

# **FOOD AND CONSUMER EDUCATION SYLLABUS**

## **LOWER SECONDARY**

### **2014**

**CURRICULUM PLANNING & DEVELOPMENT DIVISION**  
**Ministry of Education**  
**Singapore**

Copyright 2014 Curriculum Planning and Development Division. This publication is not for sale. FOR RESTRICTED PUBLICATION ONLY. All rights reserved. No part of this publication may be reproduced without the prior permission of the Ministry of Education, Singapore.

Year of Implementation 2014



## **CONTENTS**

### **Introduction**

- |                                   |   |
|-----------------------------------|---|
| 1. Contents of Syllabus Booklet   | 3 |
| 2. Rationale and Value of Subject | 3 |

### ***A. Food and Consumer Education Syllabus***

- |  |   |
|--|---|
| 3. Goal of Food and Consumer Education | 5 |
| 4. Syllabus Objectives                 | 5 |
| 5. Structure of Syllabus               | 5 |
| i. Core Areas of Study                 | 6 |
| ii. Elective Modules                   | 6 |
| iii. Syllabus Content                  | 7 |

### ***B. Teaching and Learning Guide***

#### **Planning the Curriculum**

- |                    |    |
|--------------------|----|
| 6. Curriculum Time | 14 |
|--------------------|----|

#### **Delivering the Curriculum**

- |   |    |
|---|----|
| 7. 21 <sup>st</sup> Century Competencies in FCE | 15 |
| 8. Pedagogy                                     | 17 |

#### **Assessment of Learning**

- |                        |    |
|------------------------|----|
| 9. Assessment          | 22 |
| • Purpose              | 22 |
| • Format and Weighting | 22 |
| • Structure            | 22 |

#### **Planning Elective Modules**

- |                                |    |
|--------------------------------|----|
| 10. Choice of Elective Modules | 31 |
|--------------------------------|----|

## INTRODUCTION

### CONTENTS OF SYLLABUS BOOKLET

This booklet comprises the Syllabus Document, and Teaching and Learning Guide (TLG). The TLG provides support for teachers in planning and delivering Food and Consumer Education (FCE) lessons, as well as ideas for assessing for students' learning in the classrooms. It also contains resources that schools can use to deliver the syllabus.

### RATIONALE AND VALUE OF SUBJECT

FCE in the 21st century is designed with the social and economic landscape of Singapore in mind, both current and future. The syllabus takes into consideration new lifestyles and consumer trends, and therefore, the knowledge, skills and attitudes required of young learners related to health and financial management.

In this syllabus, there are two Core Areas of Study that students need to learn: **Food Studies** and **Consumer Studies**.

**Food Studies** is an important component that is delivered in FCE. With more families eating out and the young making more food choices while parents are busy at work, this Core Area of Study will equip students with the knowledge about diet and health, so that they could be more discerning in choosing nutritious food for good health and be informed of the benefits of a balanced meal. Students will also be equipped with food management skills where they will be taught culinary skills to be self-sufficient in planning and preparing healthy meals for themselves and their family. At the same time, students will also learn to be appreciative of the diversity of food from different cultures in Singapore and around the world as they go through the food and culture aspect in the syllabus.

**Consumer Studies** is another Core Area of Study to prepare students to make sound food choices and consumer decisions in their everyday living. Students will learn basic principles of consumer education to manage resources and understand consumer rights, as well as, responsibilities. It also covers the knowledge and skills in Basic Money Management (Tier 1) of Financial Literacy (FL) under MoneySENSE, Monetary Authority of Singapore. These areas are age-appropriate for the lower secondary level. Table 1 shows the focus and objectives of Tier 1 in the MoneySENSE programme.

Table 1: Focus and Objectives of Tier 1 (MoneySENSE Programme<sup>1</sup>)

Level of Financial Literacy	Focus of MoneySense Programme	A MoneySense consumer will be able to:
<b>Tier I:</b> Basic Money Management	In this foundational tier, basic money management skills, such as budgeting and saving, and tips on the responsible use of credit, should be covered	<ul style="list-style-type: none"><li>• Establish simple financial goals and budget</li><li>• Manage day-to-day finances prudently</li><li>• Use credit responsibly</li></ul>

---

<sup>1</sup> (Extracted from:  
[http://www.mas.gov.sg/-/media/resource/news\\_room/press\\_releases/2003/Fact%20Sheet%201.ashx](http://www.mas.gov.sg/-/media/resource/news_room/press_releases/2003/Fact%20Sheet%201.ashx))

**Elective Modules** (EMs) are also introduced in the FCE syllabus for students to extend their learning from the two Core Areas of Study, according to their interest.

The EMs also provide opportunities for students to undertake projects through which they are required to do planning, research, problem-solving and evaluation. There are three EMs where schools are given the option to choose one module that appeals most to their students' interest. The three EMs are Food Entrepreneurship, Nutrition and Food Science, and FCE and the Community.

Schools will have the autonomy to select from a list of suggested elective topics (e.g. Food Product Development, Culinary Art, Food Styling) to form an EM and offer to their students. An example will be Food Entrepreneurship. Students would gain knowledge of emerging food and health trends, basic principles of food preparation, nutritional needs, budgeting, food science, and cultural, social and economic influences on food learnt in **Food Studies** and **Consumer Studies** and extend this learning in topics such as Culinary Art and Food Product Development in Food Entrepreneurship.

The details of syllabus coverage of **Food Studies**, **Consumer Studies** and **Elective Modules** will be elaborated in the subsequent sections of this booklet.

## **A. FOOD AND CONSUMER EDUCATION SYLLABUS**

### **GOAL OF FOOD AND CONSUMER EDUCATION**

The FCE syllabus is designed to empower students to be health-conscious and discerning consumers; enabling them to better manage their lives for the present and the future. The focus is on how individuals and families optimise their resources of food, finance and time to meet their physical, mental, social and economic needs.

### **SYLLABUS OBJECTIVES**

The syllabus aims to enable students to:

- a. understand the importance of nutrition for long-term health
- b. apply basic principles of consumer education
- c. apply basic financial principles for everyday decision making and planning
- d. appreciate and develop an understanding of food, nutrition and trans-cultural awareness in the global context
- e. nurture and develop critical thinking, problem-solving and creativity, a spirit of enterprise, innovation, and aesthetic awareness; to make informed and discerning food and consumer-related decisions
- f. develop positive attitudes and values for the well-being of the community (families and society)
- g. demonstrate effective and responsible use of resources for the individuals and the community

### **STRUCTURE OF SYLLABUS**

The FCE syllabus is organised around two Core Areas of Study (compulsory) and one Elective Module. Schools have the autonomy in selecting **one** Elective Module out of a choice of three. Table 2 shows the structure of the FCE syllabus.

**Table 2: Structure of Food and Consumer Education Syllabus**

<b>CORE AREAS OF STUDY</b>	<b>ELECTIVE MODULES (Choose <u>1 EM</u> only)</b>
1. Food Studies	3A. Nutrition & Food Science
	3B. Food Entrepreneurship
2. Consumer Studies	3C. FCE & the Community

### i. Core Areas of Study

The two Core Areas of Study include the following:

1. Food Studies
2. Consumer Studies

The core learning content equips students with the core knowledge and practical literacies that provide a strong foundation for everyday living in the future. This includes the knowledge and skills of food, nutrition and consumerism.

The foundational knowledge and skills allows progression to the upper secondary level when the students take Food and Nutrition [Express / Normal (Academic)] or Food Studies [Normal (Technical)] as one of their elective subjects, and even to food/nutrition-related courses at the tertiary level. In addition, the basic knowledge and skills also provides the extension of learning in the elective modules, according to students' interest.

#### 1. Food Studies

There are 2 broad topics in this Core Area of Study; namely, *Diet and Health*, and *Food Management*. The learning of *Diet and Health* is centred on 2 sub-topics, *Meal Planning* and *Diet-Related Diseases*. Through *Meal Planning*, students will learn the importance of having a balanced diet, and how to plan or modify meals and use nutritional tools to meet their dietary needs and those of family members. Students will also be exposed to the guidelines for eating out so that they will be able to make healthier choices. *Diet-Related Diseases* will also be covered, so connections between the importance of meal planning and making healthy food choices can be better understood. In *Food Management*, students will be exposed to *Methods of Cooking*, *Food and Kitchen Safety*, *Culinary Skills* and *Food and Culture*. This will enable them to better appreciate and develop the understanding of safe food preparation and multicultural literacy in the global context.

#### 2. Consumer Studies

This Core Area of Study has 2 broad topics; *Resource Management* and *Consumer Awareness*. In *Resource Management*, students will learn how to manage their money and resources (personal products) through identifying their needs and wants, formulating and managing a budget plan, knowing the different methods of payment, and maintaining personal products so as to better manage resources. In *Consumer Awareness*, students will learn about consumer rights and responsibilities and how to seek redress when goods or services purchased are damaged or unsatisfactory. It is also important for students to be smart shoppers by knowing where to obtain information on products and services. They should also be discerning and aware of promotional strategies, the reliability of advertisement claims, and exercise comparative shopping before making a purchase.

