國立臺中教育大學雙語教學研究中心
雙語教學教案設計
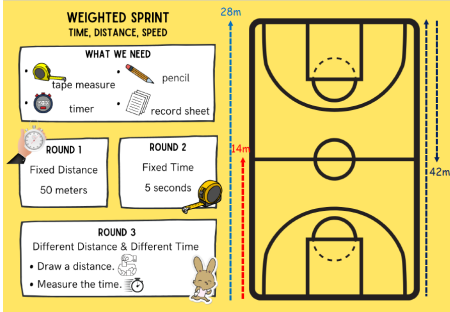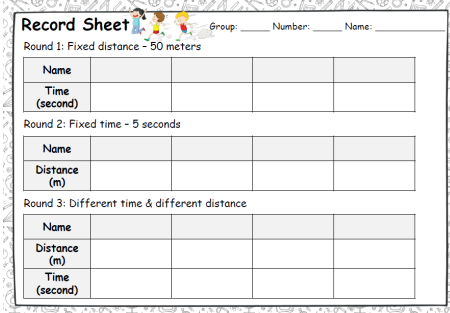
單元名稱 Unit Title	速率		課程時間 Unit Length	共 5 節 200 分鐘
學生年級 Grade Level	六年級		學生人數 Number of Students	16 人(分 4 組)
配合融入之學科領域 Integrated Subject/Content Area	■數學　　　　□自然科學　　□綜合活動　　□健康與體育 □生活課程　　□藝術　　　　□社會			
配合融入之議題 Integrated Issue	□性別平等教育□人權教育　□環境教育　　□海洋教育　　□品德教育 □生命教育　　□法治教育　□科技教育　　□資訊教育　　□能源教育 □安全教育　　□防災教育　□閱讀素養　　□多元文化教育□國際教育 □生涯規劃教育□家庭教育　■原住民教育□戶外教育　　□無			
領域核心素養 Core Competencies	數-E-A1 具備喜歡數學、對數學世界好奇、有積極主動的學習態度，並能 　　　　　將數學語言運用於日常生活中。 數-E-A3 能觀察出日常生活問題和數學的關聯，並能嘗試與擬訂解決問題 　　　　　的計畫。在解決問題之後，能轉化數學解答於日常生活的應用。 數-E-B1 具備日常語言與數字及算術符號之間的轉換能力，並能熟練操作 　　　　　日常使用之度量衡及時間，認識日常經驗中的幾何形體，並能以 　　　　　符號表示公式。 英-E-A2 具備理解簡易英語文訊息的能力，能運用基本邏輯思考策略提升 　　　　　學習效能。 英-E-B1 具備入門的聽、說、讀、寫英語文能力。在引導下，能運用所學、 　　　　　字詞及句型進行簡易日常溝通。			
本單元學習重點 Learning Focus	學習表現 Student Performance	**數學** n-III-9 理解比例關係的意義，並能據以觀察、表述、計算 　　　　與解題，如比率、比例尺、速度、基準量等。		
		英語文 1-III-6　能聽懂課堂中所學的字詞。 1-III-9　能聽懂簡易句型的句子。 2-III-2　能說出課堂中所學的字詞。 2-III-7　能作簡易的回答和描述。 5-III-3　能聽懂、讀懂國小階段基本字詞及句型，並使 　　　　　用於簡易日常溝通。		
	學習內容 Learning Content	**數學** N-6-7 解題：速度。比和比值的應用。速度的意義。能做 　　　　單位換算（大單位到小單位）。含不同時間區段的 　　　　平均速度。含「距離＝速度×時間」公式。用比例思		

		考協助解題。
		英語文 Ac-III-3　簡易的生活用語。 B- III -2　國小階段所學字詞及句型的生活溝通。 D- III -3　依綜合資訊作簡易猜測。
表現任務 Performance Task(s)		
節次架構 Lesson Structure	第一節　時間單位的換算 第二節　認識速率 第三節　速率的單位換算 第四節　距離、時間和速率的關係 第五節　速率的應用—平均速率	

第一節 The First Period			
學習目標 Learning objectives	學科內容目標 Content/subject specific knowledge objectives	1. 能做分鐘和秒鐘的分數與小數化聚 2. 能做小時和分鐘的分數與小數化聚	
	溝通/語言目標 Communication/ language objectives	1. 能聽懂並說出課堂中使用的單字：day, hour, minute, second 2. 能聽懂關鍵問題並使用句型回答： How many <u>minutes</u> are <u>30</u> <u>seconds</u>? <u>30</u> <u>seconds</u> are <u>0.5</u> <u>minute</u>.	

