

TECHNOLOGY TERM 4 WORK SHEETS

WEEK 1

Worksheet 1

Initial problems facing refugees

Disasters such as floods and wars happen suddenly, which means that people have to leave their homes quickly. These refugees will not have a lot of food and water with them. They will also not have tools or materials to build shelters. Emergencies that happen more slowly over longer periods of time include droughts, or long wars. Refugees in situations like these have a bit more time to pack up their possessions and plan their journey. The type of emergency situation influences the mix of people in a refugee camp. Sometimes, there will be more men than women. Other times, there will be many babies who are not able to walk yet and small children. And at other times, there will be many elderly people who need special help and care. For example, during a war, there are usually fewer men at home, because the men will be fighting. And during a drought, babies and elderly people may die since they are more vulnerable. Different people have different needs for food, water and shelter. Children become dehydrated more quickly than adults and they also need more high energy foods. Old people need more warmth and blankets.

Mix of people: The different types of people in a group, such as the young and the old, male and female and disabled people.

Questions for you to answer:

1. Which emergencies happen suddenly, without warning?

2. How will these sudden emergencies affect each of the following?

(a) the mix of people in the group?

(b) the amount of food and water refugees have with them?

(b) the ability of refugees to build their own shelters?

3. Which emergencies happen slowly, over a longer period of time?

4. How will these slower emergencies affect:

(a) The mix of refugees in the group?

(b) how much food and water will they have with them?

c) whether they can build their own shelters or not?

5. Which emergencies are the most difficult to plan for? Explain why you say so.

6. Which emergencies are easier to plan for? Explain why you say so.

WORKSHEET 2

Refugees in a foreign land

When refugees arrive at a refugee camp, they need many things, such as food, clean water and shelter. These basic needs have to be supplied by the rescue. In the following exercise, you will look at the experiences of people on either side of a refugee situation: refugees and the rescue and aid workers who are helping them.

Situation: Refugees in a foreign land

Discuss the situation below in groups of three or four before answering the questions yourself. Your answers should be short paragraphs. A sudden war has broken out between two small countries in central Africa and a large number of people had to flee to a neighbouring country. Imagine what it must be like to be one of the refugees, and also what the situation would be like for the host nation.

Host: A person who gives food, water and shelter to another person. A host nation is a country that helps refugees from another country.

1. What do you think the mix of people in the group is like? Remember this is a war situation, and people had to flee from their country. Think about the ages of the refugees and write down which groups will need the most care and attention.

2. What are their needs for shelter? Remember that they have not brought many possessions with them. Who will provide the shelters or the materials needed to build them?

3. What food and supplies do the refugees need? Remember that the refugees have been travelling on foot for long periods of time. Think about the ages of the people. Will some of them need more food and water than others, and if so, why? Will some people have special needs, and if so, why?

WEEK 2

WORKSHEET 1

Investigate types of food

When refugees travel to a host country, the people in the host country usually take care of them. In the previous chapter, you looked at the mix of people and how this mix would change, depending on whether the emergency was caused by a natural disaster or a war. The type of food refugees eat depends on the mix of the group. Children need more protein than older people, babies need special milk formulas, and old people need lots of vegetables to protect them from disease. For homework, you had to think about types of food that are available in South Africa and that can feed a large group of people. The food had to be cheap, easy to find and nutritious. Refugees do not expect expensive food, just enough healthy food. Bad nutrition can lead to problems like illness and disease. If refugees get weak or sick, they will not be able to look after themselves and the situation in the refugee camp will become worse.

Nutritious food

To remain healthy, the human body needs different types of food known as food groups. Meals that contain the right combination of the different food groups are called balanced meals. A balanced meal includes the following food groups:

- Carbohydrates: These provide energy and are found in starchy foods like potatoes, mealie meal, rice and bread.
- Protein: These build muscle and give us strength. Protein-rich foods include meat, fish, chicken, eggs, beans, cheese and milk.
- Fats and oils: These provide energy and help to protect our internal organs. They also help our bodies to fight disease. Foods in this food group include cheese, butter, margarine and oils such as sunflower or canola oil.
- Vitamins and minerals: These are found in all foods, but especially in fresh fruit and vegetables. They are very important for good health, strong bones and teeth, and to keep

your brain working well. Vitamins also help to prevent disease. For example, Vitamin C, which is found in oranges and lemons, fights colds and flu.