### ii. Elective Modules

There are three elective modules (EMs), from which **one** should be chosen in the entire FCE syllabus:

1. Nutrition and Food Science
2. Food Entrepreneurship
3. FCE and the Community

These elective modules allow students to build upon the knowledge from the Core Areas of Study and extend their learning in related topics according to their interest. Details on the EMs will be discussed in the last section of this document, *Planning Elective Modules*.

**iii. Syllabus Content**

<b>CORE AREAS OF STUDY</b>	
<b>I. Food Studies</b>	
<b>TOPICS</b>	<b>LEARNING OUTCOMES</b>
	Students should be able to:
<b><u>Diet and Health<sup>2</sup></u></b>	
<b>1. Meal Planning</b>	
<ul style="list-style-type: none"><li>Balanced diet</li><li>Nutritional tools</li><li>Dietary needs</li><li>Energy balance</li><li>Planning and modifying meals</li><li>Eating out</li></ul>	<ul style="list-style-type: none"><li>list the different food groups found in the <i>My Healthy Plate</i> and their functions</li><li>use the appropriate nutritional tools in planning meals</li><li>consider factors affecting the needs of individuals and family</li><li>differentiate the nutritional requirements of the different groups of people (young children, teenagers, adults, elderly)</li><li>identify the importance of balancing energy output with food intake</li><li>plan and modify meals to create healthier meals</li><li>apply guidelines for eating out by choosing healthier food choices and looking at “Ask For” labels</li></ul>
<b>2. Diet-Related Diseases</b>	
<ul style="list-style-type: none"><li>Types of diseases</li><li>Effects of insufficient and excessive intake of nutrients and dietary fibre</li></ul>	<ul style="list-style-type: none"><li>list the different types of diet-related diseases (obesity, hypertension, coronary heart disease, colorectal cancer, diabetes, eating disorders) and their causes</li><li>state the impact of eating habits on health</li><li>evaluate eating patterns and link to the different diet-related diseases (obesity, anaemia, constipation, colorectal cancer)</li><li>create healthy meals to reduce the risk of diet-related diseases</li></ul>

---

<sup>2</sup> The topic, *Diet and Health*, can be taught to induce deductive learning of the concepts (inquiry-based learning). Students would have to find out the nutrients / food groups and their serving portions needed to plan a balanced meal for different groups of people to meet their nutritional requirements.

---

TOPICS	LEARNING OUTCOMES Students should be able to:
<p><b><u>Food Management<sup>3</sup></u></b></p> <p><b>1. Methods of Cooking</b></p> <ul style="list-style-type: none"> <li>• Reasons for cooking food</li> <li>• Different types of cooking methods</li> <li>• Effects of different methods of cooking on food</li> <li>• Reasons for conducting sensory evaluation</li> <li>• Criteria for evaluating food</li> </ul> <p><b>2. Food and Kitchen Safety</b></p> <ul style="list-style-type: none"> <li>• Causes of food contamination</li> <li>• Hygienic practices when handling and storing food</li> <li>• Guidelines for ensuring kitchen safety</li> </ul>	<ul style="list-style-type: none"> <li>• state the reasons for cooking food (palatability, safety, digestibility)</li> <li>• compare the different methods of cooking               <ul style="list-style-type: none"> <li>- Moist heat (boiling, steaming, stewing)</li> <li>- Dry heat (grilling, baking)</li> <li>- Hot fat (dry / stir / shallow / deep)</li> </ul> </li> <li>• compare and contrast the effects of using different methods of cooking on food properties (taste, texture, appearance)</li> <li>• identify the reasons for conducting sensory evaluation on food products (to ascertain quality of food product)</li> <li>• distinguish, compare and analyse the differences in the results of the sensory properties in food products               <ul style="list-style-type: none"> <li>- Appearance (colour, size, crumb, shape)</li> <li>- Flavour (salty, sweet, bitter, acidic, sour)</li> <li>- Texture (grainy, smooth)</li> </ul> </li> <li>• explain how food is contaminated (improper handling of food, presence of oxygen and moisture, and incorrect temperature)</li> <li>• demonstrate hygienic practices when handling and storing food</li> <li>• practise safety in the kitchen</li> </ul>
<p><b>3. Culinary Skills</b></p>	

<sup>3</sup> Concepts from topics in Food Studies will be reiterated through practical cooking sessions. Areas on *Food and Kitchen Safety, Evaluation of Food, Culinary Skills, Table Service / Dining Etiquette*, and *Food and Culture* could be woven in during practical sessions.



TOPICS	LEARNING OUTCOMES Students should be able to:
<ul style="list-style-type: none"><li>• Cutting skills</li><li>• Cake-making and Pastry making</li><li>• Batters</li></ul> <p><b>4. Food and Culture</b></p> <ul style="list-style-type: none"><li>• Ethnic and global influences</li></ul> <ul style="list-style-type: none"><li>• Table Service and Dining Etiquette</li></ul>	<ul style="list-style-type: none"><li>• demonstrate different types of cutting skills (slicing, dicing, chopping)</li><li>• show skills in the different methods of cake-making (creaming, whisking) and pastry making (short crust)</li><li>• prepare, cook and serve products using various types of batters (thin, thick)</li></ul> <ul style="list-style-type: none"><li>• identify different ethnic and global influences on the development of food</li><li>• distinguish the dishes used in various cultures and ethnic groups</li><li>• use herbs and spices in food preparation</li><li>• create fusion food of different ethnic groups and cultures</li></ul> <ul style="list-style-type: none"><li>• demonstrate appropriate table setting for the different kinds of dining experience (table setting, menu, etc)</li><li>• demonstrate presentation skills in decorating and garnishing food</li><li>• apply proper etiquette when dining</li></ul>

<b>2. Consumer Studies</b>	
<b>TOPICS</b>	<b>LEARNING OUTCOMES</b>
	Students should be able to:
<b><u>Resource Management</u></b>	
<b>1. Money Management</b>	
<ul style="list-style-type: none"><li>Needs and wants</li></ul>	<ul style="list-style-type: none"><li>distinguish between needs and wants</li><li>identify what determines needs and wants</li></ul>
<ul style="list-style-type: none"><li>Importance of budgeting and saving</li></ul>	<ul style="list-style-type: none"><li>define the term 'budgeting'</li><li>justify the importance of regular savings for the future and emergencies</li><li>formulate and manage a budget by identifying simple financial goals and making informed decisions when allocating funds</li><li>apply money management skills in given situations</li><li>consider and align decisions for purchases to needs and wants, budget at hand, needs for savings, and living within one's means</li><li>explain the importance of saving for a personal product or other expensive consumer items and spending within one's means</li></ul>
<ul style="list-style-type: none"><li>Methods of payment</li></ul>	<ul style="list-style-type: none"><li>list the different methods of payment (cash, cash cards, cheques, electronic transfers, hire purchase, instalments, credit cards, debit cards)</li><li>differentiate the features of the different methods of payment</li><li>explain the advantages and disadvantages of various methods of payment</li><li>explain ways in which credit should be used responsibly</li></ul>
<ul style="list-style-type: none"><li>Care and maintenance</li></ul>	<ul style="list-style-type: none"><li>state the importance of caring and maintaining personal products</li><li>manage and maintain resources to prevent unnecessary spending</li></ul>

TOPICS	LEARNING OUTCOMES
	Students should be able to:
<b><u>Consumer Awareness</u></b>	
<b>1. <i>Being an Informed Consumer</i></b>	
<ul style="list-style-type: none"><li>• Consumer rights and responsibilities</li></ul>	<ul style="list-style-type: none"><li>• define the term 'consumer'</li><li>• identify the role and importance of being discerning consumers</li><li>• explain consumer rights and responsibilities</li></ul>
<ul style="list-style-type: none"><li>• Redressing consumer complaints</li></ul>	<ul style="list-style-type: none"><li>• discuss a course of action when seeking redress and making an exchange / getting refunds for damaged / unsatisfactory goods and services</li></ul>
<b>2. <i>Smart Shopping</i></b>	
<ul style="list-style-type: none"><li>• Sources and use of information</li></ul>	<ul style="list-style-type: none"><li>• state different ways of obtaining information on products and services (people, labels, media)</li><li>• interpret the different sources of information (e.g. award, labels)</li></ul>
<ul style="list-style-type: none"><li>• Advertisements and promotion of products</li></ul>	<ul style="list-style-type: none"><li>• identify the different forms of advertising that would provide information on products and services</li><li>• discuss the factors influencing consumer buying, such as peer influence and advertisement gimmicks</li><li>• recognise promotional strategies used to influence choices</li><li>• assess the reliability of advertisement claims</li></ul>
<ul style="list-style-type: none"><li>• Comparative shopping</li></ul>	<ul style="list-style-type: none"><li>• compare products in terms of quality, quantity, price, packaging and features to make the best purchase</li><li>• discuss advantages and disadvantages of different modes of shopping (e.g. online, catalogue, retail)</li></ul>