	教學內容、步驟、時間（認知） Procedures (Cognition)	跨語言實踐 Use of Translanguaging	學習檢核 Assessment
學習活動 Learning activities	**I. 引起動機** 1. 教師講述泰雅族射日傳說的故事，並將時間單位換算之問題融入故事情節當中。(參考 PPT 內容) 2. 教師詢問學生，並歸納： 　Q: How many hours are a day? 　　1 day = 24 hours 　Q: How many minutes are an hour? 　　1 hour = 60 minutes 　Q: How many seconds are a minute? 　　1 minutes = 60 seconds **II. 發展活動 – My Lottery Numbers** 1. 教師說明「My Lottery Numbers」之遊戲規則。 　(1) 學生兩兩一組，發下每人一張學習單、每組一個 Paper Fortune Teller。 　Two people in a group. Each group will get two worksheets and one paper fortune teller. 　(2) 學生輪流從 red, yellow, green, blue，以及 1-10 當中選出一個數字和一個顏色。 　Take turns to choose from the colors: red, yellow, green, blue, and the numbers 1 to 10. 　(3) 學生 A 念出題目，學生 B 算出答案，並記錄到學習單上。	*故事以英文講述，遇到學生不懂的部分可搭配繪本插圖協助學生理解，可盡量降低中文之使用比例。 *將關鍵字字卡貼在黑板側邊，協助學生理解 day (天) hour (小時) minute (分) second (秒) *須確保學生理解規則，因此教師能先用簡易英文搭配 PPT、示範動作講解一遍，若學生不懂，教師再以中文輔助。 *講到 worksheet、paper fortune teller 時，教師拿出實物輔助理解	**口語評量：**學生能使用簡易的英文來回答 **觀察評量：**學生能積極參與小組活動，並以英文提問 **實作評量：**學生能聽懂問題，並算出答案

		Student A asks questions. Students B figures out the answer and writes down the number on the worksheet.	*搭配 PPT(p.22)例子實際操作一次，協助學生理解	
		Eg. How many <u>minutes</u> are <u>1.2</u> <u>hours</u>?		
		(4) 學生 A、B 輪流，分別取得 4 個數字。		
		Take turns. Each of you will get 4 numbers.		

III. 統整活動

1. 教師帶領學生檢核 Paper Fortune Teller 上 8 題的正確答案。若時間許可能請學生上台示範解題過程。

   T: How many <u>hours</u> are <u>15</u> <u>minutes</u>?

   Ss: 15 minutes are 1/4 hour.

2. 【樂透開獎】教師由四個顏色題目之答案中抽出分別抽出數字，即為樂透開獎號碼，並頒發獎勵。

   Lottery draw time.

   The red/yellow/green/blue number is _____.

   If you hit 4 numbers, you can win 1000 dollars.

   If you hit 3 numbers, you can win 500 dollars.

   If you hit 2 numbers, you can win 100 dollars.

*遇到分數與小數時，學生可使用中文，教師以英文覆誦一次並同時在黑板上寫下數字。

口語評量：學生能使用簡易的英文來回答

第二節 The First Period		

學習目標 Learning objectives	學科內容目標 Content/subject specific knowledge objectives	1. 能理解時間、距離和快慢(速率)的比較 2. 能認識速率的意義、計算公式和常用單位-秒速(m/s)
	溝通/語言目標 Communication/ language objectives	1. 能聽懂並說出課堂中使用的單字：speed, distance, time, meter, second, m/s(meter per second), faster, slower 2. 能聽懂關鍵問題並使用句型回答： How far is it? It's ____ meters. How long does it take? It takes _____ seconds. What is the speed of …? It's ___ meters per second

	教學內容、步驟、時間（認知） Procedures (Cognition)	跨語言實踐 Use of Translanguaging	學習檢核 Assessment

學習活動
Learning activities
	I. 準備活動
	(結合雙語體育之課程)
	1. 教師說明「傳統負重」是泰雅族重要的運動項目之一的原因。
	2. 將學生分成4組，進行負重跑步，並記錄時間與距離。
	  (1) 固定距離，測量時間
	  (2) 固定時間，測量距離
	  (3) 隨機抽距離，測量時間
	
