

LEARNING AREA: TECHNOLOGY

LESSON PLAN		CONTENT IN CONTEXT		GRADE 7
TERM	PROCESSING			DURATION 8 – 11 weeks
<p>Demonstrates knowledge and understanding of how materials can be processed to change or improve properties (e.g. strength, fire resistance, waterproofing, taste, volume, texture).</p>				
<p>Statement of the problem</p> <p>The owner of the tuck shop at your school realises that the sales of sweets have decreased in the last few weeks. From a mini-survey that he conducted, the owner concludes that the learners do not like the type of sweets being sold any more. The tuck shop owner asks the Grade 7 learners to design and make an example of new sweets which can be sold at the tuck shop.</p> <p>The following very important aspects must be taken into account:</p> <ul style="list-style-type: none"> • the example must contain at least some sweetener, in any form of your choice; • the example may not cost more than R5 to make; • the example must have an original and creative name; • the example must be packaged in such a way that it is easily unwrapped. 				
<p>Selected LO's and AS's</p>	<p>Teaching and Learning Activities</p>			
<p>LO 1 As 1.1: Context, nature of problem As 2.1: Design brief</p>	<p>Activity 1: Problem Statement and Design brief Learners are divided into groups of two and asked to read through the project brief in order to identify the problem. It is recommended that the learners get the opportunity in groups to discuss the problem. Each learner then briefly and in their own words, describes what the problem is to be solved and formulate their design brief.</p>			
<p>LO 1 As 1.2: Existing products As 1.4: Collecting data LO 2 As 2.2: Processing</p>	<p>Activity 2: Investigation Into the Nature of Sugar Teacher discusses the concept of sugar, where does it come from and the different kinds of sugar and sweeteners. Learners also get the opportunity to analyse the given situation by conducting an investigation into the nature of sugar. Learners then read through the given passage regarding sugar, the different kinds of sugar and sweeteners and answer the questions. Learners are provided with a worksheet with pictures of how sugar is made and sentences in random order to explain each picture. Learners work in groups and put the sentences in the correct sequence according to the pictures.</p>			
<p>LO 1 As 1.2: Existing products As 1.4: Collecting data As 5.2: Communication LO 2 As 2.2: Processing LO 3 As 3.2: Impact of tech.</p>	<p>Activity 3: Sugar, Sweets and your Health This activity must be completed as an individual work. Each learner must read the given passage before they start the activity. Learners should use cardboard and material of their own choice to design and make a poster of the good or the bad effects of sugar on a person's health. The poster must at least be the size of two A4-sheets of paper (one A3-sheet). It must be colourful and must convey a specific message to the learners in their school on the effect of sugar on their body.</p>			
		<p>Details of Assessment Forms, Methods and Tools</p>		
		<p>Form Method Tool</p>	<p>Project Educator Rubric</p>	
		<p>Formal Assessment</p>		
		<p>Form Method Tool</p>	<p>Assignment Educator Questions & answers</p>	
		<p>Informal Assessment</p>		
		<p>Form Method Tool</p>	<p>Assignment Peer Checklist</p>	
		<p>Formal Assessment</p>		
		<p>Form Method Tool</p>	<p>Research Educator Mark sheet with specific guidelines</p>	

Selected LO's and AS's	Teaching and Learning Activities	Details of Assessment Forms, Methods and Tools
<p>LO 1 As 1.2: Existing products As 1.3: Simple prac. tests As 1.4: Collecting data</p> <p>LO 2 As 2.2: Processing</p>	<p>Activity 4: Food legislation and packaging This activity must be completed as individual work. Learners read the given passage on their own. Educator uses the given wrapper to explain the information to be put on products according to legislation. Learners collect and study a chocolate/sweet wrapper of your own choice, use the information on the wrapper to answer the questions: (A picture of the wrapper must be pasted in the space provided.)</p> <p>Activity 5: The effect of heat on sugar This activity must be completed as class work. Learners are divided into groups of three and guided to select one of the group members to read the given passage to the rest of the group. The educator explains in detail the aspects that must be considered when making home-made sweets and provides the learners with enough sugar for each of the steps as indicated also a source of heat e.g. a hot plate. Educator continuously advise learners to wait, after heating, at least a few minutes before tasting to prevent burning. After learners have completed the instructions, they complete the deductions in groups by using the information they have gained during the four instructional steps.</p>	<p>Formal assessment</p> <p>Form Method Tool Case Study Educator Questions and possible answers</p> <p>Informal assessment</p> <p>Form Method Tool Investigation Groups get the opportunity to discuss their deductions in class</p>
<p>LO 1 As 1.1: Context, nature of problem As 2.1: Design brief As 2.2: Specifications</p> <p>LO 2 As 2.2: Processing</p>	<p>Activity 6: Problem statement, brief, proposal and specifications Learners have already described what the problem is to be solved and formulated their design brief in Activity 1. Point out to learners the different aspects that must be taken into consideration for the proposal, namely what must be done and specifications in respect of the product. This activity must be done individually by every learner. Learners use the information they have gained from the previous activities to answer the questions.</p>	<p>Formal assessment</p> <p>Form Method Tool Project Educator Rubric</p>
<p>LO 1 As 2.3: Generate ideas As 2.4: Choose best solution and motivate</p> <p>As 5.1: Present ideas using drawings</p> <p>LO 2 As 2.2: Processing</p>	<p>Activity 7: Initial idea generation (individual work) The learners have completed their proposal and should have considered all possible ideas to solve the problem. Encourage the learners to generate ideas which they should present in the form of freehand sketches. Remind them to write down the advantages and disadvantages of each idea. After that the most appropriate idea must be chosen and motivated. First idea: Learners sketch and describe their initial idea. Educator reminds them to pay close attention to the advantages and disadvantages of the idea, for example how much it will cost to make the idea. Second idea: Encourage learners to sketch and describe another idea that differs from the first one. Learners use the information they have gathered during the previous activities. Learners now choose the best idea, discuss and motivate the choice of their best idea.</p>	<p>Formal assessment</p> <p>Form Method Tool Project Educator Rubric</p>

**Selected
LO's and AS's
Teaching and Learning
Activities●
Teaching and Learning
Activities●**

**Details of Assessment
Forms, Methods and
Tools**

● LO 1

● LO 1

As 2.4: Develop chosen
idea

As 3.1: Plan for making

As 3.2: Choose material
and tools

As 3.3: Precautionary
measures

As 5.1: Present ideas
using drawings

LO 2

As 2.2: Processing●

Activity 8:

Development and

planning (group work)

After choosing the best
idea learners (in groups)
are now asked to develop
that idea into a final idea.