**ELECTIVE MODULES****3A. Nutrition and Food Science**

<b>SUGGESTED TOPICS</b>	<b>BROAD OUTCOMES</b>
<ul style="list-style-type: none"><li>• Food product and recipe development (examination of food characteristics and creation of food products for specific targeted markets through the modification of recipes)</li><li>• Conducting investigative food experiments (e.g. effects of different types of fats on taste, appearance and texture of pastry / cakes)</li><li>• Application of nutritional tools in dietary planning</li><li>• Food evaluation<ul style="list-style-type: none"><li>- Criteria for sensory evaluation</li><li>- Nutritional tools for nutritive evaluation of product</li><li>- Factors to consider for improving product (nutritional quality and presentation)</li></ul></li></ul>	<p>Students should be able to:</p> <ul style="list-style-type: none"><li>• develop skills of seeking, interpreting, analysing and evaluating information for effective decision-making</li><li>• investigate and apply scientific principles for food preparation and the food production process</li><li>• examine the different characteristics of food</li><li>• design and create quality food products (nutritive and sensory)</li><li>• consider ethical issues when creating food products</li></ul>

**3B. Food Entrepreneurship**

<b>SUGGESTED TOPICS</b>	<b>BROAD OUTCOMES</b>
<ul style="list-style-type: none"><li>• Plan for food ventures like cafes (involves creating a business plan, market survey, capital, overheads, profit margins, budget)</li><li>• Food manufacture</li><li>• Food marketing and packaging</li><li>• Food labelling and pricing</li><li>• Food presentation / food styling / culinary art / food photography</li><li>• Food evaluation<ul style="list-style-type: none"><li>- Criteria for sensory evaluation</li><li>- Nutritional tools for nutritive evaluation of product</li><li>- Factors to consider for improving product (nutritional quality and presentation)</li></ul></li></ul>	<p>Students should be able to:</p> <ul style="list-style-type: none"><li>• exhibit entrepreneurship skills (financial, marketing) when developing a proposal for a food venture</li><li>• appreciate the value of individuality, creativity, authenticity and enterprise when manufacturing and marketing food products</li><li>• use and interpret visual, verbal and written language in the promotion of food and food products</li><li>• consider ethical issues when marketing food products</li></ul>

<b>3C. FCE and the Community</b>	
<b>SUGGESTED TOPICS</b>	<b>BROAD OUTCOMES</b>
<ul style="list-style-type: none"><li>• Service learning through community engagement; i.e., projects using knowledge and skills learnt in FCE<ul style="list-style-type: none"><li>- Needs analysis</li><li>- Identifying learning outcomes</li><li>- Proposal and preparation (differentiating learning)</li><li>- Reflection and evaluation</li></ul></li></ul> <p><b>OR</b></p> <ul style="list-style-type: none"><li>• Projects could involve resource management, (such as 3 Rs – reduce, reuse, recycle to minimise impact on the environment), healthy cooking demonstrations, educational materials</li></ul>	<p>Students should be able to:</p> <ul style="list-style-type: none"><li>• make informed decisions on healthier food and consumer products that contribute positively to the community</li><li>• examine the effect that the decisions of individuals have on wider national and global issues in terms of a healthy nation, and reducing wastage and unnecessary spending that would contribute adversely to the environment</li><li>• discuss social issues affecting the health and well-being of families and the community</li><li>• communicate appropriately with others the value of making informed choices in terms of nutritional content and/or consumerism</li><li>• execute planned project of their choice</li></ul>

## **B. TEACHING AND LEARNING GUIDE**

### **PLANNING THE CURRICULUM**

#### **CURRICULUM TIME**

When planning curriculum time, it is important to ensure that sufficient time is allocated to deliver the syllabus to the different streams. The recommended curriculum time for Express and Normal (Academic) streams differs from the Normal (Technical) stream. More time is allocated for the Normal (Technical) stream students to explore and apply their learning in the Elective Modules. The additional time also allows teachers to provide more guidance to this cohort of students. The recommended time for the different streams is detailed in Table 3 below:

**Table 3: Recommended Curriculum Time for 2 years**

Streams	Total Curriculum Time	Curriculum Time	
		Core	Elective
Express	60 hours	48 hours (80%)	12 hours (20%)
Normal (Academic)	60 hours	45 hours (75%)	15 hours (25%)
Normal (Technical)	80 hours	60 hours (75%)	20 hours (25%)

The total recommended curriculum time for Express and Normal (Academic) stream at lower secondary is 60 hours, while Normal (Technical) is 80 hours over the span of 2 years.

In the Express stream, 80% of this time (48 hours) should be spent on the Core Areas of Study, while 20% (12 hours) on the EMs. In Normal (Academic) stream, out of the 60 hours, 75% (45 hours) of this curriculum time is to be spent on the Core Areas of Study and 25% (15 hours) on the EMs. To differentiate further, Normal (Technical) stream should be provided with a total of 80 hours; of which, 75% of total curriculum time (60 hours) should be allocated to Core Areas of Study, and 25% (20 hours) to the EMs.

To better plan and manage the curriculum time for the Core Areas of Study, the learning outcomes have been scoped for the different topics using the Bloom's Taxonomy. The scoping of learning outcomes reflects the different emphasis and depth of coverage and learning. This would help schools apportion curriculum time accordingly and cover all topics within the recommended time frame.

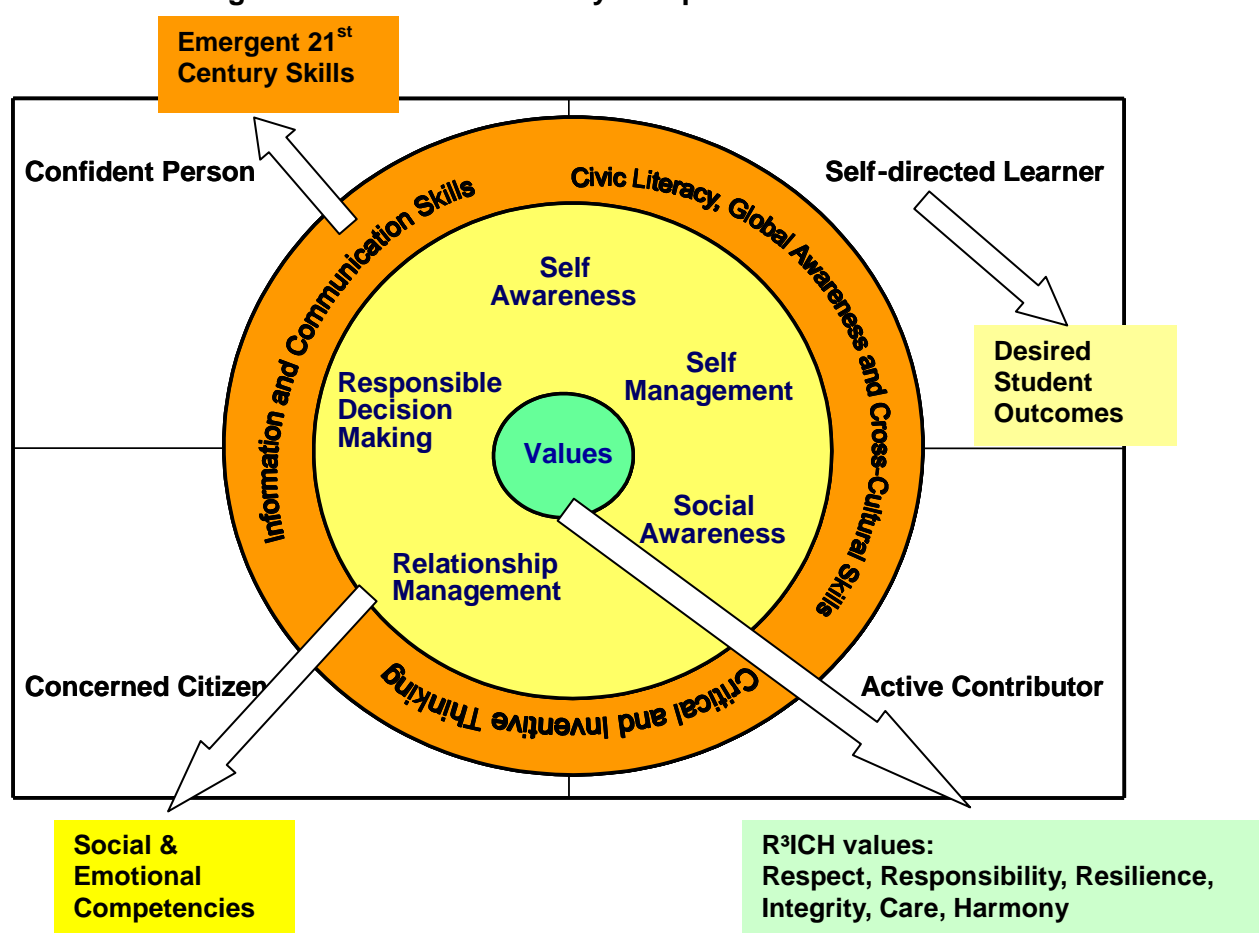
It is recommended that all parts of the Core Areas of Study are covered before proceeding with the chosen EM. This will ensure that students are endowed with the core knowledge and skills before they can apply their learning to their project in the EM.

