your body matters

Lesson plans and Activities – Primary Stage 5

Nourishing Body & Mind for a Healthy Life

A Primary Health and Wellbeing Curriculum Pack

Revised Version 2023

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Lesson 5.1 (1)

Session Title	**Food on my Plate**	
HWB Organiser(s)	Food and Health	
Experiences and Outcomes	**HWB 2-35a** *When preparing and cooking a variety of foods, I am becoming aware of the journeys which foods makes from the source to consumer, their seasonality, their local availability and their sustainability.*	**HWB 2-30a** *By applying my knowledge and understanding of current healthy eating advice I can contribute to a healthy eating plan.*
Learning Intentions	I can understand that a variety of food is needed in a healthy diet	
Success Criteria		
Resources	• Teacher Notes D • Eatwell Guide Poster • World Food Maps (x4), photocopied and enlarged for each group • Meal Cards • Atlas or each group (or a reference copy that all groups can access) • Activity sheet 13 • Information sheet 9 • Selection of food bags containing four to seven items of raw food (i.e. not ready meals) including pulses/grains, tinned fish/fruit, coffee/tea, packages/processed food stuff, a bar of chocolate. Aim to make the collection from as wide a variety of countries of origin as you can and include healthy/less health items and expensive /cheaper items. Ensure that the pupils can work out where the product comes from, from the label, country of origin tag, or your own labelling.	

Activities

I can understand that a variety of food is needed in a healthy diet

- **Whole Class/Group Activity:** Divide the class into groups. Provide each group with a bag of food items and a copy of the world maps. Encourage the groups to look at the food labels and consider the following question: Where do these foods come from, i.e., where are they grown? Ask the groups to match the foods with the country of origin on the map, using the atlas if they are unsure where some of the countries are in the world. Once all groups have completed the activity, bring them back together and ask each group to share the types of foods they had and the different countries they come from.
- **Whole Class/Group Activity:** Discuss with the children that historically, people ate foods that were native to the place they lived. Now we have more choice about the food we chose to eat. Encourage the children to think why this is? (Advancements in travel and international trade between countries allow countries to share the foods they grow with people all over the world. Now our shops and supermarkets can sell us food products grown in different countries. Highlight that advancements in travel have not only allowed for shipments of food but also allow people to move all over the world taking recipes with them and sharing them with other people. This means we have more choice, a greater variety of foods and different ways of cooking.
- **Whole Class/Group Activity:** Display the Eatwell Guide Poster. Ask if they think that it is possible to achieve the balance of the Eatwell Guide no matter where you live? Highlight some of the reasons why people might not achieve the balance of the Eatwell Guide (I.e. cost, preference, access to food). Ask the children to go back into their groups. Provide each group with four meal cards and Activity Sheet 13. The groups must identify the ingredients of the meal and where they fit into the Eatwell Guide. It may help at first to ask the groups to think about what the ingredients might be, use Information Sheet 9 to help guide the children through this exercise. In addition, ask the groups to write down what countries the meals on the cards originate from, e.g., chilli con carne and enchilada from South America, vegetable curry from North Africa or Middle Eastern countries (e.g., Turkey), vegetable stir fry from Asia, lasagne, pizza or spaghetti Bolognese from Italy.

Useful websites:

- https://www.nhsinform.scot/healthy-living/food-and-nutrition
  NHS Inform - information on healthy eating, food labelling, food safety and hygiene.
- https://www.nutrition.org.uk/life-stages/children/
  British Nutrition Foundation - specific section with information on nutrition and diet for children.
- https://www.foodafactoflife.org.uk/
  Food a fact of life - nutrition information for teachers and educational resources.
- https://www.foodstandards.gov.scot/education-resources
  Food Standards Scotland - educational resources and information on healthy eating.

Extension/take-home: *Ask the children to make up their own ideas for meals, snacks and drinks that people would eat. Meals could reflect foods that are naturally grown or that are commonly found in different countries. They could think of foods from a holiday they have been or a themed restaurant.*

Lesson 5.1 (2)	
Session Title	**Food on my Plate: from Plough to Plate**
HWB Organiser(s)	Food and Health
Experiences and Outcomes	**HWB 2-35a** *When preparing and cooking a variety of foods, I am becoming aware of the journeys which food makes from the source to consumer, their seasonality, their local availability and their sustainability.*
Learning Intentions	We are learning about the journey food makes from the source to consumer.
Success Criteria	• Teacher Notes D • Activity sheet 13 • Information sheet 14 • 'Plough to plate' storyboard cards • Eatwell Guide Poster
Resources	• Plough to Plate cards • Eatwell Plate Poster

Activities

I can show an understanding of the different processes of food production for some simple, common foods

- **Whole Class/Group Activity:** Display the Eatwell Guide Poster for the children. On the board write the words, **PLANT** and **ANIMAL**. Ask the children which foods from each of the food groups from the Eatwell Guide they would associate with the words plant and animal. Foods in the 'Fruit & vegetable' group are associated with Plant. Foods in the 'Potatoes, bread, rice, pasta and other starchy carbohydrates' group are associated with Plant. Foods in the 'Dairy and alternatives' group can be associated with Plant (e.g., Non-dairy products made from plant sources e.g., soya, oats, nuts etc) or Animal (e.g., dairy foods made from animal milk e.g., cow's, sheep's, goat's, etc) or animal derived*. Foods in the 'Beans, pulses, fish, eggs, meat and other proteins' group can be associated with Plant (beans, seeds and pulses) or Animal. Foods containing fats in the "Oils and spreads" group (to be eaten in small amounts) can be associated with Plant (e.g., vegetable oil, rapeseed and olive oil and some spreads)
- **Whole Class/Group Activity:** With the children, review the categorisation of foods as plant or animal and encourage the children to think about how food gets from the place that it comes from (i.e., the place of origin is stated on the food label) to the food being eaten. Ask the children what they think the phrase 'from plough to plate' means?
- **Whole Class/Group Activity:** Divide the children into groups. Distribute the plough to plate cards and ask each group to sequence the cards. When sequencing the cards, encourage the children to think about and write down their ideas on the following: processes involved in food production, i.e., what needs to happen to the plant or animal so that it looks or tastes like the food on the plate?