Educator discusses the
use of different kinds of
kitchen utensils as well
as the safety measures
when using it. Learners
now list the ingredients
and kitchen utensils that
they will need to make
the sweets. In the table
provided, they also write
down at least one safety
measure that must be
considered when
working with that
specific utensil.
After discussing the

development, the requirements and the different facets of a working drawing, the learners make their own individual, clear drawing with captions as well as a simple plan in a form of a flow chart of how they will go about making the sweets.

Formal assessment

- Form
- Form
- Form
- Form

Form

Method

Tool• Project
Project
Educator

Rubric•• LO 1

• LO 1

LO 1

As 3.2: Choose material and tools in making

As 3.3: Precautionary measures

As 4.1: Evaluate

according to criteria

As 4.2: Suggestions for improvement•

Activity 9: Making and evaluating (group work)

Making: Before the learners start making the example of their sweets in groups, the educator refers them to their design brief and proposal. Educator continuously reminds the learners to pay attention to safety, to work methodically, to use ingredients economically. Educator

should demonstrate to the learners in order to guide them to follow the correct procedures. Learners also make notes in the spaces provided on the equipment and ingredients used as well as safety precautions.

Packaging: Learners are provided with an example of a template of the packaging that they could use for their sweets. Educator demonstrates and explains the template of the packaging to the learners. Learners may use the template provided to them or design their own

Evaluating: Educator guides the learners to report to what extent the final product complies with the set of requirements, to identify strengths and weaknesses and to indicate how the product can be improved.

Learners get the opportunity to evaluate their product themselves by answering the questions. Make sure that learners understand and fully answer each question. Opportunity is also given to another class group to evaluate the product according to the specifications.

Formal assessment

•••Form

•••Form

••Form

Form

Method

Tool

Project

Educator

Rubric

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Resources:

chocolate/energy bars wrappers; brown/white sugar; kitchen utensils (tablespoons, saucepans, teaspoons, knives, paper cups etc.)

cardboard; scissors; glue etc.

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Barriers to

learning: Example: access to all the necessary resources; learners background knowledge; etc.

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Expanded

opportunities and

reflections: Refer to Teacher's Guide For The Development of Learning

Programmes, page

45.

achieved

•1.
1.

Task assignment

- Activity 2
- Activity 2

(An investigation into the nature of sugar) • 10

10

•2.
2.

Research

- Activity 3
- Activity 3

(Sugar, sweets and your health) • 50

50

•3.
3.

Case Study

- Activity 4
- Activity 4

(Food legislation and packaging) • 20

20

•4. Project Activity 1

4. Project Activity 1

Project Activity 1 (problem statement and design brief) • 20

- Activity 1

20

• Activity 6
Activity 6
(design proposal and
specifications) • 20 •

• Activity 7
Activity 7
(Initial idea
generation) • 20 •

• Activity 8
Activity 8
(Development and
planning) • 30 •

• Activity 9
Activity 9
(Making and
evaluating) • 30 •

TOTAL:
200 •

200 •

PERCENTAGE

:

:

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<p>•</p> <p>LEVEL:</p> <p>•</p>	<p>••</p>
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PROCESSING (HOME-MADE SWEETS)

PROBLEM STATEMENT AND DESIGN BRIEF

Project brief

The owner of the tuck shop at your school realises that the sales of sweets have decreased in the last few weeks. From a mini-survey that he conducted, the owner concludes that the learners do not like the type of sweets being sold any more. The tuck shop owner asks the Grade 7 learners to design and make an example of new sweets which can be sold at the tuck shop.

The following very important aspects must be taken into account:

- the example must contain at least some sweetener, in any form of your choice
- the example may not cost more than R5 to make
- the example must have an original and creative name
- the example must be packaged in such a way that it is easily unwrapped



ACTIVITY 1: Use the information from the project brief to answer the following questions orally in your group

1. What is the tuck shop owner's problem according to the project brief?
2. What can be done to solve the tuck shop owner's problem?

ACTIVITY 2: (Resource task)

AN INVESTIGATION INTO THE NATURE OF SUGAR

You are going to complete this activity on your own. Read through the following and then answer the questions.

WHAT IS SUGAR?

Sugar is a sweet tasting substance, usually in the form of tiny white or brown grains. It is soluble in water, colourless, odourless and can crystallise. Sugar belongs to the carbohydrate nutrient group because it supplies you with energy. It can be classified into different groups, namely *glucose*, *lactose*, *maltose* and *sucrose*.



Glucose

Glucose is used as a sweetening agent in food processing. It is produced in plants through a process known as photosynthesis and is found in honey and fruit. It is then known as grape sugar. The end product of the digestion and assimilation of all forms of carbohydrate in the human body is glucose. When found in the human body glucose is known as blood sugar.

Maltose

Maltose is an easily digested form of sugar, often used in the preparation of infant food and beverages such as malted milk. It is also used in the brewing of beer.