## DELIVERING THE CURRICULUM

### 21<sup>ST</sup> CENTURY COMPETENCIES IN FCE

FCE syllabus is designed to prepare the students for the 21<sup>st</sup> Century. Hence, the development of 21<sup>st</sup> Century Competencies is inherent in the content, learning process and assessment tasks of the syllabus. FCE is a relevant subject that provides an important platform in preparing students to live in a world marked by changing lifestyles, globalisation and consumer patterns. The 21<sup>st</sup> Century Competencies Framework is shown in [Figure 2](#) below.

**Figure 2: MOE's 21<sup>st</sup> Century Competencies Framework**



It is important to equip our students with the necessary knowledge, skills and attitudes for the 21<sup>st</sup> Century<sup>4</sup>. Through effective teaching approaches, such as inquiry-based learning, students can develop these competencies through the FCE syllabus.

#### a) Civic Literacy, Global Awareness and Cross-cultural Skills

Our society is becoming increasingly cosmopolitan and more Singaporeans live and work abroad. Our students will therefore need a broader worldview, and the ability to work with people from diverse cultural backgrounds, with different ideas and perspectives. At the same time, they should be informed about national issues, take pride in being Singaporeans and contribute actively to the community.

<sup>4</sup> Source: edumall on 21CC Framework

**b) Critical and Inventive Thinking**

To be future-ready, our students need to be able to think critically, assess options and make sound decisions. They should have a desire to learn, explore and be prepared to think out of the box. They should not be afraid to make mistakes and face challenges.

**c) Information and Communication Skills**

With advancing technologies and the availability of digital media, information is often literally just a click away. It is important that our students know what questions to ask, how to sieve information and extracts that which are relevant and useful. At the same time, they need to be discerning so that they can shield themselves from harm, while adopting practices in cyberspace. Importantly, they should be able to communicate their ideas clearly and effectively.

The link between the learning outcomes of the FCE syllabus and the corresponding 21<sup>st</sup> Century Competencies are shown in Table 4 below:

**Table 4: Link between some FCE Syllabus Learning Outcomes and 21CC**

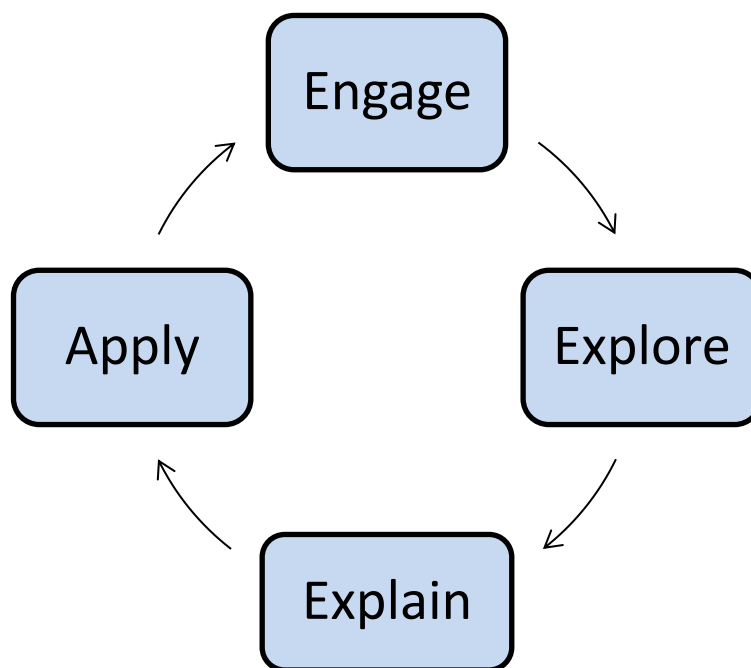
<b>Some Learning Outcomes in FCE Syllabus</b>	<b>Corresponding 21CC</b>
<ul style="list-style-type: none"><li>• Evaluate eating patterns and link to the different diet-related diseases</li></ul>	Civic Literacy, Global Awareness and Cross Cultural Skills
<ul style="list-style-type: none"><li>• Identify different ethnic and global influences on the development of food</li></ul>	Civic Literacy, Global Awareness and Cross Cultural Skills
<ul style="list-style-type: none"><li>▪ Discuss social issues affecting the health and well-being of families and community</li></ul>	Civic Literacy, Global Awareness and Cross Cultural Skills
<ul style="list-style-type: none"><li>▪ Exhibit entrepreneurship skills in developing a proposal for a food venture</li></ul>	Critical and Inventive Thinking
<ul style="list-style-type: none"><li>▪ Investigate and apply scientific principles for food preparation and food production process</li></ul>	Critical and Inventive Thinking
<ul style="list-style-type: none"><li>▪ Design and create quality food products</li></ul>	Critical and Inventive Thinking
<ul style="list-style-type: none"><li>• Assess the reliability of advertisement claims</li></ul>	Information and Communication Skills
<ul style="list-style-type: none"><li>• Discuss the course of action when seeking redress and making an exchange</li></ul>	Information and Communication Skills
<ul style="list-style-type: none"><li>▪ Consider ethical issues when marketing food products</li></ul>	Information and Communication Skills



**PEDAGOGY**Inquiry-based Learning

Inquiry-based learning lends itself well in FCE as the syllabus is experiential in nature. The hands-on approach in an authentic learning context allows students to relate and apply the knowledge gained in real-life situations, aligned with the development of 21<sup>st</sup> Century Competencies. Figure 3 illustrates the inquiry-based model for the teaching of FCE:

**Figure 3: Inquiry-Based Learning Model for Teaching of FCE**



The inquiry-based learning model<sup>5</sup> for teaching FCE is a cyclical process where students' engagement with a question or topic leads to intellectual exploration. This eventually leads to an explanation of the feature or process in the question and further leads to the application of their ideas. This process develops the students' understanding and involved them in their own learning. Table 5 gives an explanation on how the inquiry-based learning model can be used in a FCE lesson.

---

<sup>5</sup> Adapted from <http://serc.carleton.edu/>

**Table 5: Explanation on Inquiry-based Learning on a FCE lesson**

Process	Explanation	Examples
<b>Engage</b>	<ul style="list-style-type: none"><li>• Provide an interesting context</li><li>• Reveal student's prior experience and understanding</li><li>• Teacher's encouraging / modelling questions</li></ul>	<ul style="list-style-type: none"><li>• Get students to taste 'Nasi Lemak' and ask the reasons why it tastes good</li><li>• Get students to focus the saturated fats content of the dish using effective questioning</li><li>• Students to list other local food that are high in saturated fat content</li></ul>
<b>Explore</b>	<ul style="list-style-type: none"><li>• Students formulate own questions to find out more on the given context</li><li>• Find the answers to the questions</li><li>• Compare ideas / collaborate / record thoughts</li><li>• Teacher's encouraging / modelling questions</li></ul>	<ul style="list-style-type: none"><li>• Students explore the effects of taking high saturated fats on health</li><li>• Explore ways to reduce and replace the saturated fats content of 'Nasi Lemak' using healthier options</li><li>• Explore different methods of cooking for the condiments e.g. <i>to prepare anchovies using microwave instead of frying etc</i></li></ul>
<b>Explain</b>	<ul style="list-style-type: none"><li>• Students share updated understanding</li><li>• Teacher asks questions to guide student explanation</li><li>• Teacher clarifies misconceptions</li><li>• Teacher adds to missing information to ensure further understanding</li></ul>	<ul style="list-style-type: none"><li>• Students present findings to the class on the health risks associated with high saturated fats intake</li><li>• Teacher asks questions to assess students' understanding</li><li>• Teacher provides specific feedback to the students' presentation</li></ul>
<b>Apply</b>	<ul style="list-style-type: none"><li>• Students evaluate their own knowledge gains</li><li>• Students demonstrate new knowledge / skill</li></ul>	<ul style="list-style-type: none"><li>• Students apply knowledge by preparing the healthier 'Nasi Lemak' and evaluate the results</li><li>• Using this experience, they create a healthier fusion dish</li></ul>

### Teaching FCE Effectively

Topics under the Food Studies component can be mainly delivered through practical sessions using inquiry-based learning approach. This will provide learning in authentic contexts, and engage students' interests. Students are able to explore through the application of knowledge, concepts and skills in meal planning and preparation. Through the practical sessions, topics on culinary skills, food and kitchen safety, food and culture can be woven in. This will ensure that learning for students are meaningful and connected to real-life applications.

The inquiry-based learning approach in Consumer Studies requires students to apply both inductive and deductive reasoning to real-world cases and consumer issues. Authentic resources from news articles and case studies showing consumer trends and behaviours, such as the spending habits of teenagers, credit card expenditure patterns and redress for consumer complaints, would provide real-life contexts for learning.

Learning and application of the topics under the Elective Modules could be done in a variety of ways to engage interest and provide authenticity in learning; through project work, service learning and learning journeys.

