Trade of Motor Mechanic

Module 1

Unit 3

COMPUTER SKILLS

Produced by

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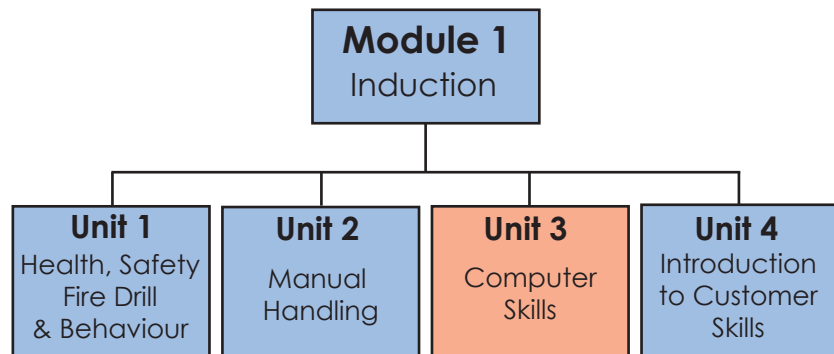
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Introduction

Module 1 of this course covers the induction section of motor mechanics curriculum. This is the third unit in module one and covers the Computer Skills aspect of the curriculum.

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                    │    Induction    │
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Unit 1	Unit 2	Unit 3	Unit 4
Health, Safety Fire Drill & Behaviour	Manual Handling	Computer Skills	Introduction to Customer Skills

Unit Objective

By the end of this unit each apprentice will be able to:

• State and apply the safety and precautionary procedures applicable to working on personal computers (PC's) and PC-based workshop equipment

• Follow recommended procedures for start-up, shutdown and restarting of a computer

• Open an automotive computer program/application (pre-installed and/or CD based)

• Navigate through a program menu, select relevant section and locate specific information or repair sub-program

• Use a printer to print located information

• Install and explore a relevant Computer-Based Training (CBT) program

1.0 Safety and Precautionary Procedures

> ## Key Learning Points
>
> •   Safety and precautionary procedures applicable to working on computers and PC-based workshop equipment; (avoidance of dust, liquid or other foreign body infiltrating the keyboard or disc drive; avoidance of trailing or tangled cables; use of appropriate measures to avoid damage to CDs etc.)

1.1 Health and Safety

Tips to minimise the risk of a computer-related accident:

•   the computer should always be sited near an electric socket to avoid trailing wires across the floor; if an extension cable is used make sure it doesn't overheat and nobody can trip over it

•   do not overload electric sockets, use trailing multi-socket units rather than plug adapters

•   do not use a computer if the plug is damaged or the electrical cable is frayed

•   electricity and water do not mix - keep drinks well away from computers

1.2 CD-R-RW

Most computer programs are available on CD. CD's can also be used to store large amounts of information from your computer.

CD ROM's are read only storage medium. Typically, a CD ROM holds up to 650MB of information. A CD Rewriteable is highly effective when you need to store a large amount of data. It can hold up to 700MB of information.

•   A CD-R is a one time recordable compact disc. That means that you can only copy information onto the disc once. You cannot change a document on the CD-R and save it back onto the CD-R.

- A CD-RW allows you to read, write, erase and write again. Writing takes place in a single pass of the focused laser beam; this is sometimes referred to as direct overwriting and the process can be repeated several thousand times per disc.
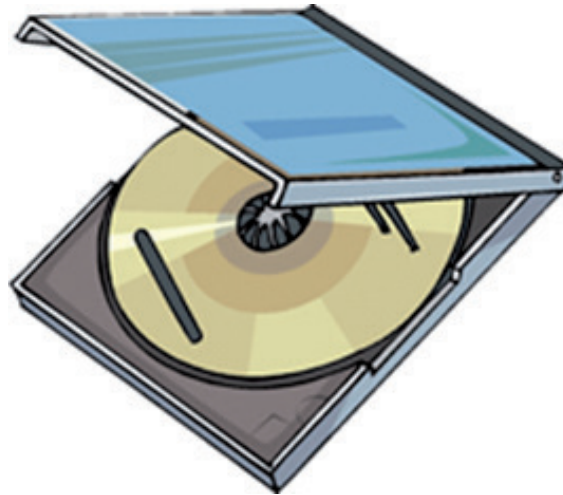
CD's need to be treated with care. Be careful not to touch the flat surface of a CD. The information on the CE is stored on the shiny metallic surface underneath the plastic protective coating. If this surface has scratches, grease or dust on it, it will not play. As it is very easy in a workshop situation to damage a CD you must always store them in trays or boxes in a protective cover, to protect then from grease or scratches.