Balanced diets

Have a look at the drawing below and see if you can tell which foods are high in carbohydrates, protein, fats and oils, and vitamins and minerals. Notice that similar types of foods are grouped together. Also notice that the groups are of similar size or “proportion”. The drawing shows that we need to eat similar proportions of food from all of the five food groups every day to stay healthy. You can think of nutrition as a wheel where each type of food is an important part.

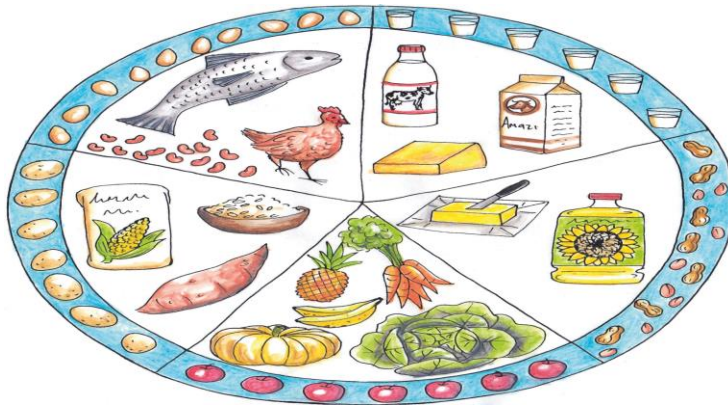


Figure 1: A balanced diet consists of food from all five food groups every day.

Also remember that your body needs fresh, clean water to keep working and to digest and absorb the food you eat.



Figure 2: Drinking fresh, clean water is very important for your health.

For your homework in the previous chapter, you were asked to think about foods that are cheap and easy to find, and that are nutritious and easy to prepare.

- Work in pairs and compare your homework notes.
- Explain the reasons for your choices to each other. The main things to consider are the cost of the food, how easy it is to find, and how nutritious it is.
- Make a joint decision on what you would feed the refugees. If both of you have good ideas, you can suggest a combination of your dishes.



Figure 3: Bananas are very nutritious and they are cheap and plentiful in summer.



Figure 4: Oranges have lots of Vitamin C to help prevent colds and flu. They are cheap and widely available in winter.



Figure 5: Wheat is very nutritious.



Figure 6: Spinach grows quickly and is high in vitamins and minerals.

Questions about your investigation:

1. What type of food did you choose? Write down why you chose it.

2. Did you think about the different age groups of the people in the camp? If you have chosen different foods for different age groups, explain why you did that.

3. Is there a lot of this food available to feed a large group? Write down why it should be easy to get enough of it for the camp.

4. Is the food nutritious? Write down why you think the food you have chosen will keep the refugees healthy.

5. Is it easy to prepare? Write down the reasons for your answer.

WORKSHEET 2

Investigate your refugee camp

A group of 100 refugees have settled near your community. You have been asked to feed them. Before you draw up your plans, the whole class has to make decisions about the issues below.

- What is the mix of the group? Divide them into four categories: babies, children, adults and old people. Complete the table below to help you with the next task.

The number of people of different ages in your group of 100 refugees

Age group	Number of people in this age group
Babies (1–5 years old)	
Children (6–15 years old)	
Adults (15–65 years old)	
Old people (older than 65 years)	

- Your group has not brought any food with them. Decide where you will find food to feed the people. How will you transport the food? How will you cook it?
- Is there a supply of clean water nearby? Why is water important for cleaning and cooking food? Discuss your answers with each other?
- Will the food be nutritious? Can you feed the people the same food every day until they can be resettled? Discuss your answers with each other.

Write down your decisions as you make them. Use the space below.

WORKSHEET 3

Write a design brief to feed your refugee camp:

Before you can work out how much food you need for 100 people, work out how much food you need for one meal. The food needs to be nutritious, tasty and easy to find. It should include as many of the food groups as possible.

For each age group, list the ingredients and amounts you will need for one person. Use the tables below. One example has been done for you.

Amount of each ingredient needed to feed one baby:

INGREDIENT	AMOUNT
Samp	One third of a cup (100 grams)

Amount of each ingredient needed to feed one adult:

INGREDIENT	AMOUNT
Samp	1 cup (300 grams)

Amount of each ingredient needed to feed one old person:

INGREDIENT	AMOUNT
Samp	Half a cup (150 grams)

Design a meal for 100 refugees

Once you have completed the tables above, each of you have **to write a design brief to feed the 100 refugees**. Your design brief should list your specifications. Specifications are the ingredients that you will need to make the meal. You need to work out how much of each ingredient you need to make one nutritious meal for each age group. For example, this is how you would do the calculations.