Sucrose

Sucrose is ordinary table sugar extracted from sugar cane or sugar beet. It is soluble in water and slightly soluble in alcohol. It is mostly used to sweeten food such as cakes, puddings and the sweets you can buy at the local supermarket. Sucrose supplies the body with up to 13% of its energy.

Lactose

Lactose is sugar present in milk and not as sweet as glucose, maltose or sucrose. It forms an essential part of the diet of young mammals and is therefore often added to baby foods.

WHERE DOES SUGAR COME FROM?

Do you like eating sweet things? Most sweet things have sugar in them. Sugar is made from a kind of grass; called sugar cane.

More than 50% of the world's sugar supply is obtained from sugar cane. The other natural sugars come from vegetables and fruits. Sugar cane grows in tropical and sub-tropical climates. The best areas in South Africa are the eastern parts of KwaZulu-Natal and Mpumalanga

In these two provinces there are about 2 000 large-scale commercial farmers and about 45 000 small-scale farmers. Together they produced about 20 million ton of sugar cane a year.



After the thick stems of the sugar cane have been harvested, the stems are stripped off the leaves and then taken to a sugar mill. At the sugar mill the stems are crushed and shredded between toothed rollers. Rotating knives, shredders and crushers extract the juice. Hot water is sprayed over the crushed material to dissolve some of the remaining sugar. A solid, pulpy material, known as bagasse, remains.

Bagasse is a fibre that can be dried and burned to heat the cane juice. Lime is added to the raw juice. The mixture is heated to boiling point. Unwanted organic acids form insoluble compounds with the lime are filtered with all other impurities. The remaining clear juice is evaporated in a vacuum and then heated to form thick syrup which contains many sugar crystals and is known as massescuite.

Massescuite is placed into a centrifuge (spin-drier) which separates the syrup, known as molasses, from the yellowish or brown sugar known as raw sugar. This is sprayed with water to remove all molasses and then sent to the refinery. Molasses are used to manufacture table syrup and food flavouring. The raw sugar is redissolved, decolourised and recrystallised into crystals of desired size to produce powdered, granulated and lump sugar.



DIFFERENT KINDS OF SUGAR

- White sugar consists of very small crystals and is usually used in the preparation of food and beverages such as a cup of tea, coffee or Milo.
- Yellow sugar consists of larger crystals that appear to be less white than white sugar crystals. Yellow sugar can for example be used for baking ginger biscuits.
- Brown sugar is made from refined white sugar combined with refined treacle (molasses) and is usually used in cooking, for example in a brown pudding.



Many delicious products are made with sugar

DIFFERENT KINDS OF SWEETENERS

As indicated in the project brief on page 7, one of the aspects to be taken into account when you design and make your sweets, is that it must contain at least some sweetener. A sweetener is a substance that is added to food or drinks to make it sweeter. Examples of sweeteners are icing sugar (very fine powdered sugar), honey (a sweet sticky golden-brown fluid produced by bees) and syrup (a sweet liquid made of sugar dissolved in water).

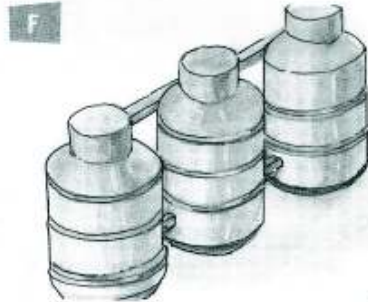
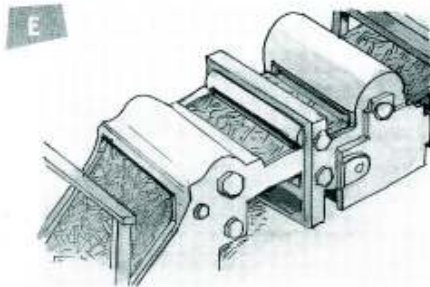
Use the information to answer the following questions on your own:

- 1 In Life Orientation you learn about carbohydrates. Carbohydrates can be classified into glucose, lactose, maltose and sucrose.
It can also be grouped into sugar and _____ (1)
- 2 Name three of the basic characteristics of sugar.

_____ (3)
- 3 One of the by-products of sugar is bagasse. What is bagasse used for?
_____ (1)
- 4 Why is lime added to the raw juice of the crushed sugar cane?
_____ (1)
- 5 What are molasses used for?

_____ (2)
- 6 Name one example for the use of the following at home:
White sugar: _____
Brown sugar: _____ (2)

Total: [10]



- I buy my packet of sugar. •
- I buy my packet of sugar. •
- Brown sugar is refined to make white sugar. •
- Brown sugar is refined to make white sugar. •
- The sugar cane is taken by trucks or trains to factories. •
- The sugar cane is taken by trucks or trains to factories. •
- Juice is boiled until only sugar crystals are left. •
- Juice is boiled until only sugar crystals are left. •
- People plough the soil and prepare it for planting. •
- People plough the soil and prepare it for planting. •
- One year later, farmers harvest or collect the cane. Some farmers cut the cane by hand. On bigger farms, harvesting machines cut the cane and drop it into waiting trucks. •
- One year later, farmers harvest or collect the cane. Some farmers cut the cane by hand. On bigger farms, harvesting machines cut the cane and drop it into waiting trucks. •
- Sugar cane cuttings are planted in the ploughed earth. •
- Sugar cane cuttings are planted in the ploughed earth. •
- The sugar cane is cut into pieces and put into rolling machines that squeeze out the sweet juice. •
- The sugar cane is cut into pieces and put into rolling machines that squeeze out the sweet juice. •

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ACTIVITY 3: (Research)

SUGAR, SWEETS AND YOUR HEALTH

You have to complete this activity on your own. Read through the following information.

SUGAR AND YOUR HEALTH

A balanced diet includes a wide range of food which provides your body with all the nutrients it needs, in the right proportion. It includes plenty of fresh fruit and vegetables. It also means that you must not eat too much fatty food and sugar. Staying healthy therefore involves making the right choices about what to eat.