### Teaching Strategies

Teachers can also use various strategies to facilitate the inquiry process. Some strategies<sup>6</sup> listed below can help teachers plan and deliver lessons that will engage students in meaningful learning experiences and cultivate their interest and curiosity in FCE. A brief description of these strategies is given below:

- **Brainstorming**  
Brainstorming is a strategy for generating creative ideas and solutions.
- **Concept Mapping**  
Concept mapping is a strategy to present meaningful relationships among concepts. Concept maps are useful in organising and linking concepts or ideas.
- **Cooperative Learning**  
In cooperative learning, activities are structured such that each student assumes certain responsibilities and contributes to the completion of tasks. In working with others, students are exposed to different points of views and solutions in accomplishing a common goal.
- **Games**  
Games engage students in play or simulations for the learning of concepts or skills. This is useful in helping students to visualise or illustrate objects or processes in the real world.
- **Mindmapping**  
A mind map radiates from a central image or keyword. The branches connect related concepts and ideas to the central image. Every word and image is itself a potential sub-centre of ideas or concepts. The visual presentation of related information enhances understanding. The association would be the facts as well as relationship between the facts.
- **Projects**  
Projects are learning activities that require students to find out about an object, event, process or phenomenon over a few weeks or even months.

### Effective Questioning Techniques in Inquiry-Based Learning

Effective questioning techniques should also be incorporated to complement the inquiry based learning to scaffold the development of critical thinking skills in the students.

There are 6 types of Socratic Questions<sup>7</sup> (SQ6). Examples of how these can be used during the FCE lessons are shown below in Table 6.

---

<sup>6</sup> Adapted from *Lower Science Syllabus, CPDD, MOE*

<sup>7</sup> Adapted from *R.W. Paul, (2006)*

**Table 6: 6 Types of Socratic Questions**

No	6 Types of SQ	Examples of SQ6
1	<b>Assumption Probing Questions</b>  <i>Questions that allow students to examine their assumptions underlying an issue</i>	<ul style="list-style-type: none"> <li>- How did you arrive at these assumptions?</li> <li>- How would you support your assumptions?</li> <li>- What would happen if you boil/fry/bake a potato?</li> <li>- Can you explain the effect of different cooking methods on meat?</li> </ul>
2	<b>Reasons and Evidence Probing Questions</b>  <i>Questions that seek to examine the reason and evidence supporting an issue</i>	<ul style="list-style-type: none"> <li>- Why do you think this information is true/useful and necessary for your task?</li> <li>- How can I be sure of what you are saying?</li> <li>- What evidence is there to support your hypothesis?</li> </ul>
3	<b>Implications and Consequences Probing Questions</b>  <i>Questions that seek to examine the perspective taken on an issue</i>	<ul style="list-style-type: none"> <li>- How does this affect the overall quality of the food?</li> <li>- How does this contribute to an interesting and healthy dish/meal?</li> <li>- Are you implying that other methods of cooking are not as good as frying?</li> <li>- How does this decision relate to the research information earlier?</li> </ul>
4	<b>Clarifying Questions</b>  <i>Questions that seek to clarify the issue at hand by removing ambiguity and vagueness</i>	<ul style="list-style-type: none"> <li>- Could you explain that further?</li> <li>- Why do you think frying produces the best result?</li> <li>- How does this relate to our task?</li> <li>- What do you mean by the term 'unique'?</li> <li>- Can you give me an example of a <i>food commodity</i>?</li> <li>- What do we already know about this?</li> </ul>
5	<b>Perspective/Viewpoints Questions</b>  <i>Questions that seek to examine the perspective taken on an issue</i>	<ul style="list-style-type: none"> <li>- What other ways can you look at this?</li> <li>- Why do you choose these dishes?</li> <li>- What are the differences and similarities between the two samples?</li> <li>- Why is this way better than the other?</li> <li>- What are the strengths and weaknesses of your product/execution process?</li> </ul>
6	<b>Questions about the Question</b>  <i>Questions that seek to examine the very question/issue itself</i>	<ul style="list-style-type: none"> <li>- Is the question clear? What is the question asking us to do?</li> <li>- Why do you think I asked this question?</li> <li>- Why is this question important?</li> <li>- To answer this question, what questions do you have to answer first?</li> </ul>

How to use Socratic Questioning in the Classroom<sup>8</sup>

Role of the Teacher

- Respects students' viewpoints, probes their understanding and shows genuine interest in their thinking
- Poses questions that are more meaningful than those a novice of a given topic might develop on his or her own
- Creates and sustains an intellectually stimulating classroom environment and acknowledges the value of the students in that environment

Tips for the Teacher

- Wait Time: Maintain silence and wait at least 5 to 10 seconds for students to respond
- Phrase the questions clearly and specifically
- Keep the discussion focussed
- Do not pose questions that are vague, ambiguous, or beyond the level of the students
- Do not pose yes/no questions, as they do little to promote thinking or encourage discussion
- Follow up on students' responses and invite elaboration

---

<sup>8</sup> Adapted from <http://serc.carleton.edu/introgeo/socratic/index.html>

## ASSESSMENT

### PURPOSE

Assessment enables teachers to gauge students' learning of knowledge and skills in both Core Areas of Study and Elective Modules. A combination of both formative and summative assessment should be employed to gather a more reliable assessment of students' learning. A written paper is advocated to gather evidence of students' learning of the concepts in FCE, while project work would show students' application of their knowledge and skills. For instance, students will be assessed on their application of knowledge and skills in planning nutritious meals, and making informed and financially sound decisions as a consumer.

### FORMAT AND WEIGHTING

Formal assessment for FCE comprises a written paper and project. The weightings and number of hours allocated for both modes of assessment are differentiated for the different streams. Table 7 below highlights the format, weightings and number of hours required for assessing FCE:

**Table 7: Assessment Format and Weighting**

Area of Study	Component	Express (%)	Normal (Academic) (%)	Normal (Technical) (%)
<b>Core</b>	<i>Written paper</i>	50 (1 hour)	40 (1 hour)	40 (1 hour)
<b>Elective Modules</b>	<i>Project</i>	50 (12 hours)	60 (15 hours)	60 (20 hours)
<b>Total</b>		100 (13 hours)	100 (16 hours)	100 (21 hours)

The weighting for Express is 50% for written paper and 50% for project. Weightings for Normal (Academic) and Normal (Technical) are similar; which is 40% for written paper and 60% for project. Differentiation for the different streams would exist in the format of the paper.

The number of hours provided for project commensurates with the increase of weighting and ability of students; e.g. the number of hours is increased to 15 hours for Normal (Academic) as compared to 12 hours for Express as the weighting is higher for Normal (Academic). Although the weighting for Normal (Technical) is similar to Normal (Academic), the hours for Normal (Technical) project have been increased to 20 hours to reflect the time needed for scaffolding their learning and adopting approaches suitable for this stream of students.

### STRUCTURE

#### Written Paper

Only content and knowledge from the Core Areas of Study would be assessed in written tasks. The written tasks in the form of tests and examinations would ensure that the learning of core foundational knowledge is monitored and assessed. Other modes of assessment for theory could include online quizzes and source-based essays. Table 8 illustrates the type of questions appropriate for the different streams and the suggested weightings for each section.

**Table 8: Suggested Assessment Format in Written Paper**

Section	Weighting	Stream	Recommended Format	Remarks
<b>A</b>	20%	Express	<ul style="list-style-type: none"> <li>Short-answer questions</li> </ul>	<ul style="list-style-type: none"> <li>Weighting for Section A may vary to suit the profile of the students.</li> <li>Differentiated question formats may also be used to cater to students' ability levels.</li> </ul>
	25%	Normal (A)	<ul style="list-style-type: none"> <li>Short-answer questions</li> <li>Fill-in-the-blanks</li> </ul>	
	30%	Normal (T)	<ul style="list-style-type: none"> <li>Multiple-choice questions</li> <li>Matching</li> <li>Fill-in-the-blanks</li> <li>Short-answer questions</li> </ul>	
<b>B</b>	30%	Express	<ul style="list-style-type: none"> <li>Structured questions</li> <li>Data-response questions</li> </ul>	<ul style="list-style-type: none"> <li>Weighting for Section B may vary with each stream.</li> <li>Questions may be scoped accordingly to the different profile of the students.</li> </ul>
	35%	Normal (A)	<ul style="list-style-type: none"> <li>Structured questions</li> <li>Data-response questions</li> </ul>	
	40%	Normal (T)	<ul style="list-style-type: none"> <li>Fill-in-the-blanks</li> <li>Structured questions</li> <li>Data-response questions</li> </ul>	
<b>C</b>	50%	Express	<ul style="list-style-type: none"> <li>Structured questions</li> <li>Data-response questions</li> <li>Open-ended questions</li> </ul>	<ul style="list-style-type: none"> <li>Different weighting may be used for different profile of students.</li> <li>Differentiated questions may be given to the different profile of students.</li> </ul>
	40%	Normal (A)	<ul style="list-style-type: none"> <li>Structured questions</li> <li>Data-response questions</li> <li>Open-ended questions</li> </ul>	
	30%	Normal (T)	<ul style="list-style-type: none"> <li>Structured questions</li> <li>Data-response questions</li> </ul>	

An example of each format is provided in Table 9:

**Table 9: Examples of Suggested Assessment Format**

<b>Format</b>	<b>Examples</b>
<b>Short-answer questions</b>	1. Distinguish between needs and wants. _____
<b>Fill-in-the-blanks</b>	1. A good food source of calcium is _____. 2. Calcium is needed to build _____ and _____.
<b>Matching</b>	Match the following statements with the correct term on the right by drawing a line to the correct answer.  1. This method of cooking requires water vapour produced by boiling •                      • Grilling water to cook food.  2. Food will be cooked quickly by this method of cooking which •                      • Steaming uses dry heat radiated directly from the heat source.
<b>Multiple-choice questions</b>	1. Diabetes is a diet-related disease. It is caused by: a) a diet high in sugars b) a lack of calcium c) a diet high in fats and sugars d) a lack of protein
<b>Structured questions</b>	1. Nowadays people prefer cashless payment when purchasing products and services. a) Name <b>two</b> cashless methods of payment for our purchases. b) Give <b>five</b> reasons to support the statement.



