Environmental Education Activities for Troop Sections

Resource Pack

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Activity 1: Exploring Historic Sites through Mapping and Tracking.



Resource Sheet 1.1: General Instructions

- ➤ In this activity you will be using your skills in mapping and tracking, as a patrol, to go on a trail exploring some of the less popular historic sites found in the Birzebbugia area.
- You have been provided with an OS map of the area. This map is crucial for your patrol to go from one checkpoint to another.
- Each checkpoint is found at a historic site. At each check point, each patrol is to look for an envelope with some sheets of paper that will include a task about that particular site, and a small piece of paper with the grid reference or directions to the next check point.
- > It is important that you only take the envelope that has your patrol's name on it.
- > It is important that all the pieces of paper found at each check point are presented to the leader at the end of the activity.
- > It is important that all members of the patrol respect the highway and country code throughout the trail.
- Each patrol will have a maximum of 5 hours to complete the trail. No bonus points will be given to the patrols which are ready in less than 5 hours. However 3 points (out of a total of 100) will be deducted for every 5 minutes that a patrol arrives late.
- ➤ Good luck!!

Departure Time:	Arrival Time:
Patrol Name:	Patrol Members:
Patrol Leader:	
APL:	

Resource Sheet 1.2: Starting Point

You are currently at Grid Reference 5795 6565, next to the Ferretti Battery, a military fortification built by the Order of St. John in the 1700s.



This battery was built to defend St. George's Bay with its cannons in case of an invasion from the enemy. This battery was abandoned for a lot of years until it started to serve as the HQs of the Birzebbugia Scout Group for a few years and was later transformed into a restaurant.

This battery was built close to the sea level, therefore it could only attack the enemy when the ships where very close to land. Look around you, what did the knights build in order to defend both St. George's Bay and Marsaxlokk Bay, even if the enemy's ships were still far from land?

Write down the Grid Reference of this particular building: ______ (8 points)

Clue 1.1: From here, go to Check Point 1 which is at Grid Reference 5775 6570.

Resource Sheet 1.3: Keep Your Eyes Open!

Below you can see 4 photographs showing structures of historical value, which you should encounter during your trail. In the space provided use your map to answer the questions related to each of these structures. (12 points)



1. Which valley did this pillbox protect?



2. In which valley was this dam built to contain water?



3. What is the Grid Reference of the chapel on which this cross is found?



4. What is the Grid Reference of this chapel?

Resource Sheet 1.4: Check Point 1

You are now in a small open space, in the middle of St. George's Bay. In the past many fishermen lived here, or had boat houses where they could shelter their boats. In a time when there were no mobile phones and not everyone owned a watch, these fishermen could still know what time it was by coming to this part of the bay.

Look around you, which clock did they use to know the time?
How does this clock work? Discuss as a patrol and then write down your answer in
point form in the space provided below. When you are ready, read the time which the clock is
showing. (20 points)
Hint: A shadow will show you the accurate timeduring the day.

Time shown on the clock:

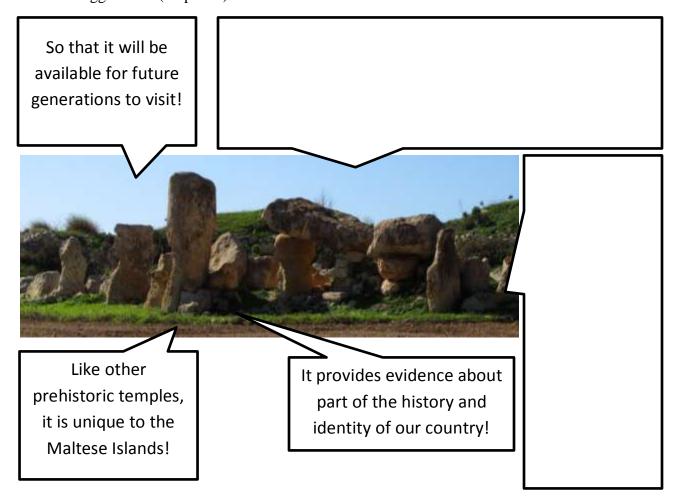
Activity 1: Exploring Historic Sites through Mapping and Tracking.

Clue 1.2: From here you will be going about 4,500 years back in time. Walk to Check Point 2 which is at Grid Reference 5755 6560. Follow the signs 'Borg in-Nadur'.

Resource Sheet 1.5: Check Point 2

You have now reached the prehistoric remains of Borg in-Nadur. About 3,500 years ago this site was part of a village by the Bronze Age people. This means that human beings have been living in the Birzebbugia area for thousands of years.

This site had been abandoned and vandalised for many years. Recently a gate was put to prevent people from entering and a security guard is present all day to watch the area. Why, do you think, should we preserve such a site? You have been given 3 suggestions. Rank them from 1 to 3, 1 being the most important and 3 being the least important. Then discuss together and add two other suggestions. (15 points)



Activity 1: Exploring Historic Sites through Mapping and Tracking.

Clue 1.3: From Prehistory you will now travel about 2,500 years forward, to the age of the Roman Empire. Walk to Grid Reference 5760 6595. On the left hand side of the road (facing uphill) you should find a path. From there follow the tracking signs that would lead you across Wied Dalam and to the remains of a Roman Villa at Grid Reference 5710 6590

Resource Sheet 1.6: Check Point 3

You are now standing on the remains of an Ancient Roman Villa. Unfortunately, this villa was hit by a bomb during World War II and, as you can see, only its foundations remain. However, little damage was done to an underground cistern which was part of this villa. This cistern has been surrounded by a wall and can be accessed through the gate that you can see. This unique Roman cistern has been abandoned and few people know of its existence.

Task: Imagine that the Birzebbugia Local Council has asked your patrol to give some valuable suggestions of how to make the remains of the Roman Villa and cistern more accessible and interesting for visitors. In Resource Sheet 1.7 you have a sketch of the site and the paths which can lead to it. You can also read some of the problems which have led the site to remain abandoned and relatively unknown.

Discuss the possible suggestions that you would give the local council. These suggestions should be realistic and you should keep in mind that they have to be done with a limited budget of money. Write your suggestions in the blank diagram of the site which you can find in Resource Sheet 1.8. You can also sketch any structures that you would include to the site such as rooms, signs or notice boards. (30 points)

Resource Sheet 1.7: Check Point 3

the area and damage Vandals can reach anyone stopping the site without them.

friendly. It is difficult to information about the The area is not visitor find the site and no remains is given.

A path leading to the site. Blocked by carob trees. a bad condition but The cistern is not in maintenance. requires

the site. Not well known. leading to A path

> not safe for young children Some areas of the site are to visit.



the site. Not well known

leading to A path

obstructed

and is

vegetation.