I can discuss the different jobs in the food production process and give examples of these

- **Whole Class/Group Activity:** Assign one of the food groups from the Eatwell Guide to each group. Encourage the groups to think and to make a list of the jobs required to get these foods to the plate (prompt the children to consider the variety of farming and retail involved in modern food production by using as an indicator, the variety of foods Eatwell Guide, from traditional (e.g., fisherman, fishmonger, butcher, greengrocer) to less traditional (e.g., fish-farming, supermarket). Make a list of these jobs. What do these people do? What skills are involved in each of these jobs? Can the children identify people in their local community that are in these jobs? Discuss the process of food production again to emphasise the amount of work that goes into the production of the food that they eat..
- **Whole Class/Group Activity:** Encourage each group to present one of their 'plough to plate' sequence (or create one of their own) to the rest of the class through the characters that make each step of the journey possible e.g., farmer, lorry driver, shop assistant or the food stuff itself! Finally highlight that if we compost the peelings from vegetables etc they can be used to aid growth of new vegetables thus completing a full cycle. (N.B. Meat and fish products should not be composted as they attract meat-eating wild animals and can create disease risks e.g., by attracting rats, foxes.)

***Children who are vegetarian may be sensitive to milk and other products that they eat or drink being referred to as 'animal', and the distinction should be made that these are produce derived from an animal rather than being animal produce.**

Useful websites:

- **www.fairtrade.org.uk**
  Fairtrade Foundation – information on campaigns, producers, suppliers in the UK, and news about fair trade.
- **https://schools.fairtrade.org.uk/**
  Fairtrade Foundation - school resources
- **https://www.foodforlife.org.uk/schools/what-can-you-do/get-growing**
  Food for Life - brings schools, nurseries, hospitals and care homes, and their surrounding communities together around the core ethos of healthy, tasty and sustainable food.

Extension/take-home: *Arrange a visit to a farm/greengrocer/butcher/fishmonger to encourage children to consider the livelihood, skills and work of local producers and retailers.*

Lesson 5.1 (3)

Session Title	**Energy: keeping my body balanced**	
HWB Organiser(s)	Mental, emotional, social and physical wellbeing	Food and Health
Experiences and Outcomes	**HWB 2-28a** *I can explain the links between the energy I use while being physically active, the food I eat, and my health and wellbeing*	**HWB 2-15a** *I am developing my understanding of the human body and can use this knowledge to maintain and improve my wellbeing and health.*
Learning Intentions	We are learning about energy balance	
Success Criteria	• I can discuss why my body needs energy • I can explain why different bodies have different energy needs • I can show an understanding of why we should keep our bodies balanced and give examples of how I can keep my energy levels balanced	
Resources	• Teacher notes B • Food a fact of life presentation, energy cards, energy needs worksheet.	

Activities

The focus of this lesson plan is to highlight the importance of energy balance and how to achieve a balance through a healthy diet. Energy balance comes from consuming the appropriate amount of calories/energy and being physically active. This allows a healthy weight to be maintained however the focus of this lesson plan should not be on weight. The activities have been adapted from Food a Fact of Life (2019) which are accompanied by resources as named above.

I can discuss why my body needs energy

- **Whole Class/Group Activity:**
  Ask the children why energy is needed and how it is used. We need energy to live and be active.
  Handout the **Activity and energy cards (Food a fact of life)** and ask the children to order the activities from the lowest to highest amount of energy they think a primary school child would use to do the activity for 15 minutes.
  Use the **Energy used factsheet (Food a fact of life)** to reveal the answers. Did the children order the cards correctly? Summarise that some activities require more energy than others.

I can explain why different bodies have different energy needs

- **Whole Class/Group Activity:**
  Divide the class into small groups and give each a copy of the Energy needs worksheet (Food a Fact of Life). Ask the children to discuss the different people on the sheet and what energy requirements they might have. Ask the children to make a note of how much energy they think each person will need.
  Discuss with the children the energy amounts that have been allocated to each person. Give out the Energy needs factsheet (Food a fact of life) to compare the answers. Ask the children to make a note of anything they find interesting. .
  Explain that most of our energy is used to keep our body working e.g. breathing, heart beating, blinking and eating.

I can show an understanding of why we should keep our bodies balanced and give examples of how I can keep my energy levels balanced

- **Individual Activity:** Ask the children to draw an example of an "energy diary" in jotters with activities they did that day that use energy or provide energy e.g. walked to school (used energy) or had a snack at break time (provide energy).

Useful websites:

- https://www.bbc.co.uk/bitesize/guides/zqj66yc/revision/1
  BBC Bitesize information on energy balance (designed for GCSE level but can be adapted to suit classroom)
- https://www.nutrition.org.uk/health-conditions/overweight-obesity-and-weight-loss/energy-balance-and-weight/
  British nutrition foundation information on energy balance and weight.
- https://www.foodafactoflife.org.uk/7-11-years/healthy-eating-7-11-years/energy-7-11-years/
  Food a fact of life. Activities, resources and information about energy balance for children 7-11 years

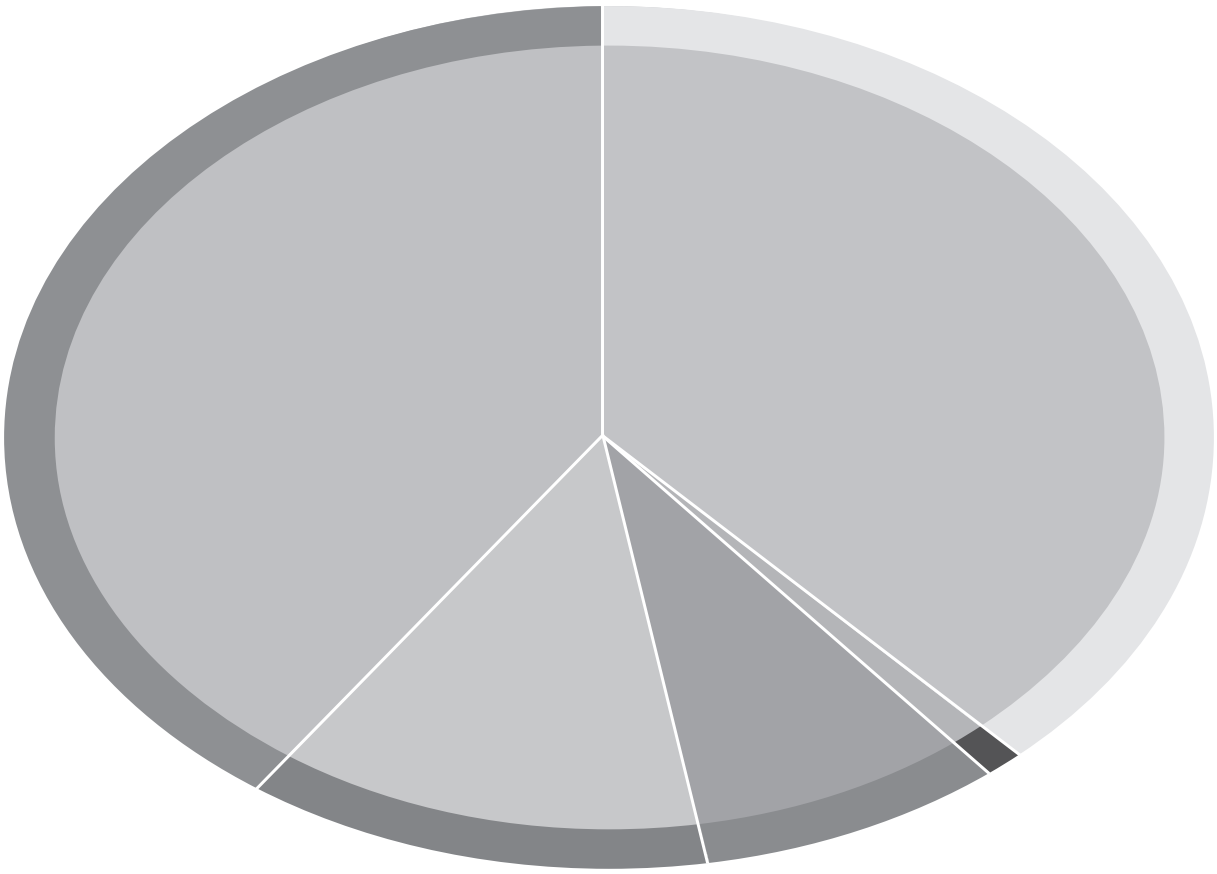
Extension/take-home:

