

**Dawood Public School  
Course Outline 2015-16  
Science  
Class III**

**Book: International primary Science 3 by HO Peck Leng and Workbook**

**AIMS**

The Science Syllabus aims to:

- ❖ Provide students with experiences which build on their interest in and stimulate their curiosity about their environment.
- ❖ Provide students with basic scientific terms and concepts to help them understand themselves and the world around them.
- ❖ provide students with opportunities to develop skills, habits of mind and attitudes necessary for scientific inquiry prepare students towards using scientific knowledge and methods in making personal decisions
- ❖ help students appreciate how science influences people and the environment

**OVERVIEW**

**Monthly Syllabus:**

Months	Contents
• <b>August</b> • <b>September</b>	• Healthy living
• <b>October</b>	• Materials and their properties
• <b>November</b>	• Forces • Revision for Mid Term Exams
• <b>December</b>	• MID TERM EXAMS
• <b>January</b>	• Fish and frog
• <b>February</b>	• Rocks and soil
• <b>March</b>	• Electricity
• <b>April/ May</b>	• Revision For Final Exams • FINAL EXAMS

**August/September**

**Healthy living Chapter. 1 pg.1-35**

In this unit, pupils build on their previous knowledge the characteristics common to all living things to develop their knowledge of

- The constituents of a balanced diet and the functions of various nutrients
- The effects of nutritional deficiencies
- The relationship between diet and fitness
- List the ways to stay healthy including brushing teeth, doing different exercises, breathing fresh air and having enough rest.

## Scientific Enquiry work focuses on:

- Discussing and controlling risks to themselves and others
- Identifying important variables, choose which variables to change, control and measure
- Using a range of equipment correctly
- Taking appropriately accurate measurements
- Presenting conclusions to others in appropriate ways
- Interpreting data from secondary sources
- Considering explanations using scientific knowledge and understanding and communicate these

## Recommended Vocabulary for this unit:

Nutrition, diet, deficiency, obesity, balanced diet, nutrients, canning, spoiled, Incisors, canines, premolar, molar, plaque,

Contents	Learning Objectives	Activity	Res
Food and nutrition	<p>Understand the relationship between food and nutrition.</p> <p>Identify the constituents of a balanced diet and the functions of various nutrients</p> <p>Know that protein is used for growth and repair. Investigate which foods contain protein using the Biuret test on a few samples.</p> <p>Know that fat is used as an energy store.</p> <p>Understand the relationship between diet and fitness</p> <p>Chew a piece of bread for a few minutes and notice the changes that take place.</p> <p>Understand the function of teeth in breaking down food in to small pieces.</p> <p>Discuss the importance of Incisors, canines, premolars, and molars.</p>	<p>Appreciate that food contains different kinds of nutrients</p> <p>Collect and study food labels from cans etc to discover how foodstuffs are divided into carbohydrates, proteins, lipids, vitamins and minerals.</p> <p>Students are encouraged to bring Healthy breakfast and discuss its importance.</p> <p>In groups they should select the food from the given list and arrange them in a food pyramid on the basis of their importance</p> <p>Obesity and circulatory problems as a result of overeating of fatty foods should be included.</p> <p>Investigate the function of fiber, water, vitamins and minerals using secondary sources</p> <p>In groups, investigate the functions of the teeth. Report findings to the whole class.</p> <p>Investigate the Guideline Daily Allowance (GDA) for various nutrients using secondary sources.</p>	<p>Fatty food, eg butter, cooking oil, filter paper.</p> <p>Pack of milk, boiled egg, poraige/ cereal, roasted chicken piece etc.</p> <p>Photos/picture of different animals.</p>
Human and animal teeth			
Keeping our teeth healthy	<p>The following are the ways to live healthy.</p> <p>Having a balanced diet</p> <p>Keeping the teeth clean</p> <p>Get enough rest and sleep.</p> <p>Exercise or play sports regularly.</p>		
Exercising sports			

## October

### Materials and their properties Chapter.4, pg.77-105

In this unit, pupils build on their previous knowledge of the materials and their properties to develop their knowledge of

- Name different types of materials and describe their properties.
- Classify materials according to their properties.
- Choose suitable material for different objects