The positive effect of sugar on your health

Sugar, as a source of carbohydrate, is processed in your body to supply you with energy.



In your body, carbohydrate is processed into glucose, also known as blood sugar. Glucose is the principal fuel your muscles and cells consume to produce energy. Therefore, sugar taken in moderate volumes, can be seen as a healthy part of your diet.

The negative effect of sugar on your health

A person gains weight when more energy food is absorbed than used. This means that eating too much food and doing too little exercise make the body heavy or overweight. Too much sugar intake can cause ill health and diseases of the stomach, intestines and other parts of your body. What you eat also affects the health of your teeth. If you eat much sweet food during the day, your mouth will contain a lot of sugar, in which bacteria, that cause tooth decay, can *grow*.

In the case of diabetes, the body produces too much insulin; the sugar level in the blood will rise to as much as four times the normal level. This condition is known as hyperglycaemia. Hyperglycaemia is a symptom of a disease known as diabetes. If the sugar level is reduced to a dangerously low level, a condition known as hypoglycaemia is caused. In a healthy body, excess

levels of sugar in the blood are removed by the kidneys. Diabetics usually eat food that does not contain cane sugar.

In order to stay healthy, your body requires the right quantity of sugar. Sugar in your diet supplies your body with energy, but too much sugar can cause an illness known as diabetes. It is therefore necessary for you to know about the effects of sugar on the body. Design and make a poster about the healthy consumption of sugar. Focus either on the good *or* the bad effects of sugar on your body. The poster must be the size of at least two sheets of A4-paper (one A3-paper), be colourful and neat and must convey a specific message to the other learners in your school about sugar and health.

Aspect	Mark awarded	Mark achieved
Size of the information on the poster (must be able to read it from a distance of 5m)	10	
Colour used in the poster (must be colourful)	10	
Neatness of the poster (must be neatly finished <i>off</i> , including a <i>frame</i>)	10	
Specific message about sugar and your health (focus either on the good <i>or</i> the bad effects of sugar in your body)	20	
Total mark out of	50	

ACTIVITY 4: (Case Study)

FOOD LEGISLATION

Food legislation is implemented to ensure the purity and quality of all kinds of food. It reassures the consumer that the food that is bought is what it appears to be. It also protects the public for example against potentially dangerous chemicals in food. Therefore, all food must be wholesome, fit for consumption and of good quality. Legislation also controls the ingredients that may be added to food when it is manufactured. This includes the **colorants** (synthetic colouring-matter added to food to give it a distinctive colour), **flavouring** (natural or artificial substances added to food or drinks to give it an identifiable taste), **preservatives** (used to protect food against the growth of bacteria that might cause botulism or food poisoning, and increase the safe storage life of the product), **emulsifiers** (substances added to food to prevent oil and water from separating), and **stabilisers** (prevent food spoilage because of change in temperature and handling when it is distributed).

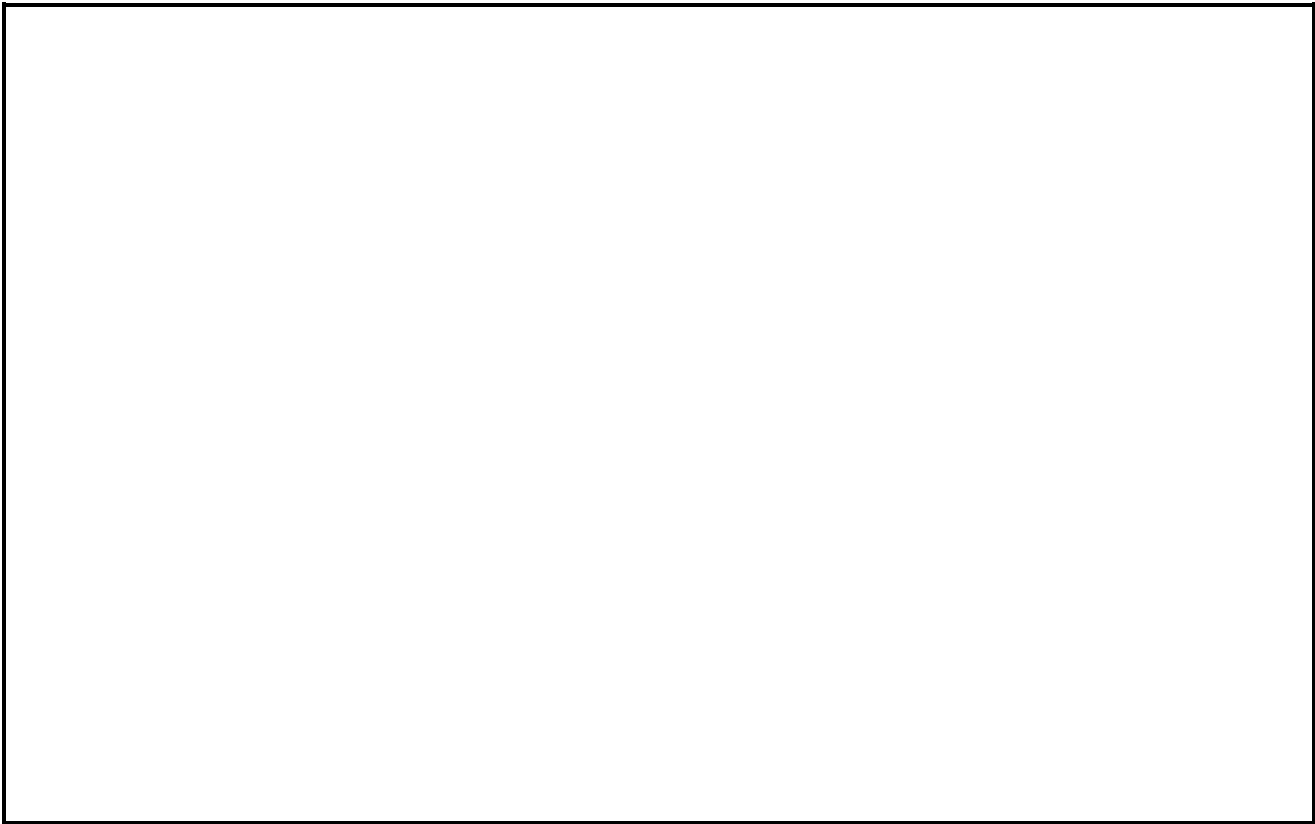
According to legislation, the following information must appear on the packaging/label of products to be sold in shops:

- The name of the product
- the name and address of the manufacturer,
- a list of the ingredients used in the food,
- user and storage instructions,
- nutritional information and bar code (price).