2.0   Start-up, Shutdown and Restarting a Computer

Key Learning Points

- Recommended procedures for computer start-up, shutdown and restart, function and use of on-screen icons

2.1   Turning on a Computer

To turn on a computer first press the 'on button' on the computer. The computer will run through various tests and will then load up the operating system. A dialogue box may appear on the screen which will ask you for your 'username' and 'password'. If you do not know this ask your employer.

Starting your computer can also be called 'booting up your computer'.
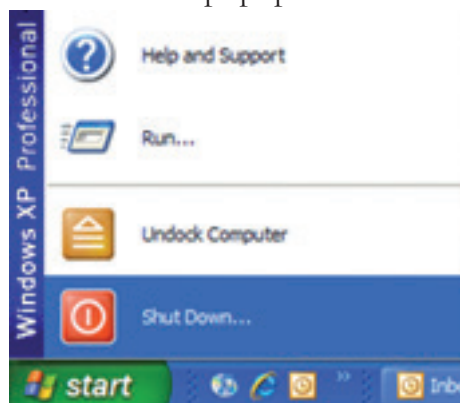
2.2   Shutting down a Computer

In order to ensure that no data is lost it is important to shut down a computer properly. Computers should never be turned off by pressing the power button – or by removing the plug.

To turn off a computer:

- Click the 'Start Button' in the bottom left hand corner of the computer screen

- Click 'Shutdown' on the popup menu

- Select 'Shut down' from the dialogue box

- Click the OK button in the dialogue box

- The computer will then turn itself off
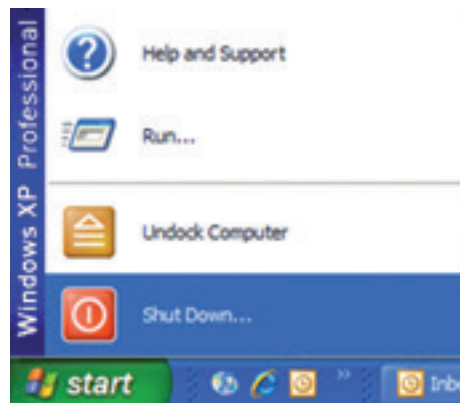
2.3　Restarting a Computer

You may be asked to restart your computer – for example if your computer has crashed (stopped unexpectedly) or if you have just installed a new piece of hardware or software.

To Restart a computer:

- Click the 'Start Button' in the bottom left hand corner of the computer screen

- Click 'Shutdown' on the popup menu

- Select 'Restart' from the dialogue box

- Click the OK button in the dialogue box

- The computer will then shut down and restart itself
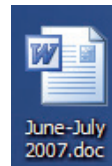
2.4   Screen Icons

Above is an image of the desktop on a PC. The desktop displays a series of icons which can be used to open files, folders and programs.
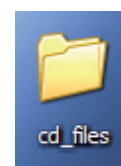
An Icon is a picture on the desktop that represents a specific program, file, or folder.

Program Icon   **File Icon**   **Folder Icon**

The Icons are used to open either:

1.   a program

2.   a file or

3.   a folder.

To open the program, file or folder, double click on the Icon using the left button of the mouse.