For each ingredient, add the amount needed for each of the age groups:

- One baby needs 100 grams of samp for one meal. Now multiply 100 grams by the number of babies in your group.
- One child needs 200 grams of samp for one meal. Now multiply 200 grams by the number of children in your group.
- One adult needs 300 grams of samp for one meal. Now multiply 300 grams by the number of adults in your group.
- One old person needs 150 grams of samp for one meal. Now multiply 150 grams by the number of old people in your group.

Example:

- If there are 20 babies in your group, multiply 100 grams by 20. This gives you 2 000 grams, or 2 kilograms, of samp needed for all the babies for one meal.
- If there are 30 children in your group, multiply 200 grams by 30. This gives you 6 000 grams, or 6 kilograms, of samp needed for all the children for one meal.
- If there are 40 adults in your group, multiply 300 grams by 40. This gives you 12 000 grams, or 12 kilograms, of samp needed for all the adults for one meal.
- If there are 10 old people in your group, multiply 150 grams by 10. This gives you 1 500 grams, or 1, 5 kilograms, of samp needed for all the elderly people for one meal.

Now write the specifications for your design brief on the next page. Make two lists. In the first list, write all the ingredients that you need to make one nutritious meal for 100 refugees of different ages. In the second list, write the amounts of each ingredient you need.

Writing your design brief:

Name of ingredient

Amount of the ingredient needed

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

WORKSHEET 4

Method for preparing part of a meal:

Choose one item of food from your emergency meal. Remember that it should be:

- nutritious,
- easy to find,
- easy to cook, and
- tasty.

Before you prepare the food, write down the steps you have to follow to make it. Write the steps in the correct order, from start to finish. Think carefully about what you need to do first, and then what you need to do after that. To list your steps in this way can be called writing your steps in sequence. Write the steps one underneath the other in a table.

But first, write down how or why you will do each step. How you will do a step is called an instruction. Why you will do a step is called a reason. Write the instruction and reason for each step next to the particular step. Look at the drawing below to see what Linda has done.



Figure 3: Draw a table that shows what you need to do to prepare the food from start to finish. Write the instruction and reason for each step in the column next to each step.

You have to plan carefully, and then set out your plan using the following guidelines:

- Say whether the food you will cook is for breakfast, lunch or dinner. Explain why you decided to cook it for that meal. Here is an example of how to write your answer in the table:

Example

Breakfast	It is the most important meal of the day and will give the refugees a lot of the energy they need.
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- Which item of food did you choose? Explain why. Does it mainly consist of carbohydrates or protein? Look back at the food groups you learnt about in the previous chapter.

Example

Samp	It is high in carbohydrates for lots of energy.
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- Estimate how much of each ingredient you will need to make your item of food for one adult. To do this, look back at your design brief in previous chapter.

Example

Samp	300 grams
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- Write down how you are going to prepare your item of food. Write down each step in the process.

Example

Samp	Measure out 300 grams of samp. Measure out 1 litre of water.
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- How are you going to cook the food? For this activity, you have to write down the process that you will follow at home, not what you would do at a refugee camp.

Example

Choose a pot	Select a pot that will be suitable for cooking the food.
Mix the ingredients	Place samp, water and salt in the pot.

- How long do you think the preparation and cooking will take? Divide it into steps. Add up all the steps and put in the total time at the end.

Example

Measure ingredients	5 minutes
Mix ingredients	2 minutes
Cook ingredients	30 minutes
Total time	37 minutes

- Ask an adult at home to help you. Write down in your plan who this person will be.



Figure 4: Get an adult to help you with the ingredients and the cooking.

When you have completed your plan, take it to school. Discuss your plan with another learner. This is an important part of the planning before you cook the meal. If either of you missed an important step, you will have to rewrite your plan. Remember, the steps in your plan are your guide to cooking the food.

Prepare the food

In this lesson, you will follow your plan and prepare an item of food at home. It will only be enough for one person, not for 100 people! You will then bring your food to school and the class will evaluate it.

You need to do this part of the activity at home.

- Find all the ingredients before you start.
- Read the plan you wrote to help you. Follow the steps closely.
- If you change one of the steps, write down how you changed it.