A picture of the product on the packaging will help people with quick identification of the contents of the packaging.



Nutritional Info.	Per 100 g	Per serving 150 g
Energy	2007	3000 kJ



Study a chocolate/sweet wrapper of your own choice and answer the following questions:
the wrapper in the space provided.)

1. The name of the product is: _____
1. The name of the product is: _____
The name of the product is: _____ (1)

2. The name and address of the manufacturer is: _____
2. The name and address of the manufacturer is: _____
The name and address of the manufacturer is: _____

_____ (2)

3. Storage instructions given are: _____
3. Storage instructions given are: _____
Storage instructions given are: _____

_____ (2)

.4• Complete the table with nutritional information:• (8)•

4• Complete the table with nutritional information:• (8)•

Complete the table with nutritional information:• (8)•

(8)•

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•
•

Nutritional information
Quantity per gram• Quantity per serving•
Quantity per gram• Quantity per serving•
Quantity per serving•

• Energy•

Energy•

•

•

• Carbohydrates•

Carbohydrates•

•

•

• Fat•

Fat•

•

•

• Protein•

Protein•

•

•

•

•

.5• Who can you phone and which number, if you have any complaints about this product?•

5• Who can you phone and which number, if you have any complaints about this product?•

Who can you phone and which number, if you have any complaints about this product?•

•

•

• (2)•

(2)•

•
•
•

.6• What is the total mass of the product? _____ • (1)•

6• What is the total mass of the product? _____ • (1)•

What is the total mass of the product? _____ • (1)•

(1)•

•
•
•

.7• Give the bar code of the product: _____ • (1)•

7• Give the bar code of the product: _____ • (1)•

Give the bar code of the product: _____ • (1)•

(1)•

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.8• (a)• Do you thing this product has any sugar as ingredient? _____ •

8• (a)• Do you thing this product has any sugar as ingredient? _____ •

(a)• Do you thing this product has any sugar as ingredient? _____ •

Do you thing this product has any sugar as ingredient? _____ •

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• (b)• Give reasons for your answer:•

(b)• Give reasons for your answer:•

Give reasons for your answer:•

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• _____ •

_____ •

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•

• _____ • (3)•

_____ • (3)•

(3)•

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• [20]•

[20]•

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ACTIVITY 5: (Investigation/Research)

THE EFFECT OF HEAT ON SUGAR

Divide into groups of three for the following activity. Nominate one of the group members to read the following passage to the rest of the group while you follow in your book.

When making home-made sweets, the following important aspects must be taken into consideration:

- Always use ingredients of the best quality - especially the sweetener you are using as this forms the base for your sweets.
- Mix all ingredients properly before boiling it, otherwise crystallised sugar may form.
- The sweetener must be dissolved before the mixture starts to boil, otherwise crystals may form.
- Do not stir the sweet mixture while it is boiling. However, if milk or cream is one of the ingredients, you must occasionally stir the mixture.
- After boiling, place the mixture in the saucepan in a bowl of water to cool down the mixture.
- If the mixture has not boiled long enough (usually 3 - 5 minutes), the sweets will not properly set. The sweet recipe will give you an indication of how long the specific sweet mixture must boil.
- Beware of adding too much flavouring as home-made sweets must have a delicate colour taste.
- Home-made sweets are usually small in size because it is very sweet.
- As home-made sweets can be very sticky, it is a good idea to wrap it in wax paper.

Now that you know more about some of the important aspects to take into consideration when you are making home-made sweets, you will get the opportunity to experiment with the effect of heat on sugar.

According to the project brief and your problem statement and design brief, your new sweets for the tuck shop must contain at least some sweetener, in any form of your choice. As sugar can be used as sweetener, it is necessary to investigate the effect of heat on sugar.

Your facilitator will provide you with some white and brown sugar, water and a source of heat. Use the saucepan, tablespoon and two small plastic bowls your group had to supply and carefully follow the instructions to find out what the effect of heat is on the texture and taste of white and brown sugar.



Follow the instructions and complete the table ●

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Steps

.What to do● Questions to answer●

What to do● Questions to answer●

Questions to answer●

● 1● 1

1● 1

1

2● Put one tablespoon of white sugar into one of the bowls.

Put one tablespoon of white sugar into one of the bowls.

Give each member of the group the opportunity *to* do the following:

- (a) feel the white sugar
- (b) see what the white sugar looks like
- (c) taste the white sugar● 1

1

2

3● *What does the white sugar feel like?*

What does the white sugar feel like?

What does the white sugar look like?

What does the white sugar taste like?

●

• 2•

2• 1

1

2

3

4• Put one tablespoon of white sugar and half a tablespoon of water into the saucepan.
 Put one tablespoon of white sugar and half a tablespoon of water into the saucepan.
 Heat the white sugar and water while continuously stirring it until it starts to boil.
 Boil for one minute and remove the saucepan from the heat.
 Scoop the white sugar and water mixture into the tablespoon and let it cool for about four minutes before you answer questions 4-6. • 1

1

2

3• *What does the white sugar and water mixture feel like?*
What does the white sugar and water mixture feel like?

