

Environmental Education Activities for Troop Sections

Leader's Guide

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Activity 1: Exploring Historic Sites through Mapping and Tracking - *Leader's Guide*

Aims:

Scouts following this activity will:

- put to practice their orienteering and tracking skills by working as a patrol and following a trail that would lead them to discover and appreciate sites and buildings of historical significance that they may not be familiar with, and
- through the short tasks given at each check point, be able to observe, discuss, suggest and identify why have some sites been left in a rather neglected state, what could be done to conserve them and why they should be conserved.

Scout Prerequisites:

- At least two members of each patrol (ideally the Patrol Leader and the Assistant Patrol Leader) should have a good background in mapping skills, mainly in being able to find a location using Grid References and take a bearing using a compass.
- All patrol members are expected to know what tracking signs are and their meaning.
- All patrol members are expected to know and respect the highway and country code.

Equipment Needed:

- An OS map covering Birzebbugia and the surrounding areas (within the following Grid References: 5600 6700, 5600 6400, 6000 6700, 6000 6400) for each patrol.
- At least one compass and one roamer card per patrol.

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- The resource sheets and clues which each patrol is to find at each check point.
- Envelopes, with the name of each patrol, in which the resource sheets and clues can be placed. In case of bad weather these envelopes can be placed in small plastic bags.
- Good trekking or walking shoes.
- Raincoat and a First Aid Kit.

The Role of the Scout Leaders:

- At least one leader should visit the area a few days before the activity takes place and ensure that all check points and paths are still accessible.
- This activity is based on the patrol system and each patrol should follow the trail and complete the tasks on its own. At least one scout leader should accompany each patrol to ensure the children's safety throughout the activity, especially since most of it takes place in remote areas.
- The scout leaders should in no way influence the decisions of the patrol members when it comes to reading grid references or choosing a path, even if the wrong path is chosen. The clues, the OS map and the occasional tracking signs should help reassure the scouts whether they are on the right track or not.
- At least one scout leader is required to do the trail in advance of the first patrol in order to prepare the necessary tracking signs and put the envelopes at each check point.
- Scout leaders accompanying a patrol should make sure that the tracking signs and the other envelopes remain undisturbed for the following patrols.

General Tips:

- This activity should ideally be held during the cooler months of the year, between October and May. Avoid the months of the hunting season as a considerable part of the activity takes place in the country side, where hunting is allowed.

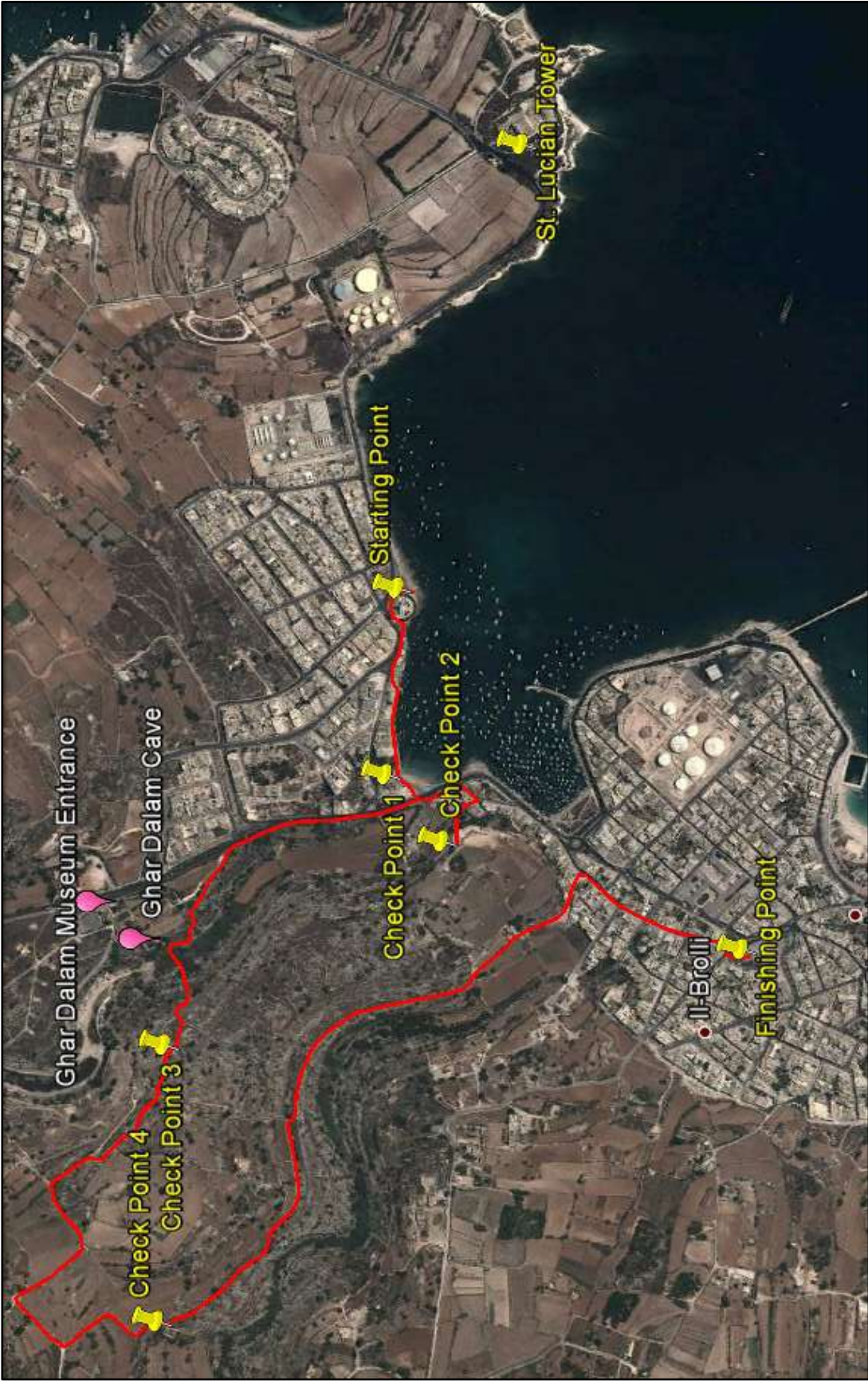
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- The scouts should be advised to bring their own personal packed lunch and drink as they will not have the opportunity to buy from shops during the trail.