		*以學習單圖像與文字輔助說明，若學生不懂 "fixed"這個字，可用 same 解釋
		
		*說明時同時將字卡 time、distance、second、meter 貼在黑板側邊
			觀察評量：學生能積極參與小組活動
			
			實作評量：學生能理解小組活動內容，並確實完成

	II. 引起動機			
	1. 教師請學生發表前一節體育課進行了哪些活動	*學生可使用中/英文回答，教師可抓出關鍵字，以英文覆述一次 weighted sprint measure the speed timer measure tape	**口語評量：** 學生能使用簡易的英文來回答	
	What did we do in the PE class on Wednesday?			
	A: 負重跑步測量速度			
	round 1: fixed distance			
	round 2: fixed time			
	round 3: different time and different distance			
	2. 教師請各小組回報該組速度最快的學生之成績，統計至 PPT 當中，並請學生比較誰的速度較快/較慢：	*若學生不懂"first"這個字，可搭配手勢 1 或是用"round 1" 輔助說明 *將關鍵句 How long does it take?字條貼在黑板上 *學生可使用中/英文回答，教師以英文覆述關鍵句 If it takes less time, the person runs faster. *將 faster、slower 字卡貼在黑板側邊 *若學生不懂"second"這個字，可搭配手勢 2 或是用"round 2" 輔助說明 *將關鍵句 How far is it?字條貼在黑板上 *學生可使用中/英文回答，教師以英文覆述關鍵句 If the person runs more distance, the person runs faster.	**口語評量：** 學生能使用簡易的英文來回答	
	round 1			
	In the first round, who runs the fastest in your group? Please raise your hand.			
	T: How long does it take for _____?			
	Ss: It takes ___ seconds.			
	T: Who is faster? Who is slower? How can we know?			
	Ss: 時間越少，跑得越快			
	round 2			
	In the second round, who runs the fastest in your group? Please raise your hand.			
	T: How far is it for _____?			
	Ss: It's _____ meters.			
	T: Who is faster? Who is slower? How can we know?			
	Ss: 距離越長，跑得越快			
	III.發展活動			
	1. 教師請各組隨機報讀兩位學生第三輪之成績，並記錄在 PPT 上			
	Give me the result of two people in the third round.			
	For example, if I run 20 meters and I spend 10 seconds. You can say "It takes 10 seconds for Miti to run 20 meters."	*教師將句型放在 PPT 當中，協助學生完整說出句子	**口語評量：** 學生能使用簡易的英文來回答	
	Ss: It takes _____ seconds for _____ to run _____ meters.			

2. 教師請學生比較誰跑得較快、誰跑得較慢

T: Who is faster? Who is slower?

T: How can we know if the time or the distance is not fixed?

3. 教師解釋速率的意義和算法，請各組算出該組員的速率

T: What is the speed of _____?

Ss: It's _____ meters per second (m/s).

4. 教師再次請學生比較誰跑得較快、誰跑得較慢

T: Who is faster? Who is slower?

IV. 統整活動

1. 教師發下學習單，學習單上記錄了 110 年全國原住民族運動會傳統負重之比賽成績，請學生算出各縣市參賽隊伍的速率。

T: How far is it for the race?

Ss: 1200 meters.

T: How long does it take for team Hualien to run 1200 meters?

Ss: 3 minutes and 7 seconds.

男女混合組傳統負重 團體賽 競賽成績
Weighted Sprint

Ranking	1	2	3	4	5	6
Team	Hualien	Taitung	Taoyuan	Hsinchu	Yilan	Miaoli
Time	03:07	03:21	03:22	03:27	03:35	03:49
Speed (m/s)						

Distance : 1200 meters

T: Now, let's figure out the speed of each team.

2. 請學生上台示範計算過程。

*將字卡 speed、m/s (meter per second)貼到黑板側邊

*學生以單字回答時，教師可用完整句子再覆述一次，如 It's 1200 meters. It takes 3 minutes and 7 seconds.
*教師不糾正學生文法錯誤部分，例如 3 minute and 7 second (複數忘了加 s)，可以用正確的說法再覆述一次，替學生輸入正確的用法即可

實作評量：學生能聽懂問題，並算出答案

實作評量：學生能完成學習單

My Lottery Numbers

hours to minutes	minutes to hours

minutes to seconds	seconds to minutes

A square "tarsia" puzzle with triangular sections and colored corner squares (red, yellow, green, blue).

Top section:
- 2.1 hours = _____ minutes
- 15 minutes = _____ hour
- 126
- 0.25 / $\frac{1}{4}$

