

機械專業英文教案參考示例

課程名稱:工程英文

課程主軸:

藉由機械工程相關文章之閱讀，了解相關生字與語法。藉由學生自身專業知識，於課程中累積工程相關單字，並練習英文文章閱讀技巧，以作為往後閱讀相關工程文件基礎。

教材內容: Fundamentals of Machine Tools (工具機基礎)

Chapter 1 Lathe work(車床加工)

The lathe is a **machine tool** used **principally** for **shaping** articles of metal (and sometimes wood or other materials) by causing the **workpiece** to be held and **rotated** by the lathe while a tool bit is **advanced** into the work causing the cutting action. The basic lathe that was designed to cut **cylindrical** metal stock has been developed further to produce **screw threads, tapered work, drilled holes, and crankshafts**. The typical lathe **provides a variety of** rotating speeds and a means to **manually** and automatically move the cutting tool into the workpiece. Machinists must **be thoroughly familiar with** the lathe and its operations to **accomplish** the repair and **fabrication** of needed parts.



Vocabulary:

1. **machine tool** /mə'ʃi:n ,tu:l/ n. 工具機

The car industry uses machine tools for cutting carbody parts.

2. **principally** /'prɪn.sə.pəl.i/ adv. 主要地

The advertising campaign is aimed principally at women.

3. **Shape** /ʃeɪp/ v. 使成形、塑造

When you've made the dough, shape it into two loaves.

4. **workpiece** /wɜ:k.pi:s/ n. 工件、工作物

We make a workpiece cut by a milling machine.

5. **rotate** /'rəʊ.teɪt/ v. 旋轉

Ferris wheel rotates quite slowly.

6. **advance** /əd'væns/ v. 前進、發展

The fire advanced steadily through the forest.

7. **provide** /prə'vaɪd/ v. 提供，供給

This booklet provides useful information about local services.

8. **manually** /'mænj.u.ə.li/ adv. 手動地

Cheap car seat is usually adjusted manually.

9. **thoroughly** /'θɜː.ə.li/ adv. 非常

I thoroughly enjoyed the performance.

10. **accomplish** /ə'kɔ:m.plɪʃ/ v. 完成；實現

The students accomplished the task in less than ten minutes.

11. **fabrication** /fæb.rə'keɪ.ʃən/ n. 做出、製造

The new fabrication process has reduced power consumption and saved a lot of money.

Idioms & Phrases

1. **a variety of** 各式各樣的

There are a variety of goods in the supermarket.

2. **be familiar with** 熟悉

Are you familiar with this type of machine?

Mechanical Engineer Vocabulary:

1. **screw threads** 螺紋車削

2. **tapered work** 錐度加工

3. **drilled holes** 鑽孔加工

4. **crankshafts** 曲柄軸

Chapter 2 Types Of Lathes (車床的種類)

Lathes can be divided into three types for easy identification: **engine lathes**, **turret lathes**, and **special purpose lathes**. The **engine lathe** (Figure 3-1) is **ideally suited** wide purpose. A trained **operator** can accomplish more machining jobs with the engine lathe than with any other machine tool. Turret lathes and special purpose lathes are usually used in **production** or job shops for **mass** production or **specialized** parts while basic engine lathes are usually used for any type of lathe work. Further **reference** to lathes in this chapter will be about the **various** engine lathes.

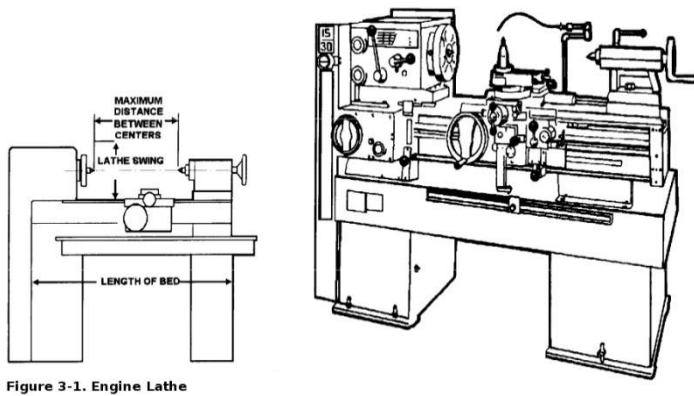


Figure 3-1. Engine Lathe

圖說單字:

- Maximum distance between centers: 兩頂心距離
- Lathe swing: 車床旋徑
- Length of bed: 床台長度