Also write down why you changed it. You will use this information when you evaluate your making sequence.



Figure 5: Ask an adult to help you with the ingredients and the cooking.

After cooking the meal, taste it to check that it tastes good. This is called evaluating the flavour of the meal. If you have cooked the meal for the right length of time, it should be easy to chew and swallow. This is called evaluating the texture of the meal. You will present the meal for evaluation, so it should taste good and be healthy. A healthy meal will have the correct nutritional value. You learnt about nutrition in the previous chapter.

Store the meal in a plastic container with a seal that will keep the air out. If you don't have a special container, use an empty, clean margarine container. Keep the container in the fridge overnight. **Bring your item of food to school the next day for evaluation.**

WORKSHEET 5

Evaluate the food:

- Bring your prepared meal to school for evaluation.
- Divide into groups of four. Use plastic spoons and taste each other's meals.
- After trying out all the food that the other learners have brought to school, write an evaluation of their food and of your own food.

Hygiene warning

Bring your own spoon to school. If you share a spoon, wash it with soap and water before you use it.

Evaluate each food item. Use the checklist below. Tick "yes" or "no" for each question.

	Yes	No
Flavour: Is the food tasty?		
Texture: Does the food taste as if it is properly cooked?		
Nutritional value: Is the food healthy?		
Comments:		

When you have all tasted each other's meals and listed your comments, give each other feedback.

Do not be rude about other learners' food. Make positive suggestions. Say how you think they can improve the taste, texture or nutritional value of their food.

WEEK 3

WORKSHEET 1

Emergency services

Dangerous situations such as fires, floods and accidents usually happen unexpectedly. People need to take immediate action to save the lives of the people involved. This type of situation is called an emergency. Emergencies don't always mean that many people are forced away from their homes. An emergency may affect only one family, or even just one person. For example, a house fire or a wildfire can threaten a group of houses. Other examples of emergencies are when swimmers get into difficulty out at sea, or when fishermen are in trouble on a sinking boat. People who work in emergency services are called emergency workers. They are specially trained to respond to emergencies and they must be ready to respond quickly to a call for help. Emergency services include the fire department, police, ambulances and sea-rescue services. Emergency workers go into dangerous situations, so they need to wear protective clothing.

Emergency workers wear clothes that are designed to protect them from danger. These clothes are known as personal protective equipment, or PPE. Experts study the dangers caused by emergencies and design and make clothes, shoes, helmets and other items that will protect emergency workers during these situations.

Emergency services

1. Think about emergency situations that can happen in your community, and list them below.

2. List the emergency services that can be called to help in an emergency.

3. Think about other communities. Are there emergencies that could affect them, but not affect your community? Think about the environment where these communities live. Are there rivers or beaches nearby? Are they in cities, the country, forests or grass fields? List all the emergencies that could happen in these places. Then list the emergency services that can be called in to help them.

Emergencies	Emergency services

WORKSHEET 2

Clothing for emergency workers

Emergency personnel wear protective clothing that is specially designed to protect them from the dangers they could face in an emergency. For example, fire fighters need protection from flames and heat, and sea-rescue workers need protection from water, rain, the wind and cold. The materials that we use to make any kind of clothing are called textiles. The materials we use to make any kind of clothing are called textiles. Special textiles are used to make protective clothing. These textiles are made from woven or knitted materials, that can have chemicals added to them to give them special qualities, such as waterproofing or fire resistance.



Figure 6: A fire on a mountain. Fire fighters monitor the situation to make sure that the nearby community is safe.



A firefighter's protective clothing



A sea rescuer's protective clothing



Fire fighters' jackets are made from fire-resistant textiles, and are lined with reflective tape so that fire fighters can be seen in the smoke. **Fire fighters' boots** are made of strong leather, with thick soles to protect their feet from flames.

Sea rescuers' jackets are designed to keep sea rescuers dry and warm, even in heavy storms. They are made of thick plastic or rubber. **Waterproof boots, or wellingtons**, are made of thick rubber. They keep a sea rescuer's legs and feet dry and warm. The rubber sole also prevents slipping on wet decks.