Activity sheet 13

Food on my plate – where does it come from?

Name of dish: .....

Country of Origin: .....



If any, which food groups are missing from this dish?

Which food group (s) would this dish belong to?

Information sheet 14

Meal Cards: suggested ingredients

Meal & suggested ingredients	Food Group
Baked beans on toast Tomato sauce Bread Beans Tomato sauce (if not no-added sugar variety)	Fruit & vegetables Potatoes, bread, rice, pasta or other starchy carbohydrates Beans, pulses, fish, eggs, meat and other proteins Oils and spreads
Chilli con Carnie Vegetables (e.g. carrot, onion, tomatoes) Minced meat/textured vegetable protein, Kidney beans	Fruit & vegetables Beans, pulses, fish, eggs, meat and other proteins Beans, pulses, fish, eggs, meat and other proteins
Baked potato and cheese Potato Cheese Possibly margarine/butter or spread added	Potatoes, bread, rice, pasta or other starchy carbohydrates Dairy or alternatives Oils and spreads
Pizza Tomato saucePizza base Pepperoni Cheese	Fruit & vegetables Potatoes, bread, rice, pasta or other starchy carbohydrates Beans, pulses, fish, eggs, meat and other proteins Dairy or alternatives
Spaghetti Bolognese Tomatoes, onion, possibly also carrots or peppers Spaghetti Minced meat/textured vegetable protein	Fruit & vegetables Potatoes, bread, rice, pasta or other starchy carbohydrates Beans, pulses, fish, eggs, meat and other proteins
Fish and chips Peas Potatoes Fish Chips and fried batter on fish	Fruit & vegetables Potatoes, bread, rice, pasta or other starchy carbohydrates Beans, pulses, fish, eggs, meat and other proteins Oils and spreads
Baguette Lettuce, cucumber, tomato Bread Sliced cold meat Spread or butter	Fruit & vegetables Potatoes, bread, rice, pasta or other starchy carbohydrates Beans, pulses, fish, eggs, meat and other proteins Oils and spreads
Chicken curry Possibly onion, tomato (usually accompanied by rice or flatbread e.g. chapatti or naan) Chicken pieces Possibly cream in sauce, large amount of oil to brown chicken or cook veg	Fruit & vegetables Potatoes, bread, rice, pasta or other starchy carbohydrates Beans, pulses, fish, eggs, meat and other proteins Oils and spreads
Macaroni cheese Pasta, flour (for sauce) Cheese, milk Butter	Potatoes, bread, rice, pasta or other starchy carbohydrates Dairy or alternatives Oils and spreads
Hot dog Bread Hotdog sausage	Potatoes, bread, rice, pasta or other starchy carbohydrates Oils and spreads

Vegetable stir-fry Mixture of variety of vegetables (usually served with rice or flatbread) (may be served with added strips of meat or with added tofu/textured vegetable protein) Oil for cooking	Fruit & Vegetables Potatoes, bread, rice, pasta or other starchy carbohydrates Beans, pulses, fish, eggs, meat and other proteins Oils and spreads
Soup Variety of vegetables Possibly contains potato Chunks of meat if non-vegetarian Oil for cooking	Fruit & Vegetables Potatoes, bread, rice, pasta or other starchy carbohydrates Beans, pulses, fish, eggs, meat and other proteins Oils and spreads
Lasagne Tomatoes, onion, possibly also peppers Pasta (lasagne sheets), flour (for cheese sauce) Minced meat/textured vegetable protein Cheese, milk Butter	Fruit & Vegetables Potatoes, bread, rice, pasta or other starchy carbohydrates Beans, pulses, fish, eggs, meat and other proteins Dairy or alternatives s Oils and spreads
Quiche Onion, possibly additional variety of vegetables Flour in pastry Possibly bacon or other meat if non-vegetarian Egg Pastry	Fruit & Vegetables Potatoes, bread, rice, pasta or other starchy carbohydrates Beans, pulses, fish, eggs, meat and other proteins Oils and spreads
Vegetable Paella Mixture of variety of vegetables (e.g. tomatoes, onion, pepper, mushroom) Rice (possible to add fish to make traditional paella) Oil for cooking	Fruit & Vegetables Potatoes, bread, rice, pasta or other starchy carbohydrates Beans, pulses, fish, eggs, meat and other proteins Oils and spreads
Beef casserole Variety of vegetables (e.g. onion, mushroom, broccoli, sweet corn, mushroom, peas) Potatoes (usually boiled) Chunks of beef (usually browned and slowly baked)	Fruit & Vegetables Potatoes, bread, rice, pasta or other starchy carbohydrates Beans, pulses, fish, eggs, meat and other proteins
Cold meat salad Leafy greens (e.g. variety of lettuce, possibly cabbage), tomato, cucumber, peppers etc. (often service with a side of bread) Slices of cold meat	Fruit & Vegetables Potatoes, bread, rice, pasta or other starchy carbohydrates Beans, pulses, fish, eggs, meat and other proteins
Roast lamb Vegetables (could also be roasted) e.g. broccoli, carrots, sweetcorn, Roast potatoes Lamb Oil for roasting potatoes	Fruit & Vegetables Potatoes, bread, rice, pasta or other starchy carbohydrates Beans, pulses, fish, eggs, meat and other proteins Oils and spreads
Mince and potatoes Onion Potatoes (usually boiled) Minced meat/textured vegetable protein	Fruit & Vegetables Potatoes, bread, rice, pasta or other starchy carbohydrates Beans, pulses, fish, eggs, meat and other proteins
Enchiladas Variety of vegetables e.g. peppers, tomatoes Flatbreads (tortillas), (sometimes served with rice) Strips of meat if non-vegetarian, can also be made with beans e.g. kidney beans Cheese	Fruit & Vegetables Potatoes, bread, rice, pasta or other starchy carbohydrates Beans, pulses, fish, eggs, meat and other proteins Dairy or alternatives