Format	Examples
Data-response questions	<div data-bbox="831 309 1174 882"> <p><b>Nutrition Facts</b>  Serving Size 1 cup (236ml)  Servings Per Container 1</p> <hr/> <p>Amount Per Serving</p> <p><b>Calories</b> 80      Calories from Fat 0</p> <hr/> <p align="right">% Daily Value*</p> <p><b>Total Fat</b> 0g      0%</p> <p>Saturated Fat 0g      0%</p> <p>Trans Fat 0g</p> <p><b>Cholesterol</b> Less than 5mg      0%</p> <p><b>Sodium</b> 120mg      5%</p> <p><b>Total Carbohydrate</b> 11g      4%</p> <p>Dietary Fiber 0g      0%</p> <p>Sugars 11g</p> <p><b>Protein</b> 9g      17%</p> <hr/> <p>Vitamin A 10%      •      Vitamin C 4%</p> <p>Calcium 30%      •      Iron 0%      •      Vitamin D 25%</p> <p><small>*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.</small></p> </div> <p>1. Name the above label.</p> <p>_____</p> <p>2. Identify the following using the data from the label:</p> <p>a. Number of servings per container: _____</p> <p>b. Serving size as stated : _____</p> <p>c. Total calories per serving : _____</p>
Open-ended question	<p>Study this statement carefully and answer on a writing paper:</p> <p><i>“Cashless payment has allowed people to purchase items that they could not afford in the past.”</i></p> <p>Discuss the statement in terms of the advantages and disadvantages of living in a cashless society.</p>

### Questions Using Revised Bloom's Taxonomy

Questions should be scoped with the revised Bloom's Taxonomy in mind and graduated in difficulty to allow students to show the extent of understanding of the content and skills. Table 10 shows the different categories of cognitive processes that determine the levels of learning.

**Table 10: Revised Bloom's Taxonomy for Learning, Teaching and Assessing<sup>9</sup>**

Categories	Cognitive Process	Examples
<b>Remember</b>	Recalling or retrieving relevant knowledge	1) Name three methods of moist heat cooking. 2) List the different methods of payment.
<b>Understand</b>	Derive meaning from the information	1) Describe what will happen to the starch in rice when boiling. 2) Explain consumer rights and responsibilities
<b>Apply</b>	Carrying out or using learnt information to a given context	1) Discuss the points to consider when preparing and cooking meals for active teenagers. 2) Describe how a sensory evaluation can be carried out to compare the quality characteristics of potato chips.
<b>Analyse</b>	Breaking information into parts and linking them to each other to form an overall picture or focus	1) Study the graph below and comment on the trend of rice consumption in Asia. 2) Using the sensory evaluation results, state the most popular food and provide a reason for your choice.
<b>Evaluate</b>	Critiquing and forming judgements based on criteria	1) From the 1-day food record below, do you think Joyce has met the nutritional needs based on <i>My Healthy Plate</i> recommended servings? 2) Looking at the recipes, suggest ways to increase the dietary content for someone who is suffering from constipation.
<b>Create</b>	Putting elements together to form a new and coherent structure	1) Create an advertisement to promote a newly launched shampoo with at least two advertising techniques. 2) You are the chief designer of the National Environment Board, design a poster for the hawker vendors to educate them on hygienic practices when handling food.

---

<sup>9</sup> Adapted from: Anderson, L.W. & Krathwohl, D.R. (Eds.) (2001). *A taxonomy for Learning, teaching and assessing: A revision of Bloom's taxonomy of educational objectives*. New York: Addison Wesley Longman

---

### Elective Module Projects

Students are expected to show application of core content and knowledge from the Core Areas of Study and the selected Elective Module through a project. Besides the application of knowledge, students are also expected to show the application of thinking skills in developing the task, such as analysis, research, decision-making and evaluation.

Different modes of assessment that can be included are peer evaluation, interview / consultation, proposal and presentation. In EMs, students will be required to:

- identify and define a problem/task for a chosen content from the one of the electives
- gather, analyse and evaluate relevant information using a range of sources
- generate and prioritise ideas
- plan a logical timeline that shows forward planning
- carry out the plan
- evaluate the outcomes of the problem or task

The suggested assessment weightings for project are 50% for Express and 60% for Normal (Academic) and Normal (Technical). Table 11 elucidates the process skills and breakdown of weighting for the different streams.

In comparison to the Express stream, slightly higher weightings have been given to the process skill on *Preparation and Research* for students from Normal (Academic) and Normal (Technical) students to show their application and extension of learning.

A greater emphasis has also been given to the *Product Outcome* for the Normal (Academic) and Normal (Technical) stream as this will allow more hands-on experience and cater better to the profiles of these students.

**Table 11: Suggested Assessment Weightings for EM Project**

Process Skills	Criteria	Express (%)	Normal (A) (%)	Normal (T) (%)
Planning & Proposal	<ul style="list-style-type: none"><li>• Clear and logical objective, focussed on the core area/s of study</li><li>• Detailed, logical and well sequenced plan of action in investigation and data collection</li></ul>	10	10	10
Preparation & Research	<ul style="list-style-type: none"><li>• Thorough research and good application of content knowledge</li><li>• Good extension of learning</li><li>• Effective organisation and communication of ideas</li><li>• Competent conduct of investigations</li></ul>	16	20	18
Product & Outcome	<ul style="list-style-type: none"><li>• Well presented and relevant outcome to meet the objective of the task</li></ul>	14	20	22
Reflection & Evaluation	<ul style="list-style-type: none"><li>• Detailed and thorough review of all aspects of work done</li><li>• Detailed and logical conclusions to the task</li><li>• Extension of learning from core area/s of study with support of examples</li></ul>	10	10	10
<b>Total</b>		50	60	60

A set of rubrics with criteria indicators is suggested in Table 12 for the marking of the Elective Module project.

**Table 12: Suggested Rubrics for Elective Modules**

Process/ Tasks	Indicators		
	HIGH	MEDIUM	LOW
<b>Planning &amp; Proposal</b>	<ul style="list-style-type: none"> <li>state a clear and logical objective, focussed on the core area/s of study</li> <li>provide a detailed, logical and well sequenced plan of action in the investigation and data collection</li> </ul> <p align="right">8 – 10</p>	<ul style="list-style-type: none"> <li>state a clear objective with some focus on the core area/s of study</li> <li>produce a clear plan of action with sufficient details in the investigation and data collection</li> </ul> <p align="right">4 – 7</p>	<ul style="list-style-type: none"> <li>state a brief objective with little focus on the core area/s of study</li> <li>provide a brief plan of action in the investigation and data collection</li> </ul> <p align="right">1 – 3</p>
<b>Preparation</b>	<ul style="list-style-type: none"> <li>conduct a thorough research; show good application of content knowledge</li> <li>show good extension of learning</li> <li>show effective organisation and communication of ideas</li> <li>conduct investigations competently</li> </ul> <p align="right">11 – 15</p>	<ul style="list-style-type: none"> <li>conduct sufficient research; apply some relevant content knowledge to task</li> <li>show some extension of learning</li> <li>show adequate organisation and communication of ideas</li> <li>conduct investigations somewhat proficiently</li> </ul> <p align="right">6 – 10</p>	<ul style="list-style-type: none"> <li>conduct a shallow research; apply limited content knowledge to the task</li> <li>show little or no extension of learning</li> <li>show weak organisation and communication of ideas</li> <li>conduct investigations with some assistance</li> </ul> <p align="right">1 – 5</p>
<b>Product &amp; Outcome</b>	<ul style="list-style-type: none"> <li>present detailed and relevant outcome to meet the objective of the task</li> </ul> <p align="right">11 – 15</p>	<ul style="list-style-type: none"> <li>present a satisfactory outcome that adequately meets the objective of the task</li> </ul> <p align="right">6 – 10</p>	<ul style="list-style-type: none"> <li>present a weak outcome that is not focused on the objective of the task</li> </ul> <p align="right">1 – 5</p>

Process/ Tasks	Indicators		
	HIGH	MEDIUM	LOW
<b>Reflection &amp; Evaluation</b>	<ul style="list-style-type: none"><li>• produce a detailed and thorough review of all aspects of work done</li><li>• draw detailed and logical conclusions to the task</li><li>• explain the extension of learning from core areas of study and support with examples</li></ul> <p>8 – 10</p>	<ul style="list-style-type: none"><li>• produce a satisfactory review of some aspects of work done</li><li>• draw logical conclusions to the task</li><li>• explain the extension of learning from core areas of study</li></ul> <p>4 – 7</p>	<ul style="list-style-type: none"><li>• produce a weak review of work done</li><li>• draw simple conclusions to the task</li><li>• provide a brief explanation on the extension of learning from core areas of study</li></ul> <p>1 – 3</p>

## **PLANNING ELECTIVE MODULES**

### **CHOICE OF ELECTIVE MODULES**

Schools will have the autonomy to select **one** out of three Elective Modules (EMs) to embark on the project:

- A. Nutrition and Food Science
- B. Food Entrepreneurship
- C. FCE and the Community

The selected EM should best appeal to students' interest and passion. This will help enthuse students in the learning of FCE. Students may work in pairs or groups for the EM project to build soft skills such as teamwork and communication.