Clothing for emergency workers

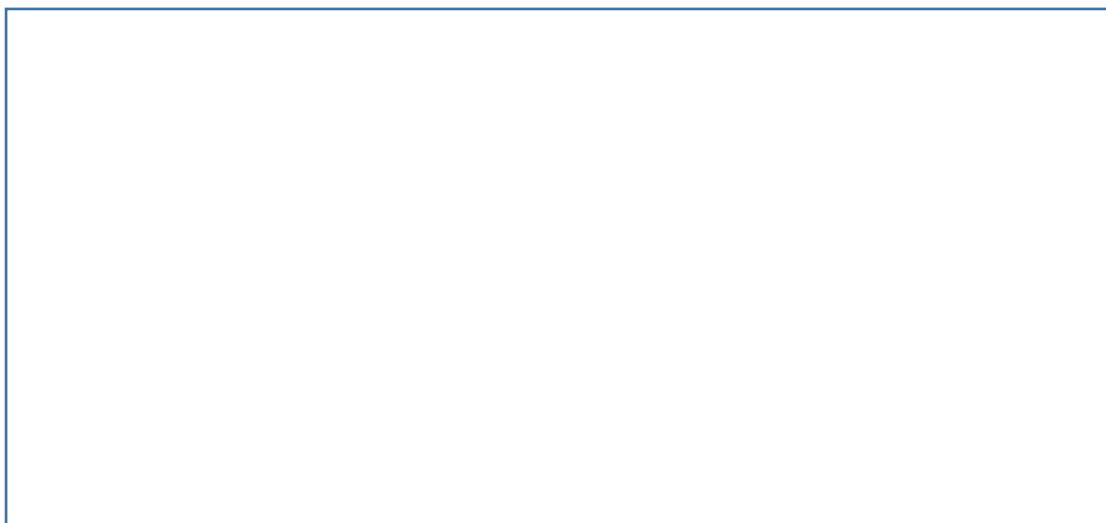
Now that you have learnt about some of the protective clothes used by emergency workers, you can design some protective clothes of your own. Fire fighters and sea rescuers wear the specific clothes mentioned on the previous few pages. Think about the other emergency services that you listed in the exercise "Emergency services".

Wellington boots were named after a Duke of Wellington in England. He was a famous soldier who wore them into battle.

1. Write down at least three emergency situations that they may be called to deal with.

2. Write a list of special protective clothes you think they should wear in each situation.

3. Draw a picture of one type of protective clothing that you have written about.



WORKSHEET 3

Investigate protective clothing and emergency equipment.

In this section, you will investigate the kinds of protective clothing and emergency equipment used by fire fighters and sea rescuers. Work together in groups of four. Choose one of the emergency professions you have learnt about: firefighting or sea rescue. Discuss the special clothes that these emergency workers wear to help protect them in their duties. Use the information in this chapter, but also try to find extra information from people you know. For example, maybe you know someone who works at the fire department and can talk to them. The pictures below will give you more information.



Figure 6

Sea rescuers always wear life jackets when they are at sea. Life jackets help them to float if they fall into the sea, so that they do not drown. A life jacket is made from thick plastic or rubber and has air inside so that it can float.

Protective equipment or emergency equipment used by emergency workers includes life jackets for sea rescuers and oxygen tanks for firefighters.



Figure 7: Fire fighters use oxygen tanks.

Fire fighters carry oxygen with them to help them breathe when there is a lot of smoke from a fire. An oxygen tank is an example of the type of protective equipment used by emergency workers. The tank is made of thick metal to keep the oxygen from exploding. The pipes are made from rubber so that they are waterproof. The dials are covered by glass or see-through plastic, which are both waterproof.

Protective clothing and emergency equipment

After you have done your investigation and you have all the information, fill in the table below. In the first column, write down an item of clothing or equipment that you have learnt about. Then answer the questions in the other columns. You should say what the item of clothing or equipment is made from, and also say why it is made from that material. There are two examples to get you started.

	Firefighters	Sea-rescue workers		
	Made from	Why?	Made from	Why?
jacket	fire-resistant textile	cannot catch fire	thick plastic	can withstand bad weather and keep the rescue worker dry
boots	leather	strong enough to protect fire fighters' legs and feet from flames	rubber	waterproof

After you have completed the table, answer the following questions on your own:

1. Why is it important that protective textiles are used to make clothes for emergency workers?

2. What clothes should fire fighters wear, and what equipment should they carry when they respond to a call?

3. In what other emergency situations should special clothing or equipment be used? Think about the refugees you learnt about in Chapter 6. What kind of emergencies could happen in their camp?
