SCIENCE

OVERVIEW:

The Grade 6 Science Curriculum is divided into 4 units:

A) Understanding life systems: Biodiversity
B) Understanding structures and mechanisms: Flight
C) Understanding matter and energy: Electricity and electrical devices
D) Understanding earth and space systems: Space

CURRICULUM EXPECTATIONS: **From Ministry of Education, 2007**

A. UNDERSTANDING LIFE SYSTEMS: BIODIVERSITY

Fundamental Concepts	Big Ideas
Systems and Interactions Sustainability and Stewardship	Biodiversity includes diversity of individuals, species, and ecosystems. *(Overall expectations 2 and 3)* Classification of the components within a diverse system is a beginning point for understanding the interrelationships among the components. *(Overall expectations 2 and 3)* Because all living things are connected, maintaining diversity is critical to the health of the planet. *(Overall expectations 1 and 3)* Humans make choices that can have an impact on biodiversity. *(Overall expectation 1)*

Overall expectations:

By the end of Grade 6, students will:

1. assess human impacts on biodiversity, and identify ways of preserving biodiversity;
2. investigate the characteristics of living things, and classify diverse organisms according to specific characteristics;
3. demonstrate an understanding of biodiversity, its contributions to the stability of natural systems, and its benefits to humans.

B. Understanding Structures and Mechanisms: Flight

Fundamental Concepts	Big Ideas
Structure and Function Matter	Flight occurs when the characteristics of structures take advantage of certain properties of air. *(Overall expectations 1, 2, and 3)* Air has many properties that can be used for flight and for other purposes. *(Overall expectations 1, 2, and 3)*

Overall expectations:

By the end of Grade 6, students will:

1. assess the societal and environmental impacts of flying devices that make use of properties of air;
2. investigate ways in which flying devices make use of properties of air;
3. explain ways in which properties of air can be applied to the principles of flight and flying devices.

C) Understanding Matter and Energy: Electricity and Electrical Devices

Fundamental Concepts	Big Ideas
Energy Systems and Interactions Sustainability and Stewardship	Electrical energy can be transformed into other forms of energy. *(Overall expectations 2 and 3)* Other forms of energy can be transformed into electrical energy. *(Overall expectations 2 and 3)* Electrical energy plays a significant role in society, and its production has an impact on the environment. *(Overall expectation 1)* Society must find ways to minimize the impact of energy production on the environment. *(Overall expectation 1)*

Overall expectations:

By the end of Grade 6, students will:

1. evaluate the impact of the use of electricity on both the way we live and the environment;
2. investigate the characteristics of static and current electricity, and construct simple circuits;
3. demonstrate an understanding of the principles of electrical energy and its transformation into and from other forms of energy.

D) UNDERSTANDING EARTH AND SPACE SYSTEMS: SPACE

Fundamental Concepts	Big Ideas
Systems and Interactions	Earth is a part of a large interrelated system. *(Overall expectations 2 and 3)* Technological and scientific advances that enable humans to study space affect our lives. *(Overall expectations 1 and 2)*

Overall expectations:

By the end of Grade 6, students will:

1. assess the impact of space exploration on society and the environment;
2. investigate characteristics of the systems of which the earth is a part and the relationship between the earth, the sun, and the moon;
3. demonstrate an understanding of components of the systems of which the earth is a part, and explain the phenomena that result from the movement of different bodies in space.

TENTATIVE OUTLINE FOR THE YEAR (IN'SHAA ALLAH):

- **Science is scheduled four times a week for 2015-2016**

#	UNIT	LESSONS ALLOTTED
1	Biodiversity	32
2	Space	30
3	Electricity	31
4	Flight	32

Sample Resources used:

- **Reid, Paul and Reid, Clare. Characteristics of Flight. New York: On the Mark Press, 2007.**
- **Bosak, Susan. Science is…Toronto: Scholastic Canada Ltd., 2000.**
- **Komar, Melanie. The Solar System. Napanee: S & S Learning Materials, 1999.**
- **Campbell, Steve et al. Earth and Space Systems: Space. Toronto: Addison Wesley, 1999.**
- **Campbell, Steve et al. Energy and Control: Electricity. Toronto: Addison Wesley, 1999.**
- **Popular Book Company Ltd. Complete Canadian Curriculum. Richmond Hill: PBC Ltd., 2014.**
- **Various online resources**
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Sample Teaching/Learning Strategies		
Lecture/presentation	Teacher analysis	Investigations/lab/inquiry
Student presentation	Small group discussion	Digital media/technology
Class discussion	Hands-on activity/materials	Cooperative learning/group work
Problem solving	Critical analysis	Demonstrations/modelling
PowerPoint	Peer Analysis	Brainstorming
Graphic organizers (e.g. fish bone, mind map, concept map, Venn diagram, timeline, flow chart)		
Debates	Games/competitions	Journals
Role playing/drama	Think-Pair-Share	Learning styles
Multiple Intelligences	Brainstorming	Field trip
Guest speaker	Gallery walk	Online research
Video creation	Homework	Guided/independent practice
Jigsaw	4 Corners	Tribes activities
Case studies	Tribes activities	Other (subject specific)

Sample Evaluation/Assessment Strategies		
Formative/summative assessments	KWL chart	Graphic organizers (see above)
Pre-test/Quiz/Test	Larger assignment/project	Models/dioramas
Presentations	Handout/Worksheet Activity	Table
Diagrams	Self-evaluation	Investigations
Checklist	Rubric	Ticket out the door/variation
Conference	Peer review	Observations
Assigned questions	Lab report/notebook	Technology
Culminating activity	Debates/drama	Class/small-group discussion
Inquiry activity	Online work	Check for understanding
Anecdotal report	Larger assignments/projects	Journals
Group assessment	Independent study	Binder check
Portfolio	Letters/other narrative structures	Other (subject specific)

Assessment Types		
Assessment for Learning	Assessment as Learning	Assessment of Learning

Central Assessment Strategies		
Student Work	Conversation	Observation

The tables above provide an overview of some of the strategies I will be using in my Science lessons In'shaa Allah, as well as how I will be assessing and evaluating my students. For a more detailed look at my teaching strategies, please see the appropriate sections on the class website (srmaryam6b2015.weebly.com). Jazakallah!