The Path:

- In the next page you can find an aerial view of the area in which this activity takes place, the location of each check point and the path to be taken.
- The path is suitable for children in troop sections. More details will be given further on about paths which may require more caution or which may not be clearly marked on the OS map.

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Starting Point:

- The chosen starting point of this trail is Ferretti Battery, found in the Qajjenza area of Birzebbugia.
- This location was chosen as, close to the battery, there is an open space where the scouts can wait till the activity commences and a parking area which may be useful if parents are asked to provide transport for their own children.
- Ideally, not all patrols should start the trail at the exact same time. Each patrol should be given the first resource sheets at an interval of about 10 or 15 minutes. This would create a time gap between each patrol during the whole trail. This will possibly give more autonomy to each patrol as they are not influenced by the other patrols' decisions.
- Each patrol should be given the O.S. map, Resource Sheet 1.1, Resource Sheet 1.2 and Resource Sheet 1.3 at this point. Resource Sheet 1.1 contains some general rules and instructions. All the names of the patrol members participating in the activity need to be written down on this sheet. A scout leader will fill in the 'Departure Time' slot.
- Resource Sheet 1.2 contains some information about the battery and a brief task. The scouts are to observe the area around them and realise that a fortification was built on higher ground to protect the bay. This fortification, which is visible from the Ferretti Battery area, is the St. Lucian Tower, which currently serves as the Malta Centre for Fisheries Sciences. This tower is at Grid Reference 5880 6545.
- Resource Sheet 1.3 consists of four photos of structures which the patrol is to encounter during the trail. Once the structures are spotted the patrol is to answer the corresponding questions. The answers for each question are the following: 1. Wied Dalam, 2. Wied Żembaq, 3. 5765 6550, 4. 5765 6570.



Check Point 1:

- This check point is found at an open area close to a small beach in part of St. George's Bay.
- In this check point each patrol is to find its envelope (these can be hidden in a place where they can be easily found by the scouts yet not draw the attention of passersby). The envelope contains Resource Sheet 1.4 and Clue 1.2.
- In the task the scouts are asked to find out how fishermen in the past, used to tell the time by coming at this check point during the day.
- The scouts are to discover a sun dial which can be found on the façade of a house found in this open area. The scouts are to discuss and write some points about how this sun dial works. They should then read the time shown as accurately as possible. If they do not realise by themselves, the leader can also hint that there are also half hour marks drawn on the wall.
- Points which may be mentioned are that this sun dial is drawn on the wall, to which a metal rod is attached. During the day this wall faces the sun, with the result that the shadow of the metal rod is cast on the wall, acting as an hour hand. As the day passes, the sun moves across the sky and casts the metal rod's shadow at different places on the clock's face. Thus time is always accurately represented on the wall.



Check Point 2:

- In this check point the patrol will walk up a small hill where the Temple of Borg in-Nadur is found. The road is clearly marked on the map and signs can also lead the scouts to this site. The site is watched over by a security guard all day and a gate makes it inaccessible to the public (unless a reservation is made). However, the site is still clearly visible from behind the gate.

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- At this check point the patrol is to find Clue 1.3 and Resource Sheet 1.5, consisting of some brief information about the site and a task. In this task the scouts are first asked to read the three given suggestions of why such a site should be preserved. The scouts should then discuss and give their opinion regarding the importance of these suggestions by ranking them according to importance (1 being the most important and 3 being the least important).
- The patrol is then asked to think of and write down two other possible suggestions. Possible suggestions may include:
 - The site can be used to attract tourists to the area.
 - The site can be visited by the Maltese population and used for educational school outings.
 - The site can give us evidence of what life was like in the past.
 - Many prehistoric sites in Malta have been lost. The ones that are still in a good condition should be protected.
 - It forms part of our cultural heritage.

Check Point 3:

- In this check point the patrol will go to the ruins of an Ancient Roman villa, whose nearby underground cistern is still intact. The path leading to this site is not marked on the map, therefore it is crucial to prepare tracking signs for the scouts beforehand. Since this path is not frequently used it may also be covered by vegetation, especially during the wetter seasons, therefore one must ensure that tracking signs are frequent and clear.
- In Clue 1.3, which leads to Check Point 3, the Grid Reference for the start of this path is given. This is found about 200 metres further down from the entrance of Għar Dalam Museum. From here one can find a path that leads to a few metres away from the entrance to Għar Dalam cave. Here the path continues downslope, leading to a small metal bridge which gets you across the valley bed of Wied Dalam. This makes the crossing of the valley possible

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in the winter season, however one should be cautious during this time of the year as some areas of the path may be slippery. After this bridge the path is mostly upwards, passing by a small tower and a pillbox (seen in the photo) and leading to the Roman Villa. Tracking signs are crucial to keep the patrol on the right track.



- The site of the Roman Villa is recognisable due to the presence of large slabs of stone, of which the villa was built, and large holes dug in the rock used as wells. The underground cistern had been surrounded by a wall in recent years for safety and is accessible through a narrow gate. This gate is generally open, however leaders should be cautious if they allow their scouts to go into the cistern, as they would have to go down a narrow flight of steps. Otherwise the structure is still relatively stable.
- In this check point each patrol should find Resource Sheet 1.6, Resource Sheet 1.7, Resource Sheet 1.8 and Clue 1.4. Resource Sheet 1.6 contains brief information about the site and a description of the task which each patrol should complete by using Resource Sheet 1.7 and 1.8.
- In Resource Sheet 1.7 a sketch of the site is presented to the patrol along with some of the major problems concerning the site, such as the lack of accessibility and visitor facilities. The patrols are to discuss possible (and realistic) solutions to some of these problems. These solutions should then be presented on Resource Sheet 1.8, which contains a blank sketch of the site.
- Possible solutions that may be mentioned are projects of restoration, clearing the paths and putting signs leading to the site, building a room to provide shelter to security guarding the site and setup small boards or plaques with information about the site.