The stairs leading to

the cistern can be

slippery and the

railing is old.

deteriorating due to vegetation and other natural elements. The remains of the villa are abandoned and slowly





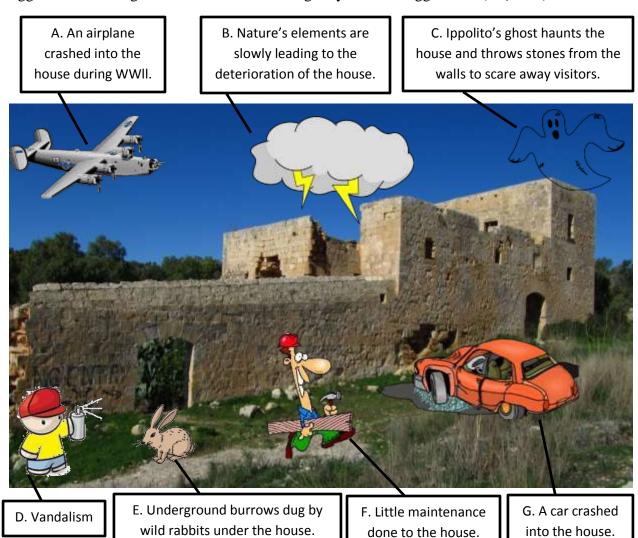
Activity 1: Exploring Historic Sites through Mapping and Tracking.

Clue 1.4: From Roman times, you will now be going to a more modern era, when Malta was under the rule of the Knights of St. John. Check Point 4 is found at Grid Reference 5675 6605. Near the gate that leads to the Roman cistern you should find the first of a set of tracking signs that will lead you to this point.

Resource Sheet 1.9: Check Point 4

Welcome to Ippolito's Farmhouse! Legend says that once, a knight called Ippolito, who lived in this house, fell in love with a young beautiful lady from Kirkop. Ippolito wanted to marry this girl however her father disapproved. In order to protect the family's honour the lady's father shot Ippolito and buried him in a hole, which was covered by a large rock, in a nearby valley.

As with most legends, this story is mostly fictional. In reality this house was built in 1664 by the Baron Ippolito Novantieri. The last owner of this house died in 1919 and it has since been abandoned. This is a shame as it offers a unique example of the architecture used to build houses during the Order's rule. What could have led to the deterioration of this house? Choose from suggestions A to G given below. You can also give your own suggestions. (15 points)



Activity 1: Exploring Historic Sites through Mapping and Tracking.

Clue 1.5: From the main door of this farmhouse take a bearing of 140 degrees and follow the path that will lead you to the village of Birzebbugia. Tracking signs will also guide you along the way. Once you arrive at the village, walk to the Finishing Point which is at Grid Reference 5740 6505. When you are at this point find your Troop Leaders and hand in your check point sheets.

Activity 2: Exploring Malta's Fauna and Flora



through Mapping and Tracking.



Resource Sheet 2.1 – General Instructions

- ➤ In this activity you will be using your skills in mapping and tracking, as a patrol, to go on a trail discovering some of Malta's resident fauna (animal) species.
- You have been provided with an OS map covering the path of the trail. This map is crucial for your patrol to go from one check point to another.
- At each check point, each patrol is to look for an envelope. This envelope will consist of some information about two or three of Malta's native animals, flashcards with the photographs of these animals and, in some check points, you will also have a small task to complete. In the envelope you shall also find a clue with the directions to the next check point.
- > It is important that you only take the envelope that has your patrol's name on it.
- > It is important that all members of the patrol respect the highway and country code throughout the trail.
- Each patrol will have a maximum of 5 hours to complete the trail. No bonus points will be given to the patrols which are ready in less than 5 hours. However 3 points (out of a total of 100) will be deducted for every 5 minutes that a patrol arrives late.

➤ Good luck!!

Departure Time:	Arrival Time:	
Patrol Name:	Patrol Members:	
Tation Name.		
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• • •		
APL:		
Patrol Leader:		

Resource Sheet 2.2 – Starting Point

You are currently at Grid Reference 4570 6900, in front of the path that leads to the Verdala Palace. From here you will start a trail that will take you through different landscapes of the Maltese Islands: from woodland to garigue (open areas with rocks, grass and small bushes), and from fields to high cliffs facing the blue sea. These landscapes provide the ideal habitat for different animals. Some prefer the woodland areas, others prefer rubble walls near fields while some animals prefer the peace and quiet found at the side of a cliff. Some animals are not so fussy and are found in all these landscapes.

At each check point you will find information about some of the Maltese animals which one is likely to find in that particular landscape. Read this information carefully and hold on to it and to the photographs of the animals, as you will need them at the end of the activity where you are to construct a food web of the Maltese fauna. More information about this task will be given at the last check point.

Read the following clue that will lead you to your first check point.

Clue 2.1: From here start walking along this road till you reach Grid Reference 4540 6825. From here go to your left and look for Check Point 1 at Grid Reference 4570 6835. You will find your envelope very close to a fountain. Here you will meet a master of camouflage and a very good swimmer. The trees in this area and the presence of freshwater and damp conditions for most of the year offer these two animals an ideal habitat with plenty of insects on which to feed.

Resource Sheet 2.3 – Keep Your Eyes Open!

During your trail you are likely to encounter animals or evidence of their presence. In this sheet keep a record of the wild animals which you see. If you find some animal evidence which you can collect (such as a feather or a snake's skin), do so, and we will see whether we can identify the animal at the end of the activity. Put this evidence in the shoebox which you were asked to bring. If you find other evidence which cannot be collected (such as animal footsteps in mud puddles) draw a sketch at the back of this sheet. **Remember, do not disturb any of the wildlife which you see.**

Animals' Class	Animals' Names
Insects	
Birds	
Reptiles	
Amphibians	
Mammals	

Animal Profiles 2.1 and 2.2

Profile No. 2.1

Name: Mediterranean Chameleon (Kamaleonte)

Class: Reptile

Habitat: *Areas with trees or shrubs.*

Food: Insects, worms.

Legal Status: Protected

Special Features:

• Eyes move independently of each other, allowing it to detect prey and achieve perfect aim.

- They use their long sticky tongue to catch their prey.
- They are experts at camouflage.

Survival Status: Brought to Malta in the 1850s, it has now spread all over the Maltese Islands. Its population is in danger mostly due to a decrease in the natural habitat.

In the past it was caught and sold as a pet.

Profile No. 2.2

Name: Mediterranean Maltese Painted Frog (Żrinġ)

Class: Amphibian

Habitat: *Damp areas with permanent or frequent freshwater supply.*

Food: *Insects, worms.*

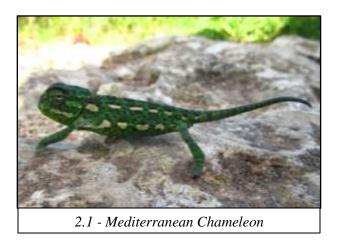
Legal Status: Protected

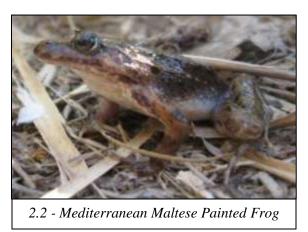
Special Features:

- They live most of their lives in freshwater and are therefore very good swimmers.
- When they hatch they are tadpoles that eventually develop into frogs, through metamorphosis.

Survival Status: Found only in the Maltese Islands and Sicily. Its number in Malta is decreasing due to destruction of freshwater habitats and the pollution of fresh water courses.

Animal Flashcards 2.1 and 2.2





Clue 2.2: From here you will be walking to Grid Reference 4495 6760, which is found at the intersection of two roads, close to Dingli Cliffs. Once you arrive at this check point look for your envelope in the rubble wall (do not damage the rubble wall). Here you will meet the spiniest mammal and one of the smoothest reptiles of the Maltese Islands. The grasses and small bushes in the garigue area close to the next check point provide food and shelter for various insects and snails. Insects and snails form part of the diet of the animals which you will soon meet.