3.0   Opening an Automotive Computer Application

Key Learning Points

- Opening a pre-installed or CD-based automotive computer program/application (e.g. a generic/manufacturer's technical data program or a diagnostic tester program) by means of icon selection/Windows program menu/CD-ROM drive selection

- Use of recommended procedures for inserting, opening, exploring, exiting and removing a CD

3.1   Using a Service Information Program
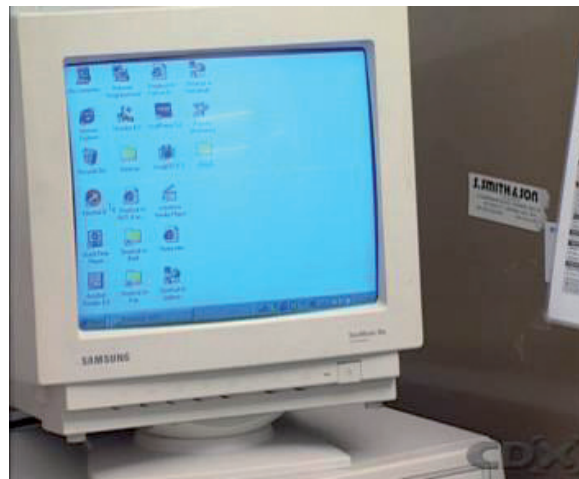
Preparation and Safety

Objective   Learn the basics of a workshop computer system.

Safety Check   Make sure that you understand and observe all legislative and personal safety procedures when carrying out the following tasks. If you are unsure of what these are, ask your instructor.

Points to Note
- Not all service departments have or use a computerized system. If your service department does not have a computer, you'll have to use printed reference materials.

- Computer databases provide information on procedures, parts and service problems. Find out what databases your workplace has on file and how to access them.

- Computers have the ability to easily access updated information using the Internet, an intranet or CD-ROMs.

- Many computerized manuals contain helpful tips on how to access data quickly.

- Most vehicle manufacturers have a service or technical web page. If you work in an automotive dealership, or your company subscribes to a dealer network information system, you may be able to find the information you are looking for through the dealer's intranet.

Step-by-Step Instruction

1. *Choose the correct application:* In order to be able to provide accurate information, the software application used must contain the appropriate data. There is a range of automotive data-base software applications on the market, the layout may vary, but they all contain similar information, though some are more detailed than others. Alternatively, if you work at a dealership or your shop subscribes to a dealer network information system, you may use that process. First, you should understand how to operate the computer.

2. *Start the system:* In the PC world, starting up is often known as "booting" the computer, which means, "Turn the computer on and log in, if you are required to". This step will depend on the type of PC you are using and whether it is "stand alone", on a local network, or needs to be connected to the Internet to operate the software. The way that you do this depends on your work situation, so it's a good idea to get a fellow worker to show you how to log on in your particular workplace environment

3. *Understand the software application:* Read the information on the software package. If you're on the internet, read the information about the software application or website. Most of the applications have "Help" sections, which provide details of how to access the various components within the software itself. The details on the package will also tell you how to install or access the data. Once you have become familiar with the operating functions of the software you are ready to start accessing data. You have a vehicle in for service and you've found a problem with the brake pads. You want to obtain any updated service information that can solve the problem.

4.   *Access the software application:* Start by ensuring that the software package you are going to use is correctly loaded onto the PC. Use the Computer to see if there is a Technical Bulletin posted for this problem.

5.   *Provide input information:* To enable the computer to search for the correct data, you may have to input vehicle information such as the VIN Number or at least the make model and year of manufacture. The application will usually ask you to confirm your input data.

6.   *Narrow the search:* Now you can perform a search on a specific section of the vehicle using a keyword. The program will normally then provide a list of results from which you can select a particular item. If the software has the capability, you may want to see if there is a manufacturer's Recall Notice on the vehicle or any of its components.

7.   *Access specific data:* Finally, specific data for this item is displayed. In this case it tells us that there has been a part modification on the brake pads and that replacements are available with the part number provided. Once you have located the data you need, you can usually print it out. This is very useful to keep on a clipboard for reference when working on the vehicle.