Check Point 4:

- From the Roman villa site a few tracking signs should be prepared to lead the scouts to the frequently used foot path which will take them to Check Point 4.
- At Check Point 4 the scouts will be able to see Ippolito's farmhouse. Most of the interior of this farmhouse is at a risk of collapsing therefore no scouts should be allowed to enter this building (the interior is still visible from outside the house, therefore the scouts would still be able to observe the damage that this house has suffered through time).
- At this check point the patrol should find Clue 1.5 and Resource Sheet 1.9. The Resource Sheet contains some information about this house and a task, asking the scouts to identify the causes which could have led the historic house to be in such a deteriorated state. From the seven given causes the three most important ones which the scouts are expected to choose are: vandalism, nature's elements and little maintenance done to the house.

Finishing Point:

- From Check Point 4 the scouts are asked to go to the Parish Church of Birzebugia. They are led to a path which takes them along Wied Żembaq and into the village of Birzebugia. This path is mostly straight, therefore few tracking signs are required.
- Upon arrival at the finishing point. each patrol leader is to give the leaders all the resource sheets which had been given, including the tasks. The leaders are to take note of the arrival time and deduct points if the patrol has taken more than five hours to complete the trail.

Note:

- Although this activity is specific to the Birzebugia area, it is not aimed for the use of the Birzebugia Scout Group only. Other groups are encouraged to try out this trail or to use the given tasks as an example for making similar trail activities in other localities.

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

Aims:

Scouts following this activity will:

- put to practice their orienteering and tracking skills by working as a patrol and following a trail that would lead them through different Maltese landscapes which provide a habitat for local fauna,
- through the information, flashcards and small tasks found at various check points, become aware of the diversity found in Malta's natural environment, and
- through the last task, which involves the construction of a food web, come to an understanding of the complexity of nature and the need for conservation of all forms of habitat and living organisms, as they all provide a crucial link in the stability of our natural ecosystem.

Scout Prerequisites:

- At least two members of each patrol (ideally the Patrol Leader and the Assistant Patrol Leader) should have a good background in mapping skills, mainly in being able to find a location using Grid References and being able to set and interpret a map correctly.
- All patrol members are expected to know what tracking signs are and their meaning.
- All patrol members are expected to know and respect the highway and country code.

Equipment Needed:

- An OS map covering the Buskett, Dingli and Għar Lapsi areas within the following Grid References: 4400 7000, 4400 6500, 4900 6500, 4900 7000.
- At least one compass and one roamer card per patrol.
- The resource sheets, animal profiles, flashcards and tasks which each patrol is to find at each check point.
- A shoebox for each patrol
- Crafts material to be used for the last task (details given in the last section).
- Envelopes, with the name of each patrol, in which the resource sheets and clues can be placed. In case of bad weather these envelopes can be placed in small plastic bags.
- Good trekking or walking shoes.
- Raincoat and a First Aid Kit.

The Role of the Scout Leaders:

- At least one leader should visit the area a few days before the activity takes place and ensure that all check points and paths are still accessible.
- The Animal Flashcards and Animal Profiles should be cut out separately from each other. Ideally Animal Flashcards should be laminated in order to facilitate the final task, which will be explained in the last section.
- This activity is based on the patrol system and each patrol should follow the trail and complete the tasks on its own. The path chosen is quite straightforward and easily accessible. If it is not possible to have a leader with each patrol, some leaders could be located at check points to ensure that all patrols are progressing as planned.
- At least one scout leader is required to do the trail in advance of the first patrol in order to put the envelopes at each check point. Although the whole path is clearly visible on an OS map, some tracking signs can be set at different points of the trail in order to reassure the patrols that they are on the right track.

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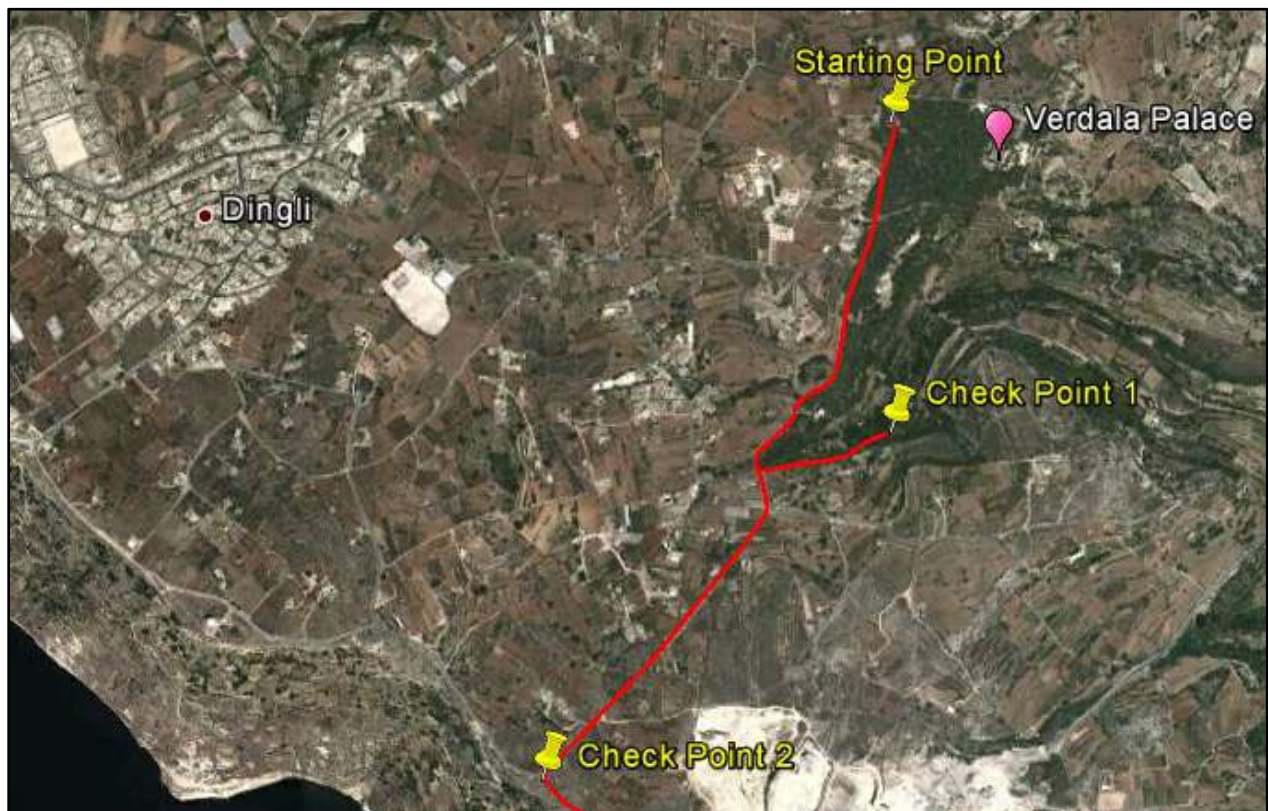
- When a patrol arrives at a check point, the scout leaders should make sure that any tracking signs and the other envelopes remain undisturbed for the following patrols.