Task 2.1 – Spot the Chameleon!

A chameleon is amongst the twigs in the picture below. Can you find it? It is well camouflaged and one of its eyes is looking straight at you!

Put a circle around the chameleon's head when you find it. (10 points)



Animal Profiles 2.3 and 2.4

Profile No. 2.3

Name: Algerian Hedgehog (Qanfud)

Class: Mammal

Habitat: Garigue and near fields.

Food: *Mostly insects, snails, centipedes, worms and small vertebrates such as frogs or lizards.*

Legal Status: Protected

Special Features:

• Its back is covered with spines which are modified hair. When threatened it rolls into a ball, exposing these spines.

• Hedgehogs come out to hunt during the night.

Survival Status: Threatened due to habitat loss. A lot are killed by cars travelling on the roads that crisscross their habitat.

Profile No. 2.4

Name: Ocellated Skink (Xaħmet l-Art)

Class: Reptile

Habitat: *Garigue, rubble walls and sandy areas.*

Food: Mostly insects, spiders, snails, sometimes small lizards or even vegetation.

Legal Status: Protected

Special Features:

• The only reptile in Malta that gives birth to its young.

- Sometimes skinks are confused with snakes as they have very small legs and slither to escape from danger.
- They can burrow quickly into soft soil or sand.

Survival Status: Common but its number is decreasing due to the destruction of its natural habitat. In the past it was killed as it was thought that the skink carried diseases.

Animal Flashcards 2.3 and 2.4





Clue 2.3: Your next Check Point is found at Grid Reference 4580 6675, in an area known as Il-Fawwara. To get to this check point go down the path that you can find at Grid Reference 4585 6705. As you walk along this path you will arrive to a point where the path becomes a zigzag, leading you down the cliffs. You will find your next envelope at the top of this zigzagging path. The plants and their roots in the area of the next checkpoint are eaten directly by one of the animals that you will be meeting. They are also a source of food for insects which are eaten by bigger animals such as lizards. Lizards are then hunted by a particular snake that you will also meet soon.

Task 2.2 – Help the Hedgehog Cross the Road!

Unfortunately a large number of hedgehogs are killed every year on country side roads such as the one you are on. Hedgehogs come out at night and when they see the bright lights of a car approaching, instead of running away, roll up into a ball and are therefore more easily hit if not spotted by the driver.

As a patrol discuss what can be done to avoid such accidents and help the hedgehog below go from one side of the road to the other safely. Solutions could include ways of warning drivers about hedgehogs, making structures that stop the hedgehogs from crossing the road or making safe areas where hedgehogs can cross the road. Write your suggestions below. You can also sketch on the picture. (20 points)



Animal Profiles 2.5 and 2.6

Profile No. 2.5

Name: Western Whip Snake (Serp Iswed)

Class: Reptile

Habitat: *Garigue and near fields, in rubble walls.*

Food: Smaller animals such as lizards, geckos, mice, shrews, small birds and frogs.

Legal Status: Protected

Special Features:

• *It moves very fast, especially when hunting or when escaping from danger.*

- When the young hatch they have a greenish colour. As they become adults they turn black.
- It is the biggest snake in Malta as it can grow to more than 150cm. It is neither venomous nor a constrictor.

Survival Status: It is the most common snake in Malta, however, numbers are decreasing due to habitat destruction and because they are frequently killed by people who fear them.

Profile No. 2.6

Name: Wild Rabbit (Fenek Selvaġġ)

Class: Mammal

Habitat: Garigue, woodland and near fields.

Food: Wild vegetation, plants' roots and agricultural crops.

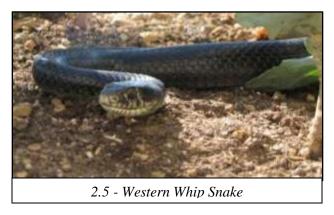
Legal Status: Can be hunted during the summer

Special Features:

- They dig deep underground burrows.
- They are rarely seen as they are very shy of humans and come out of their burrows at dawn or at dusk.
- Their presence can be detected by the droppings and burrows that are usually found in the countryside.

Survival Status: Although it is hunted during the summer, the wild rabbit is still common in Malta.

Animal Flashcards 2.5 and 2.6





Clue 2.4: From here go down the zigzag path and walk to Grid Reference 4610 6660 where you will find a small building. Near the façade of this building you shall find your envelope. Here you will meet two flying animals that nest and take shelter in the cracks found in the surrounding cliffs. Various insects can be found in the undisturbed plants on the cliff face. Some of these insects may also fly, but that is not a problem for the two animals that you will be meeting as they are able to hunt while flying.

Animal Profiles 2.7 and 2.8

Profile No. 2.7

Name: Blue Rock Thrush (Merill)

Class: Bird

Habitat: Cliffs.

Food: Mostly worms and insects but also young reptiles such as lizards or skinks.

Legal Status: Protected – National Bird

Special Features:

• The males can be heard making various pleasant calls and songs.

Survival Status: Still quite common in Malta however it is rarely seen as it mostly nests in cracks in cliff sides which are difficult for people to access.

In the past this bird's eggs and hatchlings used to be collected, leading to a decrease in its population.

Profile No. 2.8

Name: Common Pipistrelle (Pipistrell)

Class: Mammal

Habitat: Cracks in rocks, old buildings and trees.

Food: Flying insects such as flies, moths and mosquitoes.

Legal Status: Protected

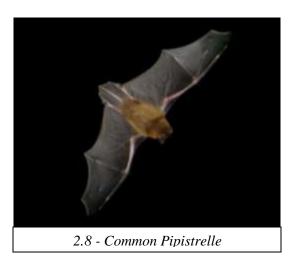
Special Features:

- Very fast when flying.
- Come out to hunt at dusk.
- The most common bat in Malta and the smallest European bat.

Survival Status: Its population in Malta is decreasing due to a lack of undisturbed habitat and the increasing use of pesticide, which decreases and poisons the insects on which it feeds.

Animal Flashcards 2.7 and 2.8





Clue 2.5: Your patrol will now continue walking along this road till Grid Reference 4740 6655. Here this road intersects with another path. At this intersection you shall find your next envelope which will introduce you to one very common and two rarer mammals of the Maltese Islands. From this checkpoint you can observe various fields with different crops. The common mammal which you will meet frequently feeds on these crops. One of the rarer mammals hunts this common mammal. The other rare mammal mostly feeds on insects and worms which may be found on the crops or in the soil.

Animal Profiles 2.9, 2.10 and 2.11

Profile No. 2.9

Name: Weasel (Ballotra)

Class: Mammal

Habitat: Garigue, woodland and near fields.

Food: *Mostly mice, rats and shrews. Sometimes even rabbits, birds, frogs or reptiles.*

Legal Status: Protected

Special Features:

• *Very alert, especially when hunting or when escaping from danger.*

• The top carnivore found in Malta.

• *Hunts both during the day and at night.*

• Considered very important as a natural pest control against mice.

Survival Status: Its population in Malta is small due to a lack of natural habitat. It is rarely seen as it is very fast and hides quickly.

