Tuvalu
Technical & Vocational Skills Development Programme

BASIC PAINTING SKILLS

STUDENT WORKBOOK
Credits

Basic Painting Skills is a Level 1 course which forms part of the Tuvalu Technical & Vocational Skills Development programme, Painting and Decorating. It was especially written and designed to be delivered in schools and communities in Tuvalu, and other Pacific island nations.

This programme was initiated by the Tuvaluan Ministry of Education, Youth and Sports and supported by the Commonwealth of Learning.

Writers: Uelese Obrien Nauti Primary School
          Taualo Penivao Nauti Primary School
          Vaelei Pouniu Faikimua Primary School
          Esau Teagai Nauti Primary School
          Moti Silo Tolise Primary School

Instructional Design Editor: Michael Coghlan

Commonwealth of Learning, 2017

© 2017 Commonwealth of Learning

This publication is made available under a Creative Commons Attribution-ShareAlike 4.0 License (international):
http://creativecommons.org/licenses/by-sa/4.0
Basic Painting Skills

Contents

Welcome ........................................................................................................................................... 3
Who is this course for? .................................................................................................................... 3
What does the course cover? ............................................................................................................ 3
How does the course work? .............................................................................................................. 4
The role of your teacher ................................................................................................................... 4
Projects ............................................................................................................................................ 5
Glossary ........................................................................................................................................... 5
Introduction to Basic Painting Skills ................................................................................................. 8
Review Questions ............................................................................................................................... 9
Topic 1: Painting Tools and Safety .................................................................................................. 10
  Learning Objectives ....................................................................................................................... 10
  Basic tools and materials for painting ......................................................................................... 10
  Tools and their Uses ....................................................................................................................... 11
  Abrasive Tools and Their Uses ....................................................................................................... 12
  Other Materials and their Uses ..................................................................................................... 13
Painting Safely .................................................................................................................................. 14
  Occupational Health and Safety (OHS) ......................................................................................... 15
Work Health and Safety Checklist .................................................................................................. 15
  Before painting ............................................................................................................................... 15
  Clean-up ......................................................................................................................................... 16
Paint Disposal and Recycling .......................................................................................................... 17
Topic 1 Review Questions .............................................................................................................. 17
Activity ............................................................................................................................................... 18
Topic 2: Surface Preparation ......................................................................................................... 19
  Learning Objectives ....................................................................................................................... 19
  Surface Preparation ....................................................................................................................... 19
  Abrasion ......................................................................................................................................... 20
Welcome
Welcome to this course on basic painting skills. In this course you will work with an experienced painter and teacher who will help you to go through this workbook and learn about the skills of painting. They will also help you to practice these skills until you become competent. If you continue to learn more about painting and decorating and complete the whole programme, you may be able to earn a living as a painter and decorator.

While it takes time to become an experienced painter, it is a task that can be mastered by men and women. Many women work as professional painters.

Who is this course for?
This course is an introduction to basic painting skills. It is written for people who have little or no experience with painting. It is intended for students starting from Year 7 and beyond, school leavers, and community groups who have little knowledge or experience of painting.

What does the course cover?
This basic painting course covers three topics:

Topic 1: Painting – Tools and Safety
This section introduces various painting tools, materials and toxic chemicals, and how they are used in the painting process. Painting tools like brushes, roller, and tray are used to apply paint directly to surfaces. Materials like drop sheet, gloves, and dust mask protect the painting and the painter during the job. Chemicals like turpentine and kerosene are to clean painting tools after the job.

Topic 2: Surface Preparation
This section shows how you prepare surfaces for painting. The job requires abrasion to fill holes and cracks on surfaces and smooth them for painting. Before painting, surfaces should be dust-free and clean.
Topic 3: Applying Paint

This final section of the course covers three major layers of painting. Primer painting is applied on surfaces as the foundation of painting. The second coat is known as ‘undercoat’. It is the main coat of paint before a finishing coat is applied. The three painting coats are applied in all painting jobs.

