

# Developing a Preventative Maintenance Template

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In this tutorial we're going to develop a Maintenance Guide, Diagnostic Tests and Troubleshooting Guide for a single ICT system, as identified by yourself and your team. Follow the steps, using the associated Assessment document, to develop and test your own Maintenance Templates.

This tutorial may be completed as a classroom exercise, online or as homework.

Note: You're required to create **six (6) separate** Preventative Maintenance Templates, each targeted at a different ICT system. Complete the template 6 times to create 6 separate documents.

**NOTE:** The document "*Assessment - Preventative Maintenance Template.docx*" is to be submitted as part of your final assessment for 6 different ICT problems.

## Step 1: Identify an ICT System

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- Specify Type/Model. We recommend selecting a device/software you have direct access (e.g. Printer - Brother Inkjet DCP-J315W)
- Include URL reference (e.g. URL - [https://support.brother.com/g/b/producttop.aspx?c=as\\_ot&lang=en&prod=dcPJ315W\\_eu\\_as](https://support.brother.com/g/b/producttop.aspx?c=as_ot&lang=en&prod=dcPJ315W_eu_as))

Firstly, we need to choose an ICT system requiring ongoing maintenance via diagnostic tools. Examples include hardware devices like *Laptops, Mobile Phones, Desktops, Printers, Modems* and software like *Computer Applications, Networking Services, and Operating Systems*.

The following **five (5)** ICT systems are compulsory and must have a Preventative Maintenance Template created & completed:

- Desktop application (e.g. MS Word)
- Operating system (e.g. Windows 10)
- Laptop (e.g. Acer Aspire E15)
- Mobile device (e.g. Apple iPhone X)
- Printer (e.g. Brother Inkjet DCP-J315W)

Your **6<sup>th</sup>** ICT system is a free choice.

For your chosen ICT system, *specify the type/model*. It's recommended that you select a type/model available in the classroom or at home (e.g. Your classroom PC, your personal phone, your school printer) so you can easily test your Maintenance Procedures.

Use resources like <http://office.manualsonline.com/> and Google to find manuals/details about your chosen device and *include the source URL as a reference*. For example, the Brother Inkjet DCP-J315W printer support information is available on the Brother website at:

[https://support.brother.com/g/b/producttop.aspx?c=as\\_ot&lang=en&prod=dcPJ315W\\_eu\\_as](https://support.brother.com/g/b/producttop.aspx?c=as_ot&lang=en&prod=dcPJ315W_eu_as)

## Step 2: Identify Potential Problem(s)

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- Identify at least one problem for the above ICT System (e.g. Power switched off)
- Include a description of the problem

Once we've selected an ICT System, we must identify the potential problems that may arise. The manuals often have a FAQ or Troubleshooting guide with common problems/symptoms for the device. Examples include *Printers running out of ink/toner*, *Modem WIFI not working*, *Mouse/Keyboard not working on Desktop*, *Networking Services unable to connect across network*, *OS BIOS incorrectly configured*.

You must identify **at least one potential problem per ICT system**. For students looking for a challenge, feel free to consider more problems.

Feel free to research your specified ICT system online. Many hardware/software manufacturers provide online manuals, troubleshooting guides and maintenance guidelines.

## Step 3: Identify Symptoms

### Step 3: Identify at least 3 symptoms for the Problem

- Symptoms are "an observable departure from normal function"
- What symptoms may indicate the ICT system is not functioning due to the problem?
- E.g. LCD display not working, Printer not printing documents

For the selected ICT problem above, we'll now identify a minimum of **three (3)** common symptoms.

A **symptom** is "an observable departure from normal function" and typically the result of an undiagnosed *problem*. Usually we cannot measure or see the problem directly. Instead we observe symptoms arising because of the problem being active.

For example, a *chronic cough* is a symptom of several potential problems, one of which is a common-cold. But a cough could also be a symptom of something more serious. Thus, a doctor will run through a checklist, collecting diagnostics like temperature, heart-rate etc. to identify any other accompanying symptoms. In doing so, the doctor can then make an educated diagnosis of the underlying problem and prescribe a remedy.

For the selected problem of a specific ICT System, identify 3 common symptoms that may arise because of the problem. Examples include:

- **Problem:** Keyboard/Mouse cables unplugged
- **Symptom 1:** Computer not waking when moving mouse or typing on keyboard
- **Symptom 2:** Cursor not moving on screen when mouse is moved
- **Symptom 3:** Text not appearing on screen when user types on keyboard

## Step 4: Develop Preventative Maintenance Procedure(s)

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- Develop a step-by-step guide to follow when maintaining/diagnosing the above ICT System
- Use any available (online) manuals, troubleshooting guides, and specifications to develop the maintenance procedure
- Include any redundancy measures (e.g. making backups) and specify the diagnostic tools required

For each of identified symptoms, **we'll develop a testing and preventative maintenance procedure** to routinely monitor the ICT systems. These maintenance procedures can also help us to diagnose and troubleshoot problems should they arise.

To develop our maintenance procedures, we'll need to **consider any existing software specifications and hardware testing guidelines** (e.g. manuals). Often these documents include recommended techniques to maintain and troubleshoot the ICT system. Also, we'll need to **consider organisational structures and requirements** when conducting our maintenance (e.g. We may only be able to perform maintenance after hours, when employees are not at work).

Some ICT systems can be monitored using **diagnostic tools** to collect data, measure, compare and evaluate the system. These tools aid us when searching for any potential problems. For example, *Printers* typically include a Diagnostics Menu to conduct an overall health-check of the system and report the results. Other examples are *Operating Systems* like Windows and MacOS that include many software diagnostic tools to monitor the system (e.g. Disk Utility, System Tools, User Management Software, Backup/Recovery software, Network utilities).

Also consider redundancy and security measures where possible (e.g. making backups, physical security of devices and IT user management including passwords) as part of the maintenance.

## Step 5: Testing your Preventative Maintenance Procedures

### Step 5: ICT Maintenance Results (Exercise)

- Have yourself and/or another student complete the Maintenance Procedure (from step 4) and record any issues found.
- NOTE: This section can be completed as a classroom exercise.

At the end of the template is a table to assist in testing your developed Maintenance Procedure. Record any issues found in the maintenance procedure and/or issues found with the ICT system under test. Note that this can be completed as a classroom exercise or at home, in teams or individually.