When planning the chosen EM, it is important to adhere to the checklist attached to ensure that the learning remains *relevant* and *authentic*. It is important for students to build their learning upon their prior knowledge from the Core Areas of Study, and extend their learning beyond areas relevant to FCE. This will allow students to broaden their thinking and learning in their area of interest.

The EMs aim to provide students with insights into the food product development, resource management, and opportunities to contribute to the community with FCE knowledge and skills through Service Learning.

**Food and Consumer Education (FCE)  
Checklist for Planning the Elective Module (EM)**

Statement		Yes	No
<b>Objectives</b>			
1.	The objectives in the chosen EM reflect the application of FCE knowledge and skills, and extend learning from the core areas of study.		
<b>Project</b>			
2.	The activities of the project are aligned with the learning outcomes of the EM.		
3.	The activities reflect the: <ul style="list-style-type: none"><li>• understanding and application of knowledge from the core areas of study</li><li>• extension of learning from the core areas of study</li></ul>		
4.	The EM provides students with real-life experiences where they can apply the content knowledge and skills.		
5.	The duration of the project meets the time-frame for EM.		
<b>Reflection</b>			
6.	When incorporating student's reflection as part of the evaluation of their learning, the following are considered: <ul style="list-style-type: none"><li>• sufficient time is set aside for students to reflect</li><li>• the reflection is built in at appropriate stages of learning</li><li>• appropriate mode of reflection is used</li></ul>		
7.	The reflection questions are appropriate and related to the EM.		



### A. Nutrition and Food Science

Suggested topics, such as *Culinary Art* and *Food Product Development*, will build upon knowledge of emerging food and health trends, basic principles of food preparation and cooking, nutritional needs, food science, and cultural, social and economic influences on food learnt in Food Studies. Below is a project example of this EM:

### **PROJECT EXAMPLE FOR NUTRITION AND FOOD SCIENCE**

**Project Name: The Pancake Experiment**

#### **Task**

**The school would like to introduce easy-to-prepare, affordable and healthy pancakes to be sold in the school canteen. You and your team have been tasked to investigate the use of different types of flours in pancakes in terms of its palatability.**

- a) Draw up a plan of action showing the steps in completion of the task within the time given.
- b) Research on **one** basic pancake recipe that is easy-to-prepare.
- c) Carry out research on **three** different types of flour that would be suitable for the basic recipe.
- d) Compare the nutritional contents of the **three** pancake recipes and the feasibility of making the pancake to ensure it is easy to prepare yet affordable.
- e) Plan a fair experiment to determine the palatability in using different types of flour that could produce an easy to prepare healthy pancakes.
- f) Conduct an investigation that includes several sensory tests.
- g) Compile and interpret the data using different types of data representation.
- h) Choose the best pancake recipe to develop and give reasons. When necessary, this can also include ways to modify the recipe to make it healthy. (for example, adding one serving of fresh fruits).
- i) State the estimated cost and selling price of one serving of pancakes (*Note: One serving could constitute a few mini pancakes or one pancake.*).
- j) Choose the most preferred pancake recipe and proposed selling price recommended and give reasons.
- k) Discuss any challenges or concerns that may arise.
- l) Present your findings and recommendations in the form of a report.
- m) Reflect and evaluate the project in terms of planning and implementation of the task.

#### **Learning Outcomes:**

At the end of the project, you should be able to:

- develop skills of researching, interpreting, analysing and evaluating information for effective decision making
- investigate and apply scientific principles for food preparation and food production process
- examine different characteristics of food
- calculate estimated cost price and selling of the food product

**Prior knowledge of content from Food Studies:**

- Dietary needs
- Methods of cooking
- Recipe modification
- Sensory evaluation of food (appearance, flavour, texture)
- Food and kitchen safety
- Recipe modification
- Nutritional tools and analysis

**Prior Knowledge of Content from Consumer Studies:**

- Budgeting
- Money management skills
- Comparative shopping
- Interpret sources of information

**Extension of learning**

- Food investigation
- Data analysis
- Evaluating food
- Decision making

**Project Outcome**

- Plan of action
- Planning of a fair experiment
- Data collection
- Report on the project

### **B. Food Entrepreneurship**

Some topics which can be incorporated in this EM include *Food Marketing and Packaging, Food Labelling, Food Styling* and *Food Evaluation*. Students will be expected to formulate a simple business plan where budgeting and conducting market surveys are included. A project sample is provided below:

#### **PROJECT EXAMPLE FOR FOOD ENTREPRENEURSHIP**

**Project Name: A Business Plan for a School Carnival**

##### **Task**

**The school is organising a school carnival to raise fund for an orphanage. Your team has volunteered to set up a food stall to sell interesting healthy food items that are popular among teenagers. Write a business plan to the organising committee on the proposed food items and the projected profit.**

- a) Draw up a plan of action to show the areas of need in order to achieve outcomes.
- b) Conduct a market survey on food items that are popular among teenagers.
- c) Research on the different forms of advertisement and promotional strategies to attract potential customers.
- d) Compile the information gathered to analyse the results of the survey and decide on the most effective promotional strategies.
- e) Decide on the food items that meet the task requirements.
- f) Draw up a proposed business plan that involves budgeting, capital, overheads and profit margins.
- g) Prepare and serve samples of the food to collect feedback from your peers. Collate the information and make necessary recipe and budget modifications.
- h) Submit the business plan that includes a review report on the decisions made based on the given factors (a to g).
- i) Reflect and evaluate your progress at each of the stages during the project in terms of your learning and how you have met the task requirements.

##### **Learning Outcomes:**

Students will be able to:

- exhibit entrepreneurship skills (financial, marketing) when developing the food items
- appreciate the value of individuality, creativity, authenticity and enterprise when manufacturing and marketing food products
- use and interpret visual, verbal and written language in the promotion of food and food products
- consider ethical issues when marketing food products

##### **a) Prior Knowledge of Content from Food Studies**

- Dietary needs
- Nutritional tools/guides
- Methods of cooking
- Food safety
- Basic culinary skills
- Evaluation of food
- Food presentation

**b) Prior Knowledge of Content from Consumer Studies**

- Budgeting
- Methods of payment
- Sources and use of Information
- Advertisement and promotion of products

**c) Extension of Learning**

- Recipe modification
- Business plan
- Food costing
- Menu planning
- Ethical issues when marketing food products

**d) Project Outcomes**

- Business plan
- Prepare and serve attractive food samples
- Prepare the advertisement
- Present the chosen promotional strategies

### **C. FCE and the Community**

In this EM, schools can choose to focus on using knowledge and skills in FCE to contribute to the community through service learning, or on resource management.

Service learning combines formal teaching with a service provided to the community as this aids in the learning through an authentic social context. This is accompanied by guided reflection of the learning experiences by students. Explicit connections between learning outcomes (service and academic goals) and the community involvement experience are made. It is essential that schools follow the **4-step process of Service Learning**<sup>10</sup> when developing the project in this area; namely, *identifying needs, defining learning outcomes, preparing a proposal, and reflecting and evaluating.*

Resource management can involve the 3Rs (Reuse, Reduce, and Recycle) and the impact on the environment or maintaining current resources, such as clothing, in the home. The following examples will show how a project can be developed for both areas.