Lesson 5.2

Session Title	**Physical Activity; Staying Healthy**	
HWB Organiser(s)	Physical education, physical activity and sport	
Experiences and Outcomes	**HWB 2-28a** *I can explain the links between the energy that I use while being physically active, the food I eat and my health and wellbeing.*	**HWB 2-27a** *I can explain why I need to be active on a daily basis to maintain good health and try to achieve a good balance of sleep, rest and physical activity.*
Learning Intentions	We are learning about the links between food, exercise and energy.	
Success Criteria	• I can describe the links between food, exercise and energy. • I can define the words 'nutrients and 'energy'. • I can describe the benefits of exercise and healthy eating	
Resources	• Teacher notes B and I • Activity sheet 14-18 • Information sheet 15 & 16 • Calculators	

Activities

I can understand that food provides energy and nutrients (in different amounts)

- **Whole Class/Group Activity:** Create two-word banks on opposite ends of the board; words and phrases that the children associate with how they feel after a meal at one end of the board, and words and phrases that they associate with how they feel after they exercise at the other end of the board. The words should reflect the way that our bodies feel physically (e.g., hot, sweaty, tired, full-up) and to the way we feel mentally (e.g., pleased with self, achieved, in control). With the children highlight the differences between the words and phrases in the word banks i.e., that one bank is mainly words linked to feelings of fullness and energy, and that the other bank is mainly words linked to feelings of tiredness and energy having been used up. Draw an arrow between the food and exercise word bank showing that food gives us energy to exercise. Discuss this idea with the class. Draw a second arrow from the exercise word bank to the food bank showing that exercise uses up energy. Briefly discuss the intake/expenditure cycle depicted on the board.
- **Whole Class/Group Activity:** Write the word calorie on the board. Encourage the children to share if they know what a calorie is. Explain that it is a measure of the energy that the body can get from food and drinks. Different foods and drinks give us different amounts of energy. The body uses some of this energy up in growing, keeping the body free of infection, repairing damage, keeping warm, and the rest of the energy is either used up in doing physical activity or it is stored as fat for use later.
- **Whole Class/Group Activity** Divide the class into groups. Ask each group to complete one of the activity sheets 14-17, listing meals, snacks and activities from information sheets 15 & 16 that would be appropriate for the character described on their activity sheet. Once the children have chosen activities and food for their character, provide them with calculators. Ask them to work together using the calorie values for foods and activities on the information sheets 15 & 16 to add::
  - the total number of calories eaten
  - the total number of calories used up through activity
  - the calories eaten minus the calories used.

As a class discuss the intake and expenditure that each group has calculated. Use the teacher notes as a guide. Talk about the effects the characters may notice on their health, if they maintained the same diet and levels of activity the children chose.

- Which character had a substantial excess of calorie intake; what would this mean for the persons health? i.e., this person may become overweight or obese; what are the health consequences of becoming overweight or obese?
- Which character had a substantial deficit of calorie intake; what would this mean for the persons health? i.e., this person may become underweight. What are the health consequences of becoming underweight?

- Would someone who is very active but does not eat a balanced, varied diet be healthy? (i.e., ask the children to think about the content of the food that that person would be eating and the nutritional intake)
- Would someone who is inactive but eats a balanced, varied diet be healthy? (i.e., ask the children why it is important to be active – what are the benefits of activity?)

I can discuss the benefits of physical activity and healthy eating to my health and give examples of these

- **Whole Class/Group Activity:** Discuss how it is possible to stay healthy by eating a healthy diet and doing activity. By eating a healthy diet that doesn't contain too many calories and by doing moderate activities we can balance our intake and expenditure so that we will not become overweight, obese or underweight. At this point discuss with the children the individual needs that we all have. We all have different energy needs depending on how our body uses the food we eat. Some people may need to eat less than others to maintain a healthy balance but it is important that no matter what our energy needs are, we must be physically active so we feel the benefits of exercise (e.g. healthy heart, strong muscles and strong bones) and maintain a healthy balance between intake and expenditure of energy.

Useful websites:

- **https://blogs.glowscotland.org.uk/gc/pepassglasgow/**
  PEPASS – resources to support learning for physical education, physical activity and sport in schools.
- **https://www.nhsinform.scot/healthy-living/keeping-active/keeping-active-guidelines/**
  NHS Inform – Keeping active guidelines.
- **https://www.gov.uk/government/collections/physical-activity-guidelines**
  UK Chief Medical Officers Physical Activity Guidelines - infographics explaining the level of physical activity needed for general health benefits at different life stages.

Extension/take-home: *The children could create a role play or short drama to convey the 'Healthy Balance' messages; you may wish to ask one or more groups to show what happens when you get the balance right and one or more groups to show what happens when the intake (calories in) is out of balance with expenditure (calories out). Encourage ach group to act their role-play or drama out in front of the rest of the class.*

Activity sheet 14

Healthy diet and active life!

Fahra is 8 years old. She likes to eat healthy foods. She is a very active person. From Information sheet 11 choose the foods she might eat on a school day and from Information sheet 12 choose the activities that she might do on a school day. Write your choices into the diary below

Time	Food eaten?	Activities
8.00am – 9.00am		
9.00am – 10.30am		
10.30am – 10.45pm		
12.15pm – 1.00pm		
1.00pm – 3.00pm		
3.00pm – 5.00pm		
5.00pm – 8.00pm		

Activity sheet 15

Unhealthy diet and inactive life!

Asif is 8 years old. He does not like to eat healthy foods. He does not like being active. From Information sheet 11 choose the foods he might eat on a school day and from Information sheet 12 choose the activities that he might do on a school day. Write your choices into the diary below.

Time	Food eaten?	Activities
8.00am – 9.00am		
9.00am – 10.30am		
10.30am – 10.45pm		
12.15pm – 1.00pm		
1.00pm – 3.00pm		
3.00pm – 5.00pm		
5.00pm – 8.00pm		

Activity sheet 16

Healthy diet and inactive life!