General Tips:

- This activity should ideally be held during the cooler months of the year, between October and May. Avoid the hunting season since the activity takes place in the country side, where hunting might be allowed.
- The scouts should be advised to bring their own personal packed lunch and drink as they will not have the opportunity to buy from shops during the trail.

The Path:

- The following pictures show aerial views of the area in which this activity takes place, the location of each checkpoint and the path to be taken.



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Starting Point:

- The chosen starting point of this trail is the small open space opposite the entrance to Verdala Palace, near Buskett.
- Ideally, not all patrols should start the trail at the exact same time. Each patrol should be given the first resource sheets at an interval of about 10 or 15 minutes. This would create a time gap between each patrol during the whole trail. This will possibly give more autonomy to each patrol as they are not influenced by the other patrols' decisions.
- Each patrol should be given Resource Sheet 2.1, Resource Sheet 2.2 and Resource Sheet 2.3 at this point. Resource Sheet 2.1 contains some general rules and instructions. All the names of the patrol members participating in the activity need to be written down on this sheet. A scout leader will fill in the 'Departure Time' slot.
- Resource Sheet 2.2 gives a detailed explanation of what the scouts would be encountering during this trail and also prepares the scouts for the final task of this activity, the construction of a food web. Clue 2.1 is also given in this resource sheet.

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- Resource Sheet 2.3 consists of a table in which the scouts are to record any animals or evidence of animals that they encounter during their trail. Before the activity the scouts should be asked to bring one shoebox per patrol. The animal evidence collected during the trail should be put in this box.

Check Point 1:

- This check point is found near the sheltered area/parking space outside Buskett.
- In this check point each patrol is to find its envelope containing Animal Profiles 2.1 and 2.2, Animal Flashcards 2.1 and 2.2, Clue 2.2 and Task 2.1.
- In this photo you can find the answer to Task 2.1:



Check Point 2:

- To get to this check point the scouts need to walk a short distance back, to the road that passes from outside Buskett, and then walk up the hill that ends on Dingli Cliffs.
- At this check point each patrol is to find its envelope consisting of Animal Profiles 2.3 and 2.4, Animal Flashcards 2.3 and 2.4, Clue 2.3 and Task 2.2.
- In Task 2.2 each patrol is to come up with solutions that can help reduce the number of hedgehog fatalities caused by cars on countryside roads. Some possible solutions can include: setting up road signs warning drivers of hedgehogs in the area, imposing a slower speed limit in countryside roads, setting up short barriers that stop hedgehogs from walking directly onto the road, and creating small tunnels underneath roads, from which wildlife can cross from one side to another safely.

Check Point 3:

- This check point is found on the path that passes through the Fawwara area, at the point where this path starts descending down the cliffs.
- At this check point each patrol should find Animal Profiles 2.5 and 2.6, Animal Flashcards 2.5 and 2.6, and Clue 2.4.

Check Point 4:

- Check Point 4 is found at Tal-Karmnu Chapel in the Fawwara area.
- Here the envelope of each patrol should consist of Animal Profiles 2.7 and 2.8, Animal Flashcards 2.7 and 2.8, and Clue 2.5.

Check Point 5:

- Check Point 5 is found at the outskirts of Siggiewi, on the same path of Check Point 4.
- Here the envelope of each patrol should consist of Animal Profiles 2.9, 2.10 and 2.11, Animal Flashcards 2.9, 2.10 and 2.11, Clue 2.6 and Task 2.3.
- .In Task 2.3 the patrols are to use Flashcards 2.10 and 2.11 to identify the main differences between a house mouse and a pygmy white-toothed shrew. The main differences that should be mentioned are that the shrew is smaller in size, has very tiny eyes but also has a much longer nose than that of the mouse. The mouse has bigger and more visible ears, eyes and feet.

Check Point 6:

- Check Point 6 is found on the path which leads from Check Point 5 to the area of Għar Lapsi.

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- Here the envelope of each patrol should consist of Animal Profiles 2.12 and 2.13, Animal Flashcards 2.12 and 2.13 and Clue 2.7.

Check Point 7:

- Check Point 7 is found in front of the Ghar Lapsi Reverse Osmosis Plant.
- Here the envelope of each patrol should consist of Animal Profiles 2.14 and 2.15, Animal Flashcards 2.14 and 2.15 and Clue 2.8.

Finishing Point:

- The Finishing Point is at the parking area next to Għar Lapsi. Here each patrol is to complete the final task of the activity, which is the construction of a food web consisting of the animals which they got to know about during the trail.
- Upon arrival at this point each patrol leader is to give the leaders Task 2.1, 2.2 and 2.3. The leaders are to take note of the arrival time on Resource Sheet 2.1 and deduct points if the patrol has taken more than five hours to complete the trail. The patrol should then be given Resource Sheet 2.4 which explains what a food web is and how the patrol is to build its own.
- Each patrol should be given the following material: some re-usable putty adhesive, non-permanent pens, and a laminated copy of one of the Food Web Backgrounds, showing one particular habitat. Each patrol should focus on a different habitat.
- Each patrol is to choose the flashcards of the animals which are likely to be found in that habitat. The food web will be created by attaching the animal flashcards to the food web base and draw arrows connecting the prey to the predator.
- Once all patrols are ready, the leaders can help create a discussion which will lead the scouts to realise how all living things are connected and interdependent on one another and how the disturbance of one particular habitat or one particular species can lead to a disruption of the whole food web, thus affecting our whole natural environment.

