

高中

# 健康與體育領域 雙語教學資源手冊



指導單位 | 教育部 師資培育與藝術教育司  
彙編單位 | 臺北市立大學 雙語教學研究中心



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# 迎接百歲世代與健康生活

## Living for Long Life and Good Life

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臺北市立大學 運動健康科學系 劉述懿教授

### 單元設計理念 Unit Concept

本單元設計以高級中學健康與體育領域中「第五學習階段」核心素養為具體內涵設計，並以學習重點中「F. 身心健康與疾病預防」的主題項目來進行全人健康雙語教學，教學活動內容中提供課室 / 教學語言 (Instructional language) 與交流語言 (Interactional language)，來學習終其一生所需要維持與持續監控的生理與心理指標與狀態。

### A

### 課程說明 Lesson Overview

#### 01. 學科課程目標：

- 了解現代醫學進步，延長國人壽命與健康年齡增長，進而理解影響正常健康生活的生、心理系統和機制。
- 了解心肺適能 (cardiorespiratory fitness) 影響健康年齡，並且知道方法提升心肺適能。
- 了解新陳代謝系統 (metabolism system) 影響健康年齡，並且知道方法有效改善新陳代謝。
- 了解肌肉骨骼力量 (musculoskeletal strength) 影響健康年齡，並且知道方法提升肌肉骨骼能力。
- 了解情緒健康 (emotional well-being) 影響健康年齡，並且知道方法改善。

#### 02. 連結學習重點：

- 學習內容：
  - Fb-V-1 健康生活型態的改善與執行策略。
  - Fb-V-2 全球急、慢性病的防治策略。
- 學習表現：
  - 1a-V-4 探究促進全人健康的創新策略、資源與規範。
  - 2b-V-2 因應多元的健康需求，積極調適與創新健康促進生活型態。
  - 3a-V-2 運用多元策略，將健康與自我照護技能彈性調整融入生活情境，展現出個人及群體的健康生活模式。
  - 4a-V-3 有效地表現促進健康及減少健康風險的行為。



## 字彙與片語 Words and Phrases

### 字彙 Words

longevity (長壽)  
life expectancy (預期壽命)  
health life expectancy (健康預期壽命)  
premature death (過早死亡)  
Population Estimates Enquiry System (人口推估查詢系統)  
World Health Organization (WHO) (世界衛生組織)  
gender (性別：社會性別)  
sex (性別：生理性別)  
cardiorespiratory health (心肺系統健康)  
metabolism system (新陳代謝系統)  
musculoskeletal strength (肌肉骨骼力量)  
mental well-being (心理健康)



## 句型 Sentence Patterns

1. Life expectancy and health life expectancy in different countries. (不同國家的預期壽命和健康預期壽命。)
2. How did global life expectancy change between 2000 and 2019? (2000 年至 2019 年間，全球預期壽命發生了哪些變化？)
3. Life expectancy refer to the average total years a person may live. Healthy life expectancy (HALE) is the average years in good health, and healthy life expectancy. (預期壽命指一個人的平均總壽命。健康預期壽命 (HALE) 是指身體健康的平均年齡。)
4. What about us? What is the life expectancy in Taiwan? (那我們呢？台灣人的預期壽命是多少歲呢？)



# Lesson 1: 迎接百歲世代與健康生活

## Preparing for More than 100 Years Old and Good Life

### Living for Long Life and Good Life



### Activity 1

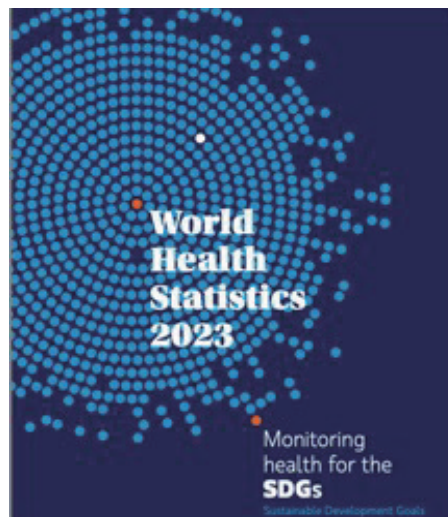
1. 世界各國與台灣人民的壽命與健康壽命 (醫學進步、壽命延長? 但又是否可以活得健康?) Life Expectancy and Health Life Expectancy in different countries.

#### Instruction in World Health 2023:

Since 2005, the World Health Organization (WHO) has been annually publishing the World Health Statistics report, which compiles various health indicators, in collaboration with its regional and technical divisions. The following file and figure represent life expectancy and healthy life expectancy in various countries in 2019, with the statistical data published in 2023. From these data, we can observe that human life expectancy and healthy life expectancy are changing year by year. The estimates confirm the trend for longevity: lifespans are getting longer.

#### How did global life expectancy change between 2000 and 2019?

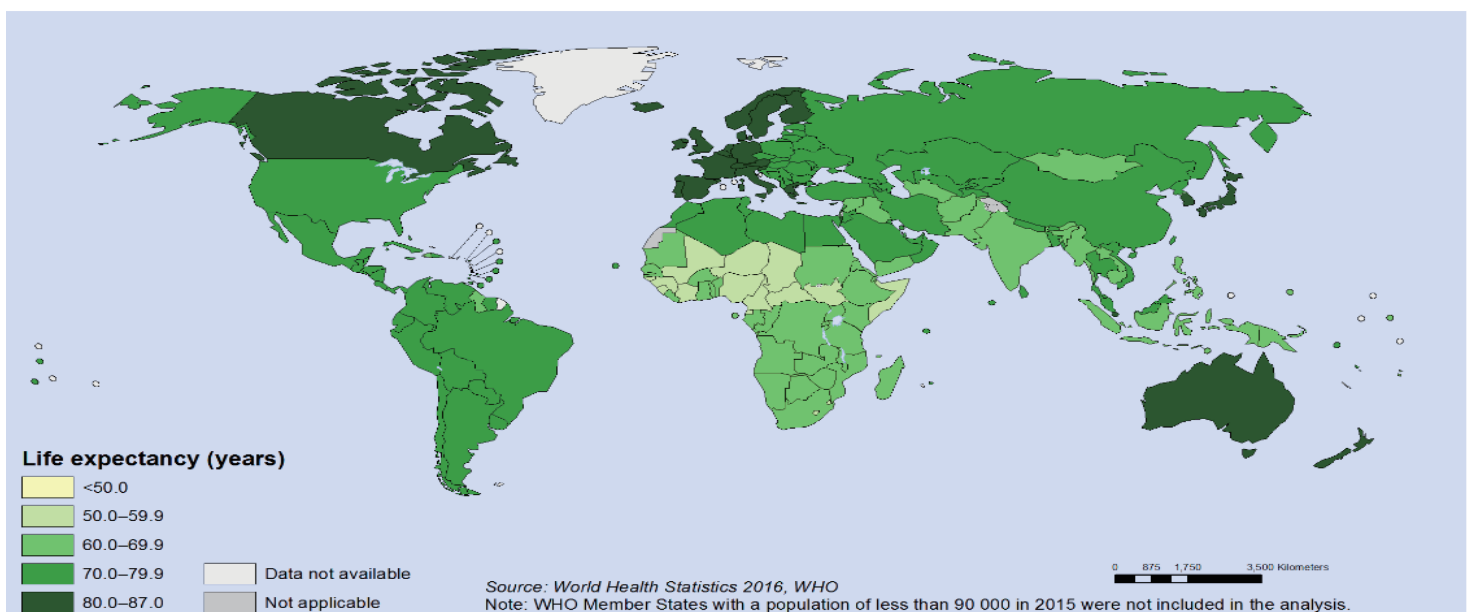
**T**: According to the World Health Organization (WHO), which surveys the average life expectancy of the world's citizens in 2016 on a country-by-country basis, the darker the color, the longer the life expectancy of the people.



**World Health Statistics:** <https://www.who.int/data/gho/publications/world-health-statistics>

- T** : Please use the website to dive into the "Life expectancy at birth in 2016 (WHO)" [https://www.who.int/images/default-source/maps/global\\_lifeexpectancy\\_bothsexes\\_2016.png?sfvrsn=76ceb544\\_0](https://www.who.int/images/default-source/maps/global_lifeexpectancy_bothsexes_2016.png?sfvrsn=76ceb544_0)
- T** : Life expectancy ( 預期壽命 ) refer to the average total years a person may live. Healthy life expectancy (HALE) ( 健康預期壽命 ) is the average years in good health, and healthy life expectancy.
- T** : Now, please pair 2-4 Fellows as a group to discuss the following question and make a brief oral presentation.

**Life expectancy at birth  
Both sexes, 2016**



The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever in the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines or which there may not yet be full agreement.

Data Source: World Health Organization  
Map Production: Information Evidence and Research (IER)  
World Health Organization

 **World Health Organization**

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According to the statistics report by WHO 2023, which country's citizens have the longest life expectancy and the healthiest life expectancy?

**T** : Group in four, we will discuss which country's citizens have the longest and healthiest life expectancy.

**T** : Please report the country with the highest life expectancy? Please provide the age.

**S** : The longest life expectancy is Singapore, the expectancy life age is \_\_\_\_\_.

**T** : Which country has the highest life expectancy? Please provide the age.

**S** : The healthiest life expectancy is Singapore, the health expectancy age is \_\_\_\_\_.



## Activity 2

**What about us? What is the life expectancy in Taiwan?**  
( 那我們呢？台灣人的預期壽命是多少歲呢？ )

**T** : According to the table, Our life expectancy in male and female of recent year.

**S** : In the year of \_\_\_\_\_, Male/ Female life expectancy is \_\_\_\_\_ years old.

**T** : Our health life expectancy in male and female.

○ ( <https://dep.mohw.gov.tw/DOS/cp-5082-55400-113.html> )

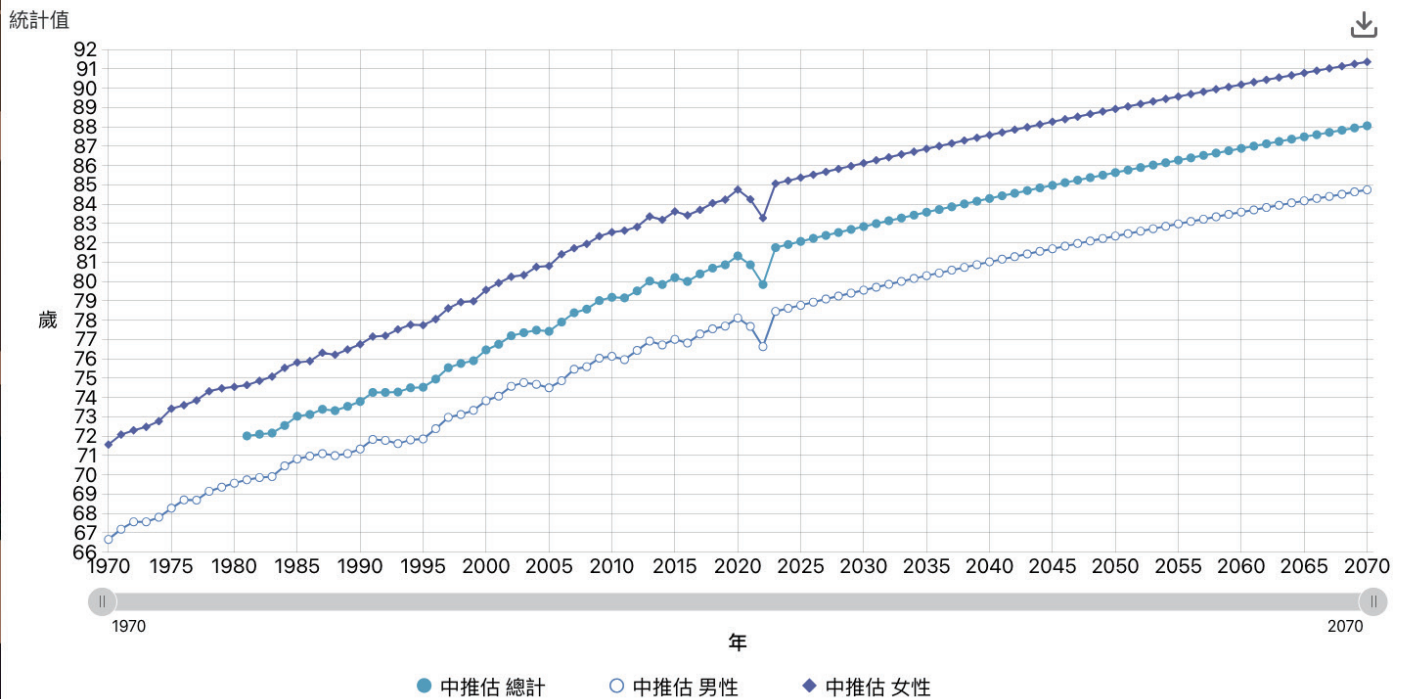
○ ( 衛生福利部 -> 衛生福利部統計處 -> 健康平均餘命 -> 健康平均餘命指標資料表 )

**S** : Male/ Female health life expectancy is \_\_\_\_\_ years old.

**T** : Please use the website of Population Estimates Enquiry System of National Development Council in Taiwan to report your life expectancy.