Left section:
- $\frac{4}{5}$ hours = _____ minutes
- 48

Right section:
- 3hrs 20mins = _____ hours
- $\frac{1}{3}$ 3

Middle-right:
- 0.3 / $\frac{3}{10}$

Left-bottom:
- 35
- $\frac{7}{12}$ minutes = _____ seconds

Bottom:
- 270
- $\frac{2}{3}$
- 4.5 minutes = _____ seconds
- 40 seconds = _____ minutes
- 18 seconds = _____ minutes
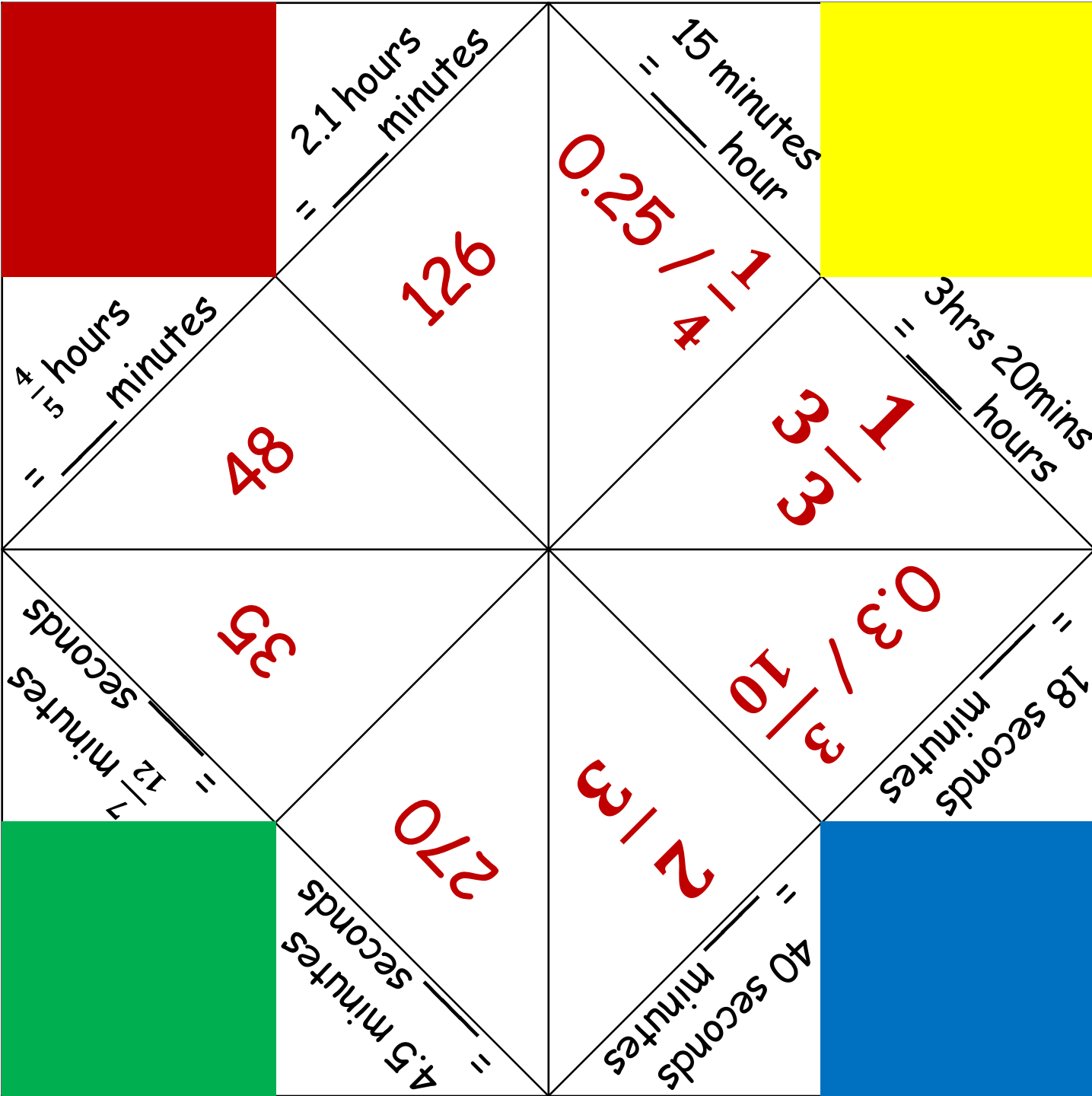
WEIGHTED SPRINT
TIME, DISTANCE, SPEED

WHAT WE NEED

- tape measure
- pencil
- timer
- record sheet

ROUND 1

Fixed Distance

50 meters

ROUND 2

Fixed Time

5 seconds

ROUND 3

Different Distance & Different Time

- Draw a distance.
- Measure the time.

