

TREE GUARDIAN

THEME: Sustainable utilisation of our land and trees for continual benefits for Samoa.

MESSAGE: Become a guardian to the trees and understand their importance.

Target Group: 10-12 yrs old
(group of about 10 learners)

Time: 3hrs

Location: At community designated area, on the beach, field trip to mangrove area

Learning Objectives

- To understand the importance of trees (Activity 1)
[Aisea e fa'atauina ai la'au?](#)
- To understand the difference between invasive and native tree species (Activity 1).
[O le a le eseese o la'au Samoa mao'i ma la'au fa'alafua?](#)
- To understand the role of trees in the carbon cycle (Activity 1)
[O le fesoasoani o la'au e miti'ia ai o kasa o'ona \(kasa kaponi\).](#)
- To understand the importance of forests (Activity 2)
[O le taua o le fa'aogaina tatau o la'au ma fanua.](#)
- To understand the importance of mangroves (Activity 3)
[Aisea e fa'atauina ai toga togo?](#)
- To reflect on what I can do to be a guardian to the land and trees (Activity 4)
[O le a sau mea e mafai ona fai ia fesoasoani i le puipuia o la'au?](#)

Introductory Session (15mins)

- Ask each learner to introduce themselves and mention one thing they would like to get out of the Guardians campaign.
- Learners to do their team jingle.
- Team to introduce themselves and place of work, hobbies etc.
- Team to teach the Tree Guardians jingle. Setting the foundation for the key messages for the module.

Trees,
Gives us oxygen (hi ha)
Preserves the soil (hi hi ha)
Provides habitats (hi hi ha)
Gives us life (hi ha)

WE SPEAK FOR THE TREES.

GO TREES!!!!

ACTIVITY 1: To understand the importance of trees.**(Time 45 mins)**

- **What are trees?**
- **Difference between native and invasive tree species (diagrams and labels)**
- **Diagram of the atmosphere – learn the role of a tree as a carbon sink**

Resources/Materials needed:

- Pictures of invasive and native tree species + labels (Samoan name, English name, Scientific name)
- Diagram of the Earth (possibly drawn or painted onto large sheet) with smaller pictures & labels to attach

Key vocabulary (ensure the learners understand these meanings)

Native species – trees found naturally in Samoa.

Invasive species – trees that have been introduced into Samoa (deliberately or accidentally) from elsewhere.

Scientific name – latin name to identify a species

Oxygen – gas that is essential for humans to breath; trees release oxygen into our atmosphere

Carbon dioxide – gas produced during the processes of decay of organic matter (exhaled by humans, released by use of fossil fuels) and which is absorbed by trees

Photosynthesis – when plants take energy from sunlight and use it to convert carbon dioxide into food

Habitat – place where a species lives or naturally occurs

Ozone layer – region of the Earth's stratosphere that absorbs UV rays

Temperature rise – the Earth getting hotter due to climate change

Deforestation – clearing or cutting down of forests

Sea level rise – increase in volume of water in the world's ocean

Global warming – the process of our planet heating up (atmosphere and oceans) due to increased levels of carbon dioxide caused mainly by humans burning fossil fuels

Climate change- long term changes in the Earth's weather patterns leading to increased temperatures, sea level rise and extreme weather

Climate- weather conditions experienced over a long period (usually 30 years or more)

1a. Key question: What is a tree?

Ask learners to give examples, do they include small plants, shrubs, mangroves? Do they know which of these are native species and which are invasive species?

1b. Hand out either a tree picture or a tree name to each learner (depending on numbers they can work in pairs). Ask them to find their partner, i.e. to match their picture with another learner's tree name.

- Once the learners have each found their partner, move along the line and show all the group each tree picture and tell them the tree name.
- Ask each pair to sort themselves, go to one area if they think they are a native species of tree; or another area if they think they are an invasive species of tree.
- Ask the learners how many names they recognised on the label sheet. Explain the importance of a scientific name as different communities may use their own terms for the same tree (e.g. papaya= paw paw= esi).

1c. Show a diagram of the Earth and the atmosphere. Give each learner a picture or label to attach to the diagram. Ask learners to take turns to come up to the diagram and attach their picture or label to it.

- Explain the importance of each picture within the diagram. Discuss the importance of trees; the roles of trees and the need for careful management of trees and land.