**S** : In year 2070, my age is \_\_\_\_\_ years old, the life expectancy is \_\_\_\_\_ years old. Why don't you have a guess when you at 2100? The life expectancy will be...





Data resource: Population Estimates Enquiry System of National Development Council in Taiwan.  
The website: <https://pop-proj.ndc.gov.tw/cp.aspx?n=1>



### Activity 3

**Medical advances and longer life spans? But is it possible to live a healthy life? 醫學進步、壽命延長？但又是否可以活得健康？**

- T** : Globally, life expectancy has increased by more than 6 years between 2000 and 2019 – from 66.8 years in 2000 to 73.4 years in 2019. While healthy life expectancy (HALE) has also increased by 8% from 58.3 in 2000 to 63.7 in 2019, this was due to declining mortality rather than reduced years lived with disability.
- T** : The truth is, from 2000 to 2019, global life expectancy increased from 67 years to 73 years; however, the increase in HALE (5.4 years) has not caught up with the increase in life expectancy (6.6 years).
- T** : Is there nothing we can do for the long and good life. No, if we care the health longevity body system, in terms of cardiorespiratory health (心肺系統健康)、metabolism system (新陳代謝系統)、musculoskeletal strength (肌肉骨骼力量) and mental well-being (心理健康). Please follow the coming up unit lessons.

# 影響全人健康的生理與心理系統

## Physiology and Psychology System

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臺北市立大學 運動健康科學系 劉述懿教授

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- 了解新陳代謝系統 (metabolism system) 影響健康年齡，並且知道方法有效改善新陳代謝。
- 了解肌肉骨骼力量 (musculoskeletal strength) 影響健康年齡，並且知道方法提升肌肉骨骼能力。
- 了解心理健康 (mental well-being) 影響健康年齡，並且知道方法改善。

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**B****字彙與片語 Words and Phrases****字彙 Words**

cardiorespiratory health ( 心肺系統健康 )  
metabolism system ( 新陳代謝系統 )  
musculoskeletal strength ( 肌肉骨骼力量 )  
emotional well-being ( 健康情緒 )  
factors ( 影響因子 )  
non-modifiable ( 不可變因素 )  
modifiable ( 可變因素 )  
cardiorespiratory fitness ( 心肺適能 )  
Vo2max ( 最大攝氧量 )  
physical activity ( 身體活動量 )  
dominant hand/non-dominant hand ( 慣用手 / 非慣用手 )

**C****句型 Sentence Patterns**

1. Cardiorespiratory fitness (CRF) is an important marker of physical and mental health and academic achievement in youth. ( 心肺功能 ( CRF ) 是青少年身心健康和學業成績的重要指標。 )
2. VO2max indicates a robust heart capable of efficiently circulating large amounts of blood throughout the body to deliver oxygen. ( 最大攝氧量 ( VO2max ) 代表心臟功能強健，能夠有效率地利用氧氣並將大量血液輸送至全身。 )
3. How many hours do you typically spend in bed each night? Sleep is the time when your body recovers the most. ( 你花多少時間在睡覺呢？睡眠是身體恢復能力最強的時刻。 )
4. Grip strength is essential for various daily activities and can provide an insight into overall physical fitness. ( 握力是進行各種日常活動的必要條件，它可以幫助瞭解整體體能狀況。 )
5. Building strong bone is a team effort. ( 打造強健骨骼是需要團隊合作的。 )

## 影響全人健康的生理與心理系統 ( *physiology and psychology system* )

In the near future, we can imagine that most people may be over 100 years old, but in order to ensure longevity and maintain a good quality of life, it is important to understand the factors that affect our biological system and how to maintain the relevant physiological and psychological functions over of 100 years age or more (Not just living longer, but living well). There are four major systems that we should focus on when considering physical health and staying young and active: cardiorespiratory health (心肺系統健康)、metabolism system (新陳代謝系統)、musculoskeletal strength (肌肉骨骼力量) and mental well-being (心理健康).

### Lesson 1: 心肺系統健康 (有氧適能是你/妳的精神泉源) Cardiorespiratory/ Cardio Fitness Health



#### Activity 1

#### Report my Cardiorespiratory Fitness Level

- T** : Cardiorespiratory fitness (CRF) is an important marker of physical and mental health and academic achievement in youth [1]. Cardiorespiratory fitness (CRF) is defined as the ability of the circulatory and respiratory systems to deliver oxygen to the mitochondria in skeletal muscle to support the energy production required during physical activity [2].
- T** : High Cardiorespiratory fitness (CRF) may boost academic performance by enhancing cognitive functions and psychological well-being.
- T** : Cardiorespiratory fitness correlates with higher life satisfaction in youth. Excess weight negatively impacts perceived health and, in children, it also affects life satisfaction, family relationships, and school performance [3].
- T** : Taken together, these findings suggest that improving both cardiorespiratory fitness and fatness could exert a favorable effect on positive health during childhood and adolescence [3]. The following

Non-Modifiable and Modifiable factors that we can understand to improve or maintain our CRF for a better quality of life.

**Non-Modifiable Factors ( 先天不可控因素 ):**

**T** : Non-Modifiable Factors are elements that influence an individual's health and risk for disease that cannot be altered by behavior or environment. For instance, age, sex, race, and prematurity. In other words, your DNA and family health history play a role in your natural cardiovascular fitness level.

**Modifiable Factors ( 後天可控因素 ):**

**T** : Modifiable factors are aspects of our lifestyle or environment we can change, like diet and exercise, to improve health and reduce disease risk. For instance, Habitual Physical Activity, Sedentary Time, Obesity, and Diet. Fortunately, we can change our behavior in these factors to improve CRF and be healthier.

- **Habitual Physical Activity:** Regular exercise improves heart and lung function and overall fitness.
- **Exercise Training:** Structured training can significantly enhance CRF.
- **Sedentary Time:** Too much sitting is bad for your heart health, and reducing sedentary time can improve CRF.
- **Obesity:** Carrying excess weight can strain the heart, and managing weight through exercise and diet can improve CRF.
- **Diet:** Eating a balanced and healthy diet supports cardiovascular health.

**Cardio Respiratory Fitness (CRF)**

**How to know your cardio fitness level**

**T** : It is quite simple, you may use the indirect way to observe your heart rate in moderate intensity exercise and estimate your cardio fitness, or see your physical fitness 800/1600m walk/run result in the PE class to understand your CRF fitness.



## 10-23 year old male student 800m and 1600 meters run away percentile norm (unit: minutes 'seconds')

10-23 year old male student 800 meters run away percentile norm (unit: minutes 'seconds')

Percentile Rank	5th	10th	15th	20th	25th	30th	35th	40th	45th	50th	55th	60th	65th	70th	75th	80th	85th	90th	95th
Age	《Poor》				《Average》					《Bronze》					《Silver》		《Gold》		
10	6'50"	6'25"	6'12"	6'0"	5'47"	5'36"	5'28"	5'18"	5'10"	5'0"	4'51"	4'43"	4'36"	4'27"	4'20"	4'11"	4'1"	3'51"	3'40"
11	6'33"	6'02"	5'46"	5'32"	5'22"	5'14"	5'04"	4'54"	4'47"	4'40"	4'30"	4'23"	4'16"	4'09"	4'02"	3'55"	3'48"	3'39"	3'30"
12	6'01"	5'34"	5'19"	5'08"	4'57"	4'47"	4'39"	4'31"	4'24"	4'17"	4'10"	4'03"	3'57"	3'50"	3'43"	3'38"	3'32"	3'25"	3'14"
13	13'16"	12'25"	12'02"	11'35"	11'16"	10'56"	10'44"	10'22"	10'03"	9'50"	9'33"	9'15"	8'57"	8'41"	8'20"	8'8"	7'54"	7'30"	7'04"
14	13'26"	12'22"	11'55"	11'23"	10'59"	10'28"	10'04"	9'45"	9'27"	9'14"	8'57"	8'43"	8'29"	8'14"	7'57"	7'44"	7'28"	7'11"	6'47"
15	12'57"	11'58"	11'10"	10'42"	10'19"	10'00"	9'42"	9'19"	9'05"	8'53"	8'38"	8'22"	8'10"	8'00"	7'46"	7'33"	7'18"	7'03"	6'42"
16	11'55"	11'04"	10'27"	9'59"	9'38"	9'20"	9'04"	8'52"	8'40"	8'27"	8'13"	8'04"	7'54"	7'42"	7'32"	7'20"	7'09"	6'53"	6'36"
17	12'18"	11'07"	10'28"	10'06"	9'47"	9'25"	9'08"	8'55"	8'43"	8'31"	8'17"	8'05"	7'56"	7'47"	7'35"	7'20"	7'09"	6'57"	6'40"
18	12'16"	11'15"	10'42"	10'17"	9'58"	9'38"	9'21"	9'06"	8'51"	8'39"	8'28"	8'18"	8'05"	7'52"	7'40"	7'30"	7'15"	6'59"	6'36"
19	10'28"	10'01"	9'43"	9'29"	9'17"	9'05"	8'55"	8'46"	8'36"	8'27"	8'18"	8'09"	7'59"	7'49"	7'38"	7'25"	7'11"	6'53"	6'27"
20	10'31"	10'04"	9'45"	9'31"	9'18"	9'07"	8'57"	8'47"	8'37"	8'28"	8'18"	8'09"	7'59"	7'49"	7'37"	7'25"	7'10"	6'52"	6'25"
21	10'30"	10'04"	9'46"	9'31"	9'19"	9'08"	8'58"	8'48"	8'39"	8'30"	8'20"	8'11"	8'01"	7'51"	7'40"	7'28"	7'13"	6'55"	6'29"
22	10'23"	9'58"	9'40"	9'27"	9'15"	9'04"	8'55"	8'45"	8'36"	8'28"	8'19"	8'10"	8'00"	7'51"	7'40"	7'28"	7'15"	6'57"	6'32"
23	10'32"	10'06"	9'48"	9'34"	9'22"	9'10"	9'01"	8'51"	8'42"	8'33"	8'23"	8'14"	8'04"	7'55"	7'43"	7'31"	7'17"	6'59"	6'33"

## 10-23-year-old female student 800 meters run away from the percentile norm (unit: minutes 'seconds')

10-23 year old female student 800 meters run away percentile norm (unit: minutes 'seconds')

Percentile Rank	5th	10th	15th	20th	25th	30th	35th	40th	45th	50th	55th	60th	65th	70th	75th	80th	85th	90th	95th
Age	《Poor》				《Average》					《Bronze》					《Silver》		《Gold》		
10	6'53"	6'29"	6'14"	6'03"	5'53"	5'46"	5'38"	5'28"	5'22"	5'14"	5'07"	5'03"	4'55"	4'47"	4'41"	4'33"	4'25"	4'11"	4'00"
11	6'27"	6'03"	5'48"	5'38"	5'29"	5'22"	5'16"	5'09"	5'03"	4'56"	4'49"	4'43"	4'36"	4'29"	4'22"	4'15"	4'09"	3'56"	3'46"
12	6'08"	5'46"	5'32"	5'22"	5'15"	5'09"	5'03"	4'56"	4'49"	4'44"	4'40"	4'33"	4'27"	4'21"	4'15"	4'09"	4'03"	3'54"	3'43"
13	6'08"	5'54"	5'31"	5'22"	5'16"	5'07"	5'00"	4'54"	4'49"	4'43"	4'37"	4'32"	4'26"	4'20"	4'16"	4'10"	4'03"	3'54"	3'44"
14	6'25"	5'56"	5'39"	5'30"	5'23"	5'14"	5'09"	5'02"	4'55"	4'49"	4'44"	4'39"	4'33"	4'28"	4'23"	4'17"	4'10"	4'02"	3'53"
15	6'16"	5'53"	5'35"	5'28"	5'20"	5'11"	5'05"	4'59"	4'53"	4'47"	4'41"	4'35"	4'30"	4'24"	4'19"	4'12"	4'06"	3'57"	3'47"
16	6'16"	5'50"	5'32"	5'20"	5'11"	5'03"	4'55"	4'49"	4'44"	4'38"	4'33"	4'28"	4'24"	4'19"	4'14"	4'09"	4'03"	3'55"	3'44"
17	6'5"	5'45"	5'30"	5'15"	5'06"	5'01"	4'54"	4'48"	4'42"	4'38"	4'33"	4'30"	4'25"	4'19"	4'15"	4'09"	4'02"	3'56"	3'46"
18	6'22"	5'52"	5'36"	5'26"	5'17"	5'08"	5'01"	4'56"	4'50"	4'46"	4'40"	4'36"	4'32"	4'27"	4'21"	4'16"	4'11"	4'03"	3'51"
19	5'45"	5'32"	5'24"	5'17"	5'11"	5'05"	5'00"	4'55"	4'51"	4'46"	4'42"	4'37"	4'33"	4'28"	4'22"	4'16"	4'09"	4'00"	3'47"
20	5'52"	5'38"	5'29"	5'21"	5'15"	5'09"	5'04"	4'59"	4'54"	4'49"	4'45"	4'40"	4'35"	4'30"	4'24"	4'18"	4'10"	4'01"	3'47"
21	5'46"	5'32"	5'23"	5'16"	5'10"	5'05"	5'00"	4'55"	4'50"	4'46"	4'41"	4'36"	4'32"	4'27"	4'21"	4'15"	4'08"	3'59"	3'46"
22	5'42"	5'21"	5'21"	5'14"	5'08"	5'03"	4'58"	4'54"	4'49"	4'45"	4'40"	4'36"	4'32"	4'27"	4'22"	4'16"	4'09"	4'01"	3'48"
23	5'43"	5'23"	5'23"	5'17"	5'11"	5'06"	5'01"	4'57"	4'53"	4'48"	4'44"	4'40"	4'36"	4'31"	4'26"	4'20"	4'14"	4'06"	3'53"

## My cardiorespiratory fitness level

- T** : According to the Ministry of Education Physical Fitness website, you can use the table to understand your fitness levels.
- S** : My ranks of CRF is in the gold/ silver/bronze/average/ poor level.
- S** : To maintain good health, aim to keep your CRF in the excellent level.
- S** : I will improve my CRF to maintain my health.