Activity 3: Investigating Our Freshwater Environment

Leader's Guide

Aims:

Scouts following these tasks will:

- through observation and on site investigation, identify the importance of freshwater both for human needs and for the natural freshwater ecosystem,
- be aware of the different possible sources of freshwater pollution and the damaging effects that these could have on the freshwater environment and on human health, and
- test their pioneering and survival skills by constructing a structure that collects clean rain water, and discussing how they can make available fresh water fit for drinking.

Scout Prerequisites:

- At least two members of each patrol should have a good grasp of pioneering skills (mainly in making neat and firm lashings).
- All patrol members are expected to know and respect the highway and country code.

Equipment Needed:

- Resource Sheets 3.1 - 3.6.
- For Task 3.3: Some empty water bottles, some matches, 2 mess tins and a piece of clean cloth for each patrol.
- For Task 3.5: four staves, ten pieces of rope which are suitable and long enough for lashings, a ground sheet and a bucket for each patrol. Another two 2 litre water bottles, a funnel and a permanent marker to be used by the scout leader.

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- A field guide of local flora and fauna.
- Good trekking or walking shoes.
- Raincoat and a First Aid Kit.

The Role of the Scout Leaders:

- Although the resource sheets are planned for use at Chadwick Lakes, Scout Leaders are free to choose and adapt the tasks to other areas which have a permanent natural flow of freshwater (such as Bahrija Valley), or areas which have a considerable flow of water during the winter season.
- Scout leaders can integrate these tasks into various outdoor activities such as hikes, camps or expeditions. Scout leaders should identify three different check points along a water course, where these tasks can take place.
- Scouts should be allowed to work and explore the freshwater freely, as a patrol. Scout leaders are to be present to ensure the safety of the children and to minimize disruption of natural habitats.
- Leaders must make sure that the required resource sheets and equipment are provided at each check point.

General Tips:

- These tasks should ideally be held between late autumn and early spring, thus ensuring that a significant amount of flowing water is available, making it possible for each patrol to have its own areas to explore.

Check Point 1:

- At this check point each patrol should be given Resource Sheet 3.1 and Resource Sheet 3.2, consisting of Task 3.1 and Task 3.2.
- In Task 3.1 the scouts are to observe their surroundings and take a look at the photograph and clip arts provided, and then discuss why the presence of freshwater is so important for Malta.
- Their answers should include that freshwater is of great importance for agriculture, provides a scenic landscape which could attract tourists and serve as a recreational area for walks or family outings. Freshwater is also the natural habitat for freshwater creatures such as frogs and tadpoles, freshwater crabs and various insects, and also provides drinking water to various animals such as birds.
- In Task 3.2 each patrol is to find a small area of water and look for any forms of life found in that area, either animals or plants. They can do this by carefully looking at the water or by moving some twigs or stones that may be found next to the surface water level. Scouts should not be allowed to collect any specimens.
- In the end, the results of all patrols can be compared with the aim of identifying some of the more common species found in the area. If some species cannot be identified by the scouts, they are allowed to ask their leaders for assistance. In this case a field guide can come in handy, as the scouts can look up the animal or plant in the guide. The scouts may also be allowed to have one camera per patrol to take photos of unidentified species, in order to be identified later.

Check Point 2:

- In this check point the scouts will learn about the pollution of freshwater. Each patrol should be given Resource Sheet 3.3, Resource Sheet 3.4 and Resource Sheet 3.5 in order to complete Task 3.3 and Task 3.4.

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- In Task 3.3 each patrol is given an empty and transparent plastic bottle and asked to choose another small area of freshwater. The patrol should fill the bottle and see whether the water is clear or murky. The scouts should become aware that they should never drink flowing water directly, even if it appears clear.
- In the second part of Task 3.3 the scouts are expected to make flowing water safe to drink. Each patrol should be given some matches, two mess tins and a piece of clean cloth. They are expected to use all these items. They can make use of any other items which they can find in the area. The scouts are expected to do the following:
 1. The patrol should collect some firewood and build an open fire. The matches are used to light the fire.
 2. One of the mess tins is used to collect the flowing freshwater. The clean piece of cloth is placed on the other mess tin.
 3. Water is poured from the first mess tin, on to the other one. The clean piece of cloth acts as a filter to remove foreign objects, such as small stones, from the water.
 4. The mess tin is removed and the mess tin with the filtered water is placed on the fire until the water boils for five minutes.
 5. The boiled water is left to cool.
- .Resource Sheet 3.4 provides the scouts with some information about some of the causes and effects of freshwater pollution. In Resource Sheet 3.5 each patrol is to complete Task 3.4 by observing the area around them and identify possible sources of pollution. The patrol should discuss the possible effects of this pollution and any solutions that can be proposed to remove or reduce the negative impacts of such pollution sources.

Check Point 3:

- In this last check point each patrol should be given Resource Sheet 3.6 and the pioneering equipment needed for Task 3.5 (already listed under the Section: Equipment Needed). With

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the equipment provided, the scouts are to construct a pioneering structure which can collect rainwater. The scouts can use any of the equipment provided, and are also free to make use of anything which they can find in the area. The structure has to be stable and lashings should be neat and firm.

- Ideally this check point should be located in an open space close to a water supply. This would allow the scouts to have space where they can build their structure and also provide the leader with the water needed to test the structures.
- Each patrol should not take more than 30 minutes to complete the structure. The groundsheet, used to collect rain water and direct it into the bucket, should occupy as much area as possible, thus collecting more rain water.
- When a patrol is ready, the leader should fill a 2 litre bottle with water and pour it on the ground sheet to test the structure. The water collected in the bucket will be measured by putting it into another 2 litre bottle, using a funnel. The level of collected water for each patrol will be measured on the bottle by making a mark using a permanent marker and writing the name of the patrol.
- The patrol which collects the most water is awarded points for making the most efficient structure.

Activity 4: Collecting Firewood for Open Fire Cooking - *Leader's Guide*

Aims:

Scouts following this activity will:

- through observation and on site investigation, identify the importance and benefits of conserving trees and bushes, not only for the needs of human beings, but for sustaining our natural environment,
- become aware of some of the more common flora found in the Maltese Islands and how they can be useful to them, not only for firewood but also for their edible fruits, leaves or flower buds, and
- test their open fire skills by collecting good firewood, building and lighting up a good fire and cooking a meal for their patrol.