#### Recommended Vocabulary for this unit:

Flexibility, strength, absorbency, hardness, diversity, scratch, soak, perspire,

Contents	Learning Objectives	Activity	Res
Different types of materials	Describe everyday materials and their physical properties. Materials can be classified based on their properties  Relate the use of various types of materials (ceramic, fabric, glass, metal, plastics, rubber, and wood) to their physical properties.	Compare a few household items, pans, doors, shoes, string etc and suggest reasons for the choice of materials.  A fair test should be conducted to find out the absorbency and strength of different materials.	Household items e.g. pans, doors, shoes, string etc.  Samples of different materials of cloth and paper
Properties of materials and their uses	Compare physical properties of materials based on: - strength - flexibility - waterproof - transparency - ability to float/sink in water	Consider tomato sauce (liquid or solid?) and how it could be made more solid or more liquid.	
Different materials have different uses	<i>Note:</i> - The focus is on how the properties of materials are used.  - The “strength” of a material is its ability to be subjected to loads without breaking.	Materials in my school	
Importance of diversity of materials	- The “flexibility” of a material is its ability to bend without breaking. - A material is “waterproof” when it does not absorb water. -The “transparency” of a material refers to whether the material allows most/some or no light to pass through. (The use of terms – transparent/ translucent/opaque is not required).	A diversity of materials gives us a wide range of choice for different uses	

## November

### Forces Chapter.3, pg.59-75

In this unit, pupils build on their previous knowledge of the effects of forces on movement to develop their knowledge of

- Identify different kinds of forces and their effects.
- List the things which exert forces.
- Name different kinds of natural forces

- Speed including interpreting simple distance.

### Recommended Vocabulary for this unit:

Speed, Force, motion, gravity, friction, air resistance, exert, gravitational, magnetic, electrostatic, contact force, Newton meter

Contents	Learning Objectives	Activity	Resource
Pull and push Forces around us  Different type of forces.  Measuring forces	Identify a force as a push or a pull. How an understanding of the effects of a force. - A force can move a stationary object - A force can speed up, slow down or change the direction of motion - A force can stop a moving object - A force may change the shape of an object  Describe the effects of forces on motion, including friction and air resistance.  Recognize and give examples of the different types of forces. - magnetic force - gravitational force - elastic spring force - frictional force Describe the effects of forces on motion, including friction and air resistance	Pupils measure their walking, hopping, running pace etc. They can estimate the speed of various objects such as a snail, a plane, or research the speed of athletes, to practice the use of different units.  Investigate the effect of friction on the motion of objects and communicate findings.  Recognize that objects have weight because of the gravitational force acting on the object.  Discuss air resistance and explain in terms of forces what happens to a parachutist when they jump from an aero plane until they land.	Stop watch, distance measurer  <a href="http://www.school.discovery.com/lessonplans/programs/frictioninourlives/index.html">www.school.discovery.com/lessonplans/programs/frictioninourlives/index.html</a>  Investigate the forces that move an object down a ramp. The effect of the gradient of the ramp, the weight of the object, the surface of the object could all be studied. Homemade parachutes from handkerchiefs/tissue and thread with a bob weight.  Report writing

## January

### Fish and frog Chapter.2, pg.37-56

In this unit, pupils build on their previous knowledge of living things and the senses to develop their knowledge of

- The characteristics common to all living things, and their importance to survival of the organism.
- Identify different body parts of a fish and frog and describe their function.
- Compare and contrast the characteristics of amphibians and fish.
- Display the life cycle of a fish and frog.
- Classify the fresh water and salt water fish.
- Discuss the habitat of a fish and frog.

- Define the term “Camouflage” and its importance for certain animals.

### Recommended Vocabulary for this unit:

Aquatic, terrestrial, streamline, limbs, camouflage, prey, predator, species, plankton, algae, webbed feet, glide

Contents	Learning Objectives	Activity	Resources
vertebrates  Fish and frogs are Vertebrates  Comparing fish and frogs  Camouflage	Classify animals into major groups, using some locally occurring examples. Fish live in water. Frogs are amphibians; they can live on water and on land Discuss the difference between growth and reproduction. Discuss why movement is essential for survival (finding shelter, avoiding danger, finding food). Explore the role of the skeleton and joints and the principle of muscles. Different stages in life cycle of frog. Explain the ways in which living things are adapted to their habitats.	Compare different animals, real (if appropriate) or pictures, e.g. bird, cat, fish and write down all the things they have in common. Present your findings to other groups  Describe the skeletal system and its functions.  Groups prepare presentations on the functions of the skeleton to include principle of muscles and joints.  Students choose (from a list) an animal and a plant and research and report on how they are adapted to be able to survive, by finding food and shelter and avoiding predators in their habitat.	Photos of animals eating, running/swimming, and with their young

## February

### Rocks and soil chapter.5, pg.107-125

In this unit, pupils build on their previous knowledge of the Earth and Space and develop their ideas on

- The different types of rocks and soils.
- Simple models of the internal structure of the Earth.
- The Sun and other stars as sources of light, and those planets and other bodies are seen by reflected light.