28m

14m
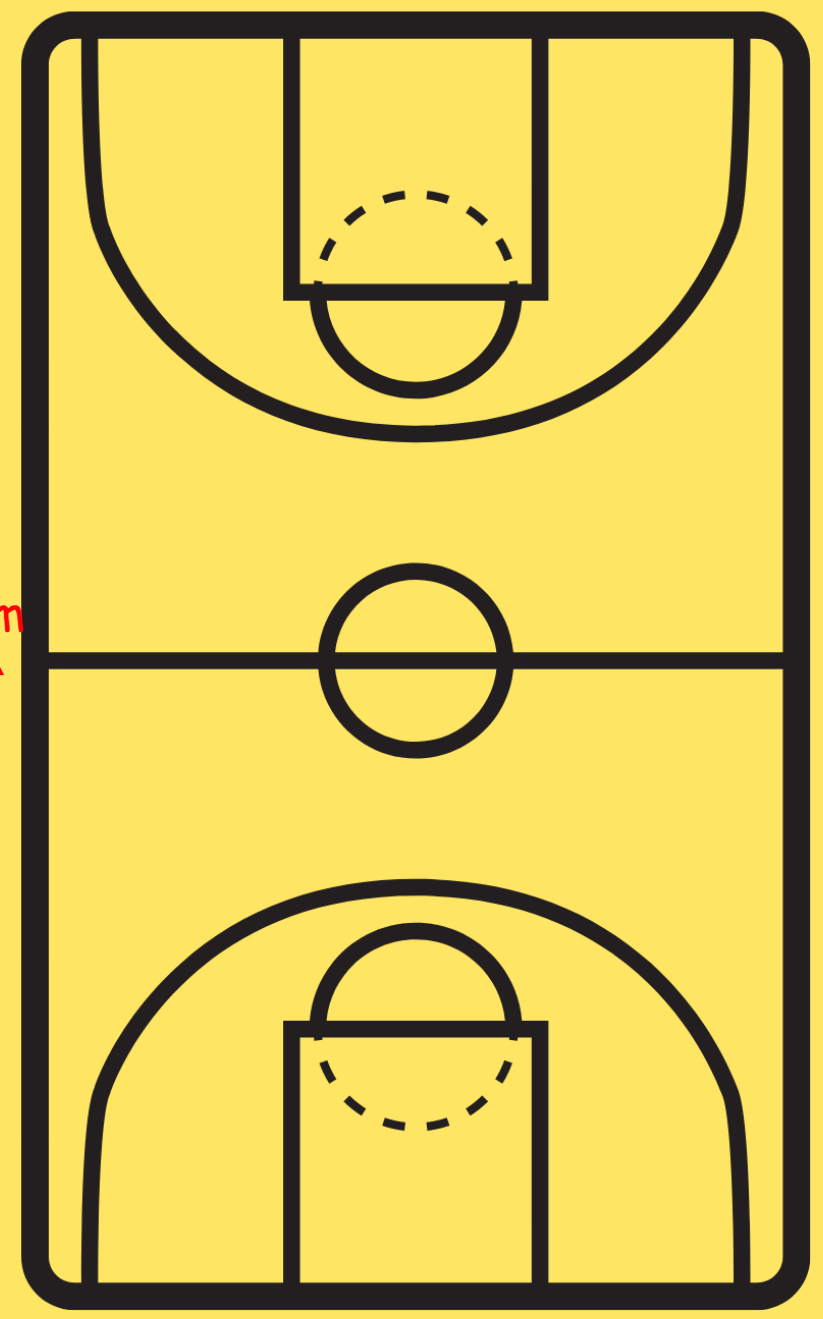
42m

Record Sheet

Group: _____ Number: _____ Name: _____

Round 1: Fixed distance – 50 meters

Name				
Time (second)				

Round 2: Fixed time – 5 seconds

Name				
Distance (m)				

Round 3: Different time & different distance

Name				
Distance (m)				
Time (second)				

110年全國原住民族運動會
2021 NATIONAL INDIGENOUS GAME

原來拿麼 HIGH 宜蘭 YILAN 110.3.19 — 3.22

男女混合組傳統負重 團體賽 競賽成績
Weighted Sprint

Ranking	1	2	3	4	5	6
Team	Hualien	Taitung	Taoyuan	Hsinchu	Yilan	Miaoli
Time	03:07	03:21	03:22	03:27	03:35	03:49
Speed (m/s)						

Distance : 1200 meters

Legend of Sun Shooting
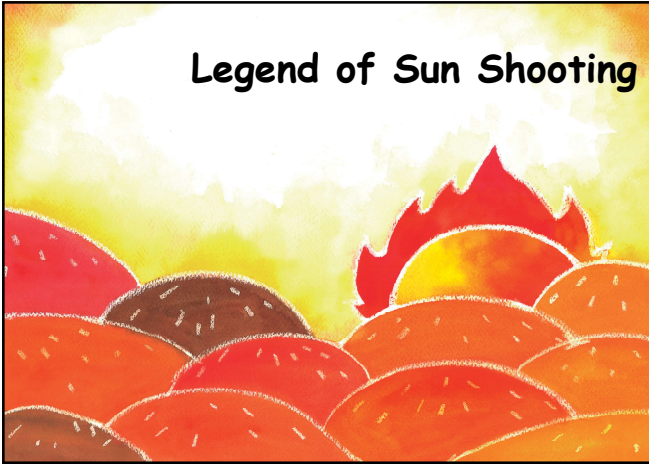
Long time ago,
there were two suns.

Two suns took turns to show, and sometimes they showed up together.

So there was no night.