How does the course work?
The course will be led by a teacher or experienced trades person who will show you the details of using painting tools, materials, and chemicals correctly. Also, they will guide you in the skills of surface preparation and applying of coats of paint.

The course will work best with small groups of students who can talk about things and learn from each other.

Student Workbook
Your workbook has activities, pictures and explanations as well as space to make your own notes in the margin.

The four topics in your workbook have separate sections for most of the key areas – such as: painting materials, uses, and safety; surface preparation; and application of paint. You teacher will work through each section with you, talking about the tools and materials and show you how to use them.

There is a Student Checklist at the back of the workbook for your teacher to tick-off as you complete each section.

The role of your teacher
Your teacher for this course is a competent tradesperson with knowledge of painting methods and skills in using painting tools. They will show how to work with painting correctly and tell you how well your skills are developing.

Your teacher will:

- Have samples of painting work, tools, materials and paint for you to work with
- Explain the written material
- Show you
  - How to use painting tools and other materials
  - How to work safely with paint and other materials
o How to prepare surfaces before painting
o How to apply different coats of paint

- Watch your work and tell you how are you doing
- Complete your student checklist to record the work you have done

Projects
This course tells you a lot about painting tools, materials and chemicals, surface preparation, and the application of painting coats on surfaces. However, you really need to learn and apply them practically. Learning and application of painting can only be perfect after a lot of practice.

During the course you will work on a project that uses the skills you have learned. You will prepare and paint:

- A piece of furniture or other object you bring from home
- An old boat with quality painting applied on its surface. *(This will be done as a whole class project.)*

Glossary
This is a handy list of words used in the workbook with their meanings. If you find a word in the workbook that you do not understand, you can check back here to learn what it means.

