT VALUE** | N/A |
| TYPE OF COURSE | Elementary Course | | |

**REPLACEMENT COST (if lost or damaged)**

$20 for rebinding fee

$77 for a lost textbook, or if damaged beyond repair

**TEXTBOOK**

Investigating SCIENCE AND TECHNOLOGY 7

(Publisher: Pearson)

**REPLACEMENT COST (if lost or damaged)**

Students are responsible for the replacement cost of broken lab materials or equipment (e.g., glass beaker, hot plate, etc.)

#### RESOURCES/OTHER LEARNING MATERIALS

Students bring their own: 3-ring binder with

ruled paper, pens, pencils, and calculator

## **COURSE DESCRIPTION**

This course enables students to develop their understanding of key concepts in the three curriculum strands: life systems, matter and energy, and earth and space systems; and to relate science to technology, society, and the environment. Throughout the course, students will develop their skills in the processes of scientific investigation.

## **TOPICS OF STUDY/UNITS**

Unit 1 Laboratory Safety and Scientific Inquiry

* Students will demonstrate an understanding of safe laboratory practices, equipment, and scientific investigation skills.
* Summative assessments include: tests (IB criteria A & B)

Unit 2 Pure Substances and Mixtures

* Students will demonstrate an understanding of the properties of pure substances and mixtures, and describe these characteristics using the particle theory, and evaluate the social and environmental impacts of the use and disposal of pure substances and mixtures.
* Summative assessments include: tests (IB criterion A, B & C), laboratory report (IB criteria C), and research assignment (IB criterion D)

Unit 3 Heat in the Environment

* Students will demonstrate an understanding of heat as a form of energy that is associated with the movement of particles and is essential to many processes within the earth’s systems, and assess the costs and benefits of technologies that reduce heat loss or heat-related impacts.
* Summative assessments include: tests (IB criteria A & C), and research and investigation assignments (IB criterion B, C & D)

Unit 4 Interactions in the Environment

* Students will demonstrate an understanding of interactions between and among biotic and abiotic elements in the environment, and assess the impacts of human and technologies on the environment, and evaluate ways of controlling these impacts.
* Summative assessments include: tests (IB criteria A) and research assignments (IB criterion C & D)

**\*Subject to change at teachers discretion**

**ASSESSMENT OF STUDENT ACHIEVEMENT**

Assessment of student achievement is based on the criteria, objectives, and levels of achievement in IB Sciences Year 3.

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| --- | --- |
| Criteria | Objectives |
| A: Knowing and  understanding | 1. describe scientific knowledge 2. apply scientific knowledge and understanding to solve problems set in familiar and unfamiliar situations 3. analyse information to make scientifically supported judgments |
| B: Inquiring and  designing | 1. describe a problem or question to be tested by a scientific investigation 2. outline a testable hypothesis and explain it using scientific reasoning 3. describe how to manipulate the variables, and explain how data will be collected 4. design scientific investigations |
| C: Processing and  evaluating | 1. present collected and transformed data 2. interpret data and describe results using scientific reasoning 3. discuss the validity of a hypothesis based on the outcome of the scientific investigation 4. discuss the validity of the method 5. describe improvements or extensions to the method |
| D: Reflecting on  the impacts of  science | 1. describe the ways in which science is applied and used to address a specific problem or issue 2. discuss and analyse the various implications of the use of science and its application in solving a specific problem or issue 3. apply scientific language effectively 4. document the work of others and sources of information used |

Levels of Achievement:

|  |  |  |
| --- | --- | --- |
| **Percentage Grade Range** | **IB Achievement**  **Level** | **Summary Description** |
| 80 – 100 % | 5-8 | A very high to outstanding level of achievement.  Achievement is above the provincial standard. |
| 70 – 79% | 4 | A high level of achievement.  Achievement is at the provincial standard. |
| 60 – 69% | 3 | A moderate level of achievement.  Achievement is below, but approaching, the provincial standard. |
| 50 – 59% | 2 | A passable level of achievement.  Achievement is below the provincial standard. |
| Below 50% | 0-1 | Insufficient achievement of curriculum expectations. |

# WEIGHTING of each CRITERION ASSESSMENT STRATEGIES

* Knowing and understanding 25% Throughout the year, students will be given tests and
* Inquiring and designing 25% various assessment tasks to determine their level of conceptual
* Processing and evaluating 25% understanding and acquisition of skills.
* Reflecting on the impacts of science 25%

**LEARNING SKILLS and ATLs (IB Approaches to Learning)**

These skills will be reported on the Provincial Report Card by using the following categories:

Excellent (**E**)

Good (**G**)

Satisfactory (**S**)

Needs Improvement (**N**)

The learning skills that will be assessed are:

* Responsibility (thinking and research)
* Organization (communication and research)
* Independent Work (self-management: organization skills)
* Collaboration (social)
* Initiative (thinking)
* Self-Regulation (self-management: affective skills and reflection skills)