**Windfields J.H.S.**





###### 2016 – 2017

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| COURSE NAME | Science and Technology (IB Sciences Year 3) | **GRADE** | 8 |
| **COURSE CODE** | SNC8N | **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 8

(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 four curriculum strands: life systems, structures and mechanisms, 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.

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## **TOPICS OF STUDY/UNITS**

Unit 1 Laboratory Safety and Scientific Inquiry

* Students will demonstrate an understanding of safe laboratory practices and scientific investigation skills.

Unit 2 Cells

* Students will demonstrate an understanding of the basic structure, function, and processes of plant and animal cells, and assess the impact of cell biology on individuals, society, and the environmental.
* Summative assessments include: tests (IB criteria A & B), laboratory reports (IB criteria B & C), and oral and research assignments (IB criterion D)

Unit 3 Systems in Action

* Students will demonstrate an understanding of different types of mechanical systems, assess the personal, social, and/or environmental impacts of a system, and evaluate alternative ways of meeting the same needs.
* Summative assessments include: tests (IB criterion A), laboratory report (IB criterion C), and written assignment (IB criterion D)

Unit 4 Fluids

* Students will demonstrate an understanding of the properties and uses of fluids, and assess the impact of fluid technologies (i.e., hydraulic and pneumatic devices) on society and the environment.
* Summative assessments include: tests (IB criteria A & C), lab reports (IB criteria B), and design task (IB criterion D)

Unit 5 Water Systems

* Students will demonstrate an understanding of the earth’s water systems, factors that affect local water quality, and assess the impact of human activities and technologies on the sustainability of water resources.
* Summative assessments include: test (IB criteria A) and written assignment (IB criteria 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%

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

Excellent (**E**)

Good (**G**)

Satisfactory (**S**)

Needs Improvement (**N**)

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

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)