Vocabulary:

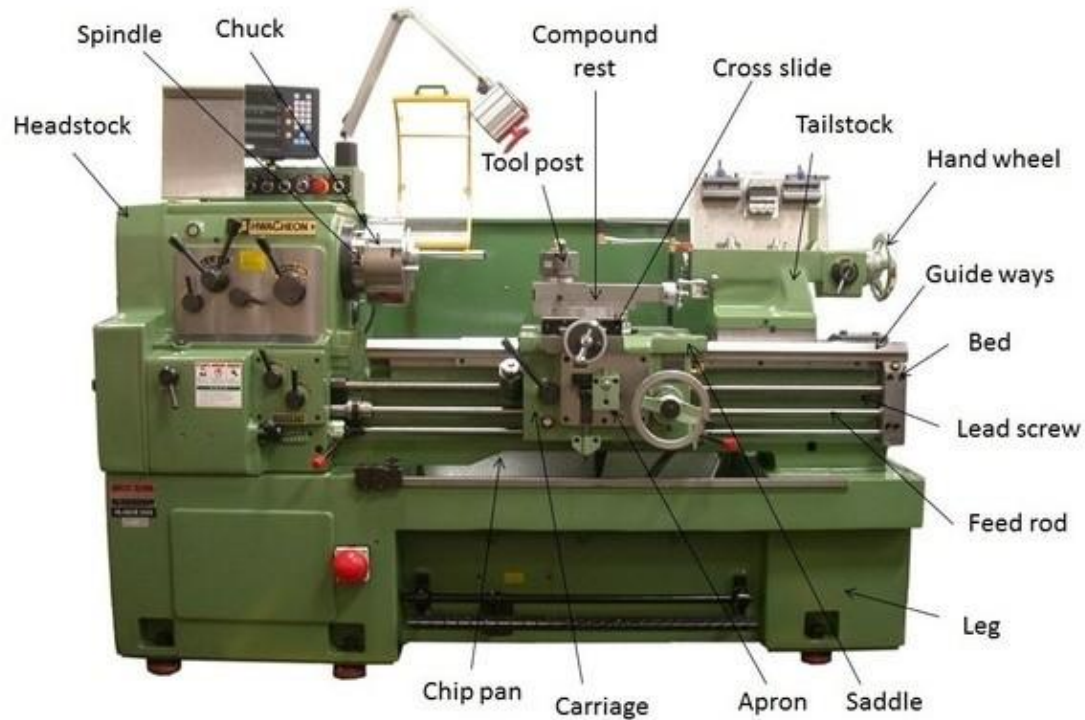
1. **identification** / aɪ.den.tɪ.fɪ'keɪ.ʃən / n. 認出、識別
This is an excellent method for identification of certain diseases .
2. **purpose** / 'pɜː.pəs / n. 目的，意圖
I need to fine meaning and purpose in my life.
3. **ideally** / aɪ'diː.ə.li / adv. 理想地
Ideally, I would like a job where I can work from home.
4. **suit** / su:t / v. 適合
Finding a date that suits us all is very difficult.
5. **operator** / 'ɒp.ər.ɪ.tər / n. 操作者，作業員，技工
We have been asked to create a new training program for our new-hire machine operators
6. **production** /prə'dʌk.ʃən/ n. 生產、製造
The production of 3D printers has increased a lot throughout the world.
7. **mass** / mæs / n. 大量
Mass production needs a great deal of machinery
8. **specialized** /'speʃ.ə.laɪzd/ adj. 專業的
Don't try repairing this machine; it requires specialized skills
9. **reference** /'ref.ə.əns/ n. 提及；涉及
There is no direct reference to his own childhood in the novel.
10. **various** / 'veə.ri.əs / adj. 不同的；各種各樣的
Everyone arrived late at the party for various reasons.

Idioms & Phrases

1. **be divided into** 區分成
The U.S.A is divided into 50 states.