What does the white sugar and water mixture look like?

What does the white sugar and water mixture taste like?

• 3• 1

3• 1

1

2• Put one tablespoon of brown sugar into one of the bowls.
 Put one tablespoon of brown sugar into one of the bowls.
 Give each member of the group the opportunity *to* do the following:
 (a) feel the brown sugar
 (b) see what the brown sugar looks like
 (c) taste the brown sugar • 1

1

2

3• *What does the brown sugar feel like?*

What does the brown sugar feel like?

What does the brown sugar look like?

What does the brown sugar taste like?

• 4• 1

4• 1

1

2

3

4• Put one tablespoon of brown sugar and half a tablespoon of water into the saucepan. Put one tablespoon of brown sugar and half a tablespoon of water into the saucepan. Heat the brown sugar and water while continuously stirring it until it starts to boil. Boil for one minute and remove the saucepan from the heat. Scoop the brown sugar and water mixture into the tablespoon and let it cool for about four minutes before you answer questions 10-12. • 1

1

2

3• *What does the brown sugar and water mixture feel like?*
What does the brown sugar and water mixture feel like?

What does the brown sugar and water mixture look like?

What does the brown sugar and water mixture taste like?

••

Deductions:•

•

From the above table, use your answers to complete the following sentences.

From the above table, use your answers to complete the following sentences.

Underline the correct answer.

1 The **white sugar/brown sugar** has the roughest texture.

1 The **white sugar/brown sugar** has the roughest texture.

The **white sugar/brown sugar** has the roughest texture.

2 The **white sugar/brown sugar** mixture has the hardest texture.

2 The **white sugar/brown sugar** mixture has the hardest texture.

The **white sugar/brown sugar** mixture has the hardest texture.

3 The **white sugar/brown sugar** has the sweetest taste.

3 The **white sugar/brown sugar** has the sweetest taste.

The **white sugar/brown sugar** has the sweetest taste.

4 The **white sugar/brown sugar** mixture has the sweetest taste.

4 The **white sugar/brown sugar** mixture has the sweetest taste.

The **white sugar/brown sugar** mixture has the sweetest taste.

5 If I want to make tuck shop sweets with a very sweet taste, I will use **white sugar/brown sugar**.

5 If I want to make tuck shop sweets with a very sweet taste, I will use **white sugar/brown sugar**.

If I want to make tuck shop sweets with a very sweet taste, I will use **white sugar/brown sugar**.

6 If I want to make tuck shop sweets with a hard texture, I will use **white sugar/brown sugar**.

6 If I want to make tuck shop sweets with a hard texture, I will use **white sugar/brown sugar**.

If I want to make tuck shop sweets with a hard texture, I will use **white sugar/brown sugar**.

7 I prefer to put some **white sugar/brown sugar** into my coffee because _____.

7 I prefer to put some **white sugar/brown sugar** into my coffee because _____.

I prefer to put some **white sugar/brown sugar** into my coffee because _____.



ACTIVITY 6: (Project)

PROBLEM STATEMENT, BRIEF, PROPOSAL AND SPECIFICATIONS
PROBLEM STATEMENT, BRIEF, PROPOSAL AND SPECIFICATIONS

Use the information that you have gained so far to make an example of sweets for the tuck after you have carefully reread the project brief, as well as your problem statement and design brief.

Use the information that you have gained so far to make an example of sweets for the tuck after you have carefully reread the project brief, as well as your problem statement and design brief.

Problem statement and design brief (Repeat the information written in Activity 1)
Problem statement and design brief (Repeat the information written in Activity 1)

What is the tuck shop owner's problem according to the project brief?

What is the tuck shop owner's problem according to the project brief? ●

What can be done to solve the tuck shop owner's problem? ●

What can be done to solve the tuck shop owner's problem? ●

Design proposal and specifications●

Design proposal and specifications●

State in your own words what exactly it is you want to make. ●

State in your own words what exactly it is you want to make. ●

You can now be more specific with regard to your example of sweets for the tuck shop owner.

Give a short description of each of the following aspects of your sweets:●

You can now be more specific with regard to your example of sweets for the tuck shop owner.

Give a short description of each of the following aspects of your sweets:●

ASPECTS OF THE SWEETS

.DESCRIPTION●

DESCRIPTION●

● Shape of the sweets●

Shape of the sweets●

● Size, given according to the shape of the sweets●

Size, given according to the shape of the sweets●

-
- Estimate price of the sweets•
Estimate price of the sweets•
-
- Time it will take to make•
Time it will take to make•
-
- Kind of sweetener•
Kind of sweetener•
-
- Creative and unique name•
Creative and unique name•
-
- Information to be provided on the packaging•
Information to be provided on the packaging•

•

•

•

ACTIVITY 7: (Project)

INITIAL IDEA GENERATION

Use the following spaces to do the following:

- Develop at least two ideas of sweets that could possibly solve the problem/meet the need.
Use freehand sketches with captions to communicate your ideas.
- Analyse each of these ideas by writing down its advantages and disadvantages.

IDEA 1

Sketch

ADVANTAGES	DISADVANTAGES
1.	1.
2.	2.
3.	3.

IDEA 1

Sketch

ADVANTAGES	DISADVANTAGES
1.	1.
2.	2.
3.	3.

You must now choose your best idea. Discuss and motivate your best idea.

My choice is : _____

Discussion and my motivation:

ACTIVITY 8: (Project)

DEVELOPMENT AND PLANNING

Make a list of all the ingredients as well as quantities that you will need.

Make another list of the kitchen utensils that you will need and indicate one safety measure that you will have to take into consideration for each utensil that you work with.