Plants died, river dried, and people suffered a lot.
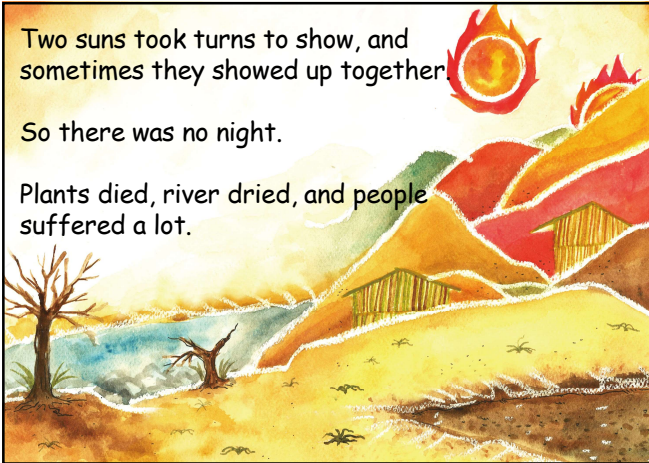
People decided to send three warriors to shoot down one sun.
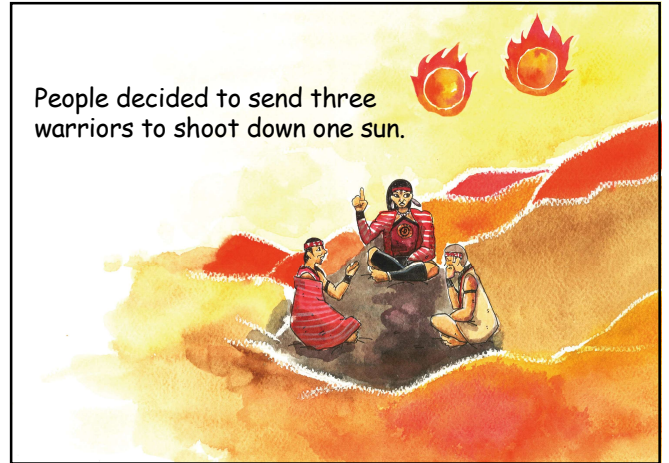
The sun was very far.
The warriors took weapons, food and also their babies with them.

They dropped seeds of fruits and millet along the way then they would have food on the way home.
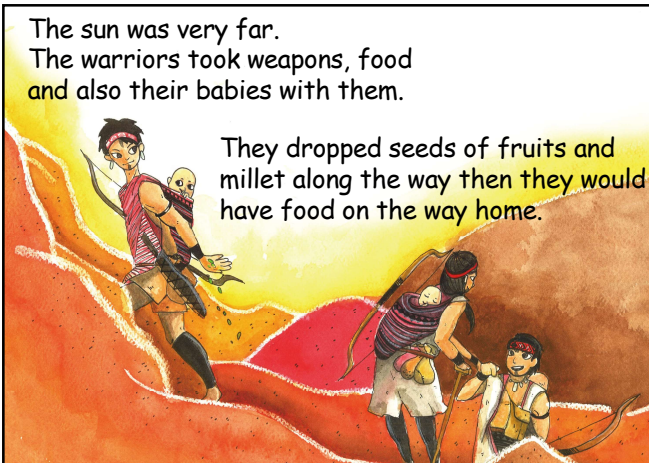
It took the warriors 6 hours per day to trek.