## How to improve your cardiorespiratory fitness levels

The Prescription of your cardio fitness

According to the table, how about your fitness levels? Please use the website of Sports Administration Ministry of Education (教育部體適能網站) to have your prescription of cardio fitness plan exercise and share with your partner or ask your PE and Health teachers.

● <https://www.fitness.org.tw/conect01.php>

□ 依據體適能檢測結果,我們設定三種等級的心肺耐力訓練處方:

部位	項目	請加強(0-20%)	普通(21-80%)	優良(81-99%)
水中	動作型式	水中競走 在水中以快速來回的方式急走。	打水 以漂浮打水的方式進行。	游泳 自行選擇動作。
	運動時間與強度	20分鐘 50% *最大心跳率	30分鐘 50% *最大心跳率	20分鐘 60% *最大心跳率
	運動頻率	(2~3)天/週	(2~3)天/週	(2~3)天/週
走跑	動作型式	100公尺跑+100公尺走	150公尺跑+250公尺走	250公尺跑+150公尺走
	運動時間與強度	20分鐘 50% *最大心跳率	30分鐘 50% *最大心跳率	20分鐘 60% *最大心跳率
	運動頻率	(2~3)天/週	(2~3)天/週	(2~3)天/週
樓梯	動作型式	走上走下(30階)	跑上走下(30階)	跑上跑下(30階)
	運動時間與強度	20分鐘 50% *最大心跳率	30分鐘 50% *最大心跳率	20分鐘 60% *最大心跳率
	運動頻率	(2~3)天/週	(2~3)天/週	(2~3)天/週

**T** : Key Guidelines for Children and Adolescents in exercise.

**T** : According The American College Sports Medicine ( 美國運動醫學會 ), children and adolescents should do 60 minutes (1 hour) or more of physical activity daily.

**T** : Aerobic exercise: Most of the 60 or more minutes a day should be either moderate or vigorous-intensity aerobic physical activity, and should include vigorous-intensity physical activity at least 3 days a week.

### The VO2 max 最大攝氧量關乎你的健康狀態

**T** : VO2max is a indicator of CRF, the higher Vo2max the higher CRF you have.

**T** : VO2max is like a score that tells how much oxygen your body can use when you're exercising hard. VO2max is an predictor to sports athletes' aerobic performance, the higher the VO2max, the greater performance in endurance.

**T** : A superior VO2max indicates a robust heart capable of efficiently circulating large amounts of blood throughout the body to deliver oxygen [3].

- T** : According American Heart Association, high levels are linked to a lower risk of developing dementia, Alzheimer's disease, diabetes and even some types of cancer [4].
- T** : For the general population, VO2max can reflect a person's fitness of the cardiorespiratory system, as well as the risk of heart disease and mortality (死亡率) from all causes [5,6].
- T** : People without chronic conditions showed higher predicted VO2max values, Subjects with diabetes, hypertension, and heart disease reported lower predicted VO2max than their healthier counterparts [7].
- T** : You are a teenager getting closer to being an adult, it's time to focus on keeping your heart and lungs healthy. This lesson will teach you all about your cardio fitness and how to boost and keep up your heart and lung health, making your life better and helping you live longer and healthier.

## 國人心血管疾病的排名

Rank	Causes of Death 2022 Taiwan
1	Malignant tumors (cancer) 惡性腫瘤 (癌症)
2	Heart diseases 心臟疾病
3	Severe acute respiratory syndrome (COVID-19) 嚴重特殊傳染性肺炎 (COVID-19)
4	Pneumonia 肺炎
5	Cerebrovascular diseases 腦血管疾病
6	Diabetes 糖尿病
7	Hypertensive diseases 高血壓性疾病
8	Accidental injuries 事故傷害
9	Chronic lower respiratory diseases 慢性下呼吸道疾病
10	Nephritis, nephrotic syndrome, and ne-phrosis 腎炎腎病症候群及腎病變

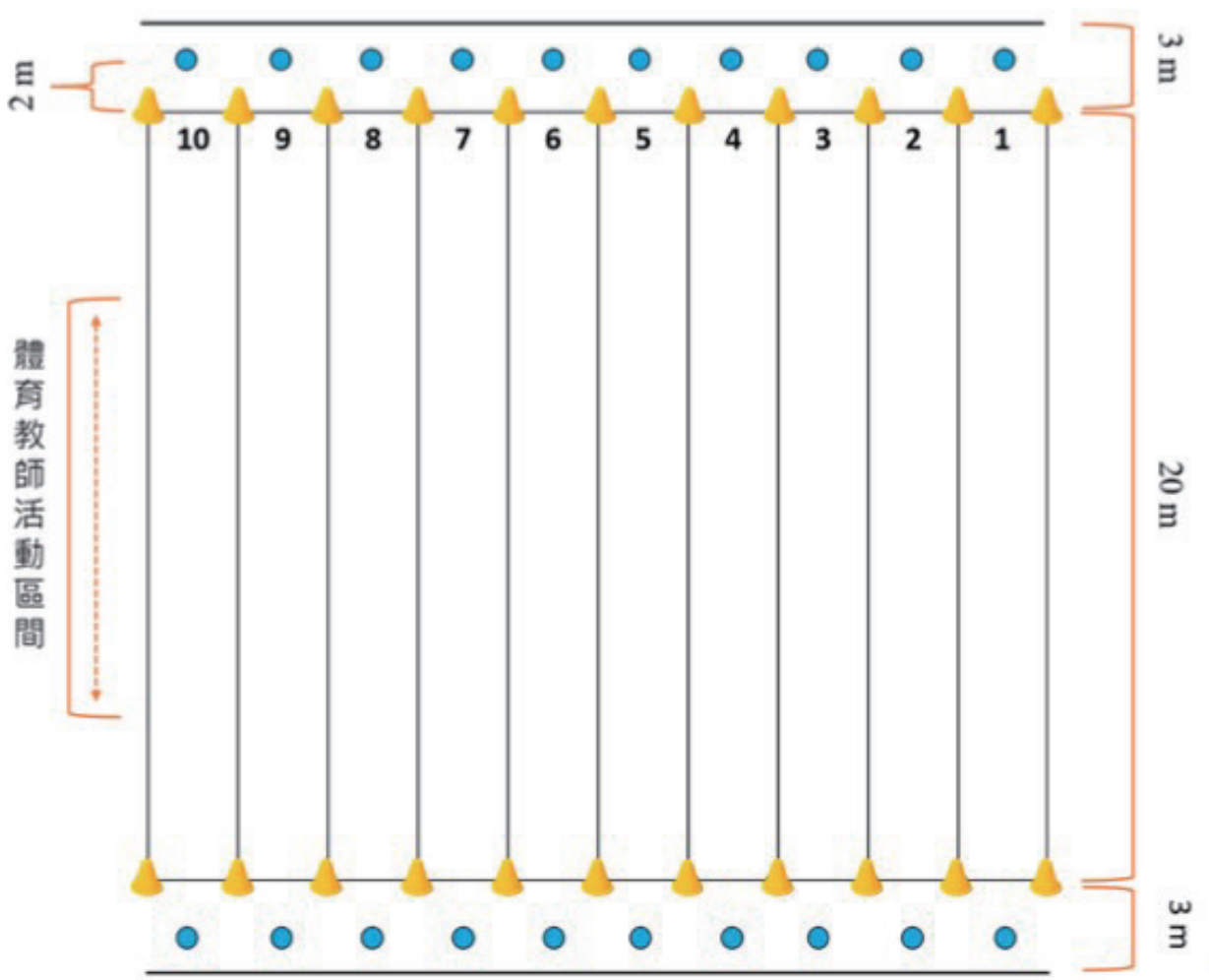
Source: Ministry of Health and Welfare, 2022

- T** : Most people can improve their VO2max with more intense and more frequent cardiovascular exercise. Certain conditions or medications that limit your heart rate may cause an overestimation of your VO2max. You can indicate you're taking certain medications in Health Details. In
- T** : youth, the VO2max values can vary, but generally, average values for males aged 18-25 range from 42 to 46 mL/kg/min, and for females of the same age, it's typically 33 to 37 mL/kg/min. These figures tend

to decrease with age. Elite young athletes may see much higher values, with males possibly exceeding 70 mL/kg/min and females going above 60 mL/kg/min. VO<sub>2</sub>max reflects the cardiovascular fitness level and can be assessed using standard tests in a lab with specialized equipment.

- T**: Your smartwatch or phone can indirectly calculate your Vo<sub>2</sub>max level. This reveals your health status based on what we learned about CRF.
- T**: A progressive shuttle run test to estimate maximal oxygen uptake [8]. It is called the multi-stage fitness test (MSFT), in the school testing as the PACER test (progressive aerobic cardiovascular endurance run)(漸速耐力折返跑), or the 20m shuttle run test, is a running assessment used to approximate an athlete's aerobic capacity (VO<sub>2</sub>max).

### Progressive aerobic cardiovascular endurance run 漸速耐力折返跑圖示





**Table of predicted maximal oxygen up take values for the progressive shuttle run test [8]. Dept. of PE& Sports Science, Loughborough University,1988**

Level	Shuttle	LUT Predicted VO <sub>2</sub> max	Level	Shuttle	LUT Predicted VO <sub>2</sub> max
4	2	26.8	14	2	61.1
4	4	27.6	14	4	61.7
4	6	28.3	14	6	62.2
4	9	29.5	14	8	62.7
5	2	30.2	14	10	63.2
5	4	31.0	14	13	64.0
5	6	31.8	15	2	64.6
5	9	32.9	15	4	65.1
6	2	33.6	15	6	65.6
6	4	34.3	15	8	66.2
6	6	35.0	15	10	66.7
6	8	35.7	15	13	67.5
6	10	36.4	16	2	68.0
7	2	37.1	16	4	68.5
7	4	37.8	16	6	69.0
7	6	38.5	16	8	69.5
7	8	39.2	16	10	69.9
7	10	39.9	16	12	70.5
8	2	40.5	16	14	70.9
8	4	41.1	17	2	71.4
8	6	41.8	17	4	71.9
8	8	42.4	17	6	72.4
8	11	43.3	17	8	72.9
9	2	43.9	17	10	73.4
9	4	44.5	17	12	73.9
9	6	45.2	17	14	74.4
9	8	45.8	18	2	74.8
9	11	46.8	18	4	75.3
10	2	47.4	18	6	75.8
10	4	48.0	18	8	76.2
10	6	48.7	18	10	76.7
10	8	49.3	18	12	77.2
10	11	50.2	18	15	77.9
11	2	50.8	19	2	78.3
11	4	51.4	19	4	78.8
11	6	51.9	19	6	79.2
11	8	52.5	19	8	79.7
11	10	53.1	19	10	80.2
11	12	53.7	19	12	80.6
12	2	54.3	19	15	81.3
12	4	54.8	20	2	81.8
12	6	55.4	20	4	82.2
12	8	56.0	20	6	82.6
12	10	56.5	20	8	83.0
12	12	57.1	20	10	83.5
13	2	57.6	20	12	83.9
13	4	58.2	20	16	84.8
13	6	58.7			
13	8	59.3			
13	10	59.8			
13	13	60.6			

**Cardiorespiratory Fitness Classifications ( $VO_{2max}$ )  
by Age and Sex**

$VO_{2max}$  (mL  $O_2 \cdot kg^{-1} \cdot min^{-1}$ )

Percentile		Age Group	
		Men	Women
		20-29	20-29
95	Superior	66.3	56
90	Excellent	61.8	51.3
85		59.3	48.3
80		57.1	46.5
75	Good	55.2	44.7
70		53.7	43.2
65		52.1	41.6
60		50.2	40.6
55	Fair	49	38.9
50		48	37.6
45		46.5	35.9
40		44.9	34.6
35	Poor	43.5	33.6
30		41.9	32
25		40.1	30.5
20		38.1	28.6
15	Very Poor	35.4	26.2
10		32.1	23.9
5		29	21.7

- T** : The same with CRF, after testing in shuttle run, what is your ranks of  $VO_{2max}$ , according the table to report your level in  $VO_{2max}$ .
- S** : My  $VO_{2max}$  level is in the ranks of superior/ excellent/ fair/ poor/ very poor level.
- S** : To maintain good health, aim to keep your CRF in the excellent level.
- S** : I have my CRF or  $Vo_{2max}$  level, and according the website of Sports Administration Ministry of Education, I plan my exercise schedule to improve my CRF to maintain my health.