Mechanical engineer Vocabulary:

1. **engine lathes** 機力車床
2. **turret lathes** 立式車床
3. **special purpose lathes** 特種專



圖說單字:

- Headstock: 車頭座
- Spindle: 主軸
- Chuck: 夾頭
- Toolpost: 刀座
- Compound rest: 複式刀座
- Cross slide: 橫向滑軌
- Tailstock: 尾座
- Hand wheel: 手輪
- Guide way: 床軌
- Bed: 床台
- Lead screw: 導螺桿
- Feed rod: 自動進刀桿
- Leg: 床座
- Saddle: 溜座
- Apron: 床帷
- Carriage: 拖板
- Chip pan: 切屑擋板

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教材內容: Fundamentals of Machine Tools (工具機基礎)

Chapter 1 Lathe(車床加工)

The lathe is a **machine tool** used **principally** for **shaping** articles of metal (and sometimes wood or other materials) by causing the **workpiece** to be held and **rotated** by the lathe while a tool bit is **advanced** into the work causing the **cutting action**. The basic lathe that was designed to cut **cylindrical** metal stock has been developed further to produce **screw threads, tapered work, drilled holes, and crankshafts**. The typical lathe **provides a variety of** rotating speeds and a means to manually and automatically move the cutting tool into the workpiece. Machinists must **be thoroughly familiar with** the lathe and its operations to **accomplish** the repair and **fabrication** of needed parts.

車床是相當普遍的工具機，車床加工是藉由旋轉的工作物與直線前進的刀具產生切削作用進行加工，廣泛的應用於金屬零件的加工(包含木材與其他材質的加工)。車床通常進行圓筒形零件的加工與進階的螺紋車削、錐度車削、鑽孔加工與曲柄軸加工。一般的車床能夠調整工作物旋轉與進具移動速度的調整。純熟的技術工程師應該要能夠熟練的使用車床完成機件的維修與製造。



Vocabulary:

12. **machine tool** /mə'ʃi:n 'tu:l/ n. 工具機

The car industry uses machine tools for cutting carbody parts.

汽車製造業使用工具機來切割部分的車身。

13. **principally** /'prɪn.sə.pəl.i/ adv. 主要地

The advertising campaign is aimed principally at women.

廣告大戰主要瞄準了女性。

14. **shape** /ʃeɪp/ v. 使成形、塑造

When you've made the dough, shape it into two loaves.

生麵團揉好後，把它捏成兩個長條麵包。

15. **workpiece** /'wɜ:k.pi:s/ n. 工件、工作物

We make a workpiece cut by a milling machine.

我們以銑床加工這個工件。

16. **rotate** /'rou.teɪt/ v. 旋轉

Ferris wheel rotates quite slowly.

摩天輪旋轉的相當緩慢。

17. **advance** /əd'væns/ v. 前進、發展

The fire advanced steadily through the forest.

大火在森林中不斷蔓延。

18. **provide** /prə'vaɪd/ v. 提供，供給

This booklet provides useful information about local services.

這本小冊子提供了有關當地服務機構的有用資訊。

19. **manually** /'mæn.ju.ə.li/ adv. 手動地

Cheap car seat is usually adjusted manually.

平價的汽車座椅通常都是手動調整。

20. **thoroughly** /'θɜ:.ə.li/ adv. 非常

I thoroughly enjoyed the performance.

我非常喜歡這個演出。

21. **accomplish** /ə'kɒm.plɪʃ/ v. 完成；實現

The students accomplished the task in less than ten minutes.

學生不到十分鐘就完成了任務。

22. **fabrication** /fæb.rə'keɪ.ʃən/ n. 做出、製造

The new fabrication process has reduced power consumption and saved a lot of money.

新製程已減少電力消耗並省下大筆金錢。

Idioms & Phrases

3. **a variety of** 各式各樣的

There are a variety of goods in the supermarket.

在超市有各式各樣的商品

4. **be familiar with** 熟悉

Are you familiar with this type of machine?

你熟悉這類型的機器嗎？

Mechanical Engineer Vocabulary:

5. **screw threads** 螺紋車削
6. **tapered work** 錐度加工
7. **drilled holes** 鑽孔加工
8. **crankshafts** 曲柄軸

問與答:

1. what kind of shape can be shaped by lathe?
2. Can screw thread produced by lathe?

Chapter 2 Types Of Lathes (車床的種類)

Lathes can be divided into three types for easy identification: **engine lathes**, **turret lathes**, and **special purpose lathes**. The **engine lathe** (Figure 3-1) is ideally suited wide purpose. A trained operator can accomplish more machining jobs with the engine lathe than with any other machine tool. Turret lathes and special purpose lathes are usually used in **production** or job shops for **mass production** or **specialized parts** while basic engine lathes are usually used for any type of lathe work.