Scout Prerequisites:

- Each patrol should have a good grasp of how to build and light an open fire. Each patrol should observe the safety precautions necessary when cooking on an open fire.
- All patrol members are expected to know and respect the highway and country code.

Equipment Needed:

- Resource sheets 4.1 - 4.14.
- Cooking Equipment: grids, cooking pots or pans, matches, utensils and cutlery.
- Food and any other useful ingredients (e.g. cooking oil) for each patrol.
- Good trekking or walking shoes.
- A field guide of local flora.

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- For Task 4.4: 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 for each patrol.
- Raincoat, a First Aid Kit and buckets to be filled with water to extinguish any unwanted fires.

The Role of the Scout Leaders:

- The first task for scout leaders is to choose a suitable location where this activity can take place. Such location should have plenty of different trees and vegetation with considerable accessible area in order for the scouts to be able to go for a short walk in search of firewood. Possible locations may include campsites, valleys or woodland areas where open fires are allowed.
- Scout leaders can setup this activity on its own, as a cookout, or else integrate it into other activities such as camps or hikes.
- Scouts should be allowed to work and explore the area freely, as a patrol. The scout leader's main role is to ensure that no harm is done to the environment, especially to protected trees, during the collection of firewood, and that all safety precautions are followed when lighting the fire and during cooking.
- Leaders must make sure that the required resource sheets and equipment are provided to each patrol.

Introduction: Resource Sheets 4.1 and 4.2:

- Resource Sheet 4.1 is an introduction to the activity, explaining that the patrol will be cooking their own meals on an open fire for which they need fuel.
- In Resource Sheet 4.1 the scouts are also given some of the reasons for which trees are very important, other than for firewood. This leads to Task 4.1 in which each patrol is to go under a tree (or group of trees) and, through observation, identify various benefits that trees offer to

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the environment. They should write down these benefits in the space provided on Resource Sheet 4.2, beneath the photograph that should help give them some ideas.

- They should mention that trees provide shade from the sun and shelter from strong winds. Trees are also the habitat and nesting sites of various animals such as insects, birds and reptiles such as the chameleon. Various animals feed on the leaves, flowers and fruit of trees. These animals are in turn eaten by other bigger animals in the food web.
- The answers of each patrol can then be compared together, generating a discussion that identifies common observations and pin pointing aspects which may have been left out or noted only by a few patrols.

Looking for Firewood and the Flora Guide:

- The next step for each patrol is to start looking for firewood. Resource Sheet 4.3 gives a brief introduction of the different categories of firewood needed, and some hints of where firewood is likely to be found.
- Resource Sheets 4.4 to 4.9 consist of a guide of twelve of the more common local flora and the National Tree. The guide gives a picture of the tree or shrub and some basic information including its name, legal status, occurrence, the firewood which it can provide and other food related uses which the plant may have. It also includes two of the more poisonous trees found in the Maltese Islands. In Task 4.2 the scouts are to go for a short walk in the area nearby and look for these trees and shrubs, collecting the firewood needed for their open fire.
- The guidelines to Task 4.2 are given in Resource Sheet 4.3. In Resource Sheet 4.10 each patrol should report the findings of any flora found in the guide. They should also jot down the number of occurrences of each plant and the type of firewood which they collect. If they get firewood from any other tree or shrub which is not in the guide, they are to write it down as well. If they do not know the name of the plant, they can ask a leader for assistance. If the leader has a field guide of the local flora, the scouts can look it up themselves.

Building and Lighting a Fire:

- The last stage of this activity is the building and lighting of a fire, and the cooking of the patrol's meal. At this stage, leaders should keep a sharp eye on their patrols in order to ensure that all safety precautions are taken.
- As they light their fire, the scouts are to complete Task 4.3. In the table provided they are to write down some observations and give their own judgment about the different firewood used: whether the tinder was good to start the fire, which kindling was best in order to keep the fire burning, whether one type of firewood produced more smoke, while other types of firewood may have produced more embers.
- A member of the patrol should hold on to these observations so that they can be referred to during future cookouts.

Building a Solar Oven:

- In Resource Sheet 4.12 the scouts are given an explanation about how they can use solar energy to cook food, especially in areas where little firewood is available. Building and using a solar oven is cheap and environmental friendly.
- In Task 4.4 the scouts are asked to construct a solar oven as a patrol. The scouts are asked to bring the required equipment themselves, or else they can be provided with the equipment by the leaders.
- Resource Sheet 4.13 contains the instructions needed to build the solar oven. When this is ready each patrol is to test the oven by making some pieces of toast. The ingredients for the toast (bread, butter, cheese and ham) should be given to the children by the leader. It is important that the scouts adjust the oven to the direction of the sun from time to time.
- This task should ideally be done on sunny days and between 11.00am and 3.00pm, in order to be successful. If the weather is not favorable on the day of the activity, the oven can be built anyway and kept by the patrol to be used in another activity such as a camp.

Activity 5: Investigating and Conserving our Marine Environment - Leader's Guide

Aims:

Scouts following these tasks will:

- test their mapping and orienteering skills as they plan a route that will take them through various check points at a coastal area,
- become more aware of the biodiversity found in Malta's marine environment and how human activity in such areas can cause different impacts on this environment, even affecting the well-being of the human population, and
- test their pioneering and teamwork skills as they construct a small raft from reused water bottles.

Scout Prerequisites:

- At least two members of each patrol (ideally the Patrol Leader and the Assistant Patrol Leader) should have a good background in mapping skills, mainly in being able to set a map and find a location using Grid References.
- At least two members of each patrol should have a good grasp of pioneering skills (mainly in making neat and firm lashings).
- All patrol members are expected to know and respect the highway and country code.

Equipment Needed:

- An OS map covering Mġarr and the surrounding areas (within the following Grid References: 4000 7500, 4000 7800, 4400 7500, 4400 7800) for each patrol.

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- At least one compass and one roamer card per patrol.
- Resource Sheets 5.1 – 5.9.
- A field guide of Malta's coastal fauna.
- Garbage bags and disposable gloves, to be used in Task 5.4.
- For Task 5.5: 5 pioneering poles, 12 pieces of rope (2m in length), a roll of string and reused water bottles, for each patrol. Canoe paddles and life jackets.
- Good trekking or walking shoes and swimming gear.
- Raincoat and a First Aid Kit.