Profile No. 2.10

Name: Pygmy White-Toothed Shrew (Gurdien ta' Geddumu Twil)

Class: Mammal

Habitat: Garigue and woodland.

Food: *Mostly insects and worms but also young reptiles and frogs.*

Legal Status: Protected

Special Features:

• A very active animal, it is constantly moving.

- Comes out mostly at night but can also be seen during the day.
- Has a very good sense of smell but poor eyesight.
- *It is the world's smallest mammal.*

Survival Status: The numbers of this animal are decreasing due to a decrease in its natural habitat. Sometimes it is killed because it is mistaken for a house mouse.

Profile No. 2.11

Name: *House Mouse (Ġurdien tal-Imramma)*

Class: Mammal

Habitat: *In most of the countryside, near fields and near human settlements.*

Food: Mostly seeds, crops and food remains left by humans.

Legal Status: *Not Protected*

Special Features:

• It is considered to be a pest as it damages crops and food storages and can also carry diseases.

• It is most active at night.

Survival Status: Very common, not only in Malta but in most parts of the world.

Animal Flashcards 2.9, 2.10 and 2.11.



Activity 2: Exploring Malta's Fauna and Flora through Mapping and Tracking.





Clue 2.6: Your next check point is at a short distance from here, at Grid Reference 4730 6595. In this check point you will meet two animals which you have surely encountered before, as they are commonly seen in gardens or close to human settlement. In most areas with some vegetation, you are likely to find these two animals on the lookout for insects.

Task 2.3 – Is it a Shrew or a Mouse?

You are camping when suddenly one of the troop members starts shouting 'MOUSE, MOUSE!!!!' You go to investigate this pandemonium and discover that this scout had seen this 'mouse' in an empty bucket close to a rubble wall. The animal has fallen in this bucket and could not escape as the sides were smooth and too high to jump over. Some of the troop members want the animal dead, saying that it is a pest and could damage the camp's food supply, however another scout wants to take a look at the animal and make sure that it is not just a harmless shrew.

Look at the photos of the house mouse and the pygmy white-toothed shrew. How v	vould you
know whether the animal is a mouse or a shrew? What are their differences? W	rite you
observations in the space below. (20 points)	

Animal Profiles 2.12 and 2.13.

Profile No. 2.12

Name: Maltese Wall Lizard (Gremxula ta' Malta)

Class: Reptile

Habitat: *In most of the countryside, gardens and also close to human settlements.*

Food: *Mostly small insects, worms, spiders.*

Legal Status: Protected

Special Features:

- When caught by a predator, this lizard like most other lizards can shed off its tail. The tail start wriggling, attracting the predator's attention and giving the lizard an opportunity to escape.
- It is commonly seen basking in the sun, thus maintaining its body temperature.

Survival Status: This kind of lizard is found in the Maltese Islands only. It is common, but it is threatened by the destruction of its natural habitat.

Profile No. 2.13

Name: Moorish Gecko (Wiżgħa tal-Kampanja)

Class: Reptile

Habitat: *In most of the countryside, gardens and also close to human settlements.*

Food: *Mostly insects, worms, spiders.*

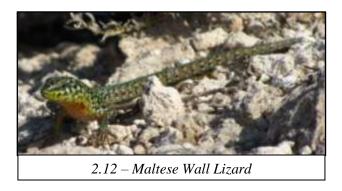
Legal Status: Protected

Special Features:

- This gecko is able to climb steep walls and even hang on to ceilings.
- It comes out to hunt at night but is seen basking during the day.

Survival Status: The Moorish Gecko is common in Malta however in the past it was persecuted due to the belief that it carried diseases.

Animal Flashcards 2.12 and 2.13





Clue 2.7: In the next check point you will find the last two animals, two snakes and one of them is the only venomous snake of the Maltese Islands. You will find your envelopes at Grid Reference 4760 6530, close to a sign of a Reverse Osmosis Plant. Like the Western Whip Snake, these snakes are found in habitats similar to that close to the next check point. Here they can hunt other animals which either feed directly on plants or which feed on insects that eat plants.

Animal Profiles 2.14 and 2.15

Profile No. 2.14

Name: Leopard Snake (Lifgħa)

Class: Reptile

Habitat: Garigue, woodland and near fields.

Food: Small mammals such as mice and small birds.

Legal Status: Protected

Special Features:

• This snake grows to about 1 metre long.

• It is not venomous.

Survival Status: This snake is becoming less common due to the destruction of its natural habitat.

Profile No. 2.15

Name: Cat Snake (Teleskopu)

Class: Reptile

Habitat: Garigue and near fields.

Food: *Lizards and geckos.*

Legal Status: Protected

Special Features:

• It is the only venomous snake in Malta.

- Its venom is not harmful to humans or other big animals and is only strong enough to kill small animals such as lizards.
- It comes out to hunt at night.

Survival Status: This snake is rare in the Maltese Islands.

Animal Flashcards 2.14 and 2.15

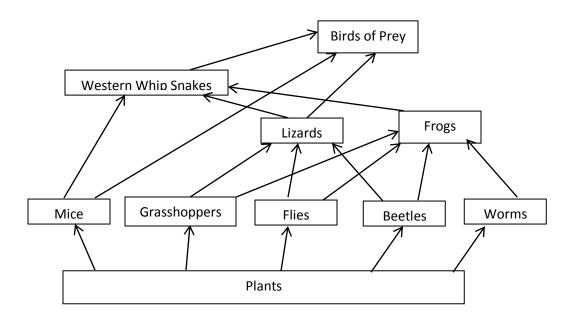




Clue 2.8: Now that you have collected the information about each animal, walk to Grid Reference 4810 6515, where you will meet your leaders who will give you the material need to complete your last task.

Resource Sheet 2.4 – Finishing Point: Food Web Task

You have now arrived at your final check point. Here you will construct a small food web of Maltese fauna, consisting of some of the animals that you met during your trail. A food web is like a diagram which shows how animals depend on each other for food. Look at the food web below as an example:



Your leaders will give you a background on which to construct your food web. This background will show one particular habitat. Each habitat has plants, which form the lowest part of the food web, and some small creatures which feed on plants. Choose the flashcards of the animals which one is mostly likely to find in that habitat. Attach the flashcards to the food web with the material provided. Then use the pens provided to draw arrows, connecting the prey (eaten animals) with the predators (the animals which eat other animals). As you can see in the example above, some animals are both prey and predators. (50 points)

Food Web Background

Food Web Background

Food Web Background

Food Web Background

Activity 3: Investigating Our Freshwater Environment.

Resource Sheet 3.1: Freshwater Use

You are currently at Wied il-Qlejgħa, more commonly known as Chadwick Lakes. In the 1880s, a British man called Osbert Chadwick came up with a project to build small dams in this valley to hold water. This created small man-made 'lakes'.

