

新北市109年度教師跨領域全英語授課教案設計  
(課程實施後)

設計者 / 服務學校	李汝紋、林明潔、黃韻如 新林國小	
教案名稱	The Magic of Magnetism	
教學年級：國小 <u>三</u> 年級	預計課程上使用之英語比例：75 %	
學生人數： <u>30</u> 人	教學總節數： <u>2</u> 節	預計公開授課內容為第 <u>2</u> 節
預計公開授課之時間： 109年10月26日 14時20分至15時00分 (第六節課)	預計公開授課之地點： 新北市林口區新林國小 英語情境教室	公開授課之教師： 姓名：林明潔、黃韻如 服務學校：新林國小 專長領域：英語領域

核 心 素 養	總 綱	A2 系統思考與解決問題 B1 符號運用與溝通表達 C2 人際關係與團隊合作	
	領 綱	英語領域	自然領域
		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-B2 具備入門的聽、說、讀、寫英語文能力。在引導下，能運用所學的字詞及句型進行簡易溝通。 英-E-C2 積極參與課內英語文小組學習活動，培養團隊合作精神。	自-E-A1 能運用五官，敏銳的觀察周遭環境，保持好奇心、想像力持續探索自然。 自-E-A2 能運用好奇心及想像能力，從觀察、閱讀、思考所得的資訊或數據中，提出適合科學探究的問題或解釋資料，並能依據已知的科學知識、科學概念及探索科學方法去想像可能發生的事情，以及理解科學事實會有不同的論點、證據或解釋方式。 自-E-A3 具備透過實地操作探究活動探索科學問題的能力，並能初步根據問題特性、資源的有無等因素，規劃簡單步驟，操作適合學習階段的器材儀器、科技設備及資源，進行自然科學實驗。 自-E-B1 能分析比較、製作圖表、運用簡單數學等方法，整理已有的自然科學資訊或數據，並利用較簡單形式的口

			<p>語、文字、影像、繪圖或實物、科學名詞、數學公式、模型等，表達探究之過程、發現或成果。</p> <p>自-E-C2 透過探索科學的合作學習，培養與同儕溝通表達、團隊合作及和諧相處的能力。</p>
學習重點	學習表現	<p>1-I-7 能聽懂課堂中所學的字詞。</p> <p>1-II-10 能聽懂簡易句型的句子。</p> <p>2-II-3 能說出課堂中所學的字詞。</p> <p>3-II-2 能辨識課堂中所學的字詞。</p> <p>4-II-2 能臨摹抄寫課堂中所學的字詞。</p> <p>6-II-1 能專注於教師的說明與演示。</p> <p>6-II-2 積極參與各種課堂練習活動。</p> <p>6-II-3 樂於回答教師或同學所提的問題。</p> <p>7-II-2 能妥善運用情境中的非語言訊息以幫助學習。</p>	<p>ti-II-1 能在指導下觀察日常生活現象的規律性，並運用想像力與好奇心，了解及描述自然環境的現象。</p> <p>tm-II-1 能經由觀察自然界現象之間的關係，理解簡單的概念模型，進而與其生活經驗連結。</p> <p>po-II-1 能從日常經驗、學習活動、自然環境，進行觀察，進而能察覺問題。</p> <p>pe-II-2 能正確安全操作適合學習階段的物品、器材儀器、科技設備及資源，並能觀察和記錄。</p> <p>pa-II-2 能從得到的資訊或數據，形成解釋、得到解答、解決問題。並能將自己的探究結果和他人的結果（例如：來自老師）相比較，檢查是否相近。</p> <p>pc-II-2 能利用簡單形式的口語、文字或圖畫等，表達探究之過程、發現。</p> <p>an-II-1 體會科學的探索都是由問題開始。</p>
	學習內容	<p>Ac-II-2 簡易的生活用語。</p> <p>B-II-1 第二學習階段所學字詞及句型的生活溝通。</p>	<p>INc-II-1 使用工具或自訂參考標準可量度與比較。</p> <p>INe-II-7 磁鐵具有兩極，同極相斥，異極相吸；磁鐵會吸引含鐵的物體。磁力強弱可由吸起含鐵物質數量多寡得知。</p> <p>INd-II-8 力有各種不同的形式。</p>
具體學習目標		<ol style="list-style-type: none"> <li>1. Students will demonstrate the basic concept of magnetism.</li> <li>2. Students will discover that the strength of magnets differs.</li> <li>3. Students will be able to read and understand magnetism vocabulary.</li> </ol>	
與其他領域/科目/議題的連結		<ol style="list-style-type: none"> <li>1. Students will be able to observe through experimenting.</li> <li>2. Students will be able to record experiment results.</li> <li>3. Students will draw conclusions from experiment results.</li> </ol>	
教學資源/設備需求		<p>Teaching slide, picture book, worksheet, magnets, pins, paperclips, needles, scissors, buttons, thread, steel hooks, paper, bottle caps, glass, coins</p>	