## Lesson 2: 新陳代謝系統 Metabolism System

**The period of rapid growth in the height and weight of senior school students is different for males and females.**

**青少年的身高體重快速生長時間男女有別**

Chronic diseases have been the leading cause of death in Taiwan for the past ten years (Ministry of Health and welfare), and health condition in metabolism could decrease chronic diseases about 50% lower, the metabolism is how your body uses food for energy. Keeping it healthy can enhance your longevity and protect you from diseases like diabetes and some cancers. We should focus in organs and the broader physiology that mediates the production and storage of energy.

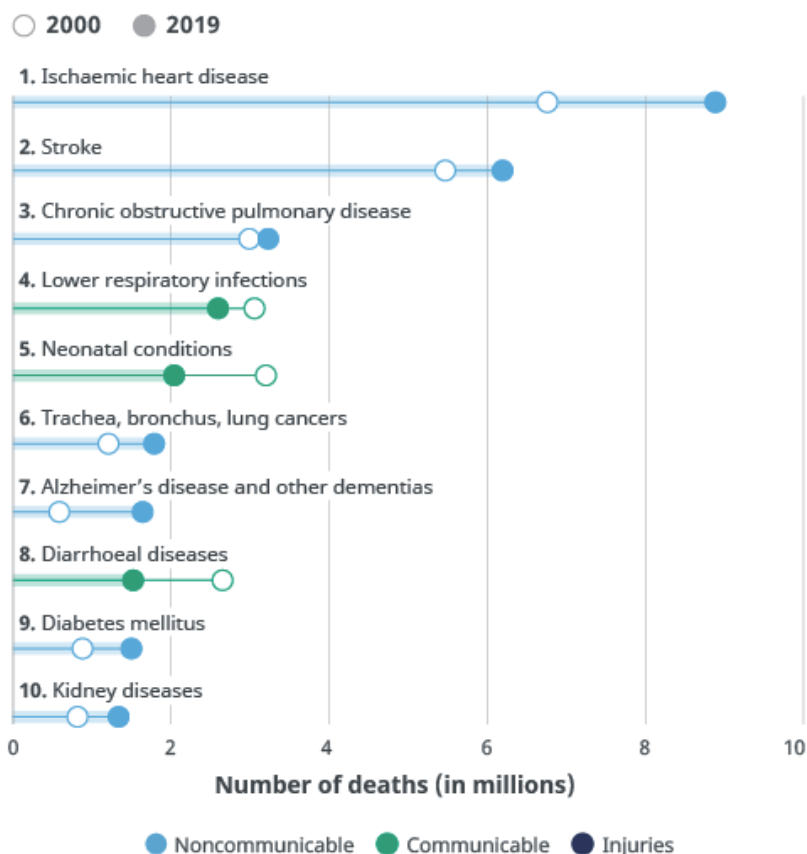
- T** : Good metabolic health serves as a defense against numerous health challenges, such as heart disease and diabetes, which are known to reduce lifespan, quality of life and longevity.
- T** : In Taiwan, scientists found that by staying active and eating better, you could seriously lower your risk of long-term illnesses.
- T** : Research indicated that diet and how much you sleep can really change your health. Choosing less processed food could help you eat less, and considering enough sleep can fight off extra weight and diabetes.
- T** : Embracing a mediterranean diet, packed with fruits, grains, and veggies, has been linked to a lower chance of getting heart disease or cancer. It's a tasty way to boost your health.
- T** : Being active, eating well, and getting plenty of sleep can make a huge difference in staying healthy. It's like hitting the jackpot for your body!

WHO's guidelines on physical activity and sedentary behaviour (World Health Organization (WHO)).

- A state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (WHO, 1948).

- Insufficient physical activity is one of the leading risk factors for death worldwide.
  - Globally, physical inactivity is estimated to account for between 6-10% of ischemic heart disease, stroke, diabetes, and breast and colon cancer.
- 
- T** : Physical inactivity as the fourth leading cause of death, aligns with information available through the World Health Organization (WHO). Insufficient physical activity is indeed recognized as a significant risk factor for mortality, contributing to a range of noncommunicable diseases (NCDs).
  - T** : The WHO has reported that insufficient physical activity is linked to an increased risk of 20% to 30% for all-cause mortality compared to individuals who engage in at least 150 minutes of moderate-intensity physical activity per week. Furthermore, in 2008, about 31.3% of people aged 15 and over were categorized as insufficiently active.
  - T** : To put it in perspective, the WHO's Global Health Observatory, which serves as a portal for health-related statistics and information, would list such data on physical inactivity under the risk factors for NCDs. These NCD risk factors include behaviors such as tobacco use, unhealthy diets, and harmful use of alcohol, in addition to physical inactivity, all leading to various health issues, including raised blood pressure, obesity, high blood glucose, and high cholesterol. The aim of providing such data is to support global and national efforts to promote physical activity and reduce the risks associated with a sedentary lifestyle.

## Leading causes of death globally



圖片資料網址：

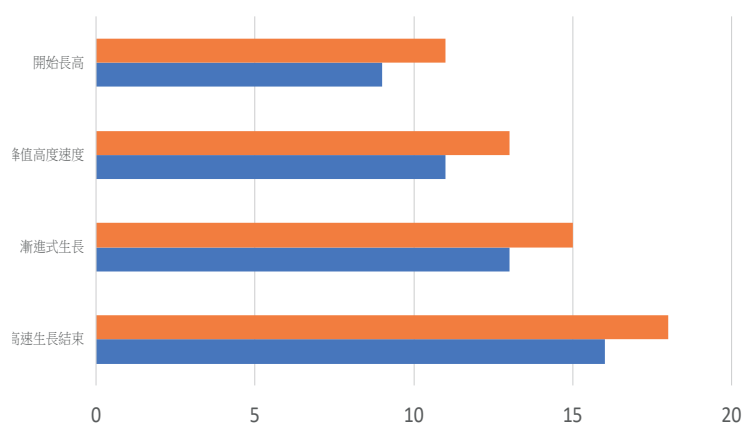
<https://www.who.int/news-room/fact-sheets/detail/the-top-10-causes-of-death>



### Activity 1

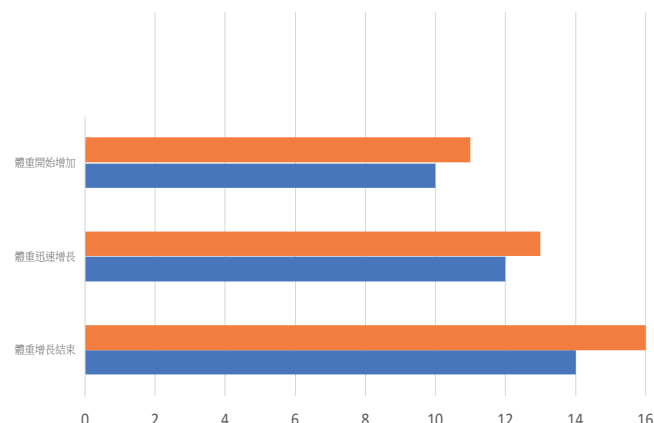
### 青少年成長與發展身高與體重曲線男生女生大不同？

**T** : Gender differences can affect growth spurts during teenage years. To determine your growth spurt based on your age and gender, refer to the following figures.



兒童和青少年男女生身高增加及快速增長期間

■ 男性 ■ 女性



兒童和青少年男女生體重增加及快速增長期間

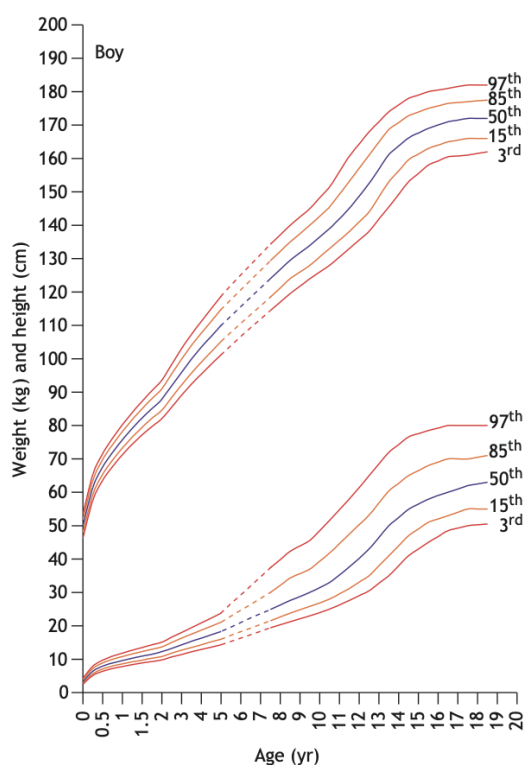
■ 男性 ■ 女性

Make a discussion for what growth spurt in your gender and age, 4-5 students as a group. and please report it.

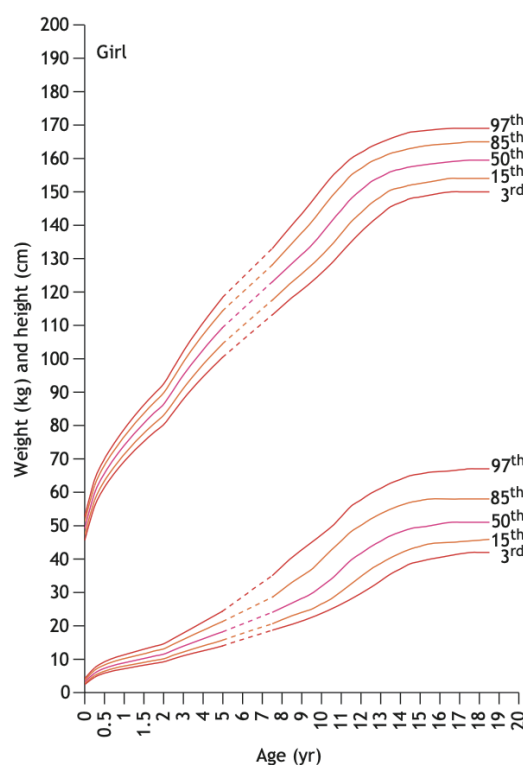
ex.

**S** : I am 16 years old, a male, and my height is nearing the end of its growth phase, while my weight is stabilizing within a healthy range.

Here are the weight-for-age and height-for-age curves for boys and girls in Taiwan [9]. This research provides the percentage of height and weight, allowing you to understand where you stand and what changes you need to make for better health, after you realize your growth spurt in your age.



**Figure 5** Boys' weight-for-age and height-for-age growth curves by percentile, based on 2006 World Health Organization standards and 2003 Taiwan standard, based on health-related physical fitness (solid lines). The dotted lines represent the linking data for boys aged 5–7 years.



**Figure 6** Girls' weight-for-age and height-for-age growth curves by percentile, based on 2006 World Health Organization standards and 2003 Taiwan standard, based on health-related physical fitness (solid lines). The dotted lines represent the linking data for girls aged 5–7 years.

- T** : Active physical activity can improve the height and weight of teenage males and females.
- T** : Consult your PE teacher, for guidance on planning exercise intensity for your health.
- T** : For better growth and development, you should involve the following lessons in your daily life.



## Activity 2

**How many hours do you typically spend in bed each night?  
Sleep is the time when your body recovers the most.**

- T** : NIH researchers say how much you sleep and your diet can really change your health.
- T** : Sleep is the time when your body recovers the most. Research has shown that sleeping less than 6 hours a day is associated with a higher risk of illness, chronic illness, and even death. No matter what your goal is, investing in a good night's sleep is important every day.
- T** : Sleep duration in bed for 8 hours/night, questionnaire about your sleep. Recall or record your sleep for 7 days to understand your sleep duration.

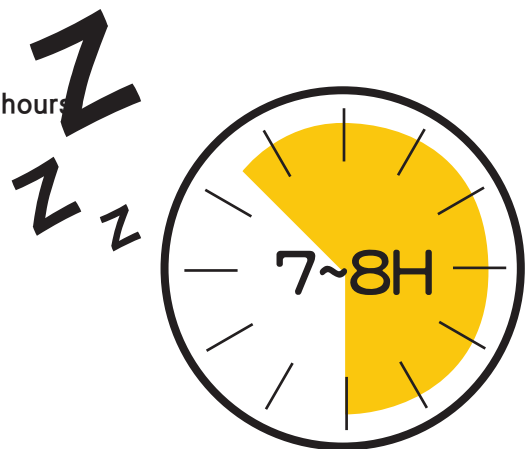
### Sleep duration in 7 days

Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
Y W N	Y W N	Y W N	Y W N	Y W N	Y W N	Y W N

Y: Yes, it is. (>7-8 hours)

W: I'm working on it, and almost there. (=6-7 hours)

N: No, I need more time. (<6 hours)



- T** : Two fellows as a group, report your sleeping duration in 7 days, take the average in 7 days.
- S** : My average sleeping duration in 7 day is \_\_\_\_\_ hours.
- T** : Sleep less than 6 hours a night is associated with 55% higher risk of obesity, reduce 26% hormones responsible for the growth spurt in your age (teenagers), hormones is strong correlation in male height and could double impact in female weight, sleep duration is the crucial factor can affect your metabolism and health.