How may days are 6 hours?
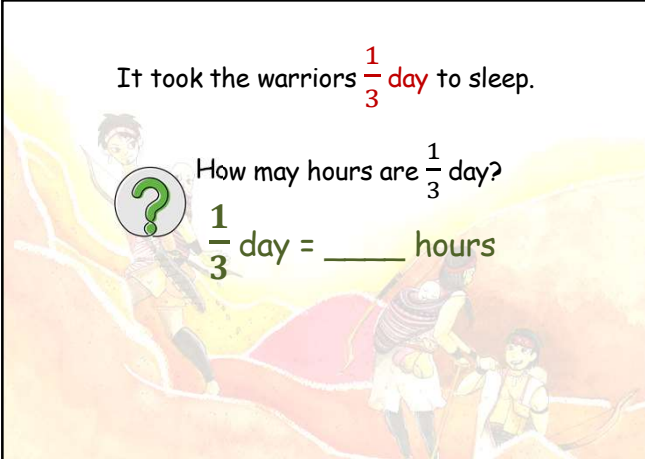
_____ day = 6 hours
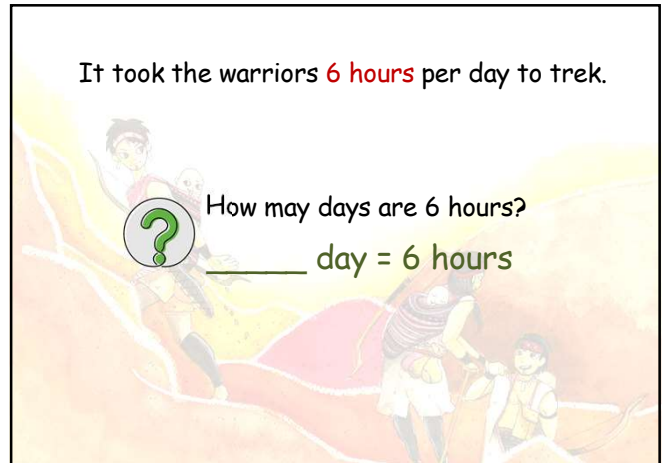
It took the warriors $\frac{1}{3}$ day to sleep.
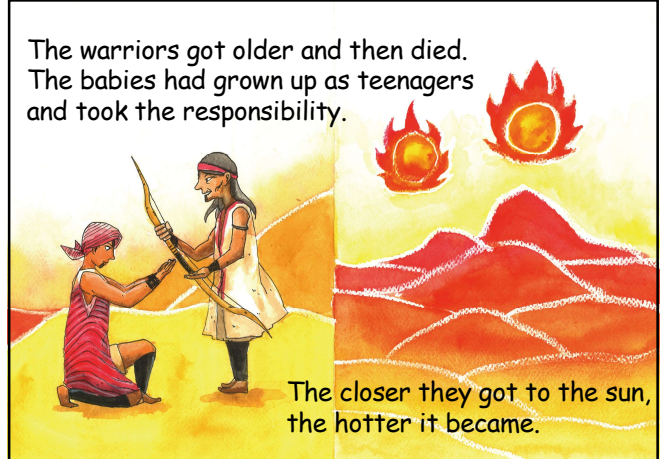
How may hours are $\frac{1}{3}$ day?

$\frac{1}{3}$ day = _____ hours

The warriors got older and then died. The babies had grown up as teenagers and took the responsibility.

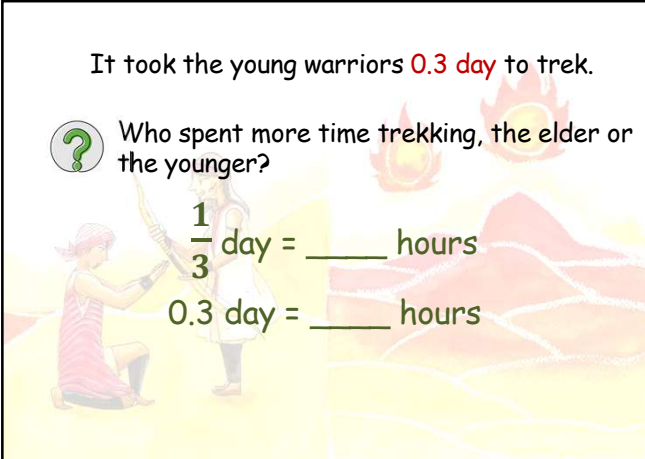The closer they got to the sun, the hotter it became.

It took the young warriors 0.3 day to trek.

Who spent more time trekking, the elder or the younger?
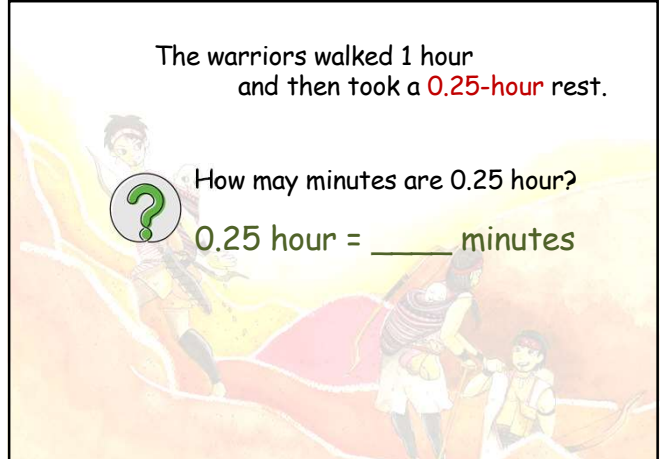
$\frac{1}{3}$ day = _____ hours

0.3 day = _____ hours

The warriors walked 1 hour and then took a 0.25-hour rest.
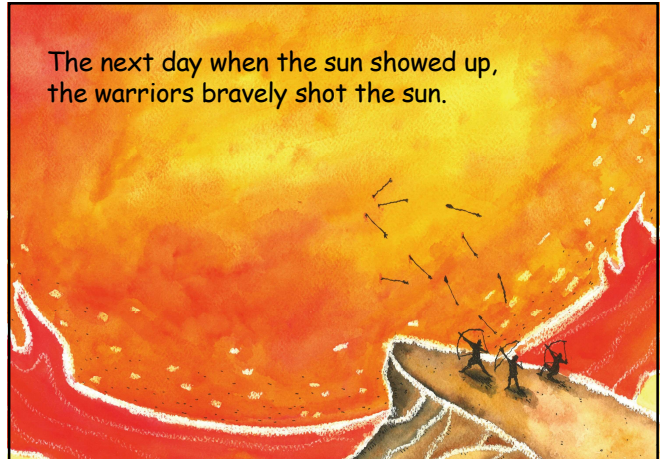
How may minutes are 0.25 hour?