車床可大略分成三個種類，分別是機力車床、直立車床以及特殊用途專用車床。其中，機力車床的用途最為廣泛。一位充分訓練的機械工程師能夠利用機力車床與相關工具完成大部分的車床加工工作。相較於直立車床與特殊用途專用車床應用於大型工件之加工與特殊的專門零件加工，機力車床則廣泛的應用於大部分的車床加工工作。接下來的章節將針對機力車床的各種用途進行說明。

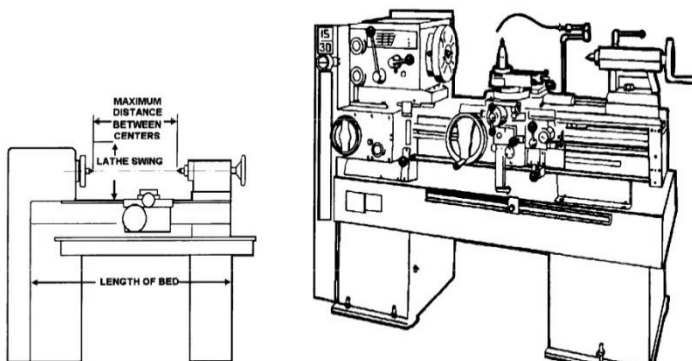


Figure 3-1. Engine Lathe

圖說單字:

- Maximum distance between centers: 兩頂心距離
- Lathe swing: 車床旋徑
- Length of bed: 床台長度

Vocabulary:

11. **identification** / aɪˌden.tɪ.fɪˈkeɪ.ʃən / n. 認出、識別

This is an excellent method for identification of certain diseases .

這是鑒定某些疾病的一種極好的方法。

12. **purpose** / ˈpɜː.pəs / n. 目的，意圖

I need to fine meaning and purpose in my life.

我必須找到生命中的意義與目的地

13. **ideally** /aɪ'di:ə.li/ adv. 理想地

Ideally, I would like a job where I can work from home.

理想上，我想要一份在家工作的職業

14. **suit** /su:t/ v. 適合

Finding a date that suits us all is very difficult.

找個完全適合我們的約會對象是非常困難的

15. **operator** /'ɒp.ər.eɪ.tər/ n. 操作者，作業員，技工

We have been asked to create a new training program for our new-hire machine operators

我們被要求為新聘的機器操作員設計新的培訓方案

16. **production** /prə'dʌk.fən/ n. 生產、製造

The production of 3D printers has increased a lot throughout the world.

3D 列印機的生產在全世界已增加不少

17. **mass** /mæs/ n. 大量

Mass production needs a great deal of machinery

大量生產需要很多機械。

18. **specialized** /'speʃ.ə.laɪzd/ adj. 專業的

Don't try repairing this machine; it requires specialized skills

不要試著修理這台機器;它需要專業技能

19. **reference** /'ref.ə.əns/ n. 提及；涉及

There is no direct reference to his own childhood in the novel.

在小說中並沒有直接談及他的孩童時期

20. **various** /'veə.ri.əs/ adj. 不同的；各種各樣的，

Everyone arrived late at the party for various reasons.