3.2   Inserting and Opening a CD
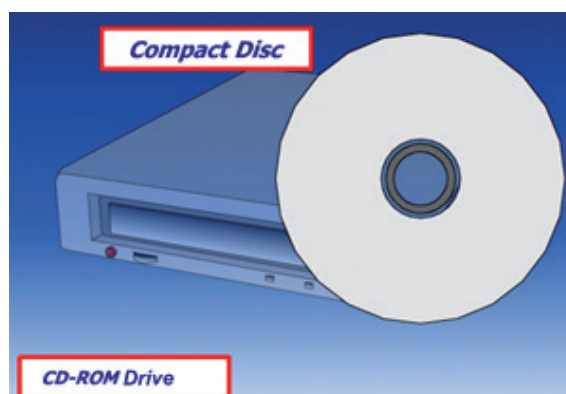
- Locate the CD Drive on the computer.

- Press the button and the CD Drive will open.

- Insert the CD shiny side down with any writing that may be on the CD facing upwards

Most CD's will open automatically. If the CD does not open automatically you will need to open it manually. To do this:

- Go to My Computer and double click on it with you left mouse button.

- A dialogue box will open, double click the icon of the CD/DVD Drive with your left mouse button
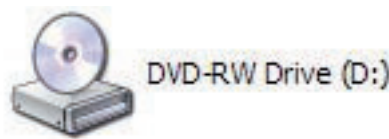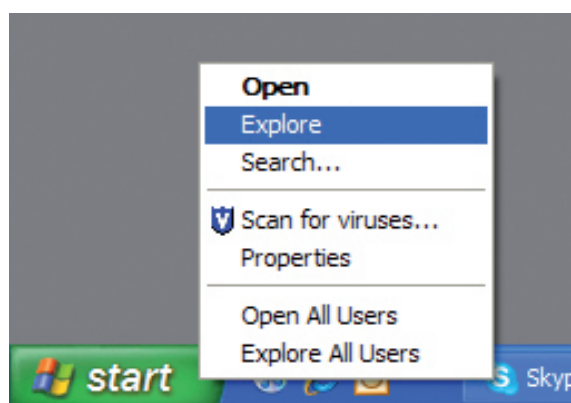

- The CD/DVD will then open
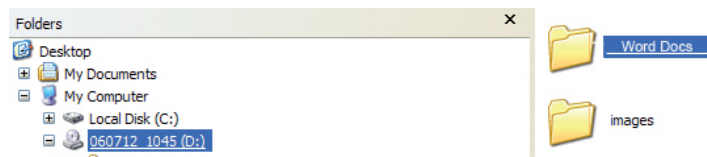
3.3   Exploring a CD/DVD

- Right click the Start Button at the bottom lefthand corner of your computer

- Choose Explore from the popup menu

- Select the CD/DVD Drive from the dialogue box and then select the relevant file

3.4 Exiting and Removing a CD/DVD

To Exit and Remove a CD/DVD correctly:

- Close all open documents from the CD

- Locate the button on the CD/DVD Drive and press it

- The CD Drive will open and you can take the CD out of the drive, making sure that you do not touch the shiny side of the CD/DVD with dirty or Greasy hands as this will damage the surface of the CD/DVD.

- Put the CD/DVD into a case to keep it clean and store it away safely from heat, dust and grease.

4.0   Using Program Menus

Key Learning Points

- Program menu navigation, selection of relevant section and location of specific information or repair sub-program (e.g. specific repair procedure information in a technical data program or a specific diagnostic procedure sub-program on a diagnostic tester program)