Task 3.1: As a patrol discuss: why is the availability and storage of freshwater so important for Malta? To answer this question, look around you and carefully observe your surroundings. Imagine what it would be like with no water. The clip art in the photograph below should help come up with some ideas. Answer in the space found on the following sheet. (10 points)



Resource Sheet 3.2: Freshwater Use				

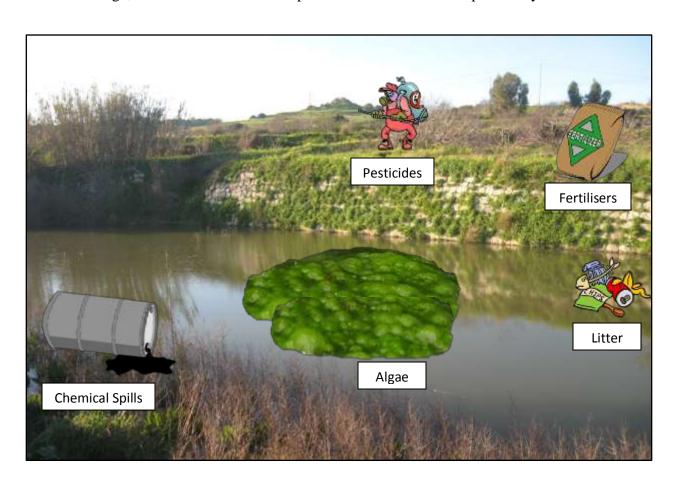
Task 3.2: Identify a small and accessible area of water. Look for any form of life in the water. Can you find any insects, frogs or other freshwater creatures? If you are extremely lucky you may also spot a rare Maltese Freshwater Crab! Can you find any evidence of other animals (e.g. tracks)? Are there plants growing in the water or next to it? Can you identify them? Fill in the grid below, if you cannot identify an animal ask your leader for assistance. (20 points)

Animals	Animal Evidence	Plants

Resource Sheet 3.3: Freshwater Pollution

Resource Sheet 3.4: Freshwater Pollution

Freshwater pollution comes from a variety of sources. Some can be seen in the photograph below. Two very important causes of freshwater pollution are the spraying of pesticide and fertilisers by farmers in their fields. Pesticide is used by farmers to kill pests which harm their crops. Some of this pesticide can be washed off by rain into water courses, and poisoning animals in the freshwater ecosystem. Fertilisers are used to increase the nutrient content of the soil for crops. However, when this fertilizer ends up in the water it causes algae living in the water to bloom excessively. A big increase in algae results in less oxygen available for other freshwater creatures. Other forms of pollution include spills coming from various chemicals such as oil or sewage, and litter which is not disposed of in bins and ends up in valleys after rain.



Resource Sheet 3.5: Freshwater Pollution

Task 3.4: Look around you. Can you find any evidence of freshwater pollution (e.g. plastic bottles, large amounts of floating algae)? What, do you think, can be the effects of this pollution? Is it simply unpleasant to look at or can it have more damaging effects on the freshwater ecosystem or on human health? Use your observations to fill in the table below. (10 points)

Pollution Evidence	Pollution Effects

Discuss together any possible suggestions of what can be done to stop or reduce the impacts of
the sources of pollution mentioned in Resource Sheet 3.4, or any other form of pollution which
you may have found. Write them down in the space provided below. (10 points)

Resource Sheet 3.6: Collecting Freshwater

Task 3.5: Clean freshwater is a very important yet scarce resource in Malta. In fact we have to convert sea water into potable water (good for drinking) through Reverse Osmosis plants.

You are on a weekend camp in winter, and the weather report predicts cloudy skies with occasional heavy rain showers. You only have enough water for drinking, but you still need water to wash your mess tins and cutlery. Use your pioneering skills to build a structure that would help you collect rain water when it rains. You have 30 minutes and you can use any of the equipment provided (4 staves, 10 pieces of rope, one small ground sheet and a bucket) and any other object which you may find. Design a structure that collects as much rainwater as possible.

When you are ready, a leader will test your structure by pouring 2 liters of water on it and measuring how much of this water is collected in the bucket.

Activity 4: Collecting Firewood for Open Fire Cooking.

Resource Sheet 4.1: Why are Trees Important?

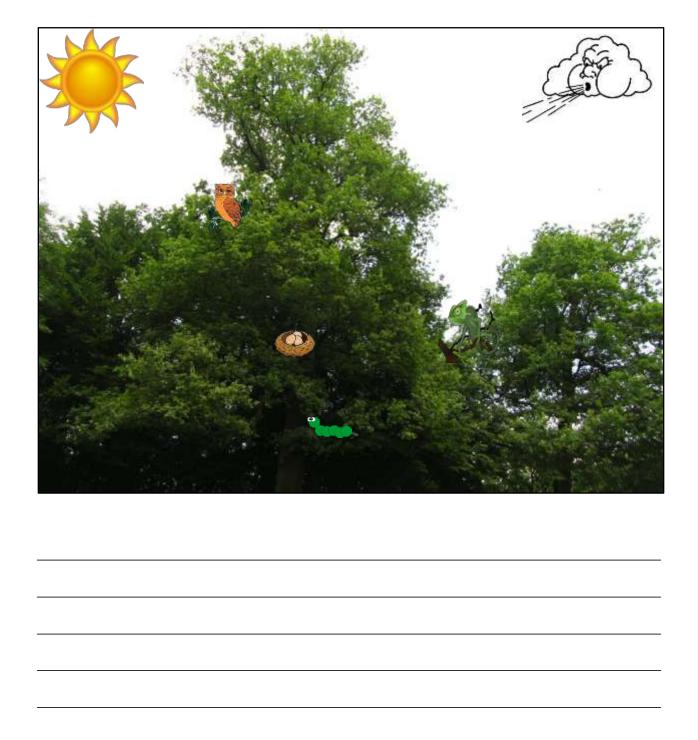
During this activity you will be building an open fire as a patrol, in order to cook the food that you will be provided. As you should already know, lighting a fire requires 3 very important elements that together form the fire triangle: Oxygen, Heat and Fuel.

Therefore, before trying to light a fire, you need to collect your fuel. You need to look for your own firewood, and the source of this firewood is the trees and bushes that you can see around you. However you cannot just go and chop down a tree in order to build your fire!

First of all, to light a good fire, all firewood should be dead and dry. Still, you need to remember that trees are important for various reasons, besides being a source of firewood. They act as a purifier of the air we breathe: absorbing carbon dioxide and giving off oxygen. Trees also stop soil from being washed away by rain water. Remember that trees take several years to grow, therefore we should do our best to protect them!

Task 4.1: Locate an area with one (or more) rather big trees and go under its branches. Stay quiet for a few moments and observe your surroundings. Does the tree offer any shelter? From what? For whom? Are you alone or are there other organisms on the branches, among the leaves or on the tree's bark? As a patrol discuss why trees are important, not only for human beings, but for the whole natural environment. Write down your ideas in Resource Sheet 4.2. The photograph and clip art provided should help you come up with some ideas. (10 points)

Resource Sheet 4.2: Why are Trees Important?



Resource Sheet 4.3: Looking for Firewood

It is now time to start looking for firewood. You should know that when lighting a fire for cooking you need to have three different categories of firewood:

- Tinder small and thin pieces of firewood that burn instantly e.g. grass or pine needles.
- Kindling small twigs which burn quickly after the tinder has been lit up.
- Fuel these are the thicker twigs and logs which will burn for a longer period of time and provide the hot embers on which to cook.

Where can you find your firewood? You will find you firewood by looking for it near trees and bushes. You may also find firewood, especially tinder, in open areas where there are only smaller plants and grasses.