**各節教學活動設計**

節次	教學活動流程	時間	教學資源	教師語言
第一節	<p align="center"><b>【Warm Up】</b></p> <p>1. Greet students.</p> <p>2. Introduce vocabulary: magnet, attract, plastic, iron, steel, copper</p>	5'	Vocabulary slide	
	<p align="center"><b>【Presentation】</b></p> <p>Activity 1: Read the Story Students will know from the story that magnets attract certain objects.</p> <p>Activity 2: Do the Experiment</p> <p>(1) Each group gets a rare earth magnet and a bin with a variety of objects.</p> <p>(2) Students try to pick up objects with the magnet. Find out what objects the magnet attracts.</p> <p>(3) Finish the worksheet.</p>	25'	<p>Picture book: Mickey's Magnet (Appendix 1)</p> <p>magnets, coins, paperclips, paper, scissors, buttons, steel hooks, bottle caps, glass jar, craft string, marbles, straws, chopsticks, coffee cans, aluminum cans, rulers</p> <p>worksheet (Appendix 2)</p>	<p>What does the magnet attract (pick up)?</p> <p>Does the magnet attract (pick up) the pins?</p> <p>The magnet attracts _____.</p> <p>The magnet does not attract _____.</p>
	<p align="center"><b>【Wrap Up】</b></p> <p>Magnetism:</p> <p>1. Magnets attract (pick up) objects with iron or steel.</p> <p>2. Magnets do not attract (pick up) plastic.</p>	10'		<p>Magnets attract (pick up) objects with iron in them.</p> <p>Magnets do not attract (pick up) plastic.</p>

<p style="text-align: center;"><b>【Warm Up】</b></p> <ol style="list-style-type: none"> <li>1. Review vocabulary and magnetism.</li> <li>2. Introduce different sizes and shapes of magnets (small, medium, large, bar, horseshoe, coin).</li> <li>3. Have students think about the strength of different magnets.</li> </ol>	10'	Vocabulary slide	<p>It is a _____ magnet.</p> <p>The ____ magnet is the strongest.</p>
<p style="text-align: center;"><b>【Presentation】</b></p> <p>Activity 1: Compare the Size</p> <ol style="list-style-type: none"> <li>(1)Each group gets several paperclips, and horseshoe magnets in small, medium and large sizes.</li> <li>(2)Students try to pick up as many paperclips as they can with their magnets.</li> <li>(3)Students decide if the size of a magnet affects its strength.</li> </ol>	10'	worksheet (Appendix 3) paperclips, small, medium and large horseshoe magnets	Which is the strongest magnet?
<p>Activity 2: Compare the Shape</p> <ol style="list-style-type: none"> <li>(1)Each group gets a horseshoe magnet, a bar magnet, and a coin magnet.</li> <li>(2)Students try to pick up as many paperclips as they can with the different magnets.</li> <li>(3)Students decide if the shape of a magnet affects its strength.</li> </ol>	10'	coin magnets bar magnets horseshoe magnets	
<p style="text-align: center;"><b>【Wrap Up】</b></p> <p>Strength of a magnet:</p> <ol style="list-style-type: none"> <li>1. Size does not affect the strength of a magnet.</li> <li>2. Shape does not affect the strength of a magnet.</li> </ol>	10'		<p>Size does not affect the strength of a magnet.</p> <p>Shape does not affect the strength of a magnet.</p>

# Appendix 1










<p><b>Mickey's Magnet</b></p>  <p>by FRANKLYN H. BRANLEY and ELEANOR H. SAUGHAN Pictures by Crockett Johnson</p>	<p>This is Mickey. He is reading a book. His mom wants a box of pins.</p>		<p>Mickey gets the box of pins. He runs to his mom.</p>		
<p>Oops! He trips on the rug. The pins scatter all over the floor. What a mess!</p>		<p>He starts to pick them up. One pin. Two pins. Three pins. This is slow. Try a spoon. One spoonful. Two spoonfuls. Much quicker.</p>		<p>"Maybe a magnet will help." His father hands him something heavy. This? How? He'd try and see.</p>	
<p>Wow! Pins are all over the ends of the magnet. It's easy.</p>		<p>"Here you are!" He says to his mom. He shakes some pins into his mom's lap. The others hang onto the magnet. He has to pull them off. This is fun!</p>		<p>He sees the sewing basket. It is full of things – scissors, buttons, needles, thread, some hooks. He pushes the magnet into the basket. Up come the scissors, needles, and hooks. No buttons. No thread.</p>	
<p>He looks around. He tries— a plastic cat, a glass dish, a piece of paper, and a stone. The magnet picks up none of them.</p>		<p>He goes to the kitchen. He finds – a bottle cap, a shiny coin, a rubber bone.</p>		<p>He tries to pick them up. The magnet picks up the cap. But it doesn't pick up the rubber bone. It doesn't pick up the penny.</p>	
	<p>He plays with the collection. He picks up the needle. A pin is hanging from the needle.</p>		<p>He pulls the needle off the magnet. Down drops the pin.</p>		<p>Again he picks up the needle and the pin with the magnet  What else can you pick up with a magnet?  Are there other kinds of magnets?</p>