	SAFETY MEASURES TO BE CONSIDERED
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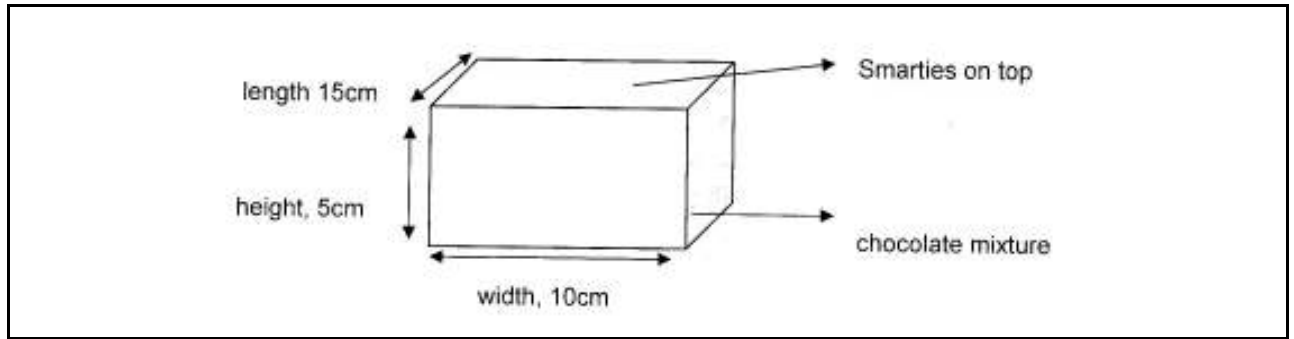
EQUIPMENT	
<i>Example: knife</i>	<i>Be careful not to cut fingers</i>

Working drawing

Before you can make your example, you first make a working drawing of your final idea. Remember the following important hints before you start with your working drawing.

- *Your working drawing must be a three-dimensional pictorial drawing. In other words the length, width and height/depth of your sweets must be drawn and indicated.*
- *Indicate by means of captions all the important parts of your sweets.*
- *Captions are always written in block letters.*
- *Caption lines are drawn with a pencil and ruler.*
- *Indicate which mixture of ingredients and decorations you use.*
- *All dimensions must be clear and readable and where possible, should not be placed inside a drawing.*
- *Only the necessary dimensions should be given and it is only given once in a drawing.*
- *All drawings must be neat and clear.*

Example of a working drawing of a three-dimensional object



Use the given space to make a working drawing of your sweets.

Compile a simple, but comprehensive plan in the form of a flow chart of how you will go about making your product.

START



--



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--

ACTIVITY 9: (Project)

MAKING AND EVALUATING

Making your own sweets

You can now start making an example of your sweets. Remember to report on what you are doing. Use the following spaces to write down your report while you are busy making your sweets. Make notes in the appropriate spaces on the following aspects:

Equipment used	

Ingredients used	

Safety precautions	

Making your own packaging for your sweets

Your sweets will need packaging and you will now get the opportunity to make the packaging of your choice. As indicated in the reading passage in activity 4, legislation stipulates that certain information must be indicated on your packaging. Complete the following table to make sure that you indicate all the necessary information on your packaging

Information to put onto the packaging	My information on my packaging
1. Name of product (your sweets)	
2. Picture/photo of product	
3. Weight of product	
4. Ingredients of product	
5. Name and address of manufacturer	
6. Bar code	

Packaging

Your teacher will supply you with a template of packaging which you are allowed to use, or you may design your own packaging, using your own material.

Evaluation of the product

You have now completed the example of the sweets and need to evaluate it. You must therefore determine whether your solution to the problem is appropriate. After you have completed the evaluation, it may be necessary to re-design the example and in this way improve your solution.

Answer the following questions on the example of the sweets that you have made:

- Why will the tuck shop owner want to sell my sweets? In other words, you want to find out whether your sweets comply with the specifications. You must first read your completed specifications. Now write short comments on your sweets and let a class mate do the same.*

Aspects of my sweets		My comments	My class mate's comments
1.1	Shape of my sweets		
1.2	Size of my sweets		
1.3	Estimated price of the sweets		

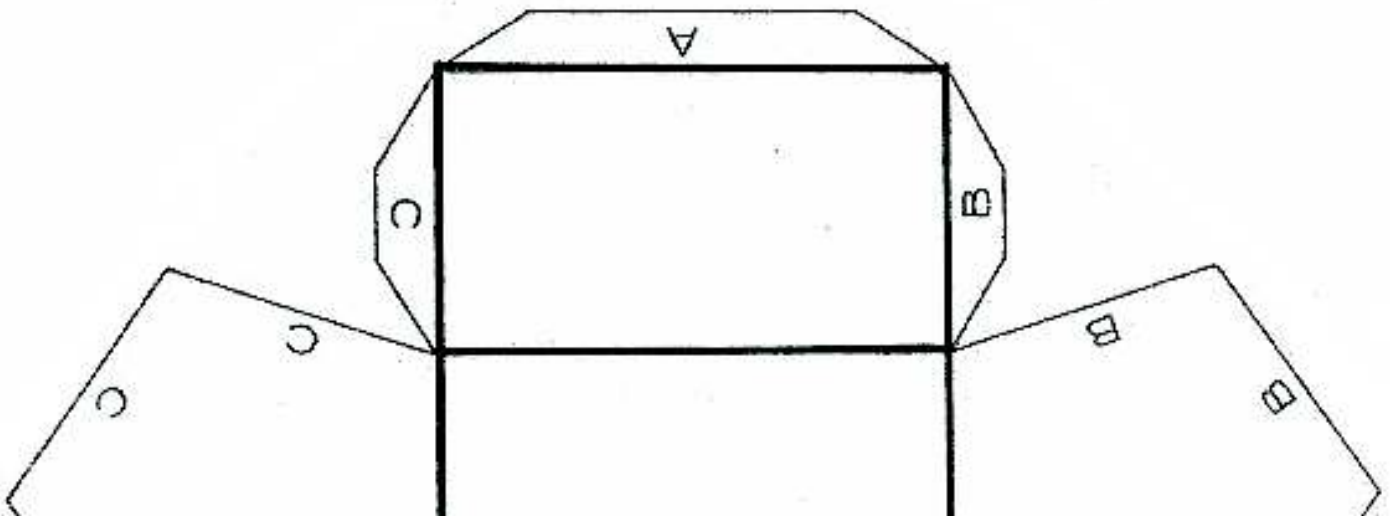
1.4	Ingredients that I used		
1.5	Measures taken to ensure that sweetener is used		
1.6	A creative and unique name for my sweets		
1.7	The package used		

2. *Make a list of the advantages and disadvantages of your sweets*

Advantages	Disadvantages
1.	1.
2.	2.
3.	3.