John is 8 years old. He likes to eat healthy foods. He does not like being very active. From Information sheet 11 choose the foods he might eat on a school day and from Information sheet 12 choose the activities that he might do on a school day. Write your choices into the diary below.

Time	Food eaten?	Activities
8.00am – 9.00am		
9.00am – 10.30am		
10.30am – 10.45pm		
12.15pm – 1.00pm		
1.00pm – 3.00pm		
3.00pm – 5.00pm		
5.00pm – 8.00pm		

Activity sheet 17

Unhealthy diet and active life!

Kim is 8 years old. She does not like to eat healthy foods. She likes to be very active. From Information sheet 8 choose the foods she might eat on a school day and from Information sheet 9 choose the activities that she might do on a school day. Write your choices into the diary below.

Time	Food eaten?	Activities
8.00am – 9.00am		
9.00am – 10.30am		
10.30am – 10.45pm		
12.15pm – 1.00pm		
1.00pm – 3.00pm		
3.00pm – 5.00pm		
5.00pm – 8.00pm		

Activity sheet 18

Calculating energy in and energy out

Our group is calculating energy intake and expenditure for ……..……..

who ……..…… eating a healthy diet and ……..…….…… doing activity.

Time	Calories eaten (Intake)	Calories used (Expenditure)
8.00am – 9.00am (1 hour)		
9.00am – 10.30am (1 hour and 30mins)		
10.30am – 10.45pm (45mins)		
12.15pm – 1.00pm (45mins)		
1.00pm – 3.00pm (2 hours)		
3.00pm – 5.00pm (2 hours)		
5.00pm – 8.00pm (3 hours)		
Total		

Intake of calories – Expenditure of calories = ……

When we take in calories through eating food but do not expend them through activity, the energy is carried in the body so that it can be used later if it is needed. The energy is stored as fat or adipose tissue. When we take in a lot more calories than we use up, we increase our stores of fat tissue.

If we use up more calories than we eat, our body will find the extra calories that it needs by using energy that is stored in the form of fat tissue.

Information sheet 15

Foods and meals

Food	Kcal taken in
Bowl crunchy nut cornflakes	176
Bowl porridge oats	166
Bowl rice crispies	171
Bowl shredded wheat	143
Bowl Weetabix	129
1 slice toast	88
Crusty roll & bacon	200
Roll & sausage	210
Ham roll	175
Cheese roll	220
Egg mayonnaise sandwich	250
Ham and cheese toastie	430
Chicken salad wrap	260
Big Mac	492
Cheese burger	379
Packet of fries	294
2 slices of pizza	265
Spaghetti Bolognese	995
Serving of roast beef	150
Serving of roast lamb	120
Fillet steak	54
Baked potato	245
Serving of chips	510
Serving of salad	25
Chicken korma	498

Food	Kcal taken in
Chicken Tikka	232
Poppodom	49
Half a naan bread	269
Chinese beef in black bean sauce	435
Chinese chicken and cashews	310
Portion egg fried rice	250
Boiled rice	205
Kebab	429
Bag cheese and onion crisps	184
A banana	143
An apple	53
A satsuma	25
A pear	68
An orange	59
Serving of grapes	30
Serving of Broccoli	15
Strawberry yoghurt	125
Mars bar	294
Kit kat (2 fingers)	105
Bowl of chocolate ice cream	160
Glass orange juice	88
Serving of whole milk	20
Serving of semi-skimmed milk	20
Can of coke	139
Mug of tea	29

Information sheet 16

Activities

Activity	Kcal used
Letting the dog out of the back door	2
Using an electric toothbrush for 5mins	3
Paying younger brother/sister to do house chores	0
Stacking a dishwasher	10
Taking an escalator up one flight of stairs	5
Taking a lift up one flight of stairs	2
Walking 5mins from car into school/ home	8
Watching TV for 30mins	17
Using remote control to change the TV channel	0
Playing or typing on a computer for 15mins	6
Sitting and writing for 30mins	35
Washing, brushing teeth, urinating, washing hands, un/dressing (20mins)	45
Taking the bus for 20mins	22

Activity	Kcal used
Walking the dog for 20mins	46
Brushing teeth for 5mins	7
Doing house chores for 15mins	50
Doing the dishes	24
Climbing a flight of stairs	25
Playing football for 30mins	110
Walking between school and home for 15mins	24
Getting up to change the TV channel	3
Doing karate for 30mins	100
Playing piano for 30mins	44
Ballet dancing for 30mins	80
Swimming for 20mins	45
Playing tig, dodgeball or other run-about game	80

Lesson 5.3

Session Title	**Teeth and Decay**	
HWB Organiser(s)	Mental , emotional, social and physical wellbeing	Food and Health
Experiences and Outcomes	**HWB 2-15a** *I am developing my understanding of the human body and can use this knowledge to maintain and improve my wellbeing and health.*	**HWB 2-33a** *Having learned about cleanliness, hygiene and safety, I can apply these principles to my everyday routines, understanding their importance to health and wellbeing.*
Learning Intentions	We are learning about tooth decay (overarching learning intention) We are learning about tooth enamel and acid in your mouth. We are learning about the benefits of good oral hygiene.	
Success Criteria	(A) • I can say what 'tooth enamel' is and discuss its function. • I can describe how acid is created and discuss its effect on teeth. (B) • I can discuss the importance of 'fluoride' and how it prevents decay. • I can give examples of how to care for my teeth and prevent decay.	
Resources	• Teaching notes J • Oral health poster • Per experiment: Fluoride toothpaste ,2 hard-boiled eggs, shells intact, 1 bottle of white vinegar, 2 containers	

Activities

I can show an understanding of the process involving acid and tooth enamel that results in tooth decay

- **Whole Class/Group Activity:** Review with the class their knowledge of oral health from the previous oral health lesson (Lesson 4.1: What helps my teeth and what harms them). Ask the children more in-depth questions about their knowledge of toothbrushing; what does the action of brushing do to help prevent tooth decay and disease? (i.e. it removes plaque). Why is it important to remove plaque from the teeth? Explain to the children that when we eat food it is broken down by the teeth and saliva in the mouth. Sugars contained in food are absorbed by plaque bacteria on the tooth surface and converted into acid. What happens in the mouth when you eat something that contains sugar? (i.e. the bacteria in the mouth produces acid that is harmful to teeth).