Statements on the importance of trees and land:

- Native trees – identification of species
- Invasive species – identification of species
- Trees give us oxygen
- Trees absorb/ store carbon dioxide and potentially harmful gases
- Trees roles as carbon sinks
- Carbon dioxide emissions – from cars, boats & planes
- Trees heal the ozone layer
- The ozone layer helps to absorb UV rays regulating the temperature of the Earth.
- Trees help to stop the rise in temperature – keeping the Earth cool
- Trees help to stop the rise in sea temperature – destroying the coral
- Trees preserve the soil and stabilise it
- Trees provide a habitat for wildlife
- Trees provide materials for tools and shelter
- Trees provide food for us

ACTIVITY 2: To understand the importance of forests and practices to sustainably manage them.

(Time 30 mins)

Resources/Materials needed:

- Book – Fa’asao le Vaomatua

Key vocabulary (ensure the learners understand these meanings)

Sustainable - able to be maintained

Unsustainable - unable to be maintained

Land management – the way land is used

Waste management – how you keep and dispose of rubbish

Natural disasters – a natural event like a cyclone, flood, earthquake

2a. Read the story to the learners. Discuss each scenario in the book and tie them back to the terms and pictures from Activity 1c.

- For each scenario, ask the learners to role play the characters and expand on the conversation they might have in order to further explore the message on each page of the book.
- Discuss with the learners what the effects are of the sustainable/unsustainable practices mentioned in the book.
- Discuss the importance of conserving forests as a whole.

ACTIVITY 3: Togo Adventure: To understand the importance of mangroves
(Time 1 hour 20 minutes)

Resources/Materials needed:

- Cards for the 'Who am I?' game
- A profiling sheet for each learner and clipboards
- Magnify glass
- Picture of a mangrove (to put the 'Who am I?' cards around)

Key vocabulary (ensure the learners understand these meanings)

Endangered - seriously at risk from extinction

Ecosystem – a community of plants, animals and micro-organisms that interact with each other and share the same resources within their physical environment

Estuary – the part of a river where it meets the sea

Habitat - place where a species lives or naturally occurs

Photosynthesis- process by which green plants use sunlight to synthesise nutrients from carbon dioxide and water

Sustainability- ability to be maintained

3a. Explain that learners are going to play a 'Who am I?' guessing game.

- Give each learner a card and ask them to read out the statement on it.
- Once they have read their statement, the learner should try to guess what the mystery thing is and then come and stick the card onto a poster displayed where the group can all see it.

Statements on the 'Who Am I?' cards:

1. *Who am I? I am a type of tree or shrub.*
2. *Who am I? I grow in tidal swamps.*
3. *Who am I? I mainly grow in tropical places.*
4. *Who am I? I grow along shorelines and in estuaries.*
5. *Who am I? I have numerous tangled roots that grow above ground and form dense thickets.*
6. *Who am I? I provide a habitat for a large variety of fish, crab, shrimp and mollusk species.*
7. *Who am I? I provide a safe nursery for many fish species, including coral fish.*
8. *Who am I? I provide a source of food for coastal communities.*
9. *Who am I? I use my tangled root system to trap sediments originating from land.*
10. *Who am I? I help to prevent land erosion of coastlines.*
11. *Who am I? I protect shorelines from damaging storm and hurricane winds, waves and floods.*
12. *Who am I? I maintain water quality by filtering pollutants.*

3b. Continue to read out and display all the cards even if a learner guesses the mystery item is a mangrove before then!

- Once all the cards have been read out, reveal a picture of a mangrove on the poster.
- Emphasise the importance of mangroves, using the 'Who am I?' statements as discussion points.

3c. Explain that learners will go on an adventure to visit the mangroves. Explain that learners will carry out a profiling survey of the mangroves.

- Give each learner a profiling sheet to complete during the survey. Read through this together before setting off to explore the mangroves so that learners are aware of the things they need to be looking out for.

Ideas to include on the profiling sheet:

1. Is there evidence of fish, crabs, shrimps or mollusks using the mangrove habitat? Give tally marks to show how many they can see.
2. Is there evidence of a fish nursery?
3. Is there any trash around the mangroves? What might the impact of this be?
4. Can you explain the visibility of the water around the mangroves? Can you give a score 1-5 (1 is clear and 5 is cloudy) Is it clear or can you see sediment? Why might this be?
5. What is there along the coastline that would be protected from the effects of a storm, tidal wave or flood because these mangroves are here? Are there any dwellings that would be protected?
6. Is there any evidence of the mangroves being cut down?
7. Is there any evidence of anything being done to protect the mangroves?
8. Draw the tangled root system to show how it is helping to prevent soil erosion.
9. Draw a map to show where mangroves grow in your community.