The Role of the Scout Leaders:

- At least one leader should visit the area a few days before the activity takes place and ensure that all check points and paths are still accessible.
- This activity is based on the patrol system and each patrol should plan a route and complete the tasks on its own. At least one scout leader should accompany each patrol to ensure the children's safety throughout the activity.
- The scout leaders should in no way influence the decisions of the patrol members when it comes to reading grid references or planning their route, even if the wrong path is chosen.
- A leader should be present at each check point with the required resource sheets and equipment needed to complete each task.

General Tips:

- This activity should ideally be held in late September, when beaches are not too busy and the weather is still favourable for swimming.

The Path:

- In the following page you can find an aerial view of the area in which this activity takes place, the location of each check point and the ideal path to be taken.

- The path is suitable for children in troop sections.

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Starting Point:

- The chosen starting point of this trail is Mgarr Church Square. This area has a lot of open space where the scouts can wait till the activity commences.
- Ideally, not all patrols should start the trail at the exact same time. Each patrol should be given the first resource sheets at an interval of about 10 or 15 minutes. This would create a time gap between each patrol during the whole trail. This will possibly give more autonomy to each patrol as they are not influenced by the other patrols' decisions.
- Each patrol should be given the O.S. map, Resource Sheet 5.1 and Resource Sheet 5.2 at this point. Resource Sheet 5.1 contains general instructions and rules. All the names of the patrol members participating in the activity need to be written down on this sheet. A scout leader will fill in the 'Departure Time' slot.
- Resource Sheet 5.2 gives the scouts a brief description of the activity and the grid references of all the check points in the trail. The scouts should then use these grid references to plan and plot the route that they would be taking to get to each check point.

Check Point 1:

- This check point is found at Ġnejna Bay. Here the scouts should be given Resource Sheet 5.3, Resource Sheet 5.4, in order to complete Task 5.1.
- Resource Sheet 5.3 gives the instructions for this task. The patrol is to go for a walk on the sea shore and observe the marine life present. Any marine animals should be noted down in the space provided in Resource Sheet 5.4. This list is likely to include crabs, snails, seagulls and different types of small fish. If some creatures, especially fish, are not identified by the scouts, they can ask a leader for assistance. At the end of this leader's guide a set of photographs of some of the commonest coastal animal species found in the Maltese Islands has been given. A field guide can be given to the patrols and they can look up the animal themselves, or else each patrol can be allowed to have one camera to take photos of unidentified animals which will be identified at a later stage.

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- The patrol should also look out for different forms of sea plants, recording the number of different species which they encounter.
- The leaders should emphasise that during this task the disruption of the marine wildlife should be minimal and that no living specimen should be collected.

Check Point 2:

- This check point is found at Lippija Tower, on the cliffs next to Ġnejna Bay. At this check point the patrol should be given Resource Sheet 5.5 and Resource Sheet 5.6. The scouts will use these resource sheets to complete Task 5.2 and Task 5.3.
- In Task 5.2 the scouts are asked to first look down at Ġnejna Bay and then walk on a path, close to the cliffs, towards Ghajn Tuffieħa Bay and Golden Bay. From this high altitude the scouts are to look down at the bays and the nearby coastline and identify different forms of human interference and activity. The most likely observations could include swimming, sunbathing, barbeque cooking, people driving boats, the presence of boat houses and the presence of a hotel. These observations are to be written down in the space provided in Resource Sheet 5.6.
- Task 5.3 asks the scouts to discuss the possible positive or negative impacts of each human activity on the environment and the well-being of the human population. For example, swimming can have positive impacts on human health and causes little negative impacts on the environment. People setting up barbeques can lead to negative impacts like litter and charcoal left on the sand, whilst having dustbins on the beach will result in the positive effect of having cleaner beaches. Boating can lead to noise pollution and sea pollution from fuel spills. The presence of a hotel increases the number of tourists and offers more employment opportunities, however it can have serious negative impacts as it has taken over a large area of coastal land, and can be considered as an eye sore. Sewage from boat houses and the hotel can lead to sea pollution and contamination.
- These possible impacts should also be listed in the space provided in Resource Sheet 5.6. In the second part of Task 5.3 the scouts are to discuss whether the human activities they had

listed should be allowed to take place and what can be done to increase the positive and reduce the negative impacts of human uses of the sea and coast.

Check Point 3:

- Check Point 3 is found at Golden Bay. Here each patrol should be given Resource Sheet 5.7, Resource Sheet 5.8, a garbage bag and some disposable gloves.
- As part of task 5.4 the patrol is to go for a short walk on this beach and, wearing the disposable gloves, collect different forms of litter into the garbage bag. In Resource Sheet 5.8 the scouts are to note the different types of litter that they collect.
- In the second part of this task the patrol is to discuss the possible negative effects that this litter can have on human beings and on different marine wildlife. For example, pieces of broken glass or metal cans can cause danger to people walking barefoot on the beach; pieces of plastic used to pack bottles and cans can cause a hazard to marine wildlife such as dolphins or turtles which can get entangled in this plastic; and plastic bags may be mistaken for jellyfish by marine animals such as turtles, resulting in them eating the plastic and causing digestion problems which can lead to death.
- These possible consequences of litter are to be written down in the space provided in Resource Sheet 5.8. The garbage bags with the collected litter should first be checked by the leader to make sure that all items mentioned by the patrol are in the bag, and then disposed of in a bin.

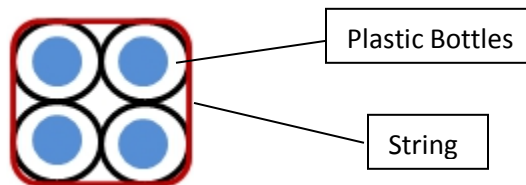
Final Point:

- This last check point is found at Ghajn Tuffieha Bay. Upon arrival at this point each patrol should hand in all the resource sheets which were given to them during the trail. A leader should take note of the 'Arrival Time'.