### Recommended Vocabulary for this unit:

Fossil, core, mantle, crust, sedimentary, igneous, metamorphic, porosity, weathering, susceptibility, permeability, hardness, precious, gemstones, humus

Contents	Learning Objectives	Activity	Res
Rocks and type of rocks Minerals made from rocks Hardness and permeability of rocks Precious and semiprecious stones Soil	<p>Observe and classify different types of rocks and soils.</p> <p>Use secondary sources to give the properties of igneous, sedimentary and metamorphic rock and how each different type of rock is formed.</p> <p>Relate properties of each type of rock to its formation.</p> <p>Investigate the different soil types by shaking in water and letting mixture settle.</p> <p>Outline plans to carry out investigations, considering the variables to control, change or observed.</p>	<p>Observe different samples of rocks and asked to sort them into groups.</p> <p>Investigate one property of the rock samples in more detail e.g. porosity, hardness, susceptibility to weathering.</p> <p>Investigate the permeability and impermeability on different samples of rocks pieces.</p> <p>Students investigate different soil types by finding out how much water and humus they contain and which soil is the most permeable.</p>	<p>Several different samples of rocks e.g. granite, sandstone, lava, chalk, limestone, marble, etc.</p> <p>Samples of different rocks, water</p> <p>Soil samples, measuring cylinders, crucibles, Bunsen burners, balance to weigh soil before and after heating and roasting</p>

## March

### Electricity Chapter.7, pg.145-169

In this unit, pupils build on their previous knowledge of different types of energy and energy transfers to develop their knowledge of

- Electrostatics and the concept of charge, including digital sensors.
- Simple series and parallel circuits.
- How common types of component, including cells (batteries), affect current.
- How current divides in parallel circuits.
- Measuring current and voltage.

#### Recommended Vocabulary for this unit:

Electrostatic charge, positive, negative, insulator, attraction, repulsion, circuit diagram, buzzer, motor, short circuit, components, conductor, electric current

Contents	Learning Objectives	Activity	Res
Electric circuits	<p>Describe electrostatics and the concept of charge</p> <p>Recognise that an electric circuit consisting of an energy source (battery) and other circuit</p>	<p>After charging by rubbing, plastic rulers pick up small pieces of paper, strips of cling film spring apart, balloons stick to walls, plastic rods deflect a steady stream of water etc.</p>	<p>Plastic rulers, balloons, plastic rods, pieces of cloth e.g. duster/ t-shirt.</p>

<p>Electrical conductors and insulators</p> <p>Using electricity safely</p> <p>Switches motors and buzzers</p>	<p>components (wire, bulb, and switch) forms an electrical system. State that a current can only flow in a closed circuit.</p> <p>Identify electrical conductors and insulators</p> <p>Model and explain how common types of components, including cells (batteries), affect current. Select ideas and produce plans for testing based on previous knowledge, understanding and research.</p> <p>Axle of a motor spins when a simple motor is connected in a circuit</p>	<p>Construct simple circuits from circuit diagrams.</p> <p>Investigate the effect of some variables on the current in a circuit and communicate findings.</p> <p>-number of batteries (arranged in series) number of bulbs (arranged in series)</p> <p>Investigate the flow of charge in a circuit.</p> <p>Understand the effects of further components by finding out about 'mystery' components such as, buzzers, motors and reed switches.</p>	<p>Low voltage power supplies (e.g. batteries) (at least 2 per circuit) connecting wires, switches, bulbs, variable resistor.</p> <p>NB Mains electricity should never be used directly for any of these types of investigation.</p>
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## April

Revision for final exams

## May

Final Examinations

### Teaching Support:

Documentaries, multimedia, presentations, slides, lab will be used.

### Assessment method:

We will assess students by class tests, work sheets, class presentations and different group activities.

### Resource Book:

Science smart, Lets learn science

## GLOSSARY OF TERMS

	Term	Description of meaning
1.	Classify	to group things based on common characteristics
2.	compare	to identify similarities and differences between objects, concepts or processes
3.	construct	to put a set of components together, based on a given plan
4.	describe	to state in words (using diagrams where appropriate) the main points of a topic
5.	Discuss	to reflect on and explore a topic in speech or writing
6.	differentiate	to identify the differences between objects, concepts or processes
7.	identify	to select and/or name the object, event, concept or process
8.	Infer	to draw a conclusion based on observations
9.	investigate	to find out by carrying out experiments
10.	List	to give a number of points or items without elaboration
11.	manipulate	to control an object in order to explore and discover its behavior
12.	measure	to obtain a reading from a suitable measuring instrument
13.	recognize	to identify facts, characteristics or concepts that are critical to the understanding of a situation, event, process or phenomenon
14.	Relate	to identify and explain the relationships between objects, concepts or processes
15.	show an understanding	to recall information (facts, concepts, models, data), translate information from one form to another, explain information and summarize information
16.	State	to give a concise answer with little or no supporting argument
17.	Trace	to follow a path