## Tips for improving sleep quality

### **Tune down the light exposure:**

- T** : The rhythm of your body's internal clock affects all bodily functions and can even play a role in the aging process. Exposure to sunlight in the early hours of the day, along with reducing exposure to bright lights in the evening, can help regulate this natural cycle, leading to better sleep quality, improved markers of metabolic health, and enhanced general well-being.

### **Take aerobic or anaerobic exercise:**

- T** : 150 minutes of moderate-intensity exercise per week can improve your sleep quality, with aerobic or anaerobic exercise that increases body temperature making an improvement.

## **Lesson 3: 肌肉骨骼力, 你的學習與工作力** **Musculoskeletal strength empowers your daily life and enhances your work efficiency:**

For longevity and healthy life expectancy (HALE) as mentioned in Unit 1, the musculoskeletal system could enforce your quality of life in the stages of ageing. Muscle and bone density is one of the key system for quality of life and pursue your goals. Although in the teenage stage has the good bone density, but you should save your bone density as a saving money in the bank, the more you save, the more you can use during ageing.

- T** : According the Center for disease Control and Prevention (CDC) [10], children and adolescents should do 60 minutes (1 hour) or more of physical activity daily. Recommend that children and adolescents ages 6 through 17 years do 60 minutes (1 hour) or more of moderate-to-vigorous physical activity daily. As part of their 60 or more minutes of daily physical activity, children and adolescents should include muscle-strengthening physical activity on at least 3 days of the week.



## Activity 1

### How to keep the right posture with upper body: lose your belly

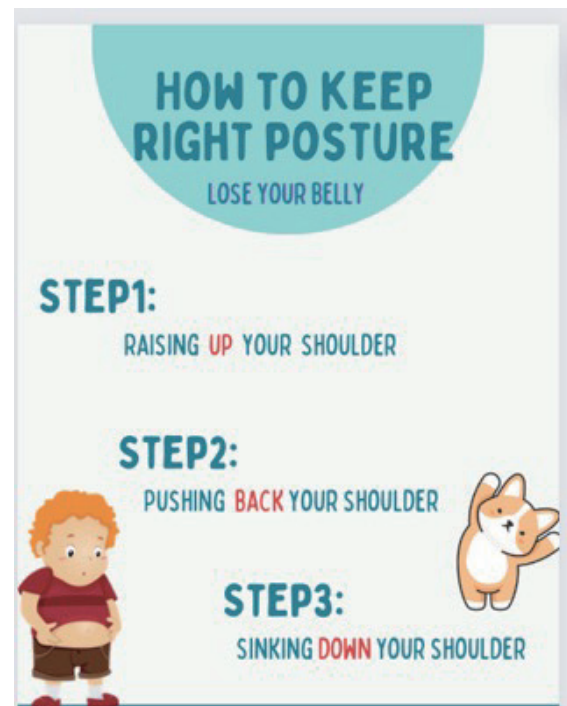
- T**: Muscle strength provides your energy consumption and efficacy, and increases the support for the energy production required during physical activity.
- T**: Maintaining good posture is crucial for healthy growth and development. It supports proper alignment of the spine during this critical period of physical maturation, reducing the risk of back pain and related issues.
- T**: Additionally, practicing good posture promotes optimal breathing and circulation, which are essential for overall well-being and energy levels. Adopting a posture-positive mindset early in life can lead to improved confidence, physical presence, and long-term musculoskeletal health.

#### How to keep Right Posture

Step1: Raising **upward** your shoulder

Step2: Pushing **backward** your shoulder

Step3: Sinking **downward** your shoulder



## Activity 2

### Grip Strength Testing

This activity is designed to assess your grip strength, an important measure of hand and arm strength. Grip strength is essential for various daily activities and can provide an insight into overall physical fitness; furthermore, grip is a proxy to look at cognitive function in older people. Follow the instructions below to perform the test and record your measurements.

# Grip Strength Testing

Name: \_\_\_\_\_

Date: \_\_\_\_\_

## Instructions:

1. Choose your dominant hand (strong hand) for grip strength testing.
2. Sit comfortably.
3. Hold the dynamometer with your chosen hand, squeeze as hard as you can.
4. Hold for 3 seconds, repeat 3 times with each hand.
5. Record measurements in the table below.

## Grip Strength Measurement:

Trial	Dominant Hand (strong hand )	Non-Dominant Hand (weak hand)
1		
2		
average		

## Reflection:

1. How did the test feel?
2. Did you notice any differences between your hands?
3. What factors do you think affect grip strength?
4. Why is grip strength important?
5. How could you improve grip strength in the future?

## Additional Notes:

- Maintain proper posture.
- Avoid sudden movements.
- Report any discomfort immediately.

- T** : For maintain the right posture in the long run, muscle strength should develop in your daily life, for adolescent, strength training helps the body to maintain the good posture and flexibility through body weight resistance training in moderate intensity .

### **Moderate intensity resistance training for muscle and bone strength**

- T** : To strengthen the muscles of the working limbs, moderate intensity resistance training can include climbing, body weight lifting (chin-ups, push-ups, sit-ups) and working with resistance bands. Use of body weight as resistance and do 8-15 times submaximal repetitions of exercise (ACSM).
- T** : To strengthen your bones, any form of jumping sports activities can strengthen your bone density, you can include running, jumping rope or basketball for bone strengthening (ACSM).

### **Activity 3** Vegetables of dark leaf can provide calcium in your daily diet

- T** : Vitamin K is essential for strong bones. There are two types: K1 from plants like leafy greens, and K2 made by bacteria in our gut or in animals. We do not necessarily need to get K2 from food [11]. Moreover, eating more fiber from vegetables can help you stay healthy and live longer. Studies show that for every 10g of fiber added to your daily diet, the risk of premature death decreases by 11% [12].

### **Building strong bone is a team effort [13,14].**

- T** : Building strong bones is a team effort in which we should consider consuming at least 700mg of calcium, maintaining a healthy vitamin D status throughout the year, maintaining a healthy weight, exercising regularly, eating enough protein, taking a B12 supplement.



## Building Strong Bones Checklist

# Actions

- ☐ Consume at least 700mg of calcium daily.
- ☐ Maintain a healthy vitamin D status.
- ☐ Stay at a healthy weight.
- ☐ Exercise regularly.
- ☐ Ensure adequate protein intake.
- ☐ Consider taking a B12 supplement.
- ☐ Track calcium intake daily.
- ☐ Schedule regular exercise sessions.
- ☐ Discuss any supplements with a healthcare provider.
- ☐ Test your knowledge with a bone health quiz.
- ☐ Reflect on the importance of balanced habits.

Score:

Total Score: \_\_\_\_/10

# 影響全人健康的生理與心理系統 ( Physiology and Psychology System )

## 引用文獻

- Lesson 1: Cardiorespiratory/ Cardio fitness health ( 心肺系統健康 ) VO<sub>2</sub>max  
有氧適能是你 / 妳的精神泉源
- Lesson 2: Metabolism system ( 新陳代謝系統 ) : The period of rapid growth in the height and weight of senior school students is different for males and females. 青少年的身高體重快速生長時間男女有別
- Lesson 3: Musculoskeletal strength empowers your daily life and enhances your work efficiency: 肌肉骨骼力，你的學習與工作力

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# 影響全人健康的生理與心理系統

## Physiology and Psychology System

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### 單元設計理念 Unit Concept

本單元設計以高級中學健康與體育領域中「第五學習階段」核心素養為具體內涵設計，並以學習重點中「F. 身心健康與疾病預防」的主題項目來進行全人健康雙語教學，教學活動內容中提供課室 / 教學語言 (Instructional language) 與交流語言 (Interactional language)，來學習終其一生所需要維持與持續監控的生理與心理指標與狀態。

### A 課程說明 Lesson Overview

#### 01. 學科課程目標：

- a. 了解現代醫學進步，延長國人壽命與健康年齡增長，進而理解影響正常健康生活的生、心理系統和機制。
- b. 了解心理健康 (mental well-being) 影響健康年齡，並且知道方法改善。

#### 02. 連結學習重點：

##### a. 學習內容：

1. Fa-V 3 全人健康的身心探索與整合技巧。
2. Fb-V-1 健康生活型態的改善與執行策略。

##### b. 學習表現：

1. 1a-V-2 完整地分析個人與群體健康的影響因素。
2. 1b-V-3 評估生活情境的健康需求，尋求有效因應的健康技能和生活技能。
3. 3a-V-2 運用多元策略，將健康與自我照護技能彈性調整融入生活情境，展現出個人及群體的健康生活模式。
4. 4a-V-3 有效地表現促進健康及減少健康風險的行為。



## 字彙與片語 Words and Phrases

### 字彙 Words

mental well-being ( 心理健康 )  
flourishing life ( 豐盛人生 )  
infirmity ( 體弱多病 )  
happiness and life satisfaction ( 幸福與生活滿意度 )  
mental and physical health ( 身心健康 )  
meaning and purpose ( 意義與目的 )  
character and virtue ( 品格和美德 )  
close social relationships ( 親密與社會關係 )  
financial and material stability ( 經濟與物質穩定性 )



## 句型 Sentence Patterns

1. Keep the mental health for flourishing life. ( 維持心理健康，朝向豐盛人生。 )
2. Higher score represents a person with many psychological resources and strengths. ( 得分越高，代表一個人擁有的心理資源和力量越多。 )
3. Which domains are you flourishing in? 你在哪些領域感覺最為豐盛？
4. Which domains may require more attention or action? ( 哪些領域可能需要更多關注或行動。 )
5. What are some steps you can take to improve in areas that are important to you? ( 你可以採取哪些行動改進對你很重要的領域？ )
6. Be in service is not only for others but ourselves. ( 關心別人也是守護自己。 )

## Lesson 4: 維持心理健康朝向豐盛人生 Keep the Mental Health for Flourishing Life

In the previous lessons, we learned how to develop our physical condition in heart and lungs, muscle and bone function in health, and care about sleep and healthy diet for a good quality in daily life, in this lesson we dive into the mental health, as the World Health Organization (WHO) defines health, health is a state of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity (體弱多病).

Mental health is a state of mental well-being that enables people to cope with the stresses of life, realize their abilities, learn well and work well, and contribute to their community. It has intrinsic and instrumental value and is integral to our well-being.

Mental well-being is a crucial aspect of overall health and quality of life. According to the World Health Organization (WHO), mental well-being encompasses not just the absence of mental illness but also the presence of positive emotions, resilience in facing life's challenges, and the ability to function effectively in daily activities. It is about feeling good about oneself, having fulfilling relationships, and being able to cope with stress and adversity.

The Adolescent Flourishing Measure is a brief questionnaire that helps gauge the well-being of adolescents by examining key areas such as happiness, health, purpose, and social relationships. It's part of a suite of tools developed by the Human Flourishing Program at Harvard University. To use it in your lessons, teachers can present the measure as a way for students to self-assess and reflect on various aspects of their lives. The measure is designed to prompt thought and discussion on personal well-being and can guide students in identifying areas where they feel fulfilled or areas they may want to develop further.



## Activity 1

## Flourishing Scale Questionnaire 豐盛量表

- T** : The Flourishing Scale for adolescents (generally 12-18 years old, but possibly younger) is a brief 12-item summary measure of the respondent's self-perceived success in important areas in terms of Happiness and Life Satisfaction (Items 1-2), Mental and Physical Health (3-4), Meaning and Purpose (5-6), Character and Virtue (7-8), Close Social Relationships (9-10) and Financial and Material Stability (11-12). This scale provides a single psychological well-being score.
- T** : Add the responses, varying from 0 to 10, for all twelve items. The possible range of scores is from 0(lowest possible) to 120 (highest possible).
- T** : A high score represents a person with many psychological resources and strengths.



**HARVARD**

Human Flourishing Program  
at Harvard University

### Flourishing Measure—Adolescent Version

Please respond to the following questions on a scale from 0 to 10:

1. Overall, how satisfied are you with life as a whole these days?  
0 = Not Satisfied at All, 10 = Completely Satisfied \_\_\_\_\_
2. In general I consider myself a happy person.  
0 = Strongly Disagree, 10 = Strongly Agree \_\_\_\_\_
3. In general, how would you rate your physical health?  
0 = Poor, 10 = Excellent \_\_\_\_\_
4. How would you rate your overall mental health?  
0 = Poor, 10 = Excellent \_\_\_\_\_
5. Overall, to what extent do you feel the things you do in your life are worthwhile?  
0 = Not at All Worthwhile, 10 = Completely Worthwhile \_\_\_\_\_
6. I am doing things now that will help me achieve my goals in life.  
0 = Strongly Disagree, 10 = Strongly Agree \_\_\_\_\_
7. I always act to promote good in all circumstances, even in difficult and challenging situations.  
0 = Not True of Me, 10 = Completely True of Me \_\_\_\_\_
8. I am always able to give up some happiness now for greater happiness later.  
0 = Not True of Me, 10 = Completely True of Me \_\_\_\_\_
9. I am content with my friendships and relationships.  
0 = Strongly Disagree, 10 = Strongly Agree \_\_\_\_\_
10. I have people in my life I can talk to about things that really matter.  
0 = Strongly Disagree, 10 = Strongly Agree \_\_\_\_\_
11. My family has enough money to live a truly decent life.  
0 = Strongly Disagree, 10 = Strongly Agree \_\_\_\_\_
12. How often do you worry about safety, food, or housing?  
0 = Worry All of the Time, 10 = Do Not Ever Worry \_\_\_\_\_

- T** : About the Scoring: Add the responses, varying from 0 to 10, for all twelve items. The possible range of scores is from 0 (lowest possible) to 120 (highest possible).
- T** : Higher score represents a person with many psychological resources and strengths.