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- Each patrol should then be given Resource Sheet 5.9 and the required equipment for building a raft of plastic bottles (Task 5.5).
- A few months before the activity all patrols should be informed to start collecting used water bottles. The more the bottles, the more likely to build a raft large enough for the whole patrol.
- This bay was chosen as the point where to complete this task due to the presence of launching lanes. This is a space from which the raft can be taken into the sea without entering the swimmer's zone. The leader should identify a point (such as a buoy) to which each patrol is expected to paddle.
- In Resource Sheet 5.9 the patrols are given a hint of a possible method with which they can construct their raft. The diagrams below show how the raft can be constructed by using this method.

Step 1



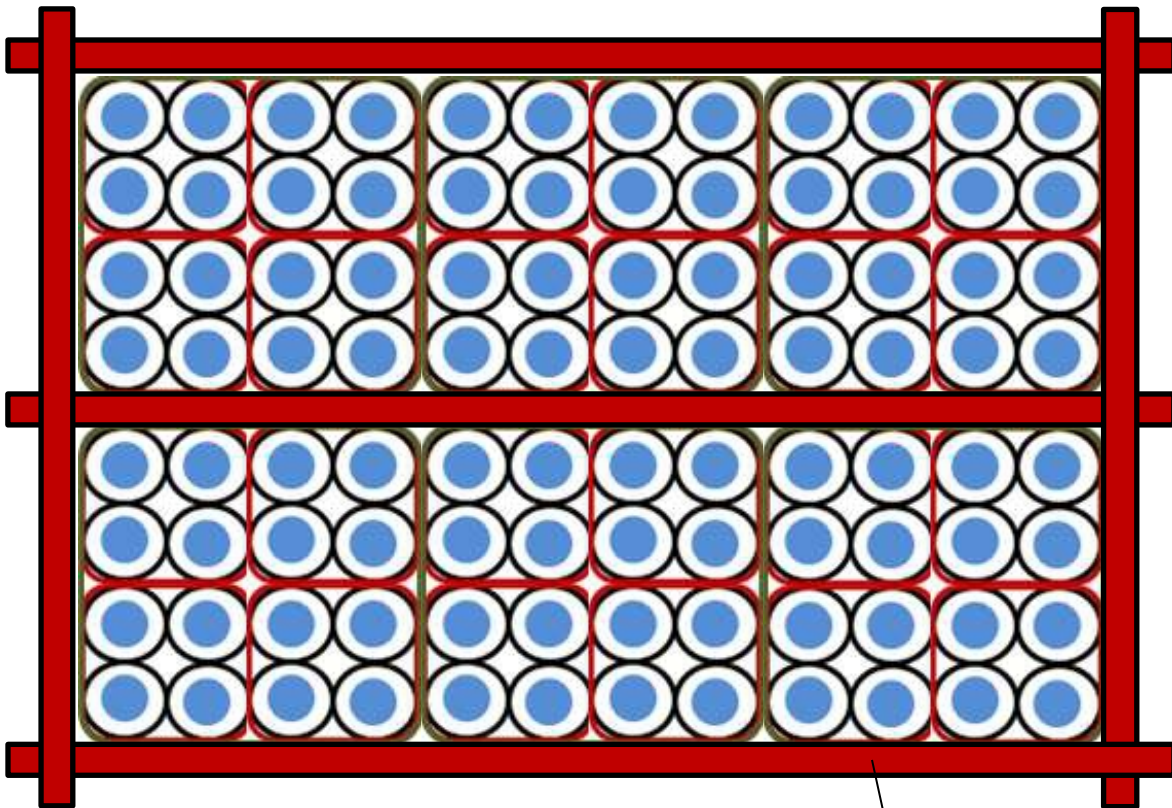
Group the plastic bottles in packs of four and tie them together.

Step 2



The packs of four bottles are then tied together, four packs at a time.

Step 3



Pioneering Poles

Using pioneering, build a frame from the pioneering poles. Firmly tie the water bottle packs together and to the pioneering frame.

A guide to the commonest animal species found at the Maltese coastline.



Crab (*Granċ*)



Sea Urchin (*Rizza*)



Barnacles (*Koċċli*)



Limpets (*Imħar*)



Sea Slater (*Dudu tas-Sajd*)



Periwinkle (*Żibġet il-Blat*)

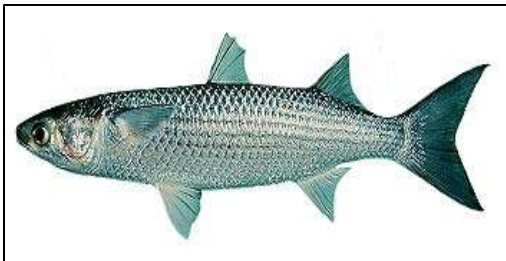
A guide to the commonest animal species found at the Maltese coastline.



Shrimp (*Gamblu*)



Blenny (*Budakkra*)



Common Grey Mullet (*Mulett*)



Hermit Crab (*Granċ tal-Bebbuxu*)



Peacock Wrasse (*Tirda Pagun*)



Yellow Legged Gull (*Gawwija Prima*)

Photograph References

Activity 5

Photograph of Crab taken by James Galea, from

<http://www.flickr.com/photos/37040487@N02/3807836937/in/photostream>

Photograph of Barnacles taken from

<http://www.mayang.com/textures/Stone/html/Rock%20and%20Objects/index.html>

Photograph of Limpets taken from

<http://www.nhm.ac.uk/nature-online/british-natural-history/seaweeds-survey/identify-seaweeds/rock-pool-seaweeds/index.html>

Photograph of Sea Slater taken from

<http://alchemipedia.blogspot.com/2010/01/sea-slater-ligia-oceanica-marine-isopod.html>

Photograph of Periwinkle taken from

<http://www.marinebio.net/marinescience/03ecology/tpspl.htm>

Photograph of Shrimp taken from

<http://australianmuseum.net.au/image/Freshwater-Shrimp-swimming-in-creek>

Picture of Common Grey Mullet taken from

http://www.fishing-khaolak.com/fish_species/saltwater_species/grey_mullet.html

Photograph of Blenny taken from

<http://animal-world.com/encyclo/marine/Mandarins/ScooterBlenny.php>

Photograph of Peacock Wrasse taken from

<http://www.snorkelingmalta.com/snorkeling/?snorkeling-info=picture-gallery>