In the following resource sheets you will be given a guide to some of the natural flora of the Maltese Islands, including some of the more common trees and bushes. You might find these close to the area where you will be setting your fire. Go for a short walk around the area and look out for them. Collect any firewood which you find. Different plants can provide you with different types of firewood. Remember, firewood must be dead and dry!

Task 4.2: In Resource Sheet 4.10 you are to report your findings, including any of the flora mentioned in the guide, the number of times you found each plant and the type of firewood which you found. Include any other flora which is not mentioned in the guide but still provided your patrol with firewood. If you do not know the names of these trees or bushes take a sample of their leaves, and ask your leader for assistance. (30 points)

Resource Sheet 4.4: Plant Profiles – Carob Tree & Olive Tree

Profile No. 4.1

Name: Carob Tree (Siġra tal-Ħarrub)

Occurrence: A common tree in the Maltese countryside.

Legal Status: Protected – One should not cut down, uproot or prune this type of tree without permission.

Firewood: Carob tree logs, from dead branches, provide good fuel. Its bark can also be used as kindling.

Other Uses: The tree produces fruit pods containing seeds. These pods become black when they are ripe and are very nutritious. They can be eaten and are used to produce carob syrup (gulepp). They are also used to feed animals.



Profile No. 4.2

Name: Olive Tree (Siġra taż-Żebbuġ)

Occurrence: In the past this tree was very common in Malta. Today it is not so common, but it is still frequently found in the Maltese countryside.

Legal Status: Protected – One should not cut down, uproot or prune this type of tree without permission.

Firewood: Olive tree logs provide good fuel. Small twigs from this tree can be used as kindling.

Other Uses: This tree has been cultivated for thousands of years. Its fruit, the olive, is used as food and also to produce olive oil.



Resource Sheet 4.5: Plant Profiles – Spineless Caper & Sweet Almond

Profile No. 4.3

Name: Spineless Caper (Kappara)

Occurrence: Very common in the Maltese countryside and often found growing in cracks of high walls or bastions.

Legal Status: *Not Protected.*

Firewood: The spineless caper is not a tree and grows into a bush, therefore it can only provide kindling in the form of small twigs.

Other Uses: The flower buds of this plant can be eaten after being cut and pickled in vinegar.



Profile No. 4.4

Name: Sweet Almond (Sigra tal-Lewz)

Occurrence: Commonly found in valleys and shrubby areas.

Legal Status: *Not Protected.*

Firewood: The Sweet Almond grows into a small tree and can provide small logs and twigs which are good as fuel and kindling.

Other Uses: This tree produces almonds. There are two types of this tree in Malta. One type produces bitter almonds and the other one produces sweet almonds which can be eaten.



Resource Sheet 4.6: Plant Profiles – Fig Tree & Aleppo Pine

Profile No. 4.5

Name: Fig Tree (Siġra tat-Tin)

Occurrence: Very common in Malta, both in the countryside and near human settlement.

Legal Status: *Not Protected.*

Firewood: Wood from the fig tree can be used as fuel. One has to be careful when collecting firewood from underneath fig trees. When living branches are snapped a liquid comes out. This liquid is an irritant to human skin.

Other Uses: This tree produces figs, a fruit which can be eaten either fresh or after being dried. It is also used to produce jams.



Profile No. 4.6

Name: Aleppo Pine (Siġra taż-Żnuber)

Occurrence: In the past this tree was common in Malta. Today it is not so common, but is being replanted in various areas of the Maltese countryside.

Legal Status: Protected – One should not cut down, uproot, or prune this type of tree without permission.

Firewood: The leaves of the Aleppo Pine are in the form of very thin needles. Many of these can be found underneath such trees and can be used as tinder.

Dry pine cones which fall from this tree are good as kindling while fallen pieces of branches can be used as fuel.



Resource Sheet 4.7: Plant Profiles – Fennel & Italian Cypress Tree

Profile No. 4.7

Name: Fennel (Bużbież)

Occurrence: Very common in the Maltese countryside.

Legal Status: Not Protected.

Firewood: The dry stems of this plant can be used as tinder

as they catch fire quickly.

Other Uses: The fennel plant's dried seeds are a very popular herb in cooking. Its leaves can be used to add taste to various dishes such as pasta. They can also be put on meat during open fire cooking.

The leaves can also be eaten after being freshly cut. They have a rather particular and powerful taste.



Profile No. 4.8

Name: Italian Cypress Tree (Sigra taċ-Ċipress)

Occurrence: Planted by humans in various rural and urban areas and occasionally also found growing in the wild.

Legal Status: Protected – One should not cut down, uproot, or prune this type of tree without permission.

Firewood: The Cypress has flat and thin foliage that can be collected from under the tree and used as tinder. Twigs from this tree can be used as kindling and, if thick enough, as fuel.

Dry cypress cones which fall from the tree are a good source of kindling.



Resource Sheet 4.8: Plant Profiles – Giant Reed & Sandarac Gum Tree

Profile No. 4.9

Name: Giant Reed (Qasba Kbira)

Occurrence: Common in many Maltese valleys and areas

with plenty of water.

Legal Status: *Not Protected.*

Firewood: Dry pieces of the giant reed burn quickly and

can be used as kindling.

Other Uses: Fresh pieces of giant reed are fire resistant and can be used to form a temporary grid on which to cook your food. You can also put it through food such as meat and then put the reed with the food on an open fire and rotate it until the food is done.

When put on the fire the fresh reed will slowly dry up and then eventually catch fire. Therefore one should have a supply of extra reeds prepared.



Profile No. 4.10

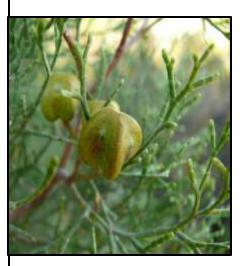
Name: Sandarac Gum Tree (Sigra tal-Gharghar)

Occurrence: In the past it was quite common in Malta, however today it is rare in the wild.

Legal Status: It is the Maltese National Tree. It is protected - one should not cut down, uproot, or prune this type of tree without permission.

Firewood: This tree has properties which are very similar to that of the Italian Cypress Tree. Its foliage can be used as tinder when dry.

Its small cones can be used as kindling along with the dry twigs that fall from the tree.



Resource Sheet 4.9: Plant Profiles – Oleander & Castor Oil Tree

Profile No. 4.11

Name: *Oleander (Olejandru)*

Occurrence: Common in the Maltese Islands. It has been planted by humans in various public areas.

Legal Status: Not Protected.

Firewood: No parts of this tree should be used as firewood.

Note: This tree is extremely poisonous. Eating any of its parts can lead to death. Using oleander twigs as firewood or to stir food results in the contamination of the food being cooked.



Profile No. 4.12

Name: Castor Oil Tree (Rignu)

Occurrence: Common in the Maltese Islands, especially in areas highly disturbed by human activity.

Legal Status: *Not Protected.*

Firewood: No parts of this tree should be used as firewood.

Note: This tree is extremely poisonous. Eating a small amount of its bean like seeds can result in serious poisoning and death.



Resource Sheet 4.10: Firewood Collection Report

Plant Name	Number of Times Found	Type of Firewood Provided
Carob Tree		
Olive Tree		
Spineless Caper		
Sweet Almond		
Fig Tree		
Aleppo Pine		
Fennel		
Italian Cypress Tree		
Giant Reed		
Sandarac Gum Tree		
Oleander		/
Castor Oil Tree		/

Resource Sheet 4.11: Building and Lighting a Fire

If you have collected enough firewood, it is now time to build and light your fire. Remember to take all necessary precautions in order to safeguard your personal safety and the safety of your surroundings.