<table>
<thead>
<tr>
<th>Absorbent surface</th>
<th>surfaces that are able to take in and hold paint</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abrasive Tool</td>
<td>tools that are used on surfaces to produce a smooth finish before the first coat of paint is put on</td>
</tr>
<tr>
<td>Acrylic</td>
<td>a water-based paint which is easily put on, dries quickly, and does not get darker over time.</td>
</tr>
<tr>
<td>Bond</td>
<td>the ability of one layer of paint to stick to another</td>
</tr>
<tr>
<td>Bristles</td>
<td>short thick hairs of a paint brush</td>
</tr>
<tr>
<td>Brush</td>
<td>tool used by the painter to paint any surface</td>
</tr>
<tr>
<td>Chemicals</td>
<td>substances suitable for painting work, e.g. paint stripper, bleach, cleaning solutions, etc.</td>
</tr>
<tr>
<td>Combustible</td>
<td>Combustible materials are materials that can burn or catch fire</td>
</tr>
<tr>
<td><strong>Coarse</strong></td>
<td>word to describe part of surface which can be rough, bristly, abrasive</td>
</tr>
<tr>
<td><strong>Drop-sheet</strong></td>
<td>sheet used for covering the floor, furniture, or anything you want to protect when painting</td>
</tr>
<tr>
<td><strong>File</strong></td>
<td>cutting tool used to remove/smooth rough and sharp edges from metal</td>
</tr>
<tr>
<td><strong>Flat sheen</strong></td>
<td>Term used to describe paint – meaning softly shining surface or appearance</td>
</tr>
<tr>
<td><strong>Gloss Paints</strong></td>
<td>paint giving shiny finish: a paint that produces a smooth, shiny, hard-wearing surface</td>
</tr>
<tr>
<td><strong>Grit</strong></td>
<td>measure used for coarseness of sandpaper</td>
</tr>
<tr>
<td><strong>Hardwood</strong></td>
<td>A type of wood that has a fine /tight grain texture with a clear grain pattern usually running the length of the timber.</td>
</tr>
<tr>
<td><strong>Kerosene (Kero)</strong></td>
<td>also known as lamp oil; a combustible liquid widely used as a fuel in industry and households, but used in painting mainly to clean brushes.</td>
</tr>
<tr>
<td><strong>Low sheen</strong></td>
<td>Term used to describe paint – meaning dull surface or appearance</td>
</tr>
<tr>
<td><strong>Mineral Turpentine (Turps)</strong></td>
<td>used to thin oil based paint, and to clean brushes used with oil base paints.</td>
</tr>
<tr>
<td><strong>Non-absorbent surface</strong></td>
<td>surfaces that are not able to take in and hold paint, for example, some plastics</td>
</tr>
<tr>
<td><strong>Oil based</strong></td>
<td>paint that dries quite slowly with little change in colour so corrections are easy to make</td>
</tr>
<tr>
<td><strong>Opacity</strong></td>
<td>ability of a paint film when applied at a given thickness to hide previous coat from view</td>
</tr>
<tr>
<td><strong>Paint Brush</strong></td>
<td>tool used to apply paint on surfaces</td>
</tr>
<tr>
<td><strong>Particle board</strong></td>
<td>board made from sawdust, shavings, and other wood waste generated by manufacturers</td>
</tr>
<tr>
<td><strong>Porous</strong></td>
<td>term to describe surfaces that have tiny holes in them. These holes allow water, oils, and other substances to penetrate the surface</td>
</tr>
<tr>
<td><strong>Primer</strong></td>
<td>the first coat applied to a surface. It is the foundation of the painting and helps to protect the surface</td>
</tr>
<tr>
<td>Term</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Putty</td>
<td>a type of cement used for filling small holes and cracks in wood and walls</td>
</tr>
<tr>
<td>Putty knife</td>
<td>a tool used to apply putty</td>
</tr>
<tr>
<td>Sealer</td>
<td>a special purpose coating that can be broadly divided into three types; Acrylic based, Oil Based and Spirit Based</td>
</tr>
<tr>
<td>Semi-gloss</td>
<td>a finishing coat that gives a quality appearance</td>
</tr>
<tr>
<td>Softwood</td>
<td>wood with an open grained texture with patterns that stand out when coated</td>
</tr>
<tr>
<td>Spirit</td>
<td>acts as a barrier to range of stains, inks, dyes etc. from staining through the top coat</td>
</tr>
<tr>
<td>Stopping</td>
<td>applying thick creamy putty filler on open grain or fine cracks in timber,</td>
</tr>
<tr>
<td>Thinner</td>
<td>liquid, like turpentine, used to thin paint or varnish to the desired consistency</td>
</tr>
<tr>
<td>Turps</td>
<td>or turpentine; a liquid used to clean paint brushes</td>
</tr>
<tr>
<td>Undercoat</td>
<td>Undercoats are applied after primer or sealer and before finishing coats.</td>
</tr>
</tbody>
</table>
Introduction to Basic Painting Skills

This course is designed to help you learn basic skills in painting. Painting can help preserve materials and make objects and buildings around us more appealing inside and out. Painting and decorating are valuable trade skills and people with these skills are always in demand. It can be a rewarding career.

What you will learn
At the end of the course you will be able to:

- identify relevant painting materials
- demonstrate safe use of these materials
- demonstrate basic painting skills
What is painting?

Painting is the process of coating a surface with chemicals known as ‘paint’. People have been using paint to improve their environment throughout history. People painted the inside of caves as long ago as 38,000 years BC!

Why paint things?

Painting protects surfaces from damage, and helps them last longer. It adds colour and makes our environment look nicer.

Can you think of any building or item that needs painting?
Topic 1: Painting Tools and Safety

Learning Objectives
At the end of this topic you should be able to:

- identify common painting materials
- explain the use of common painting materials
- identify the safety features for each item

Basic tools and materials for painting
A tool is any device for doing work that makes the work easier. Think about the tools that you know painters might use and write them down here.