The Program's flourishing index measure is copyrighted under a Creative Commons License (CC-BY-NC 4.0). However, it can be used without permission for non-commercial purposes if proper citation is given. The reference for the paper in which the measure was presented is VanderWeele, T. J. (2017). On the promotion of human flourishing. *Proceedings of the National Academy of Sciences, U.S.A.*, 31:8148-8156.

**To access the measure and related resources, you can visit the Human Flourishing Program's official website <https://hfh.fas.harvard.edu/shorter-and-longer-well-being-assessments>**

- T** : Share your score on the Adolescent Flourishing Scale with your partner. Before you share, you need to know that no one has the full score of this scale, and that the score does not define your life but your current state, which may vary according to your life stages, and according to these areas you can set goals to achieve your flourishing life at different stages of you.



# Flourishing Scale Self-Check Form in Adolescent Version

Name: \_\_\_\_\_ Age: \_\_\_\_\_ Date: \_\_\_\_\_

Please rate each of the following statements on a scale from 0 (least agree) to 10 (most agree). After rating all items in each domain, calculate the domain average and write it in the space provided. Finally, calculate the overall average score.

## 1. Happiness and Life Satisfaction

Overall life satisfaction: \_\_\_\_

General happiness: \_\_\_\_

Domain Average: (Item 1 + Item 2) / 2 = \_\_\_\_

## 2. Mental and Physical Health

Physical health: \_\_\_\_

Mental health: \_\_\_\_

Domain Average: (Item 3 + Item 4) / 2 = \_\_\_\_

## 3. Meaning and Purpose

Life's activities are worthwhile: \_\_\_\_

Actions towards life goals: \_\_\_\_

Domain Average: (Item 5 + Item 6) / 2 = \_\_\_\_

## 4. Character and Virtue

Promoting good in difficult situations: \_\_\_\_

Sacrificing happiness now for greater future happiness: \_\_\_\_

Domain Average: (Item 7 + Item 8) / 2 = \_\_\_\_

## 5. Close Social Relationships

Contentment with relationships: \_\_\_\_

Having confidants: \_\_\_\_

Domain Average: (Item 9 + Item 10) / 2 = \_\_\_\_

## 6. Financial and Material Stability

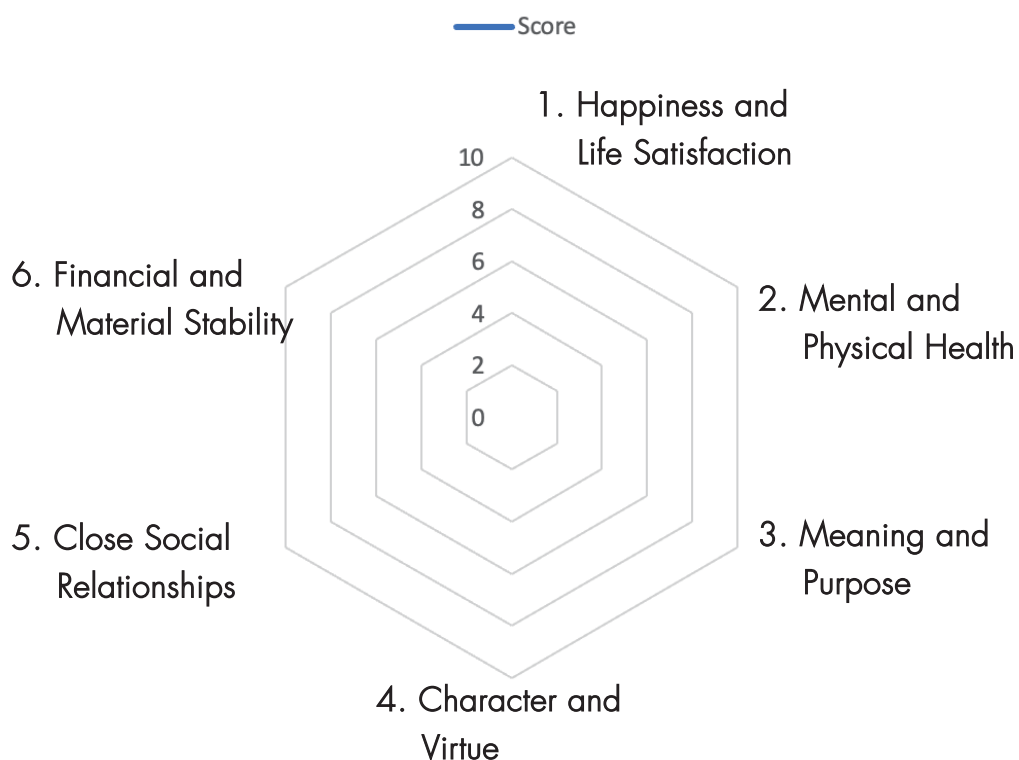
Family's financial sufficiency: \_\_\_\_

Concerns about safety, food, housing: \_\_\_\_

Domain Average: (Item 11 + Item 12) / 2 = \_\_\_\_

Overall Average Score: (Sum of all items) / 12 = \_\_\_\_

# Flourishing Life Radar Mapping



After calculating the domain average, draw the dots and link all of the domains, and see what flourishing you are in present day.

## Reflections and Next Steps:

After reviewing your scores, consider the following:

Which domains are you flourishing in?

Which domains may require more attention or action?

What are some steps you can take to improve in areas that are important to you?



## Activity 2

### Be in Service is Not Only for Others but Ourselves 關心別人也是守護自己

- T** : As we know, social wellbeing is as important as physical and mental in health, taking care of others not just giving from you, but these actions could lower your stress [1].
- T** : Many of us turn to music, books, or movies to relieve stress! However, did you know that numerous studies show that social support is crucial for both physical and mental well-being [1].
- T** : Taking care of others is fulfilling and helping others can reduce stress and improve mental health, leading to a longer and healthier life. Taking care of others is fulfilling and helping others can reduce stress and improve mental health, leading to a longer and healthier life.
- T** : So why not reach out to a friend or family member even the pets today and let them know how much you care?
- T** : Strong relationships are one of the top predictors of happiness and a long life. Try to do something every day that makes someone you care about, or even a stranger, feel valued and appreciated!

# 影響全人健康的生理與心理系統

( Physiology and Psychology System )

## 引用文獻

Lesson 4: Keep the Mental Health for Flourishing Life 維持心理健康 朝向豐盛人生

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# Family and Friends Care

Name: \_\_\_\_\_ Date: \_\_\_\_\_

## Today's Act of Care:

What will you do for a family member or friend today?

## Whom You Helped:

Which family member or friend did you help or show care for today?

## Your Feelings:

How did helping or caring for them make you feel?

## Plan for Tomorrow:

What act of care do you plan for a family member or friend tomorrow?

This worksheet is now focused on caring actions for family and friends, how these actions make you feel, and planning future caring actions.

# 發球技術、分數判定、關鍵球與人我互動 桌球 *Table Tennis*

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## 單元設計理念 (Unit Concept)

以高級中學健體領域「第五學習階段」之「競爭類型運動」之「a. 網 / 牆性球類運動」中，採桌球為主題項目，透過桌球雙語專業用語到互動語言，連結桌球攻守動作技術、規則與相關知識。

## 說明 Overview

2. 連結學習重點：

a. 學習表現：

3c-V-2 熟練專項運動技能、創作和展演的技巧。

4d-V-1 完善發展適合個人之專項運動技能。

b. 學習內容：

Ha-V-1 網 / 牆性球類運動技術綜合應用及團隊綜合戰術。

## 前言 Introduction

1. Single/double ( 單打 / 雙打 )

2. Judge time! What's the scores ( 比數多少 )

3. Read the game! Nice play! ( 好球 )

## 詞彙 Vocabulary

### 字彙 Words

serve ( 發球 )

receive ( 接發球 )

forehand ( 正手 )

backhand( 反手 )

let( 觸網重發 )

### 片語 Phrases

Serving include \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_ (stand, toss, draw, hit, follow through and recover) phase. ( 發球包括 \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, 與 \_\_\_\_\_ ( 站立、拋球、引拍、擊球、後續與回復 ) 等分期動作 )。

Predict the spin. ( 預測球種 )。

Work on the stability of \_\_\_\_\_. (forehand/backhand stroke) ( 勤練 \_\_\_\_\_ ( 正 / 反拍 / 擊球 ) )。



## 教學句型 *Sentence Patterns*

1. What kind of serving technique you have?  
I can use my \_\_\_\_\_ (forehand/backhand) to make the \_\_\_\_\_ (top spin/back spin/side spin) serve.  
你能發甚麼球種？我能用（正手／反手）、發出 \_\_\_\_\_（上旋／下旋／側旋）發球。
2. Focus on the flow and recovery!  
專注在動作流暢與回復！
3. You have to work on the footwork, move your feet properly when the ball is coming.  
腳的移動要再加強，當球來時要適當的移動雙腳。
4. Open your hand, put the ball in the center of palm and toss vertically like this, can you do it? Yes, I can. / No, I can not.  
打開你的手、將球置於掌心、並將球垂直拋高像這樣，可以嗎？是，我可以。／不，我不行。
5. Let's try to hit the ball to the middle of bottom line.  
試著將球擊到底線中間位置。
6. Who is your opponent? \_\_\_\_\_ is my opponent.  
誰是你的對手？\_\_\_\_\_ 是我的對手。
7. What is the score now? It's \_\_\_\_\_ (3 to 1, 5 all, decue).  
現在分數幾比幾？現在是 \_\_\_\_\_ (3 比 1 / 5 平 / 10 比 10)。



### 教學內容

#### ① *Forehand back/Top/Side Spin Serve* (正手下 / 上側 / 旋發球教學)

Stand by the side of the table, a bit of knees bending with the right/left holding the racket.

Put the ball in the center of the open left/right hand and ready to serve.  
Toss the ball vertically at least over 16 centimeters with left/right hand.

Draw your racket from behind to the hitting point.

Hit the back/top/side of the ball and create the friction between the racket and the ball.

Follow through/complete the hitting and recover to the original ready position.

Practice 10 times each for three different serves.

## 問題講解與對話 Question and Answer/Dialogues

### ★ 對話

T: Can you show me your forehand back spin serve?

S: I am not ready yet, I find the hitting and timing is not easy.

T: Well, let me see. Could you try to do once or two times?

S: Ok...

T: Now I see your problem. Your toss and hitting point don't comply with with the swing.

S: Oh, I see.

T: You must practice the toss of the ball, make sure the height is enough and when the ball fall, you can hit the ball with right timing like this.

S: You make it so easy!

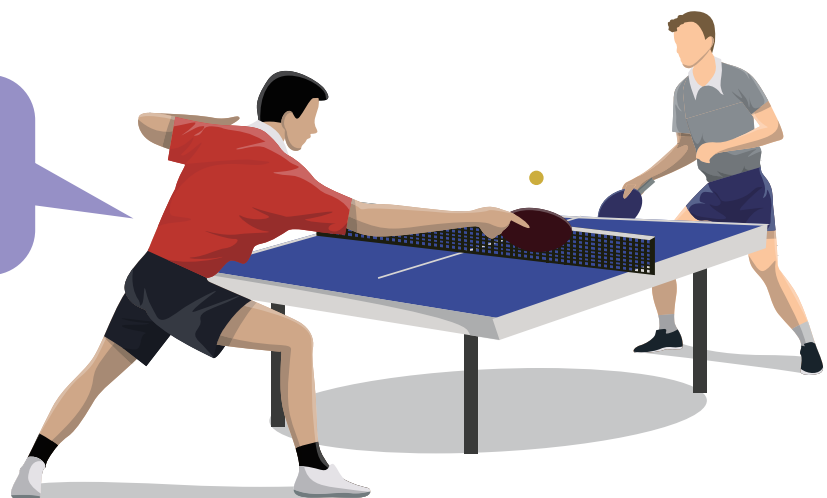
T: Well, I deliberately practice the serve many times! Also, you need to relax your racket holding. Look at the hitting point. Feel the angle and friction between the ball and the racket.

S: Thank you for the demonstration. I will keep trying.

### Activity **Serve and Receive**

Find a partner and practice the serve and receive. One plays the serve and the other the receiver. Before the serving, the server must say what kind of serve he/she is going to make in English. (e.g., "I am going to make a backhand side spin serve.")

Check it out my  
forehand backspin  
serve!





## Activity

**Draw the move trajectory/pathway of the different kinds of ball?**

	Top spin	Side spin	Back spin
How the ball spin?			
How the ball move when hit and bounce from the table?			

## 2 Development Activities ( 發展活動 )

Stand in the middle on table tennis table.

Ask the two players to come, check the rackets and explain the rules.

Toss the coin and let the players guess the side of the coin and chose side or serve.

Allow the warm up for 3 minutes.

Sit on the judge chair and ready to start the game.

Count the scores during the game.

Remind players to resume the game when time out is finished.

Act the judge till the end of the game by shaking hand or eye attention with the players.