- Use of scroll bar/Search or Find tool to locate information where applicable

4.1   Scroll Bars

Scroll Bars are used to move around a page or a document that doesn't all fit onto the computer screen. To move the page so that you can see the relevant piece you may need to click on the Scroll Bar and drag it until you can see the information you are looking for.
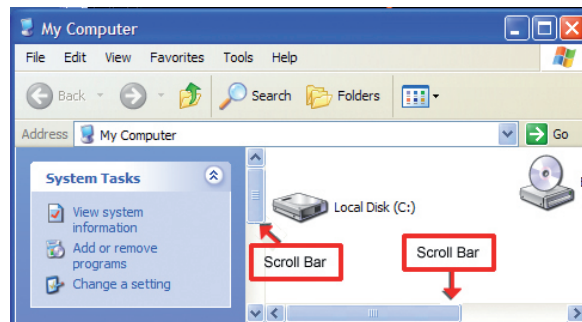
4.2   Search Tool

Some applications have a Search facility. Type what you are looking for inside the Search Box e.g. Head Gasket then click the GO button. All the relevant information for that item will then be shown on your computer screen. You then select the information you are looking for by double clicking on that item with your lift hand mouse button.

For Search facilities in specific programs ask your instructor for further information.

# 5.0 Using a Printer to Print Located Information

Key Learning Points

•   Use of printer to print located information, implications of damp paper, incorrect handling of software, ingress of oil/grease on or in the disc/disc reader

5.1   Printing

To Print a document click on 'File' on the Menu Bar located at the top of the document you are about to print. Select 'Print' from the drop down menu.
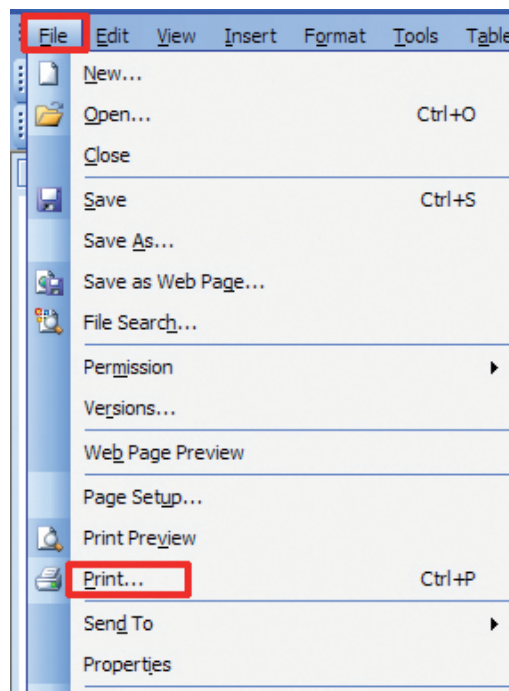
The print dialogue box appears.
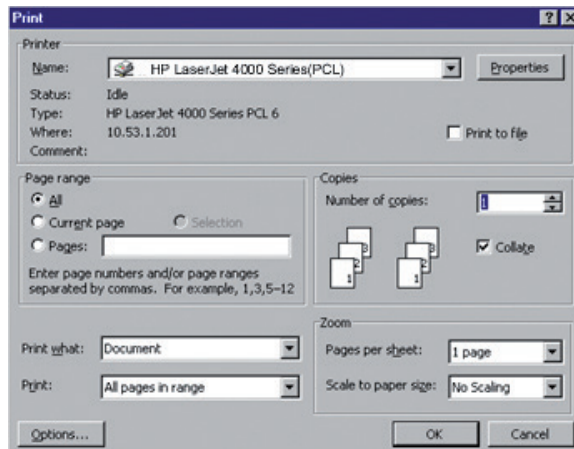
Clicking the 'OK' button prints one copy of the document.

It is important that the paper used in the printer is stored in a dry place. If the paper is damp or folded it will not run through the printer properly and may jam the printer.

If you are printing from a CD or DVD be careful not to touch the flat surface. If this surface has scratches, grease or dust on it, the computer will not be able to open the document on the disk and therefore you will not be able to print it.

6.0   Install and Explore a Relevant CBT Program

Key Learning Points

- Installation and exploration of CBT software (e.g. a generic/manufacturer's automotive training CD); development of self-study skills

Practical Task   *Please refer to your instructor for additional information.*

Self Assessment

Q1: Which of the following statements is true?