Task 4.3: Your last task is to evaluate the quality of your firewood and make some observations which may become useful for your next cookout. While you are burning different firewood, observe and take note of some aspects, for example: Did the firewood burn quickly or slowly? Did it produce a lot of smoke that made cooking difficult? Did it produce enough hot embers on which to cook? Which tinder was the best to start a fire quickly? (30 points)

Write your observations of firewood from different plants in the table below:

Plant Name	Observations

Resource Sheet 4.12: Cooking With No Fire

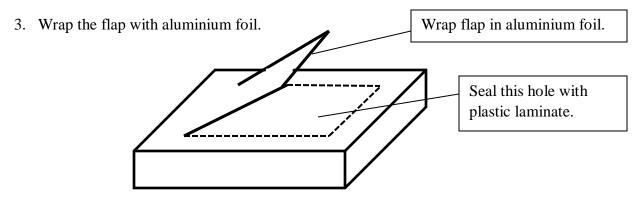
What if you are outside in an area with little or no trees, and therefore no firewood available? Would it be possible to cook some food? The most important element when cooking food is heat. The world's best natural heat source is the sun. We can use the heat coming from the sun to cook food, by building a simple solar oven. This is a very useful method because it is very cheap to build and causes no harm to the environment.

Task 4.4: Build a solar oven for your patrol. You have the following equipment with which to build your oven: a takeaway pizza box, a normal cardboard box, a tool knife, aluminium foil, a plastic laminate, black construction paper, a roll of clear tape, a newspaper and a glass plate. You can find the instructions to build your solar oven in Resource Sheets 4.13 and 4.14. (30 points)

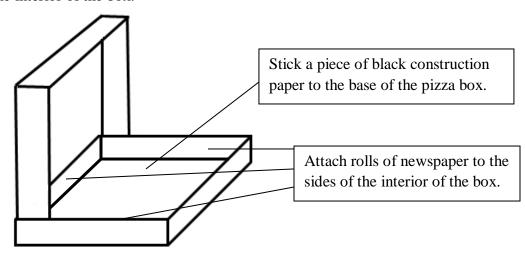
Resource Sheet 4.13: Building a Solar Oven

Follow these instructions:

- 1. Using your knife, cut a three sided flap on the lid of the pizza box, as you can see in the diagram.
- 2. Open the flap. You now have a hole on your pizza box lid. Seal this hole using the plastic laminate and the tape.

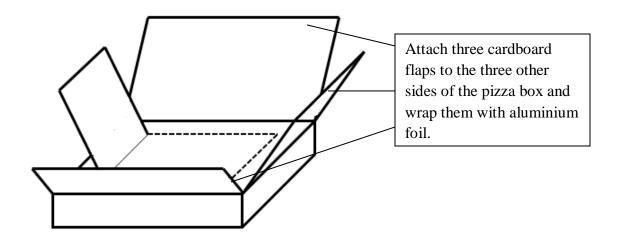


- 4. Open the pizza box. Cut a piece of black construction paper that fits exactly into the box and stick it to the base of the box.
- 5. Divide the pages of the newspaper in groups of 4. Roll them up and attach them to the sides of the interior of the box.



Resource Sheet 4.14: Building a Solar Oven

6. Close the pizza box and open the flap you have cut in the lid. Use the other box to cut 3 pieces of cardboard and create 3 other flaps to attach to the other sides of the lid. Wrap these 3 new flaps in aluminium foil as well.



- 7. Your solar oven is now ready. Put it under direct sunlight and adjust its position in such a way that the sunlight is reflected off the aluminium foil on the flaps, towards the hole (sealed by transparent plastic) in the pizza box lid. Your oven should start heating up.
- 8. Put butter, a slice of cheese and a slice of ham on a piece of bread. Put the bread on the glass plate, open the solar oven, and place the plate on the black construction paper. Wait for some minutes and check whether the cheese is melting. When it does, you can eat your solar cooked toast.



Resource Sheet 5.1 – General Instructions

- ➤ In this activity you will be using your mapping and orienteering skills to go on a trail, walking along some cliffs and going down to three different beaches.
- ➤ You have been provided with an OS map covering the area of the trail. This map is crucial for your patrol to plan the route that you will take in order to go from one check point to another.
- ➤ A Scout Leader will be present at each check point. The Scout Leader will give you a set of resource sheets which you will need in order to complete the different tasks. Hold on to all resource sheets until you reach your final check point, where you will hand them in to one of your leaders.
- > It is important that all members of the patrol respect the highway and country code throughout the trail.
- Each patrol will have a maximum of 4 hours to complete the trail. No bonus points will be given to the patrols which are ready in less than 4 hours. However 3 points (out of a total of 100) will be deducted for every 5 minutes that a patrol arrives late.
- ➤ Good luck!!

Arrival Time:
Patrol Members:

Activity 5: Investigating and Conserving our Marine Environment.

Resource Sheet 5.2 – Starting Point

You are currently at Grid Reference 4290 7540, next to the Mgarr Parish Church. From here

your patrol will set off on a trail along the nearby coastline. You are to stop at different check

points where you will be given the instructions and equipment needed to complete different tasks

related to our marine environment.

Below are the grid references of the different check points which you are to visit. Plan the

best route that will take you through all check points.

• Starting Point: 4290 7540

• Check Point 1: 4080 7550

• Check Point 2: 4110 7570

• Check Point 3: 4090 7700

• Finishing Point: 4095 7650

Resource Sheet 5.3 – Check Point 1: Who do we share our sea with?

Since Malta is surrounded by sea, Maltese people have for years been using the sea and the coastline for various purposes. However we share the sea with many other creatures. There is a large diversity of plants and animals which live in seawater or very close to it. There are also other animals which live on land but may still depend on the sea, especially for food.

You are currently at Ġnejna Bay. In the summer of 2012 this bay was mentioned in the news because of a very rare episode. A loggerhead turtle (sea turtle) came on the beach to lay its eggs. This shows how the Maltese seas and coastline, including its beaches, can be of great importance to all forms of life living in the Mediterranean Sea.

Task 5.1: In this task you will be taking note of marine life found in the bay. Go for a short walk along the bay's shoreline, which includes both sand and rocky areas. Look for any sea creatures which share the sea with us human beings. You may also find some evidence of the presence of animals, such as shells. You can walk barefoot and take a few steps into the sea, but be careful not to fall into the sea and not to step on any broken glass. Write down your findings in the table found on Resource Sheet 5.4. List any animals (or animal evidence) which you encounter, from snails and crabs, to jellyfish and seagulls. Try to identify different types of fish. If you cannot identify an animal ask your leader for assistance.

As you are searching for animals, take note of the number of different sea plants which you can find and write your result in Resource Sheet 5.4. (20 points)

Resource Sheet 5.4 – Check Point 1: Marine Life Report

Animal Name	
Number of Different Sea Plants	

Resource Sheet 5.5 – Check Point 2: How do we use the sea and coast?