### **EXAMPLES OF POSSIBLE PROJECTS FOR FCE AND THE COMMUNITY**

#### **Example 1**

**Project Name: Healthy Menu at an Elderly Day Care Centre (Service Learning)**

#### **Task**

**Your group has been asked to plan a nutritious menu for the beneficiaries in the elderly day care centre. You are to use *My Healthy Plate for Older Adults* from Health Promotion Board (HPB) and present it in a form of a poster during your visit to the centre.**

- a) Draw up an action plan to show the areas that need to be done and how the new menu can be communicated to the elderly at the day care centre.
- b) Determine the areas needed for preparation for the project; e.g. roles to be played by each member of the group, knowledge and skills in analysing nutritional value of a selected meal (breakfast, lunch) and the partners (e.g. caretakers, family members, elderly) from the elderly day care centre to work with.
- c) Conduct a survey on a meal (breakfast, lunch) served to elderly in the day care centre and compare it with *My Healthy Plate* recommendations.
- d) Gather feedback from care takers on the challenges in providing healthier choices of food served in those meals, elderly's food habits and preferences.
- e) Design a healthy menu for a selected meal with considerations of the dietary guidelines and caretakers' concerns.
- f) Draw up a proposed budget plan that involves ingredients budgeting, campaign materials costing.
- g) Submit the budget plan that includes a review report on the decisions made based on the given factors (a-e).
- h) Design a poster to educate the elderly community to show how their meals have been modified and beneficial for them.
- i) Set up the posters at the elderly day care centre.

---

<sup>10</sup> Reference: Service Learning Handbook, National Education Branch, Curriculum Planning & Development Division, Ministry of Education, May 2001

- j) Conduct a cooking demonstration on the healthy versions of the meals to be served at the elderly day care centre (*optional*).
- k) Reflect and evaluate your progress at each of the 4 stages during the project in terms of your learning and how you have met the task requirements.

#### **4-Step Process of Service Learning:**

##### **1. Needs:**

The menu planned should follow *My Healthy Plate for Older Adults*. Conduct a survey on the menus served at the elderly day care centre and find out the appropriateness of the types of food served to meet the nutritional needs of the elderly.

##### **2. Learning Outcomes:**

Students will be able to:

- Apply learning from Food Studies in analysing the nutritional value of the dishes served to the elderly.
- Discuss the consequences of eating unhealthily in the elderly community.
- Make recommendations on the menus offered at the elderly day care centre with detailed nutritional analysis.
- Communicate with the elderly community on the value of eating healthily, HPB's *My Healthy Plate for Older Adults* recommendations and modifications / improvements made to the dishes served in a selected menu (breakfast or lunch) through the posters.

##### **3. Proposal & Preparation:**

- Consider the pre-requisite knowledge, skills, mental preparation that students would require for this project.
- Draw up an action and communication plan before starting on the task.
- Consider the specific tasks and roles of each student and students' interests and talents.
- Consider involving the community partners e.g. Health Promotion Board, Agency for Integrated Care, caretakers, family members, elderly, etc.
- Draw up a proposed budget plan to determine the costs involved e.g. the poster, the ingredient cost of the proposed menu and the cooking demonstration (*optional*).

##### **4. Reflection & Evaluation:**

- Students are to include reflection on the learning points (e.g. theory application, challenges faced etc) at every stage of the 4-step Service Learning process.
- Students to provide recommendations for improvement of the planned activity.
- Students would also think of the impact on their contributions made to the elderly day care centre and how their own attitudes and behaviour have changed.

##### **e) Prior Knowledge of Content from Food Studies**

- Meal planning
- Nutritional tools
- Diet-related diseases
- Culinary skills
- Methods of cooking
- Food presentation
- Evaluation of food

**f) Prior Knowledge of Content from Consumer Studies**

- Budgeting
- Sources and use of information
- Smart shopping

**g) Extension of Learning**

- Recipe modification
- Food styling
- Food photography
- Food marketing
- Budget plan

**h) Project Outcomes**

- Action plan of the project
- Budget plan
- Educational poster on healthier choices/dishes at the elderly day care centre
- Conduct a cooking demonstration at the elderly day care centre (optional)
- Reflection of learning process

Note:

- *If the project includes the cooking demonstration and is not possible to conduct at the day care centre, students can record their own videos on cooking demonstrations and play it at the elderly day care centre while doing CIP at the centre*

*Suggestions on other organisations: Aged or Disabled, After-School Care or any Voluntary Welfare Organisations (VWO)*

**Example 2**

**Project Name: New Bags with Old Rags (Resource Management)**

**Task**

Your school is organising an exhibition on 3Rs – Reduce, Reuse and Recycle, to promote the importance of reducing wastage on Earth Day. You and your friends are tasked to educate the school on 3Rs by using unwanted items to make innovative and practical shopping bags. Your team also needs to prepare a brochure to distribute to your schoolmates on how wastage can be reduced at the exhibition.

- a) Draw up a plan of action to determine what needs to be done to achieve the outcomes.
- b) Research on the unwanted items that can be re-used to make shopping bags.
- c) Conduct a survey to find out the features that people would like to see in shopping bags.
- d) Design a shopping bag that would appeal to people bearing in mind the feedback gathered.
- e) Draw up a budget plan that involves cost of materials needed.
- f) Submit the budget plan that includes a review report on the decisions made based on the given factors (a-g).
- g) Gather resources for re-use to make the shopping bag.
- h) Make/Sew the shopping bag and embellish it to make it attractive.
- i) Design a brochure to educate the school community on the 3Rs to create awareness of the impact of wasting existing resources on the environment. Suggest ways on how existing resources can be reused.
- j) Evaluate the project in terms of your learning and how you have carried it out. Indicate if you have met the task requirements.

**Learning Outcomes:**

Students will be able to:

- apply learning from Consumer Studies in managing and maintaining existing resources
- discuss consequences of wastage on one's savings and the environment
- communicate with school community on the value of reducing wastage and reusing one's resources
- recommend ways in which one can reduce wastage and reuse existing resources
- reuse an existing resource to create a useful item to help save the environment

**Prior Knowledge of Content from Consumer Studies:**

- 3Rs (Reuse, Reduce, Recycle)
- Budgeting
- Care and Maintenance of Personal Products
- Promotion of products

**Extension of Learning**

- Sewing skills
- Decorative techniques (appliqué, fabric paints, buttons, ribbons, ric-rac, sequins)
- Marketing
- Conducting a survey



**Project Outcomes**

- Plan of action
- Budget plan
- A shopping bag made from a piece of unwanted clothing (e.g. denim skirt); to reuse existing resources instead of throwing away items which still have value.
- A brochure to educate school community on the 3Rs (Reuse, Reduce, Recycle), and create awareness of wasting resources and its impact on the environment and one's savings. Encourage reusing existing resources to reduce wastage.
- Reflection on learning process

## REFERENCES

Home Economics Lower Secondary 2008 Syllabus, Curriculum Planning and Development Division, 2007, Ministry of Education, Singapore.

Occasional Paper on Economic Statistics (1999), '*Consumer Credit in Singapore: Trends and Analysis*', Singapore Department of Statistics.

Victorian Journal of Home Economics (2008), '*IFHE Position Paper: Home Economics in the 21<sup>st</sup> Century*', Volume 47, Issue 2, Australia.

The New Zealand Curriculum for English-medium teaching and learning in years 1-13, 2007, Ministry of Education, New Zealand.

Home Economics Senior Syllabus 2010, Queensland Studies Authority, The State of Queensland, Australia.

Service Learning Handbook, National Education Branch, Curriculum Planning and Development Division, 2001, Ministry of Education, Singapore

PENDERGAST, Donna, MCGREGOR, Sue LT and TURKKI, Kaija. (2012). '*Creating Home Economics Futures The Next 100 Years*', Australian Academic Press, Australia.

Strategies for Inquiry-based Learning and Teaching, 2013 Lower Sec Science Syllabus, pp. 14, Curriculum Planning and Development Division, Ministry of Education.

21st Century Competencies, [Online], Available:  
<http://subjects.opal.moe.edu.sg/cos/msite.x?url=/21st-century-competencies&rid=6939&c=/subjects/pagetree> [30 Jan 2013]

Teaching Science: What Research Tells Us, [Online], Available:  
<http://serc.carleton.edu/NAGTWorkshops/careerprep/teaching/learning.html> [27 Jan 2013]

## **ACKNOWLEDGEMENTS**

We would like to thank the following Task Force members for their contributions:

### **School**

Bukit View Secondary School  
CHIJ (Sec) Toa Payoh  
CHIJ St Nicholas Girls' School  
Tanglin Secondary School  
Holy Innocents' High School  
Bedok Green Secondary School  
Bendemeer Secondary School  
Peirce Secondary School  
Henderson Secondary School  
First Toa Payoh Secondary School  
Guangyang Secondary School  
Holy Innocents' High School

### **Teachers**

Mdm Ratna d/o Selvadurai  
Mdm Laura Goh  
Mdm Mohana Sinniah  
Mdm Joy Tay  
Ms Lim Mei Qiao  
Ms Koh Hsiao Lin  
Ms Ruth Tang  
Ms Lee Xiu-ping  
Mdm Shirley Goh  
Mdm Sri Hirdayu  
Mdm How Bee Nar  
Mdm Ernie Abdul Rahman

With special thanks to Ms Derlynn Chng from Pei Hwa Secondary School and Ms Priscilla Lui Lai Yeng from Woodgrove Secondary School for the additional contributions.



Ministry of Education  
SINGAPORE

ISBN 978-981-07-5397-9