## Activity

**Role play the judge and players in foreign soil.**

## 問題講解與對話 Question and Answer/Dialogues



### 對話

Judge: I am your judge today, any question before the game?

Player A/B: No.

Judge: Ok, let's check the racket, anything unusual?

Player A/B: It's all good.

Judge: Alright, are you ready to play? Player A serve and B receive. Play!

Judge: Game, change side. Thank you.

Player B: Judge, I think it's a let.

Judge: Well, given the fact we don't have the camera and I didn't see it's a let so we have to make the point count.

Player A: I want to call a time out.

Judge: Yes, 1 min time out. Now the score is deuce. Ok, time is up. Please resume the game.

Judge: Match point. Ok, 11 to 7. Player B win.

Player A: Congratulation you win the game!

Player B: Thank you, my luck day. Maybe we shall play next time?

### 3 Deuce and Thank You ( 關鍵球與球場禮儀 )

Feel the tension of deuce.

Think about serving/receiving strategies.

Initiate/Respond the serve/receive with forehand or backhand.

Hand shake with each other when the game is over.



#### Activity

**How do you deal with the pressure and uncertainty in deuce?**

#### 問題講解與對話 Question and Answer/Dialogues

##### ★ 對話

T: Think about the situation of deuce, what strategy you use if you are the server.

S1: Excuse me sir, what is deuce?

T: Well, I think we taught that before. It's 10 to 10.

S1: Ok sorry, now I know.

T: All good, now we go back to the question, how do you deal with the pressure and uncertainty in deuce. Nobody want to lose, what's your strategy?

S: I think I will just try three kinds of serving strategies.

T: Yes, I am all ears.

S: The first one is I will play safe, I will just let the ball serve in. Maybe my opponent is very nervous.

T: Ok, it sounds reasonable. How about the second strategy?

S: I will use my best serve. I will serve a forehand back spin serve because I am very confident with this, I do it many times and I think the opponent couldn't do much with this kind of serve.

T: Good! And the last one is?

S: I think I will try to serve to his weak side. Make him feel uncomfortable.

T: There you go. You really know how to deal with deuce time!

S: Thank you sir, I just learn it from the experience.



## Activity

Practice deuce with best out of 7.

Practice deuce with the partner.

Record the result of every deuce, and write the reason of winning or losing.



Deuce	What's the score	Analysis of winning or losing
Warm-up trial	13:11 I win	I use different serving strategies including fast, short or to the opponent's back hand serve. I guess it confuse the opponent.
1 <sup>st</sup> trial		
2 <sup>nd</sup> trial		
3 <sup>rd</sup> trial		
4 <sup>th</sup> trial		
5 <sup>th</sup> trial		
6 <sup>th</sup> trial		
7 <sup>th</sup> trial		

# 體適能 (測驗與回報成績)

## Physical Fitness

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### 單元設計理念 (Unit Concept)

以高級中學健體領域「第五學習階段」之「生長、發展與體適能」之「體適能」中，採體適能測驗為主題項目，透過體適能雙語專業用語到互動語言，連結立定跳、坐姿體前彎、跑走等動作技術與測驗要領。

### 說明 Overview

#### 2. 連結學習重點

##### a. 學習表現：

3c-V-1 表現全身性的身體控制能力。

4c-V-2 檢討與反省個人的體適能與運動技能水準。

4c-V-3 規劃與反省個人體適能與運動技能的終身運動計畫。

##### b. 學習內容：

Ab-V-1 體適能運動處方評估與設計原則。

### 前言 Introduction

1. Muscular fitness (肌肉適能)
2. Flexibility fitness (柔軟度適能)
3. Cardiovascular fitness (心肺適能)

### 詞彙 Vocabulary

#### 字彙 Words

power (力量)  
coordination (協調性)  
endurance (耐力)  
timing (時宜)  
flexibility (柔軟度)  
contraction (收縮)  
cushioning (緩衝)

#### 片語 Phrases

Standing long jump can be divided into several \_\_\_\_\_ (phases/parts) including standing, initiating, flying and landing. (立定跳遠可分為站立、起 \_\_\_\_\_ 跳、飛行、落地等 (分期/部分) 動作)

Slow and steady is the \_\_\_\_\_ (key/way) for you to be able to finish the 1600 meters running.





( 慢而穩的跑步是你完成 1600 公尺的 ( 關鍵 / 方法 ))

Warm up and cool down is important prior to and after the \_\_\_\_\_ (exercise/physical fitness testinf) ( 運動 / 體適能測驗 ) 前後的暖身與收操很重要 ) ( 組隊 )

## 教學句型 *Sentence Patterns*

1. Which physical fitness test is your best? My best is \_\_\_\_\_ (standing long jump/sit and reach/sit-ups/800-1600m). ( 你那一個體適能測驗項目表現最好？我的強項是 \_\_\_\_\_ ( 立定跳 / 坐姿體前彎 / 仰臥起坐 / 800-1600 公尺跑走 ) 。 )
2. Look forward \_\_\_\_\_ (six-packs/firm abs/V line abs)! Do more sit-ups! ( 想要 \_\_\_\_\_ ( 六塊腹肌 / 馬甲線 / 人魚線 ) 嗎？多做仰臥起坐就對啦！ )
3. Overlap your palms and stretch your hands and arms to reach as far as you can. ( 手掌重疊、延展雙手到最遠。 )
4. Before the running the test, anyone feel unwell today? I feel OK/not well. ( 跑步測驗前，有沒有人覺得不舒服？我覺得 \_\_\_\_\_ 不錯 / 不舒服。 )
5. After the warm up, you got 5 minutes to go the toilet or make the final \_\_\_\_\_ (adjustment/preparation). ( 熱身後，每個人都有 5 分鐘去廁所、或做最後的 \_\_\_\_\_ ( 調整 / 準備 ) )。
6. Who is your partner to check your cardiovascular test? \_\_\_\_\_ is my Partnet. ( 誰幫你看心肺測驗的同伴？\_\_\_\_\_ 是我的同伴。 )
7. My seat no. is \_\_\_\_\_, my standing long jump is \_\_\_\_\_ (1.5/2/2.5) meters. ( 我座號是 \_\_\_\_\_ 號 我的立地跳成績為 \_\_\_\_\_ (1.5/ 2/ 2.5) 公尺。 )



## 教學內容

### 1 *Standing Long Jump* ( 立定跳遠教學 )

Stand on the starting line.

Face forward.

Bend your knees and wave arms accordingly.

Jump at the point you reach forward your arms and straighten your knees.

Extend your legs forward and maintain your flying posture.

Land with bending knees so as to absorb the anti-force from the ground.

## 問題講解與對話 Question and Answer/Dialogues

### ★ 對話

T: Last class we talk about explosive force is important for jumping, could you recall how many phases in standing long jump?

S: Let me think...four?

T: That's good. Could you tell me what they are?

S: Well, they are standing, initiating, flying and landing.

T: In addition to explosive force, what else factors decide our performance in standing long jump?

S: Coordination and timing.

T: Do you have enough warm up?

S: Yes, I do. / No, I don't.

T: Before we start the testing! Any question?

S: All good, teacher!



### Activity Observe Good Jumper

Find a classmate who is good at jumping and observe how he/she do the standing long jump. List three key points regarding his/her jumping then tell him/her.

#### Key points of jumping

1

2

3



## Activity Video record/describe good jump?

Find a group of 5 classmates, do a short video recording about standing long jump. In this video, try to use English (both through subtitles and dubbing) to let people understand the mechanism of standing long jump.

### 2 Sit and Reach ( 坐姿體前彎 )

Find a flat and suitable place.

Sit on the floor.

Strengthen your legs with the heels against the equipment.

Breathe out slowly, overlap two palms, bend the waist and try to reach as far as you can.

Touch the point you can possibly reach, stay there for at least 1-3 seconds.

Recover to the original sitting posture.

Get a break for 30 seconds and repeat.

Do 2 times.



## Activity

Partner up and help out your partner with his/her sit and reach. The activity is to help him/her from behind, gently and slowly push his/her back to reach.

### 問題講解與對話 Question and Answer/Dialogues

#### ★ 對話

T: Do you have partner yet?

S: Yes, I do. / No, I do have.

T: What is your best sit and reach performance?

S: I can reach about \_\_\_\_\_ centimeters.

T: Before we do the testing, maybe you can find a helper to assist you to do some reaching warm-up.

S: Yes, that's a good advice. I do need some pushing otherwise my back is very stiff. Thanks.

T: Remember NOT to hold the breath, try to slowly breathe out the air. This helps release the pressure of your abdominal cavity.

S: Yes, it helps relaxing. I feel easier to reach forward.

T: Good to hear that, keep trying.



## Activity

### Report Sit and Reach Result in English

Arrange a desk and two chairs, find two class recorders who are good at English listening, sitting there and ready for sit and reach recording. The procedure is as following:

Student: I'd like to report my sit and reach result.

Recorder 1: Yes, what's your seat no. and result?

Student: My seat no. is XX, my sit and reach is XX centimeters.

Recorder 2: No. XX, XX centimeters. Done!

Student: Thank you.



### 800m/1600m (800/1600 公尺跑走測驗)

Stand in front of the starting line.

Run or walk based upon your physical condition.

Concentrate on your running rhythm.

Maintain your steady breathing and body balance.



## Activity

The key of running 800m/1600m.

### 問題講解與對話 Question and Answer/Dialogues



#### 對話

T: Can anyone tell me what's the secret of running 1600m?

S: Slow and steady?

T: OK, could you elaborate your point.

S: Yes, given the fact that running 1600m is sort of long distance. We shall avoid to run very fast in the very beginning. We shall adopt a moderate speed which enabling us running for a long time.

T: Good point, go on.

S: And I think breathing is important.

T: Yes, what do you mean by that?

S: I browse the website about running, through which I learn about deliberate breathing is a must; for example, inhaling two times followed with one time exhaling like this. (action)

T: Great! You really share something to the point.

S: Thank you. I will try to put them into practice.

## **Activity** Running Practice

Find a track, and after the warm up, record every 400m/lap, how many seconds you spend on running. Also, try to recall your feelings for each lap.

	How many seconds?	Feelings.
400m	seconds	
400m	seconds	
400m	seconds	
400m	seconds	

## **Activity** Running Photo

Work with a partner, try to use camera (e.g., camera of mobile phone) to photo your running posture from front, back and side angle.

Front angle	Back angle	Side angle

## ( 武術 基礎攻守與禮儀 )

# Martial Arts

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### 單元設計理念 (Unit Concept)

以高級中學健體領域「第五學習階段」之「安全生活與運動防護」之「防衛性運動」中，採武術為主題項目，透過武術雙語專業用語到互動語言，連結武術攻守技術、套路與禮儀。

### 說明 Overview

#### 2. 連結學習重點

##### a. 學習表現：

2d-V-3 體會運動與社會、歷史、文化之間的互動關係，並尊重其發展。

3c-V-2 熟練專項運動技能、創作和展演的技巧。

##### b. 學習內容：

d-V-1 武術套路的應用與展演活動。

Cb-V-2 奧林匹克運動會精神的推展與分享。

### 前言 Introduction

1. Respect and horse squat ( 抱拳與馬步 )

2. Defend and Offend ( 攻擊與防守動作 )

3. Punch and Kick ( 拳擊與腳踢 )

### 詞彙 Vocabulary

#### 字彙 Words

body center of gravity

( 身體重心 )

coordination ( 協調 )

balance ( 平衡 )

punch ( 拳擊 )

kick ( 踢腳 )

combination attack ( 組合進攻 )

#### 片語 Phrases

Always start the martial arts with the \_\_\_\_\_ posture (clapsed fist/respect)

( 以 \_\_\_\_\_ ( 抱拳致意 ) 開始武術動作 )

Feel the shift of \_\_\_\_\_ (body center of gravity). ( 感覺 \_\_\_\_\_ ( 身體重心 ) 的移轉 )

horse squat ( 馬步 )

## 教學句型 *Sentence Patterns*

1. What celebrity can you think of in martial arts? I will say \_\_\_\_\_ (Bruce Lee/ IP man). ( 你可想到那些武術名人? \_\_\_\_\_ ( 李小龍 / 葉問 ))
2. Eyes on me and say "Master EJ" with a respect posture. Three, two, one, go! "Respect! Master EJ!" ( 看著我，做出抱拳致意動作，同時喊出“EJ 大師”。三、二、一開始！EJ 師父好！)
3. Maintain your posture, eyes front, keep breathing and no sound! ( 維持身體姿勢，眼睛看前方，保持呼吸不要出聲！)
4. Throw your right hand punch. ( 打一個右拳。)
5. Can you show me a side kick? Yes, I can. / No, I am not ready. ( 可以給我們展示一個側踢嗎？好的，我可以。/ 不，我還沒準備好。)
6. Let's see your combination attack. ( 試看看組合進攻。)



### 教學內容

#### 1 *Respect and Horse Squat* ( 武德與馬步 )

Fold two hands in front with two feet standing evenly.

Look front and maintain your erecting body posture.

Bend the knees and gradually lower your body, make sure your feet width is two times of your shoulder length.

Breathe naturally, feel the air in and out through your nose and mouth.

Pay attention to your core muscle. Keep it that way for 2 minutes.

Bring your feet gradually to your original standing position.

Take a break for 1 minute and repeat.