由於種種原因，每個人赴會都遲到了。

Idioms & Phrases

1. be divided into 區分成

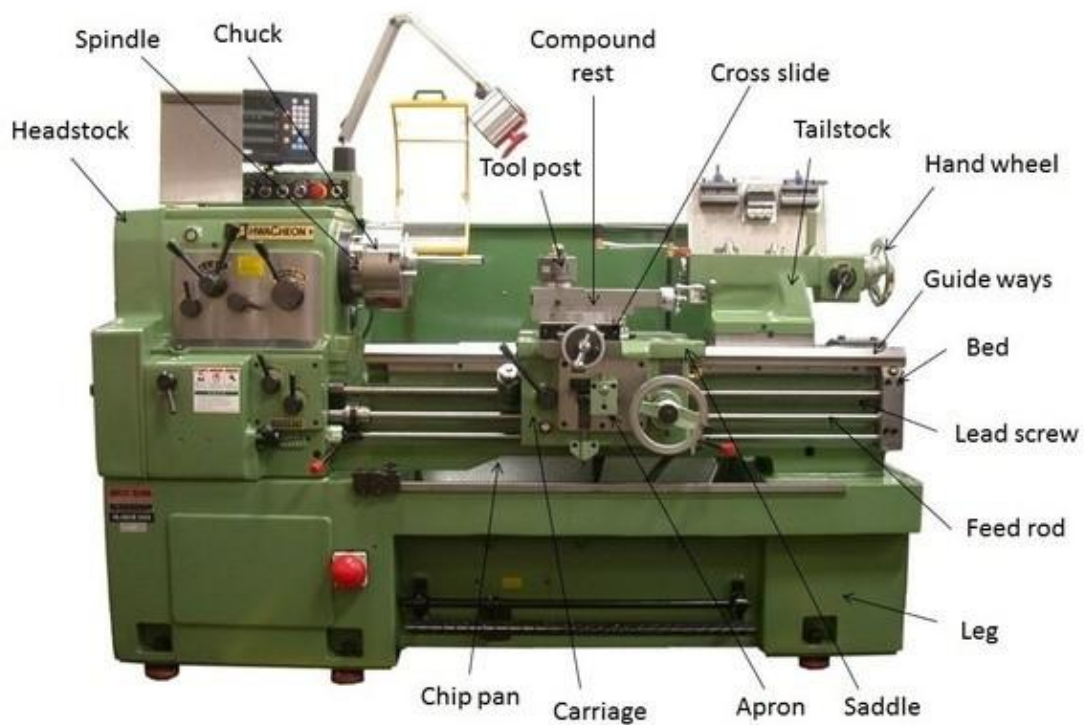
The U.S.A is divided into 50 states.

美國區分成五十州

Mechanical engineer Vocabulary:

4. engine lathes 機力車床
5. turret lathes 立式車床
6. special purpose lathes 特種專用車床

Chapter 3 Lathe components (車床的各部名稱)



作業單(含解答)

班級_____ 學號_____ 姓名_____

一、單字練習(請在中文的口內填寫正確的英文編號)

- | | |
|-------------------|--------------------------------|
| 1. principally | <input type="checkbox"/> 3提供 |
| 2. rotate | <input type="checkbox"/> 6識別 |
| 3. provide | <input type="checkbox"/> 8生產 |
| 4. manually | <input type="checkbox"/> 2旋轉 |
| 5. accomplish | <input type="checkbox"/> 7作業員 |
| 6. identification | <input type="checkbox"/> 4手動地 |
| 7. operator | <input type="checkbox"/> 9專業的 |
| 8. production | <input type="checkbox"/> 1主要地 |
| 9. specialized | <input type="checkbox"/> 10不同的 |
| 10.various | <input type="checkbox"/> 5完成 |

二、填充式翻譯

1. 汽車製造
來切削
2. 車身部
The car
3. 我必須找
義與目
I need to

4. 大火在森
延。

圖說單字:	
● Headstock: 車頭座	● Guide way: 床軌
● Spindle: 主軸	● Bed: 床台
● Chuck: 夾頭	● Lead screw: 導螺桿
● Toolpost: 刀座	● Feed rod: 自動進刀桿
● Compound rest: 複式刀座	● Leg: 床座
● Cross slide: 橫向滑軌	● Saddle: 溜座
● Tailstock: 尾座	● Apron: 床帷
● Hand wheel: 手輪	● Carriage: 拖板
	● Chip pan: 切削盛盤

業使用工具機
分。
industry uses _____
到生命中的意
地。
fine meaning and
林中不斷蔓

The fire spread steadily through the forest.

5. 理想上，我想要一份在家工作的職業。
Ideally, I would like a job where I can work from home.
6. 在小說中並沒有直接談及他的孩童時期。
There is no direct reference to his own childhood in the novel.

三、重組

1. a machine tool/ principally/ is /shaping articles of metal/ used for /The lathe
The lathe is a machine tool used principally for shaping articles of metal. _____
2. Lathes/ three types / can / engine lathes, turret lathes, and special purpose lathes/ for easy
identification/be divided into
Lathes can be divided into three types for easy identification: engine lathes, turret lathes, and
special purpose lathes. _____