0.25 hour = _____ minutes

Finally they arrived. They waited for the sun to show up.

The next day when the sun showed up, the warriors bravely shot the sun.

After the warriors shot arrows,
it took 0.15 minute to get to the sun.

How may seconds are 0.15 minute?

0.15 minute = _____ seconds

The sun spilled the boiled blood.

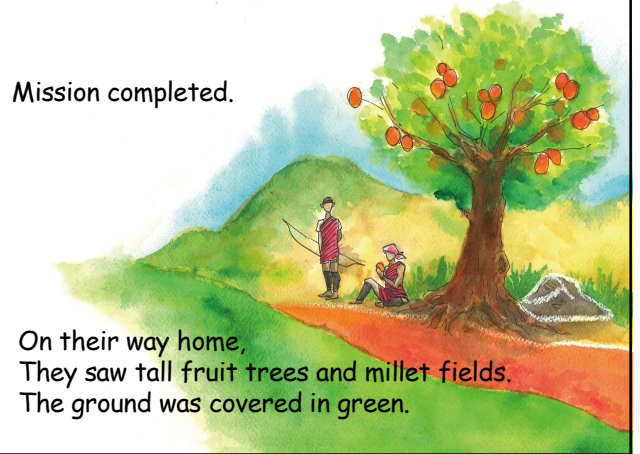One warrior was burned to death.
The other two got hurt.

To run away from the boiled blood,
it took the warriors 6 minutes and 12 seconds to head back down.

How may minutes are 6 minutes and 12 seconds?

_____ minutes = 6 minutes and 12 seconds

Mission completed.

On their way home,
They saw tall fruit trees and millet fields.
The ground was covered in green.

The warriors ate fruits and millets along the way.
When they got home, they were old men.

Since then, there are day and night.
People work in the daytime and rest at night.

The moon we see is the body of the dead sun.

Converting Time Unit

1 day = __24__ hours

1 hour = __60__ minutes

1 minute = __60__ seconds

---

hours to minutes	minutes to hours
minutes to seconds	seconds to minutes

LOTTERY

- 2 people in a group.

(A takes the Paper Fortune Teller;B chooses colors and numbers)

- Choose colors and numbers from 1-10.
- A asks the questions and B figures out the answer.
- Take turns to get 4 answers.

Number: _____ Name: _____

My Lottery Numbers

hours to minutes	minutes to hours
minutes to seconds	seconds to minutes

- Example

How many minutes are 1.2 hours?

1.2 hours = __72__ minutes

Number: _____ Name: _____

My Lottery Numbers

hours to minutes	minutes to hours
72	
minutes to seconds	seconds to minutes

2.1 hours = _____ minutes

$\frac{4}{5}$ hour = _____ minutes

15 minutes = _____ hour

3 hours 20 minutes = _____ hour

4.5 minutes = _____ seconds

$\frac{7}{12}$ minutes = _____ seconds

18 seconds = _____ minutes

40 seconds = _____ minutes

LOTTERY

?	?
?	?

LOTTERY

Round 1: Fixed distance – 50 meters

Q: How long does it take for _____?

A: It takes ____ seconds.

Name			
Time (second)			

(?) Who is faster? Who is slower?

Round 2: Fixed time – 5 seconds

Q: How far is it for _____?

A: It's _____ meters.

Name			
Distance (meter)			

(?) Who is faster? Who is slower?

Round 3: Different time & different distance

It takes _____ seconds for _____ to run _____ meters.

Name				
Distance (meter)				
Time (second)				

(?) Who is faster? Who is slower?

Round 3: Different time & different distance

Name				
Distance (meter)				
Time (second)				
Speed (m/s)				

m/s →meter per second

(?) Who is faster? Who is slower?

110年全國原住民族運動會
2021 NATIONAL INDIGENOUS GAME

Number: _____ Name: _____

原來High 宜蘭 YILAN 110.3.19 – 3.22

男女混合組傳統負重 團體賽 競賽成績
Weighted Sprint

Ranking	1	2	3	4	5	6
Team	Hualien	Taitung	Taoyuan	Hsinchu	Yilan	Miaoli
Time	03:07	03:21	03:22	03:27	03:35	03:49
Speed (m/s)						

Distance : 1200 meters