Common tools used by painters include:

- Paint brush, rollers
- Square
- Steel wool, scourers, sandpaper
- Dusting Brush
- Tray
- Mineral turpentine (‘turps’), kerosene, water
- Buckets
Tools and their Uses

**Brush** - is a tool use for coating smaller areas, corners, and narrow spaces.

**Hammer** - for punching and pushing nails before painting a surface

**Paint Roller** - is a tool for painting larger areas/ spaces. Can be also be used for texture painting.

**Dusting Brush** - is a tool used for removing dust and dirt before painting

**Tray** - for dipping the roller brush before applying paint.
Putty Knife - for applying fillers to small holes before painting

Abras...
Scraper - is a tool used for scraping old paint off before re-painting

Steel wool/scourers – used for scraping rust and old paint off metal surfaces.

Putty Knife - for applying fillers to small holes before painting

Other Materials and their Uses
When you are painting walls and ceilings it is important that you do not drop or spill paint on nearby surfaces. A DROP SHEET is used for covering the floor and furniture during painting:

Creative Commons Image – Flickr User: A.K.M Adam

(https://www.flickr.com/photos/akma/13449914613/)
Mineral TURPENTINE/KEROSENE, thinner and water – these are all materials used for cleaning/washing paint brushes after painting. Mineral turpentine (sometimes just called ‘turps’) can also be used to make paint thinner.

As a cleaning product Turpentine or Kerosene can be used for cleaning brushes after using oil-based paints, varnish, polyurethane, and stains.

As a thinner it is used with spirit-based paints.

Painting Safely
Using Protective Equipment

Below is the basic protective gear you need to do a painting job safely:

- **Gloves** - to protect your hands
- **Safety glasses** or goggles - to protect your eyes
- **Dust-mask** for sanding - to protect your nose and mouth (breathing)
- **Sensible shoes or boots** with a good grip - to protect your feet.
Occupational Health and Safety (OHS)

When you are preparing and applying surface coatings it is strongly recommended you make others aware of what you’re doing so that they are informed as to any risk that may be present. You can do this by setting up a fence or barrier, or by using signs.

You might use this type of fence or barrier:

Some other signs you might use are:

Work Health and Safety Checklist

Before painting

- Wear dust masks when sanding
- Wear eye protection at all times
- Never sand materials containing lead (can cause cancer)
- Never grind in an area where painting is in progress (spark hazard)
- Be sure to read and obey the labels on each type of paint
Clean-up

- Wash all paint brushes with Mineral turpentine /kerosene /water /thinner
- Store paint and all liquids in their original containers. If, for some reason, this is not possible, be sure the new container is clearly labelled
- Keep all liquids away from sources of heat, sparks, and fires.
- Wash your hands after you have finished cleaning up

Paint Disposal and Recycling

<table>
<thead>
<tr>
<th>Paint contains chemicals such as solvents and metals that can contaminate groundwater and endanger human health. It is important to not put these items into your rubbish bin. By recycling your paint you can play an important role in protecting our environment.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ideally any unused paint or other chemicals like turpentine, kerosene and paint thinners could be taken to a recycling depot where it will be disposed of correctly.</td>
</tr>
</tbody>
</table>

Some things you can do to make sure paint and other chemicals do not cause harm to people or the environment are:

- Buy only the amount of paint you need.
- Use up left over paint, or give it to a friend to use.
- Read the labels for safety instructions.
- Never mix paint with any other liquid or solid substance, other than as directed on the label.
- Never put liquid paint in a rubbish bin and never pour it down the drain.
- Store leftover paint in the original container with the label intact.
- Store paint away from extreme temperatures.
- Keep paint away from children and pets.
Topic 1 Review Questions

1. Name the tool, material, or chemical in the pictures below:

a. ______________________

b. ______________________

c. ______________________

d. ______________________

e. ______________________

f. ______________________

2. Why is it important that you NEVER put paint and other chemicals in the rubbish bin?
**Topic 1 Activity**

This activity is best done in small groups in discussion with your teacher.

After painting, you need to do a clean-up. How would you clean up:

a) the work area?

b) How do you store tools?

c) How do you store chemicals like Mineral Turpentine or Kerosene?
Topic 2: Surface Preparation

Learning Objectives

At the end of this topic you will be able to

- identify the tools commonly used to prepare surfaces for painting
- demonstrate how to prepare surfaces before applying paint.