3. *How can you improve your sweets?*

TEMPLATE FOR PACKAGING



ASSESSMENT RUBRIC

Assessment of activity 1: Problem statement and design brief

Aspect	Level 7	Level 6	Level 4	Level 2	Assessment
	Outstanding achievement Mark (10-8)	Meritorious achievement Mark (7) Level 5 Substantial achievement Mark (6)	Adequate achievement Mark (5) Level 3 Moderate achievement Mark (4)	Elementary achievement Mark (3) Level 1 Not achieved Mark (2-0)	
Problem statement (short descriptive sentence)	<i>Need/problem is correctly identified and a clear description is given</i>	<i>Need/problem is correctly identified and described</i>	<i>Need/problem is correctly identified but not clearly described</i>	<i>Need/problem is not correctly identified and is not described</i>	<u>20</u>
Design brief (what you plan to make)	<i>Clear and understandable description of how problem can be solved</i>	<i>Reasonably clear description of how problem can be solved</i>	<i>Description of how problem can be solved is not very clear</i>	<i>Description of how problem can be solved is not completed or if completed, is not applicable</i>	

Assessment of activity 6: Design proposal and specifications

What to do (description of sweets and requirements with which the sweets must comply)	<i>Very clear description of how the sweets should look like and the requirements that the sweets must comply with</i>	<i>Indication of how the sweets should look like and the requirements that the sweets must comply with</i>	<i>Indication of how the sweets should look like and the requirements that the sweets must comply with are not complete or are not done</i>	<u>20</u>
Specifications (aspects with which the sweets must comply)	<i>List of specifications complete and relevant according to the design brief</i>	<i>List of specifications complete but in some cases not in line with the design brief</i>	<i>No list of specifications included and if included it is irrelevant/wrong</i>	

Assessment of activity 7: Initial idea generation

Aspect	Level 7 Outstanding achievement Mark (10-8)	Level 6	Level 4	Level 2	Assessment
		Meritorious achievement Mark (7) Level 5 Substantial achievement Mark (6)	Adequate achievement Mark (5) Level 3 Moderate achievement Mark (4)	Elementary achievement Mark (3) Level 1 Not achieved Mark (2-0)	
Initial ideas	<i>Ideas neatly sketched and captions given, advantages and disadvantages completely mentioned</i>	<i>Ideas sketched and captions given, advantages and disadvantages mentioned</i>	<i>Ideas sketched but not very clearly, some advantages and disadvantages mentioned</i>	<i>Ideas incomprehensibly sketched, advantages and disadvantages incompletely</i>	<u>20</u>
Motivation of chosen idea	<i>Excellent motivation for chosen idea given</i>	<i>Motivation for chosen idea given</i>	<i>Motivation for chosen idea not very clear</i>	<i>Motivation for chosen idea not complete</i>	

Assessment of activity 8: Development and planning

Planning (working drawing)	<i>Working drawing is complete and neat with captions</i>	<i>Working drawing is complete with captions</i>	<i>Parts of working drawing are missing</i>	<i>Working drawing is not done or is not complete</i>	<u>30</u>
Planning (material and tools)	<i>List of ingredients is complete. List of kitchen utensils and safety measures is complete</i>	<i>List of ingredients is given. List of kitchen utensils and safety measures is given</i>	<i>List of ingredients is given. List of kitchen utensils and safety measures is incomplete</i>	<i>List of ingredients is incomplete. List of kitchen utensils and safety measures is not completed</i>	
Planning (flow chart)	<i>Flowchart is complete and logical</i>	<i>Flowchart is complete and reasonably logical</i>	<i>Flowchart is complete but vague</i>	<i>No planning or the order is illogical</i>	

Assessment of activity 8: Development and planning

Aspect	Level 7	Level 6	Level 4	Level 2	Assessment
	Outstanding achievement Mark (10-8)	Meritorious achievement Mark (7) Level 5 Substantial achievement Mark (6)	Adequate achievement Mark (5) Level 3 Moderate achievement Mark (4)	Elementary achievement Mark (3) Level 1 Not achieved Mark (2-0)	
Physical features (how does it look)	<i>The appearance of the sweets give evidence of high quality finishing</i>	<i>Finishing touches of the sweets is of a good quality</i>	<i>Finishing touches of the sweets should be refined</i>	<i>The sweets tend to fall apart</i>	<hr style="width: 20%; margin: auto;"/> 30
Design (is it well designed)	<i>The sweets reflects all the aspects that are included in the working drawing</i>	<i>The sweets reflects most of the aspects that are included in the working drawing</i>	<i>The sweets reflects the working drawing only with regards to form, but not with size/dimensions</i>	<i>The sweets do not reflect the working drawing at all</i>	
Value (what is it worth)	<i>The sweets will solve/meet the problem/need completely</i>	<i>The sweets will solve/meet the problem/need mostly</i>	<i>The sweets will solve/meet the problem/need partially</i>	<i>The sweets will not solve/meet the problem/need</i>	