❑   1. A CD is not easily damaged and can be stored anywhere

❑   2. A CD-R is a one time recordable compact disc

❑   3. A CD-R allows you to read, write, erase and write again

❑   4. A CD-R can store up to 2MB of information

Q2: Which of the following is the best way to shutdown your computer?

❑   1. Close all applications and turn OFF the power switch

❑   2. Press Ctrl-Alt-Del

❑   3. Click Start, Choose Shut Down, Shut down computer? Yes

❑   4. Click File, Exit and double-click OK

Q3: Which of the following statements is not true?

❑   1. The computer desktop displays a series of icons which can be used to open files, folders and programs.

❑   2. Icons are used to open either a program, a file or a folder

❑   3. An Icon is a picture on the desktop that represents a specific program, file or folder

❑   4. An icon is used to open the computer

Q4: Which of the following statements is not true?

❑   1. Most vehicle manufacturers have a service or technical web page.

❑   2. All garages have computers in their service departments

❑   3. Computer databases provide information on procedures, parts and service problems.

❑   4. Computers have the ability to easily access updated information using the Internet, an intranet or CD-ROMs.

Q5: Scroll Bars are used:

❑ 1. To open a program on your computer

❑ 2. To move around a page or a document that doesn't all fit onto the computer screen

❑ 3. To delete documents on your computer

❑ 4.To move the icons on your desktop to a new position

Q6: To Print a document that is open on your desktop:

❑ 1. Click on 'View' on the Menu Bar and then select Print from the drop down menu

❑ 2. Click on 'Edit' on the Menu Bar and then select Print from the drop down menu

❑ 3. Click on 'File' on the Menu Bar and then select Print from the drop down menu

❑ 4. Click on 'Tools' on the Menu Bar and then select Print from the drop down menu

Suggested Exercises

1.   Start-up, shutdown and restart a computer using recommended procedures. Open an automotive computer program/ application, navigate through a program menu, select a relevant section and locate specific information or repair sub-program. Use a printer to print located information.

2.   Install and explore a Computer Based Training (CBT) program.

Training Resources

Workshop or classroom based computers (complete with audio speakers) and/or computer-based diagnostic tester, printer, generic/manufacturer's technical data programs or a diagnostic tester program (pre-installed or CD-based), generic manufacturer's automotive training CDs, video/multimedia resources etc.

Suggested Further Reading

- Advanced Automotive Diagnosis. Tom Denton. ISBN 0340741236

- Automobile Electrical and Electronic Systems (3rd Edition). Tom Denton. ISBN 0750662190

- Automotive Mechanics (10th Edition). William H. Crouse and Donald L. Anglin. ISBN 0028009436

- Bosch Automotive Electrics Automotive Electronics: Systems and Components (4th Edition). Robert Bosch. ISBN 0837610508

- Bosch Automotive Handbook (6th Edition). Robert Bosch. ISBN 1860584748

- Bosch Automotive Technology Technical Instruction booklet series (numerous titles)

- Hillier's Fundamentals of Motor Vehicle Technology: Book One (5th Edition). V.A.W. Hillier and Peter Coombes. ISBN 0748780823

- Hillier's Fundamentals of Motor Vehicle Technology: Book Two (5th Edition). V.A.W. Hillier and Peter Coombes. ISBN 0748780998

- Modern Automotive Technology. James E. Duffy. ISBN 1566376106

- Motor Vehicle Craft Studies - Principles. F.K. Sully. ISBN 040800133X

- National Car Test (NCT) Manual (Department of Transport, Vehicle Testers Manual - DoT VTM). Department of Transport

- Transmission, Chassis and Related Systems (Vehicle Maintenance and Repair Series: Level 3) (3rd Edition) John Whipp and Roy Brooks. ISBN 186152806X