英語教學教案

單元名稱	The Lathe 車床	教材來源	機械專業英文
教學日期	月 日	教學時間	50 分鐘
教學年級	二年級	教學設計者	
教材研究分析	<p>(1)以車床為主題，以之前所學之基礎英文單字，進而學習進階單字片語及句型，並配合學生程度及實用性，以強化了解機械專業英文。</p> <p>(2)課程中累積工程相關單字，並練習英文文章閱讀技巧，以作為往後閱讀相關工程文件基礎。</p>		
學生學習經驗分析	<p>(1)具備一般基礎英文概念</p> <p>(2)學過機械相關之基本知識</p> <p>(3)能閱讀一般的英文文章</p>		
教學資源	<p>1.設備：黑板、粉筆、磁鐵</p> <p>2.教具：車床圖片、單字卡、抽籤筒、加分卡</p> <p>3.場所：利用機械工場之車床，而教室則必須有模擬的圖片</p>		
教學目標	單元目標		具體目標（能力指標）
	<p>【認知】</p> <p>1.能熟記本單元英語單字片語</p> <p>2.能了解本單元內容</p> <p>3.能完成練習活動</p> <p>【情意】</p> <p>1.樂於積極參與教室活動。</p> <p>2.欣賞並學習表現好的同學。</p> <p>3.能接受機械專業英文的文章閱讀。</p> <p>【技能】</p> <p>1.能統整閱讀專業英文文章。</p> <p>2.在閱讀過程中能發展系統思考。</p> <p>3.能應用本單元於實際操作。</p>		<p>【聽】</p> <p>1-1.能聽辨課堂中所學習的字彙片語。</p> <p>1-2.能聽懂機械相關用語。</p> <p>1-3.能聽懂老師的講解及提問。</p> <p>【說】</p> <p>2-1 .能說出課文中所學習的詞彙。</p> <p>2-2 .能以簡單的單字或句子回答老師之提問。</p> <p>2-3 .能跟著老師覆誦句子。</p> <p>【讀】</p> <p>3-1 .能完整了解文章。</p> <p>3-2 .能將文章中的句子以中文翻譯出來。</p> <p>3-3 .能敘述文章大意。</p> <p>【寫】</p> <p>4-1.能寫下單字片語及重點筆記。</p> <p>4-2.能臨摹抄寫課文中所學習之機械專業英文。</p>

教 學 流 程		教學資源	時間	形成性評量
教學目標	教 學 活 動			
	<p>壹、準備活動</p> <p>暖身 / Warm-up & 複習 / Review</p> <p>【暖身】</p> <p>1. 和學生相問候。</p> <p>2. 老師帶領學生複習上週學習單元的單字及片語。</p> <p>3. 詢問對車床的基本了解。</p> <p>貳、發展活動</p> <p>【呈現單字】</p> <p>1. 老師講解並帶著學生朗讀各個單字，使學生了解其意義和字音。</p> <p>2. 任意選單字卡，以抽籤或自願方式選取學生來猜出其單字中文名稱。</p> <p>【讀前提問】</p> <p>1. 在閱讀前提問以下問題引起學生興趣去文章中尋找答案</p> <p>(1) What is the “lathe”?</p> <p>(2) What is the function of the lathe?</p> <p>(3) How many types can the lathe be divided into?</p> <p>2. 以抽籤或自願方式選取學生來回答。</p> <p>【講解課文】</p> <p>1. 帶領學生朗誦每句課文</p> <p>(1)以抽籤或自願方式選取學生自行唸一遍</p> <p>(2)老師指導其發音</p> <p>(3)全體同學再唸一遍</p> <p>2. 講解課文(單字片語文法)</p> <p>3. 複習課文內關鍵字</p> <p>【圖示練習】</p> <p>1. 以圖片解釋車床之結構與功能。</p> <p>2. 在活動中用問答方式，以抽籤或自願選取學生來猜出各細部結構之名稱與功能，以熟悉車床。</p>	單字卡	5'	能說出正確的單字片語
1-1				
1-3				
2-1				能說出對車床的基本了解
2-2				
		單字卡	15'	能了解各個單字的意義並唸出其字音。
1-1		抽籤筒		
1-2		加分卡		
1-3				
2-1				
2-2		抽籤筒		能認真聽講並寫下問題
1-2		加分卡		
1-3			5'	能從閱讀課文中找到問及答案。
2-2				
		單字卡	10'	能唸出課文
2-3		抽籤筒		能理解課文的意義並配合單字加以運用。
3-1		加分卡		
3-2				
3-3				
		車床圖形		能了解車床結構
4-1		抽籤筒	10'	
4-2		加分卡		

	<p style="text-align: center;">參、綜合活動</p> <p>強化 / Reinforcement & 結尾 / Wrap-up</p> <ol style="list-style-type: none"> 1.將今天所學複習一遍。 2.交代功課(作業單)。 3.Say “Goodbye” to everyone! 	作業單	5’	
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