Surface Preparation

Why do you need to prepare surfaces before painting them?

We need to prepare surfaces before painting to fill or repair defects and indentations so that they are not seen when you have finished the job. Painting is the last job that you do on any project. In the normal practice surface preparation should come first, and painting comes second.

Before painting any surface the surface needs to be dry, clean from dust, and smooth. If you properly prepare a surface for painting the paint will last longer. How long the paint lasts depends on how well you prepare your surface.

There are different varieties of surface. Some have never been painted like brand new concrete, timber, wood, particle board, etc.

Some surfaces have been painted before, and need to be prepared for the new paint. In the long run good paint preparation techniques add years to an exterior paint job—including cleaning, scraping, filling, caulking and priming. You save time and money.
Abrasion
As we have seen above, abrasive tools include files, scrapers, and sand paper.

They are used to produce smooth surfaces before the first coat of paint is applied.

Sandpaper
Sand paper is available in several different types. Some sandpaper can feel quite smooth; other types of sandpaper can feel quite rough. This degree of roughness in sandpaper is measured in grits. The more grits the smoother the sand paper eg. 60 grits has rougher grits compared to 120 grits sand paper.

You use sand paper with 60 to 120 grits to different kinds of wood. Hardwood requires 60 grits sand paper, while 120 grits is good for softwoods.

Dirt and Dust
As part of surface preparation you must first wipe off all dust, and then check for uneven surfaces. Uneven surfaces of any size require stopping and filling.

Stopping and Filling
Stopping and filling are repairing processes applied to any damage found on surfaces:

1. **Stopping**: With bigger gaps and cracks in timber, first apply stopping then thick putty filler.
2. **Filling**: With open grain or fine cracks in timber, apply by filling gaps with thick creamy putty filler.
**Topic 2 Review Questions**
(You can do these questions alone or with others in the class.)

1. Why prepare surfaces before painting them?

2. Name two processes that prepare surfaces for painting.

3. Which grit number determines smooth sand paper?

4. Which sandpaper is smoother – 60 grits or 120 grits?

5. How can you fill surfaces with bigger gaps and cracks?

**Practical Work**
Before we move on to the next section about applying paint, we are going to practice preparing surfaces for painting. You are going to practice surface preparation on a piece of furniture or other object that you bring from home.

Bring any furniture or other object from home that requires painting. Firstly, you are going to prepare the surface and get the furniture ready for painting. You will need to clean it, sand or scrape it, and then fill in any cracks or holes.

You might like to work in pairs. Ask your teacher for assistance if you’re not sure what to do.
Topic 3: Applying Paint

Learning Objectives
At the end of this topic students should be able to

- Identify the four stages or layers of applying paint to surfaces
- Demonstrate the 4 stages or layers of how to apply paint after surface preparation.

Painting Process
Good painting involves more than applying just one coat paint. Good painting involves applying a number of coats of paint to a surface. Each coat has a specific purpose, and they are applied in the following order:

1. (first) Primer/sealer
2. (second) Undercoats
3. (third) Finishing Coats

First coat: Primer or Sealer

Primer
Primer is the first coat of paint applied on the surface.

Primer helps protect and maintain the surface in its original condition.
The function of primer includes:

- Changing absorbent surfaces to non-absorbent
- Providing strong adhesion between a number of coatings
- Protecting metals against rust and corrosion.

**Sealer**
A special purpose coating available in three types:

1. Acrylic based sealers
2. Spirit based sealers
3. Oil based sealers

1. **Acrylic based sealer**

Functions are to:

- Enable same day re-coating
- Apply on masonry, set plaster, and paper-faced plasterboard
- Become the foundation for other coats of paint applied later.

2. **Spirit based sealer**

Function is to:

- Prevent surfaces from being stained by smoke, tar, or fat.

3. **Oil based sealer**

Functions are to:

- Enter and bind loose powdery surfaces
- Seal highly porous surfaces eg. Hardwood – flush panel door (Porous surfaces are surfaces that have small holes that allow liquids like paint to seep under the surface.)
- Form a barrier over chemically active surfaces such as new concrete, cement render, or set plaster.