3d. Transport the learners to mangrove site. During their exploration of the mangroves, learners should take part in these **3 activities**:

Activity 1 Complete profiling sheet: Encourage learners to closely study the mangroves using their profiling sheet as a guide for the things to look for but also encourage them to discuss their own observations. Suggest using the magnify glass to look more closely at bark, roots or fish.

Activity 2 Clean-up: Suggest to learners that they pick up any trash they find in order to highlight the importance of waste management in residential areas close to mangroves.

Activity 3 Re-planting: Show learners what a mangrove seed looks like and explain its adaptation features. Suggest that learners collect any seeds they find and replant them in a given area.

3e. Once learners have had time to complete their profiling sheet, lead a discussion into what they have found out.

Key questions:

- Did anything surprise you about your visit to the mangroves?
- Did you notice anything that you had not seen before?

3f. Explain to the learners that mangroves are **endangered**.

Key questions: What do you think the threats to mangroves are?

- Discuss the learner's ideas and this list of threats:

Threats to mangroves:

1. *Rising sea levels caused by global warming*
2. *Cutting down mangroves to use the timber*
3. *Clearing mangroves for commercial shrimp farms (an issue in parts of Asia)*

3g. Discuss what can be done to reduce the threat to mangroves.

Key questions:

- **What should developed nations do?** Discuss how they should meet their commitments to reduce global warming.
- **What should communities who live in areas with mangroves do?** Discuss how they should limit coastal development; replant destroyed mangroves and reduce pollution (e.g. from chemicals or trash) from reaching the mangroves

ACTIVITY 4: Tree of Knowledge: To reflect on what I can do to be a guardian to the land and trees (Time 10 minutes)

Resources

- Leaf shape for each learner
- Pens

4a. Ask learners to reflect on what they have learnt in each of the activities.

Key questions:

- **Can you explain the importance of trees within the carbon cycle?**
- **Can you explain one reason why it is important not to cut down trees on your land?**
- **Can you explain the importance of using natural organic fertilisers on your land?**
- **Can you explain a responsible way to manage your trash?**
- **Can you explain the benefit of planting native species of trees?**
- **Can you explain what you could do to help protect mangroves?**

4b. Ask the learners to think of one thing they could do to show they will be a guardian to the trees (including the mangroves) and the land.

- Ask them to write their promise on a leaf shape. These could either be tied to a tree as a visual reminder through the week or they could be stuck to picture of a tree in a central file.

Assessment/ Evaluation:

Enrichment

Cultural Context References

Implications for Future Learning	
Related MESC Formal Curriculum Learning Objectives:	

This activity could be used as an alternative Activity 2 (instead of story telling)

Activity 2:

To understand the importance of careful management of land and trees

To understand the impacts of natural disasters on poor land management

Resources/Materials needed:

- Materials from the surrounding area including branches with leaves and possibly coral rock, leaves, coconut shells, leaves
- Water container punctured with small holes
- Water container punctured with large holes
- Fans

Key vocabulary (ensure the learners understand these meanings)

Sustainable: able to be maintained

This activity is called 'Green Island'

2a. Explain to the learners that you would like them to make two model farms on the beach using materials they find in the surrounding area.

- One farm should be a sustainable farm where the land, trees, livestock and trash are carefully managed.
- The other should be a badly managed farm where land, trees, livestock and trash are not looked after carefully.

2b. Support the learners as they choose materials to represent the different parts of their farm e.g. make sure they find branches with leaves on to represent the trees (not just sticks so that they will see the importance of leaves during the exercise). They could use coral rocks; coconut shells, seashells, leaves etc to represent the other parts of the farm.

2c. Suggest they make the **sustainable** farm first. Encourage them to discuss each part of their farm with the rest of their team as they make it.

You could use these **Key Questions** to prompt their discussions:

Land:

- How will you divide up your land?
- How much of your land will be used for livestock?
- How much of your land will be used for growing crops?

- How much of your land will be planted with trees?
- Where could you put any buildings on the land so that they are **most protected** from possible flooding or damage from other natural disasters?
- Where will you grow crops in relation to any water sources? What sort of fertiliser would be the **least harmful** to use to help them grow well? Why are these considerations important?

Trees:

- Will you need to cut down any trees? If so, how can you reduce the number you need to cut?
- Can you replant trees too?
- Can you leave trees, or plant more where they are especially needed to hold the soil together e.g. by a river bank, hill side or on the coastline? Why might this be important?