You are now next to the Lippija Tower, built in 1637 by the Order of St. John to offer protection to Ġnejna Bay. As you can see, from this tower and the surrounding high cliffs, one has a view of Ġnejna Bay and Ghajn Tuffieha Bay. In the distance you can also see part of Golden Bay.



Task 5.2: It is now time to take advantage of your high position on these cliffs and investigate the human activity going on in the bays below. Walk from this tower to Grid Reference 4100 7620, before proceeding to Check Point 3. Look at Ġnejna Bay and then at the other bays. How do people make use of the sea, the beach or the rest of the coast nearby? Can you see any buildings? What are they used for? Note down your observations in the left column of the table on Resource Sheet 5.6. (10 points)

Task 5.3: After listing how people have made different uses of the sea and the bays, discuss whether and how these uses can have positive or negative effects on the environment or on the human population. For example, swimming can have a positive impact on human health, and may have few negative effects on the environment. Other uses, such as buildings, can cause negative impacts such as pollution or loss of natural land. If pollution is taking place, how does it affect the environment? Can it also affect people e.g. food or the space available for swimming? Do some buildings offer any positive effects? Fill in the points you discuss in the right column of the table on Resource Sheet 5.6. Then answer the question found below the table. (20 points)

Resource Sheet 5.6 – Check Point 2: Uses and Impacts Report

Task 5.2: Human Uses of the	Task 5.3: Impacts on the Environment and the Human Population	
Sea and Coast.	Positive Imapcts	Negative Impacts
Should all the human uses y	you listed be allowed to take plac	ce? What would you suggest to
	luce the negative impacts of hum	
mercuse the positive and rec	ruce the negative impacts of num	an uses of the sea and coast.

Resource Sheet 5.7 – Check Point 3: Beach Litter

You have now arrived at Golden Bay. In this check point you will be investigating the different forms of litter that one can find on a beach and discuss the possible harmful impacts that this can have on human beings or other marine wildlife. Our seas are not inhabited only by fish and small creatures, which you may have found on the shore in Check Point 1. In Malta's deeper seas, and in other areas of the Mediterranean, one can also encounter other magnificent creatures such as sea turtles, dolphins, whales and the extremely rare monk seal. There are also various species of birds which nest on high cliffs and spend a lot of time on the sea looking for food.

Task 5.4: Go on a ten minute walk along the beach and, using the gloves and garbage bag provided to you by your leader, collect any form of litter left behind by people. This litter could have also been dumped in other areas and carried to the sea by the wind or rain. Put this litter in the garbage bag and list the different items found in Resource Sheet 5.8. For each different item write down how this litter can be dangerous to human beings or to the wildlife living in the sea.

Be very careful of pieces of broken glass or other sharp objects. Do not touch any syringes which you may find and alert a leader immediately. (20 points)

Example: Plastic bags in the sea may look similar to jellyfish. Sea turtles eat jelly fish and can therefore eat plastic bags by mistake. This can be very harmful to turtles and can cause death as the plastic is not digested.

Resource Sheet 5.8 – Check Point 3: Beach Litter Report

Litter Item	Possible Dangers to People or Marine Wildlife

Resource Sheet 5.9 – Final Point: Building a Raft by Reusing Water Bottles

Welcome to Ghajn Tuffieha Bay, also known as the Riviera Bay. You have now completed your trail and it is time for your final task. Over the past few months you have been collecting used water bottles, and it is now time to use them. You are to use the bottles which your patrol collected, and the other equipment provided, to build a small raft.

Task 5.5: The rules for this task are the following:

- The raft must be big enough for all members of the patrol to sit on.
- The raft should be steady and the patrol should be able to sit on it and paddle to a distance given by the leader.
- You can only make use of the equipment given (5 pioneering poles, plastic bottles, a roll of string and 12 pieces of rope)
- You are to work as a team and use your pioneering skills when building your raft.
- If any plastic bottles get loose from the raft, these are to be collected immediately.

(30 points)

Hint: A possible way to build a steady raft from plastic water bottles is to firmly tie the bottles in packs of four. These packs will then be tied together, four packs at a time. All these bigger packs shall then be tied together and supported by a frame constructed from poles, using pioneering. It is important that all the bottles and packs of bottles are tightly tied together and to the frame, in order to reduce the chance of plastic bottles getting loose.

Photograph References

Activity 2

Photograph of Wild Rabbit taken from http://schoolnet.gov.mt/tanti/Creatures.html

Photograph of Blue Rock Thrush taken from

http://www.birdinginmalta.com/species_bluerockthrush.htm

Photograph of Common Pipistrelle taken from

http://dal.hubpages.com/hub/JEWEL-IN-THE-CROWN-A-WETLAND-TO-BE-PROUD-OF-

PART-TWO-THE-WOODLANDS

Photograph of Weasel taken by Raymond Galea

Photograph of Pygmy White-Toothed Shrew taken from

http://www.thefeaturedcreature.com/2010/11/etruscan-shrews-will-blow-your-

mind.html#axzz23cxjZh4n

Activity 4

Photograph of Sandarac Gum Tree taken from

http://www.flickr.com/photos/leslievella64/3694584002/

Appendix

Highway Code

When on a hike with your patrol remember:

- ➤ Walk in a single file.
- ➤ Walk on a pavement, when there is one. If not, walk on the right-hand side of the road, to face on-coming traffic.
- The PL should walk at the front, carrying a white light, and the APL should walk at the back with a red light. The person at the back should make sure that no one falls behind.
- ➤ When dark wear reflective clothing and never shine a light at drivers as this can cause an accident.
- ➤ When possible cross the road at a pedestrian cross and make sure that you do not cross the road at points where on-coming traffic can't see you, such as at bends.
- ➤ When possible, avoid walking on main roads.
- ➤ When using a bicycle remember:
 - Before using the bicycle check that the brakes and tyres are in good condition and that the saddle is at the right height for you to drive the bike safely.
 - Always wear a safety helmet and obey all traffic rules as any other vehicle: keep to the left, stop at red lights, obey traffic signs, signal to turn etc.
 - When using the bicycle at night make sure that you have light at the front and reflectors or light at the back of the bicycle.
 - When riding the bike at night wear reflective clothing or reflective strips.
 - When possible, avoid main roads.

Country Code

- ➤ Leave no litter. A scout should leave a place cleaner than he found it and at the end of the activity all litter should be collected and taken home.
- ➤ Protect water. Water is a very scarce and precious resource which farmers and some rare animals depend on, so it is important that water does not get contaminated.
- > Safeguard soil. Soil is important to sustain wildlife and grow food, therefore it is important not to remove stones from rubble walls.
- ➤ Wear light coloured clothes so that you can be easily seen.
- ➤ If there is no footpath available, walk on the side of fields in order to minimise damage to crops.
- ➤ Be very careful when lighting a fire as it can easily get out of control.
- ➤ Always keep dogs on a lead so that they do not chase other animals or enter sown fields.
- ➤ Leave other animals in peace as they might be dangerous or injure themselves.
- ➤ Don't damage fences, walls or gates as farm animals may escape.
- > Don't pull up any flowers or plants and don't collect any animals. It is destructive to the local environment and can also be illegal with some species.
- > Don't make too much noise or play loud music as it might disrupt other people or animals.

Highway Code and Country Code Reference:

The Scout Association of Malta. (2010). The Scout Handbook. Gutenberg Press Ltd.