**Second coat: Undercoat**

Undercoats are applied after the primer or sealer. They are also applied over previously painted surfaces (after correct surface preparation) before the finishing coat.

Functions of undercoat are to:
- Provide opacity
- Provide good sanding properties (oil based)
- Provide a bond between the finishing coat and the primer/sealer

**Final or Finishing coats**

Final coats provide colour, gloss level and quality of appearance.

They are available in four main levels of gloss finish: Gloss, Semi-gloss, Low sheen, and Flat.

Functions of *finishing coats* are to:

- Protect surface from weather effects, chemical attack, abrasion
- Decorate surface using colour
- Provide colour to identify and label surfaces eg. red or green for safety signs, pipeline colours, blue for site safety signs etc.
- Enable surfaces to be cleaned.
Applying Paint

There are four (4) steps to follow when applying paint with a paint brush:

1. Dip - dip brush in the paint (about 3-5 cm)
2. Tap – tap brush on the side of the can to allow excess paint to drip back into the can
3. Cover – cover surface with paint lightly
4. Layout – apply paint on surface for smooth finishing

The paint should flow smoothly onto the surface with little effort. When the brush begins to drag, stop and reload the brush with more paint. Use long strokes to apply paint. Avoid dabbing small areas with paint as this leaves marks on the surface you’re painting.

When you use long, consistent strokes the brush will leave a slight ridge as you paint but these will disappear as the paint sets.

The four (4) steps when applying paint with a roller:

1. Dip – dip roller in the tray of paint
2. Tap – tap roller on the side of the tray
3. Zigzag – apply the roller on the surface in a zigzag
4. Layout – apply paint on surface

Topic 3 Review Questions

1. Name three stages in preparing surfaces for painting.

2. How many painting coats are there altogether?

3. What painting jobs require a sealing coat?

4. Which painting tool requires a zigzag application?
**Practical work**

For Topic 2 you brought a piece of furniture or other object from home and prepared the surface so it is ready for painting. You are now going to apply coats of paint to improve the furniture or object. The furniture should look better when you take it home!

Ask your trainer how many coats of paint you need to apply to the furniture, and which types of coat. They will make sure you have the right kind of paint to do the job. If you’re not sure you have the right paint, make sure you check with your trainer before you start.

**FINAL PRACTICAL PROJECT**

For our final project we will restore and paint an old boat together.

Your trainer will guide you on how to prepare the external surface. After you have prepared the surface you will apply suitable coats of paint to help restore the boat.

This will be an opportunity for you to show the skills you have learnt on this course:

- How to choose the right tools and look after them
- How to prepare a surface for painting
Basic Painting Skills Competency Checklist
To be completed by the teacher

........................................................................................................................................................................................................

has completed the course “Basic Painting Skills”.

I have worked with them through the course and I have seen them complete the exercises and activities I have marked on this checklist.

Name of Trainer: ..............................................................................

Signed: ............................................................................................

Topic 1 - Materials, Uses and Safety
Student is able to identify common painting materials and their uses.

- Basic Tools and their uses
  - Hammer
  - Paint Brush
  - Paint Roller
  - Dusting Brush
  - Tray
  - Putty Knife

- Abrasive tools and their uses
  - Sand paper
  - Wire brush
  - Scraper
  - Steel wool
  - Sanding block

- Other Materials and their Uses
  - Drop Sheet
  - Mineral Turpentine
  - Thinner
- Basic Safety Gear and their Uses
  - Gloves
  - Goggles
  - Dust mask
  - Safety shoes

Student can identify Basic Safety Rules; Occupational Health and Safety (OHS)
  - Safety before painting
  - Safety when cleaning up

Topic 2: Surface Preparation
Student is able to demonstrate:
  - Surface preparation
  - The process of Abrasion/Sanding
  - Stopping and filling

Topic 3: Applying Paint
Student is able to:
  - Identify the four layers or coats
  - Explain what each coat or layer is for
  - Apply coats of paint correctly