Livestock:

- What animals will you keep? How many will you be able to have in the space available?
- Will you build a fence around the livestock? Why is this important?

Trash:

- Where could trash that needs to be disposed of through the government collection scheme be kept? How can you try to ensure that it does not blow away or get washed away during a storm? Why is this important?

2d. Once the sustainable farm model is finished, ask the team to make their badly managed farm. Encourage them to think about how it will be different from the sustainable model.

You could use these **Key Questions** to prompt their team discussions as they build it:

Land:

- How will you divide up your land?
- How much of your land will be used for livestock?
- How much of your land will be used for growing crops?
- How much of your land will be planted with trees?
- Where would buildings be **most vulnerable** to the effects of damage from flooding or other natural disasters?
- Where will you grow crops? What would be a **harmful** form of fertiliser to use to help them grow well? Why is using chemicals on your crops harmful to the environment?

Trees:

- Will you need to cut down any trees? What might be the **harmful effect** of doing this?
- If you **remove trees** that are growing near a river bank, on hill side or on the coastline can you predict what the effect might be on the land during a storm?

Livestock:

- What animals will you keep? How many will you be able to have in the space available? What is the effect of **cutting down trees to make space** for more livestock?
- What do you predict will happen if you **don't build a fence** around your livestock?

Trash:

- Is there anywhere on your farm that would be **least suitable** for storing trash before it is collected through the government collections scheme? Is there anywhere it might cause harm to your livestock, crops or water sources for example?
- What do you predict might happen in a storm if you **don't tie your trash down** properly? Where could the trash end up? What harmful effect could this have?

2e. Once the two model farms have been made explain that you will pretend that a storm is coming. Use a water container punctured with small holes and hold it over each farm in turn. Discuss the effects of this heavy rain shower with the learners.

Key questions:

- **Is the land stable or is there the start of soil erosion on either of the farms? Why might this be?**
- **What will have happened to the fertilisers you used on your crops during the storm? Where might any chemicals you used end up?**
- **Have your buildings survived the storm?**
- **What are the positive effects of having trees (with leaves) on your land?**
- **What are the harmful effects of not having so many trees on your land?**
- **What has happened to the soil on riverbanks, hillsides and coastlines where you removed trees?**
- **Do you think your livestock stayed where you wanted them to be during the storm?**
- **What happened to your trash during the storm? Where has it ended up?**

2f. Next, explain that you will pretend a cyclone is coming. Give learners a chance to rebuild their farms if they were damaged in the 'heavy rain storm'. Then use a water container with very large holes punctured and give some of the learners fans to wave like the wind. Create the effects of a cyclone over each farm in turn.

2g. Discuss the positive and negative impacts of the learner's decision making on the land; buildings, livestock, trees and trash using key questions again like the ones above.

Icebreakers

- Competition of chant
- Rabbit, arrow and wall.
- Over and under (with a coconut)

Final Exam Questions

1. **Name one invasive and one native tree species.**

Ta'u mai se igoa o se la'au Samoa ma'oi ma se la'au fa'alafua.

Answer:

Invasive – Tamaligi pa'epa'e, Fa'apasi or other

Native – Aoa, Tava, Maota or other

2. Name one importance of mangroves

O le a se aoga o le toga togo

Answer:

Any of the answers 6 - 10 from the Who am I? game.

Activity 4: Profiling Sheet

Va'a Based Environmental Outreach

Tree Guardian Module

Activity 3 - Field Trip to Lotopu'e Mangroves

Suafa	
Aoga	
Tausaga (Age)	

1. O iai ni l'a, pa'a, ula, po'o ni figota laiti o e va'ai iai? Pe mata e fia?	
2. E fa'apefea ona e iloa o se nofoaga, lea mo le faafaileleina o l'a?	
3. O e va'ai i ni lapisi po'o otaota, i le toga togo? O le a leituaga? (pepa l'ila, fagu, uga etc) O le a se a'afiaga i le toga togo o ia lapisi ma otaota?	
4. E nefu pe manino le vai? Aisea e fa'apea ai?	
5. Oa mea totino o le a puipuia e le toga togo mai galu malolosi, lologa ma afa?	
6. Ua e va'aia o so'ona tatu'u i lalo toga togo?	
7. E iai ni tulafono i totonu o le tou afoaga e puipuia ai toga togo?	

8. E fa'apefea ona fesoasoani toga togo i le le tafiaina o le palapala?

9. Tusi mai se ata o a'a o le togo.