I can discuss the importance of using fluoride to protect my teeth from acid attacks and decay

- **Whole Class/Group Activity:** Provide each class table with a tube of toothpaste (1500ppm) to examine the ingredients and to look for the fluoride content (ppm: part per million). Inform the children that fluoride is very important in protecting our teeth. Divide the children into groups to carry out an experiment to show how fluoride can prevent teeth from decaying. *N.B. This experiment can be led by the teacher as a class demonstration or alternatively, carried out by pupils divided into groups.*

  Method for the experiment:

  1. Paint an egg with toothpaste and leave to dry for 5 minutes.
  2. Pour approximately 10cm in depth, or enough vinegar to cover an egg into the two containers.
  3. Explain to the children that the egg-shell is made up of minerals, similar to those that make up the enamel of teeth. The acid surrounding the egg will begin to attack the minerals and cause a reaction in the container which can be noticed firstly by bubbles and then by blisters on the surface of the egg. Which egg do they think will react with the vinegar first?
  4. Put the egg that has been treated with fluoride toothpaste into one of the containers of vinegar, and the untreated egg into the other container.
  5. Ask the children to note down the changes in each egg after two-minute periods. The untreated egg will start to produce bubbles and then the shell will become blistered. The fluoride on the treated egg will begin to react with the vinegar before the egg-shell does; toothpaste acts like a protective coating.
  6. After 10-15 minutes, the toothpaste should be almost entirely removed from the surface of the egg. Lift the eggs out of the vinegar to compare the appearance and integrity of the shells. The outer layer of minerals in the shell should have decomposed and will detach from the [untreated] egg like a skin, especially when rubbed.

  Discuss with the children what happened to the untreated eggshell. Relate the effects of acid causing demineralisation of the eggshell to an acid attack on teeth. Then discuss the effects of acid on the treated egg, what difference did the toothpaste make? Relate this to the effect that toothpaste has on reducing the effect of acid attacks in the mouth.

- **Whole Class/Group Activity:** Using the oral health poster, remind the children of the decay process (sugar + plaque = acid; acid + tooth = decay). Highlight the foods that cause the greatest amount of acid production in the mouth (sweets and foods or drinks containing sugar). Explain to the children that if they eat sugar frequently their teeth will be exposed to more acid attacks during the day and are therefore at greater risk of decay. Talk to the children about the demineralisation /remineralisation graph on the poster and how this illustrates the process of decay because the teeth do not have enough time to repair (remineralise) between acid attacks (too much time in red zones and not enough in the green zones).

I can discuss the benefits of good oral hygiene and give examples

- Whole Class/Group Activity: Ask the children if they can now explain why it is important to restrict eating/drinking foods or drinks containing sugar to meal times? Why it is important to reduce the amount of sugary snacks and drinks eaten between meals? (i.e., these practices help to reduce the frequency of acid attacks and therefore tooth decay). Ensure that the children have understood that fluoride in toothpaste is important not only during the brushing process but that it can continue to protect the teeth after brushing by asking them some simple questions e.g., why it is important to brush our teeth every day? How many times a day should they be brushing their teeth? (i.e., at least twice a day) and why it is important to spit toothpaste out of the mouth rather than rising their mouth after brushing?

Useful websites:

- **Childsmile – Improving the oral health of children in Scotland (https://www.childsmile.nhs.scot/)**
  Child Smile - resources, facts and information for professional working in health, education, community, voluntary sectors who work together to improve child oral health.
- **https://www.nhsinform.scot/healthy-living/dental-health/your-childs-oral-health**
  NHS Inform – information on children's dental health.

Extension/take-home: *Set the children a short take-home experiment to see what happens to a dirty penny in an acidic drink e.g., coke or diet coke (N.B. diet drinks are equally as acidic as non-diet versions). They should record the results, timing the experiment for any changes in the appearance of the penny.*

Lesson 5.4 (1)	
Session Title	**Waste Management and Health**
HWB Organiser(s)	Mental, emotional, social and physical wellbeing
Experiences and Outcomes	**HWB 2-13a** *Through contributing my views, time and talents, I play a part in bringing about positive change in my school and wider community.*
Learning Intentions	We are learning about waste production and management
Success Criteria	• I can give example of waste produced in schools, households and other places. • I can discuss different varieties of waste and how it should be sorted safely and correctly. • I can measure the volume of waste and discuss the results. • I can measure the mass of waste and discuss the results. • I can discuss and explain the changes in waste production over time by analysing census information.
Resources	• Teacher notes G • Activity sheet 19

Activities

I can discuss the variety and volume of waste produced by individuals, households and others.

- **Whole Class/Group Activity:** : Explain to the children that as a class they are going to set up a waste collection scheme in the classroom for a few days/ week. Encourage the children to think about and discuss how as a class they can do this. They will look at different types of waste that may be generated in the class (paper, card, metal, batteries, glass, textiles). Points that could be discussed: What will you collect the waste in? Where will the bins be set up for safety? Who will supervise to make sure that the waste is being put in the correct bins?
- **Individual Activity:** Ask the children to think about the different roles involved and if they would like an opportunity to be assigned a role. Explain that it is not possible to give everyone a role, therefore, children should write down their name preferred role on a piece of paper and put it a ballot box. The first names picked out will be assigned to the designated roles. Once roles have been assigned, confirm a start date and finish date for waste collection.
- **Whole Class/Group Activity:** At the end of waste collection, gather all the waste bins in one area. Highlight the different types of waste that have been collected. Ask the children to complete the first column of the tables in Activity Sheet 19 by measuring the volume and weight of the waste collected. Which type of waste did the class collect the most of? Which type of waste takes up the greatest volume? Is this the heaviest waste?

I can understand that changes in lifestyle can affect changes in waste production and management

- **Individual Activity:** Complete the activity sheet by asking the children to think about the waste that is produced in their homes. Do they think that the waste that their households produce would be more or less than that produced by the class/ school? Which types of waste do they think there would be more/ less of from a household?
- **Whole Class/Group Activity:** From the activity sheet, gain a consensus in the class about which decade households produced the greatest amount of waste (i.e. 1930's, 1960's or 1990's). Explain to the children that the measurement used to record waste is weight. Do the children think that this is the best measurement of the waste produced? Would there be any difference in the volume of waste produced in the 1930's and in the 1990's? Since the 1960's a greater amount of lightweight produce has become waste materials (e.g. plastics) how would this have affected the volume of waste produced? Do they think that waste production has increased from the 1930's through the 1960's to the 1990's?
- **Whole Class/Group Activity:** Investigate how much food and/or plastic is wasted daily in the lunch hall. Work together with the dinner staff to gather information. This lesson could be extended as part of a bigger project with whole school involvement and could be continued throughout the year.