Do 3 times and each time is 2 minutes.

## 問題講解與對話 *Question and Answer/Dialogues*

### ★ 對話

T: Could you think of any famous martial art artist?

S: Let me think...Bruce Lee?

T: Yes, you are right. Do you know he can use one hand to do the push up.

S: Really? How is it possible?

T: Yes, it is possible. As long as you have a strong arm, hand and core muscle.

S: OK! How can I train myself?



T: It's easy. We can start by doing the horse squat.

S: Oh, horse squat. Sounds interesting!

T: It is. Why don't we do it now?

S: Yes! Please teach me. I want to become as strong as Bruce Lee!



### **Activity** See how fast you can do for 10 push-ups.

Before you do it, make sure you have appropriate warm up. Find a partner and who can help you do the timing.

I can do 10 push-ups in \_\_\_\_\_seconds.



### **Activity**

#### **Why Bruce Lee can use two fingers only to do the push-ups?**

As you can see from the picture below, Bruce Lee only use one arm/hand with two fingers and finishing push up. Could you talk to your partner explaining why he can do that?



## **2 Attacking Skills of Martial: Punch and Kick ( 武術進攻動作：拳與腳 )**

Stand with a ready position, put your hands in front of the chest.

Look at your partner and ready for the attack.

Throw your punch like this, try to punch and draw back ASAP. Try to hit with right hand and left hand. One in a time.

Kick your leg. Start with low position, take turns with your legs. And try the side kick and if possible, the high kick. All these kicking help you to attack enemy's different body parts.

Combine your punching and kicking. Imagine your enemy is in front, aim his/her body parts and attack.

Yell when initiating attacking.

Do 2 minutes.

## Activity

Partner up. When you do the attacking practice, make sure your partner use the protective gear as target for you to attack.

### 問題講解與對話 *Question and Answer/Dialogues*

#### 對話

T: We are so ready for the attacking practice. Find your partner now.

S: Excuse sir, my partner is not here today. Could you help me.

T: Sure thing, you start first and practice punch and kick, ok?

Let's start \_\_\_\_ (punch/kick).

T: Aim at the target. Throw your (right hand/ left hand punch). Very well done.

S: Thank you, Master EJ.



## Activity

Find out those advanced attacking skills, do it and draw the picture.

**Uppercuts.**

**Nunchuck**

**Finger Jab**

### 3 **Defending Skills of Martial Arts: Blocking, Poking and Avoiding**

(術防守動作：手腳擋、撥開、潛避)

Predict the direction of attacking.

Blocking with your hands, palms, elbows, arms, shoulders, legs.

Poking with you hand.

Avoiding direct contact, try to get away, maintain certain distance from your opponent.

Practice these defending skills, create the situation and do the attack and defend.

Act, observe and respond. Safety first when practice.



#### **Activity**

**How many defending skills can you do?**

#### 問題講解與對話 **Question and Answer/Dialogues**



#### **對話**

T: Could you tell me how many body parts you may use to protect yourself?

S: I can use \_\_\_\_\_ (hand/palm/elbow/arm/shoulder/leg) of my body parts to avoid direct contact.

T: Could you elaborate on that?

S: Yes. So when the opponent try to throw a punch on my face, I can just use my palm to stop the punch, or I can use my hand to poke away, or I can just dodge waiting for the right time.

T: Very impressive, I think you will be the next master.

S: Thank you for the compliment, respect!



#### **Activity**

**Action Speaks Louder than Words**

Practice and video record one defending practice (your signature move), and try to explain in English in your video.

Your youtube/IG link \_\_\_\_\_

Further, please develop and short drama in which you can use the martial arts to protect you and your friends.

Scene

e.g., Midnight in city's street  
encountering bad guys

Your martial arts  
(draw it/them down)

e.g., dragon fly, bear attack, etc.

Dialogues/Key words

e.g., "You have one second to leave or I  
will let you know how it is feel in hell."



# 運動科學（力學、心理、生理）

## *Exercise Science (Mechanics, Psychology, Physiology)*

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### 單元設計理念 (Unit Concept)

以高級中學健體領域「第五學習階段」之「群體健康與運動參與」之「運動知識」中，採運動科學為主題項目，透過運動科學雙語專業用語到互動語言，理解力學、生理與心理學與運動連結之相關知識。

### 說明 Overview

#### 2. 連結學習重點：

##### a. 學習表現：

1d-V-1 分析各項運動技能原理。

3d-V-2 應用系統思考與後設分析能力，解決各種運動情境的問題。

##### b. 學習內容：

Ab-V-3 終身體適能規劃方針與推廣。

Bc-V-2 終身運動規劃方針與推廣。

### 前言 Introduction

1. Sports Physiology and application (運動生理學與應用)
2. Sports Psychology and application (運動心理學與應用)
3. Sports Biomechanics and application (運動生物力學與應用)

### 詞彙 Vocabulary

#### 字彙 Words

sport science

(運動科學)

specialized training

(專項訓練)

interval training

(間歇訓練)

#### 片語 Phrases

Sport science is an applied subject which consist of three main disciplines, \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.  
(sports physiology, sports psychology, sports biomechanics)

confidence

( 自信心 )

dynamic chain

( 動力鏈 )



( 運動科學是個應用科目，主要包括 \_\_\_\_\_  
, \_\_\_\_\_, \_\_\_\_\_ ( 運動生理、運動  
心理、運動科學 ) )

\_\_\_\_\_ (Specialized training) emphasis  
on specific fitness and/or sports. ( \_\_\_\_\_  
( 專項訓練 ) 強調特定體能與運動項目 )

Positive and constructive self-talk \_\_\_\_\_  
(benefit/help) confidence building. ( 正向與  
建設性自我對話 \_\_\_\_\_ ( 有助 ) 自信心的建立 )

Beware of \_\_\_\_\_ (balance/  
coordination) during exercise. ( 運動時留意 \_\_\_\_\_  
( 平衡 / 協調 ) )

### 教學句型 *Sentence Patterns*

1. Don't see \_\_\_\_\_ (sports physiology, sports psychology, sports biomechanics) is impractical, try to theory into practice!  
( 不要以為 \_\_\_\_\_ ( 運動生理、運動心理、運動生物力學 ) 不實用，試著將理論轉化成實踐 ! )
2. Remember energy system taught in biology class? In three disciplines of sport science, it falls on the category of \_\_\_\_\_ (sports physiology).  
( 記得生物課上過的能量系統嗎？在三個運動科學項目中，它歸類在 \_\_\_\_\_ 運動生理學 )
3. Recall your \_\_\_\_\_ (imagery training), review all the game plans and strategies in mind and believe you can do this!  
( 想起你練習過的 \_\_\_\_\_ ( 意向訓練 )，複演腦海中所有比賽計畫與策略，相信自己可以做到 ! )
4. Efficient basketball shooting relies on adoption of dynamic chain, you initiate from the \_\_\_\_\_ (lower parts of the body/feet), through the core muscles, then all the way to the arm, hand and finger and transfer the power to the basketball.  
( 效率投籃有賴於動力鏈應用，從下半身啟動、通過核心肌群、然後傳遞至肩膀、手、手指末端後至籃球 )



5. How do you feel the intensity of interval training for this round?  
I feel \_\_\_\_\_ (fine/a bit of tired/too much to bear).  
( 這次間歇運動的訓練強度如何？我覺得 \_\_\_\_\_ ( 還好 / 有點累 / 太強承受不住 ) 。 )



## 教學內容

### 1 Sport Physiology: Interval Training and Practice

Stand on the baseline and get ready.

Listen to the buzzer and run immediately.

Run with your 60% of your best effort, to the other side of baseline, step on it and comeback to the original baseline. And that's one time.

Do it two times in a row, back and forth, try to finish within 25 seconds.

Counting down 3 seconds, 3! 2! 1! go!

Go! Go! You must accelerate! Time is running out.

### 問題講解與對話 Question and Answer/Dialogues

#### ★ 對話

T: How can we improve our basketball fitness?

S: Well, I guess we shall run more, like running marathon?

T: Are you sure about that?

S: I'm not sure...

T: Let me tell you, running for a long time and playing basketball are two different sports intensity with respective energy metabolism.

S: OK...

T: Basketball is more on aerobic. Energy comes from ATP-PC and LA system.

S: This is really like biology class.

T: Well, I'd rather say it's interdisciplinary.

S: What do you mean by that?

T: Well, you draw theory from biology. You have a good understanding on body system; however, it is important to use your knowledge into real situation. For example, you have to know scientific way of training.

S: Alright, make sense to me. I'll try. Thank you teacher!





## Activity Feel the Improvement

Try to find a safe and appropriate site (e.g., basketball court, track, etc.). Try the back-and-forth running 2-3 times a week. Record the time and see if improve or not. Remember: always do the warm-up before the intense training.

	1 <sup>st</sup> week	2 <sup>nd</sup> week	3 <sup>rd</sup> week	4 <sup>th</sup> week
Best Time record				
Reflection				



## Sport Psychology: Self-Confident Talk and Practice

Find a quiet place, sit down or lie down.

Close your eyes, feel your breathing.

Breathe in and out naturally.

Feel your body and muscles are relaxing.

Recall specific motor skills and rehearse them.

Imagine the game site, the sounds, all the detailed images.

Put yourself in that situation, think about the game plan, strategies, etc.

Talk yourself with positive words.

Open your eyes and stand up.

Practice on regular basis.



## Activity

Partner up and imitate the following conversation regarding emotional control during game.

## 問題講解與對話 Question and Answer/Dialogues



### 對話

T: What's going on with your last penalty shot?

S: I am too \_\_\_\_\_(nervous/excited).

T: Well, it happens...Would you mind if I share some experiences?

S: Sure, please.

T: Before shooting, try to take some deep breath. This may calm you down and focus. And it is helpful for your muscles relaxing.

S: I try that. But I am too easy to lose focus.

T: It takes practice. I suggest you shall just see the shooting just like you play in the park with friends. Don't worry the result because it will distract your thinking.

S: Mind skill is really challenging.

T: Yes, it is. Just keep going. I think you will be alright.



### Activity

**Write down useful words/sentences, read it and see if it increases your confidence/focus.**

Words/sentence

e.g., Don't think too much. It's just a game, not the end of the world.

### 3 Sport Biomechanics: Dynamic Chain and Practice

Lie down, try to throw the ball to the basket.

Sit on the floor, try to shoot from the penalty line.

Stand under the basket. Practice the shooting.

Shoot the basket from 3-point line.

Feel and compare the body move when shooting from different distance and/or body position.

## Activity

Talk about dynamic chain.

### 問題講解與對話 Question and Answer/Dialogues

#### ★ 對話

S1: Why can you shoot it so easily? I see you can shoot from long distance with no effort. What's the secret?

S2: Thank you for the kind words! That's no secret. I just keep practicing.

S1: Come on. Tell me! I really want to improve.

S2: Well, I guess I shoot the ball with my whole body. You see, people use their hand to make the shot. But I remember our PE teacher say "you got to shoot the ball from the bottom to the top. Let dynamic chain do the work."

S1: Yeah, I remember. There you go.

## Activity Video Recording

Find a group of 3, shooting practice first, then each of the student make 10 penalty shots as competition. Try to video recording the penalty shooting game.

Record every shot, try to analyse and comment.

Who?			
Score?	/10	/10	/10
Analysis?			

# 雙語教學資源手冊

## 高中健康

### 編輯團隊

- 研編單位：臺北市立大學雙語教學研究中心
- 補助單位：教育部師資培育及藝術教育司
- 撰稿：

**迎接百歲世代與健康生活** Preparing For More than 100 Years Old and Good Life: Living For Long Life and in Good Life

L1 迎接百歲世代與健康生活

Preparing for More than 100 Years Old and Good Life: Living For Long life and in Good Life

**影響全人健康的生理與心理系統** Physiology and Psychology System

L1 心肺系統健康：有氧適能是你 / 妳的精神與活力泉源

Cardiorespiratory/ Cardio Fitness Health-VO2 max

L2 新陳代謝系統：青少年的身高體重快速生長時間男女有別

Metabolism System: The Period Of Rapid Growth in the Height and Weight Of Senior School Students is Different For Males and Females.

L3 肌肉骨骼適能：肌肉骨骼力，你的學習與工作力

Musculoskeletal Strength Empowers Your Daily Life and Enhances Your Work Efficiency.

L4 維持心理健康朝向豐盛人生

Keep The Mental Health For Flourishing Life

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主編：臺北市立大學 劉述懿教授

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- 綜合規劃：臺北市立大學雙語教學研究中心  
林欣彤助理、施育孜助理
- 編輯排版：萬兆豐股份有限公司

## 高中體育

### 編輯團隊

- 研編單位：臺北市立大學雙語教學研究中心
- 補助單位：教育部師資培育及藝術教育司
- 撰稿：

**桌球：發球技術、分數判定、關鍵球與人我互動** Table Tennis

**體適能 (測驗與回報成績)** Physical Fitness

**武術：基礎攻守與禮儀** Martial Arts

**運動科學 (力學、心理、生理)** Exercise Science (Mechanics, Psychology, Physiology)

編輯：國立政治大學附屬高級中學 陶以哲教師

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林欣彤助理、施育孜助理
- 編輯排版：萬兆豐股份有限公司