- Vehicle and Engine Technology (2nd Edition). Heinz Heisler. ISBN 0340691867

- http://www.cdxglobal.com/

- http://auto.howstuffworks.com/

- http://www.autoshop101.com/

- http://www.cdxetextbook.com/

- Automotive Encyclopedia and Text Book Resource (CD version of e-textbook), Available from your instructor.
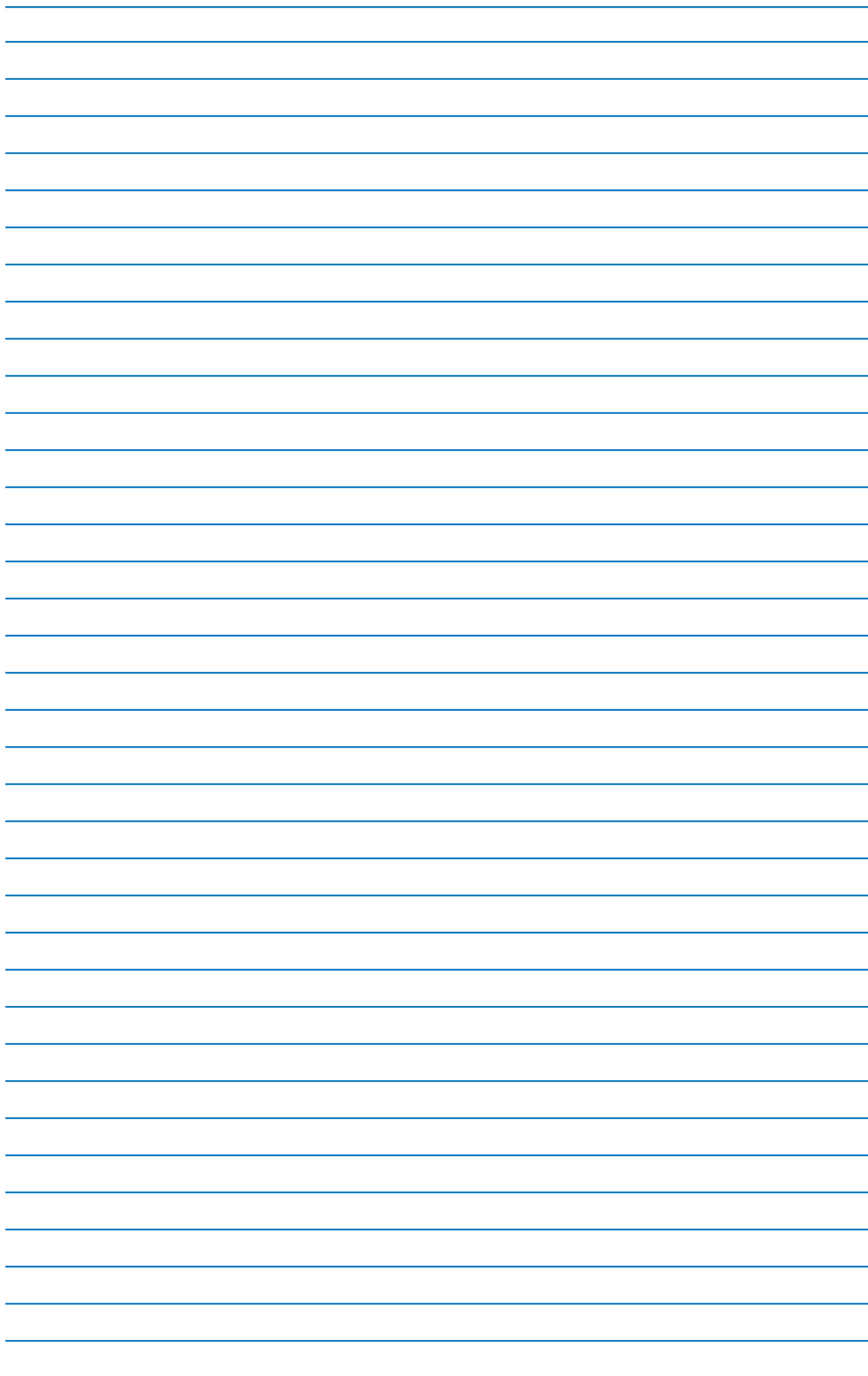
Notes

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