Useful websites:

- **https://www.keepscotlandbeautiful.org/climate-action-schools/eco-schools/**
  Keep Scotland Beautiful - Eco-Schools - international program designed to encourage whole-school action on sustainable development education issues
- **https://wrap.org.uk/taking-action/citizen-behaviour-change/love-food-hate-waste/key-campaigns/food-waste-action-week**
  Wrap - National Waste Aware campaign site (reduce, reuse, recycle) - links to campaigns in local areas across Scotland
- **https://www.lovefoodhatewaste.com/love-food-hate-waste-scotland**
  Love Food Hate Waste - simple ways to save food, save money and save our planet

Extension/take-home: *Encourage the children to use a weekend day to monitor and take note of the amount of waste produced in their own home.*

Activity sheet 19

Environmental responsibilities – waste production

	Units of Waste (weight)	Household waste More or less?
Paper		
Organic		
Glass		
Metal		
Plastics		
Textiles		
Other		
Total?		

What volume of waste did your class/school produce in a week?

	Units of Waste (volume)	Household waste More or less?
Paper		
Organic		
Glass		
Metal		
Plastics		
Textiles		
Other		
Total?		

What weight of waste did your class/school produce in a week? _____

Add the amount of waste produced by households in these three periods:

	1930's	1960's	1990's
Paper			
Organic			
Glass			
Metal			
Plastics			
Textiles			
Other			
Total?			

In which period did households produce the most waste? _____

Lesson 5.4 (2)

Session Title	**Waste management and health**
HWB Organiser(s)	Mental, emotional, social and physical wellbeing
Experiences and Outcomes	**HWB 2-13a** *Through contributing my views, time and talents, I play a part in bringing about positive change in my school and wider community.*
Learning Intentions	We are learning about waste management in our local community. We are learning about the positive changes we can make in our local environment.
Success Criteria	• I can describe different waste management practices • I can discuss the role of the '3 Rs' in waste management and environmental protection.
Resources	• Teacher Notes F • Information sheet 17-24 • Activity sheet 19

Activities

I can show an understanding of the different types of waste management methods

- **Whole Class/Group Activity:** Revisit the waste production work completed in the previous session. Highlight to the children that the amount (and particularly, the volume) of waste produced each year continues to rise and that we need to look at the different ways that we can deal with all this waste.
- **Individual Activity:** Encourage the children to think of the venues and places in their local community that they use/attend in their leisure time and with school. Ask the children what type of waste they think will be collected by these places. What do they think happens to the waste that is produced by all these places? Ask them to make a list. Encourage them to share their work.

I can discuss the three R's and their importance in waste management and environmental protection.

- **Whole Class/Group Activity:** Divide the children into six groups. Tell the children that there are several different ways of managing waste that we produce and that they are now going to investigate some of them. Assign each group one type of waste management information sheet (see Information Sheet's 17-24).. Ask the children to investigate the pros and cons of different waste management methods for each waste product, using the waste management information sheets and any additional sources of information. Ask the children to complete activity sheet 19 for the type of waste they are investigating and then to feedback their findings to the class. Encourage a class debate about the best forms of waste management. Finally reinforce the three R's (reduce, reuse, recycle) as the most sustainable waste management options, with an emphasis on reduction of waste production to minimise the effect on the environment.

Useful websites

- **https://www.keepscotlandbeautiful.org/climate-action-schools/eco-schools/s**
  Keep Scotland Beautiful - Eco-Schools - international program designed to encourage whole-school action on sustainable development education issues
- **https://wrap.org.uk/taking-action/citizen-behaviour-change/love-food-hate-waste/key-campaigns/food-waste-action-week**
  National Waste Aware campaign site (reduce, reuse, recycle) with links to campaigns in local areas across Scotland
- **https://www.lovefoodhatewaste.com/love-food-hate-waste-scotland**
  simple ways to save food, save money and save our planet..

Extension/take-home: *Encourage the children to think of the three R's at home, do they reduce, reuse and/or recycle. What colour bins do they use to recycle different materials? Ask them to record what they do at home and bring back to the class.*
Encourage children to use IT equipment (If available) to research local waste management services/ companies, or further research practices they have explored in the lesson.

Information sheet 17

Waste Management – Paper

Paper is made from fibres in wood but it can also be made from recycled fibres collected from waste paper. In the UK we make large amounts of paper from a mixture of virgin (made directly from trees) and recycled fibres.

Most of the wood harvested for virgin fibres used in the production of paper in the UK is imported from other countries. Although these trees can be renewed (new trees can be planted), the tree farms that they come from are usually made up of the same types of trees and are often planted in areas that once had a diverse range of different trees which are chopped down to make room for the tree farm. Tree farming can therefore have a negative effect on the local environment by reducing local biodiversity and endangering local wildlife through the destruction of natural forest and woodlands. Recycling fibres for paper also has impact upon the enviroment because before they can be used to make paper, recycled fibres are cleaned and bleached with chemicals that are washed into the water system.

Paper can be recycled into different end products; old newspapers and magazines can be recycled to produce cardboard for packaging or toilet paper. Many 'recycled' products are made using a mixture of virgin and recycled fibres and so are not 100% recycled fibre. However, it is worthwhile recycling paper because it reduces the demand for virgin pulp and saves energy in the manufacturing process. Paper is a widely used material and so recycling could have a significant effect in reducing the amount of paper waste at any one time.

Collecting paper for recycling does not always mean that all of the collected paper can be recycled. Paper that is produced and contains chemicals or plastics (e.g. some packaging, envelopes and magazine covers), and paper that has been burnt or contaminated by some other chemical cannot be recycled. However, the more paper that is collected for recycling the more bulk of recyclable paper will be available for re-use. Buying recycled paper products also helps to increase recycling by raising the demand for these products and encouraging companies to make more recycled paper products.

Information sheet 18

Waste Management – Plastics

Plastics are an entirely man-made material and are made through a process that combines chemicals together to make the substance of plastic. By combining different amounts of the same chemicals or by combining slightly different chemicals we can make different types of plastics. All plastics can be sorted according to their chemical building blocks or polymers. There are many different types of polymer that can be used to make plastics for a large number of different functions e.g. as packaging for food/drinks, or as fibres in clothing. Plastics have changed the way that food and drink can be packaged and stored.

Different plastic packaging and storage containers are made from different types of polymer and these items must be sorted out into their polymer types before they can be recycled. However, plastics that have been used to package food and drink will have been contaminated by the food or drink. Contamination of plastics from food or drink creates a risk of infection from bacteria. The recycling process used for plastics does not happen at a temperature high enough to kill the bacteria. Therefore, plastic that has been contaminated is unsuitable for recycling into new food or drink containers.

Although plastic food containers cannot be reused or recycled as food containers, some of the plastic in them can be recycled into other products. Plastic recycling is becoming more widely available and the recovered plastics can be put through a process to change their use e.g. into fibres for fleece jackets, into fencing posts or non-food containers. Before plastics can be recycled they must be sorted into their polymer types. Transporting and sorting plastics is costly and time consuming and it is not always environmentally or economically advantageous to recycle them.

Plastics do not easily biodegrade and will take thousands of years to decompose if left in the earth.

Information sheet 19

Waste Management – Organic produce

Organic produce includes any vegetable, fruit or other produce that will quickly rot if left in or on the earth. The process of allowing organic waste to rot is called composting. Composting is one of the most environmentally friendly "recycling" processes because it uses natural decomposition of produce to turn unwanted materials into a valuable product.

When household waste is composted the resulting product can be used directly on the garden as a plant fertiliser to grow more organic produce (e.g. vegetables and fruit, trees and flowers).

Not all organic produce can be composted. Meat and fish should not be composted as they can attract meat-eating wild animals like rats or foxes and can create disease risks.

Composting is highly environmentally sustainable and makes use of the "proximity process" where the waste is treated and reused as close to the point that it is generated as possible. The "proximity process" cuts down on the other environmentally harmful effects of pollution, from transportation to recycling plants or reuse sites, and of pollution from manufacturing into another product.

Composting and wormeries are available to householders but do require a garden or green land to be situated upon.

Information sheet 20

Waste Management – Glass

Glass is a very versatile material. The products that glass can be used to make are determined by the way that the glass itself is made (whether it is rolled or blown) and the chemicals that are added to the glass during the manufacturing process. Glass packaging (bottles and jars) is the most common type of glass waste in households. These glass products are often collected for recycling. The chemical composition of other glass products such as pyrex or plate glass (used in windows and doors) is so different to that of glass packaging that they cannot be recycled together, and must be recycled in a different way.

Glass recycling is an old process; indeed, most glass packaging manufacturers use an amount of "cullet" (broken glass jars and bottles) in the glass making process, so very few glass products are made from entirely new glass. Recycling glass in this way reduces the amount of energy needed to manufacture new glass products from raw materials and so reduces the amount of environmental pollution created in the process.

The reuse of glass packaging is common because it is possible to clean it thoroughly at relatively high temperatures without damaging the product and this process will kill any bacteria that were present. As a result, glass jars can be reused for storage of different food products in the home, and glass bottles can be reused in 'deposit & return' schemes e.g. milk or fizzy drink bottles. However, bottle 'deposit & return' schemes are less common than they used to be. In the UK, the development of plastic packaging, a material more lightweight than glass, has slowly reduced the attractiveness of bottle returns in favour of 'disposable' plastic. Elsewhere in the world, bottle 'deposit & return' schemes are still widely used.

Information sheet 21

Waste Management – Metals

There are a wide variety of metal objects and containers found in household waste. The majority of household metal waste is made up of tin-plated steel cans, aluminium cans and foil. Food cans are mainly made from tin-plated steel, while drinks cans are mainly made from aluminium. The type of metal used in metal food and drink packaging is usually identifiable through the abbreviation "alu" (usually accompanied by the recycling symbol) on the side of aluminium products and by the print "steel" on the side of steel products.

There are some products used as food packaging that look like metal (e.g. foil crisp packages) but that are actually plastic made to look metallic.

It is often very difficult to reuse metal food and drink containers as they often require to be broken, pierced or cut in order to extract the food. This method of opening is usually very hard to reverse and makes the container useless in the future.

Aluminium and steel are produced through different processes and have different properties. Steel is highly magnetic and susceptible to rust. Aluminium does not have the same magnetic property as steel but is not as susceptible to rust. The metals must be separated before they are recycled.

In both cases, recycling the scrap metal takes less energy than manufacturing the metals from raw materials. In the case of aluminium, the energy savings achieved through recycling are very significant and substantially reduce the amount of environmental pollutants produced in the manufacturing process.

Information sheet 22

Waste Management – Textiles

Approximately half a million tons of old clothes and shoes are thrown away as waste in the UK each year. Although some of these are beyond repair, a large amount of this waste could be reused as second-hand clothing or recycled into other products such as cloths, insulation materials or carpet underlay.

Changes in modern culture and society have reduced the number of young people that buy or wear second hand clothing (reusing garments of clothing). The low cost of producing new clothes and the ability of high street shops to provide accessible fashions has resulted in fast changing clothing styles that are available to a greater number of consumers. The affordability of up-to-date styles of new clothes have made the time and cost involved in repairing, altering or restyling old clothes less appealing to many people in the UK.

Natural materials are easier to recycle into other products than synthetic materials. However, synthetic materials are often cheaper than natural materials and are therefore used with increasing frequency in the manufacture of clothing. For example, synthetic polyester fibres commonly used in the manufacture of new clothing are a type of plastic and are more difficult to recycle than natural fibres (like wool or cotton).

Modern lifestyles have reduced the number of people who make their own clothes from recycled material. On a small-scale this is an effective way to recycle textiles that does not produce environmental pollutants. However, our society now relies heavily on the large-scale manufacture of clothing (both new and from recycled textiles) which produces environmental pollutants from factories.

Information sheet 23

Glossary

Renewable Resource	Raw materials that can be replaced by similar raw materials to replenish the earths supply e.g. replacing a tree that has been felled with a newly planted sapling.
Biodiversity	The range of different wildlife and plants that are found naturally in an area.
Economically Advantageous	An action or process that results in monetary profit or reward.
Biodegrade	A product that can be broken down into environmentally harmless products by the action of living things in the earth, such as bacteria.
Organic Material	Living things such as plants, fruit and vegetables, meat and fish are also included but should be avoided when making compost because they attract flies and vermin and tend to smell.
Degradation	Breaking down into natural by-products; rotting.
Environmentally Sustainable	A process of manufacture or production that causes little harm to the environment and is self-sufficient by replacing resources taken from the environment.
Tin-plated steel	Steel which has been coated in tin to prevent erosion or rust during food storage.

Information sheet 24

Waste Management of .....

Waste Management method	Pro's	Con's
Landfill (all waste is left in a large cavity in the earth to decompose)	Less man-power is required as there is no need to sort waste into different types. All waste can be dumped into landfill sites in the same process. This saves money.	Some waste takes thousands of years to decompose so carries on polluting. Decomposing waste emits gases that must be burnt off to reduce the pollutants released into the air. Decomposing waste emits liquid that must be cleaned in case they reach the water supply. This costs money.
Incineration (all waste is burnt together)	Less man-power is required as there is no need to sort waste into different types. This saves money.	Some waste (e.g. plastic) emits harmful gases when it is burnt which have to be captured and filtered before they can be released. This costs money.
Recycling		
Reusing		
Reducing		