## Appendix 2

# The Magic of Magnetism

Homeroom: \_\_\_\_\_ Number: \_\_\_\_\_ Name: \_\_\_\_\_

### A. Choose the best answer.

1. ( ) What does Mickey's mom need?  
a) some pins  b) a hamburger  c) some coffee 
2. ( ) What does Mickey's dad give him?  
a) a fish  b) a magnet  c) some milk 
3. ( ) What does Mickey pick up from Mommy's basket?  
a) needles  b) thread  c) buttons 

### B. Match and write.

magnet



\_\_\_\_\_  
-----  
\_\_\_\_\_

pins



\_\_\_\_\_  
-----  
\_\_\_\_\_

pick up



\_\_\_\_\_  
-----  
\_\_\_\_\_

plastic



\_\_\_\_\_  
-----  
\_\_\_\_\_

metal



\_\_\_\_\_  
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\_\_\_\_\_

needles



\_\_\_\_\_  
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\_\_\_\_\_

iron



\_\_\_\_\_  
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\_\_\_\_\_

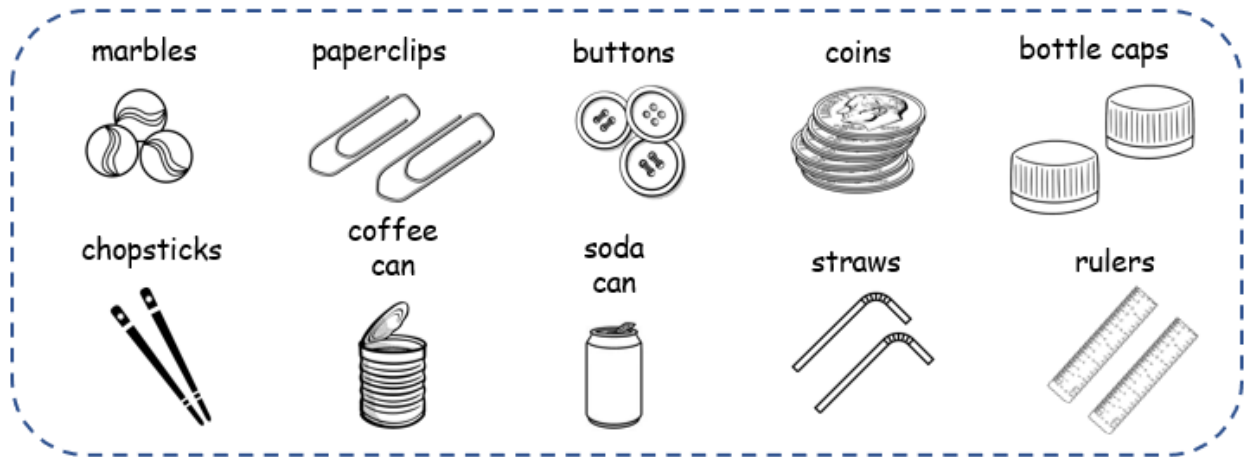




### C. Let's experiment.

Step 1 . What objects would magnets attract? Circle these objects.

你認為磁鐵能吸那些物品，將他們圈出來。



Step 2 . Try to pick up these objects. Draw the items that the magnet attracts.

用磁鐵試試看，畫出磁鐵能吸起來的物品。

The magnet attracts:

Step 3. Write what you have learned about magnets. 關於磁鐵，今天你學到了什麼？

1. The magnet attracts (pick up) \_\_\_\_\_.

2. The magnet does not attract (pick up) \_\_\_\_\_.

3. Today I learned that magnets attract objects that have \_\_\_\_\_.



(A) glass      (B) plastic      (C) iron

## Appendix 3

# The Magic of Magnetism

Homeroom: \_\_\_\_\_ Number: \_\_\_\_\_ Name: \_\_\_\_\_

### A. Read and write.



\_\_\_\_\_

\_\_\_\_\_

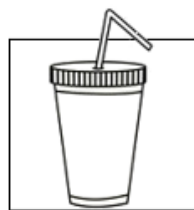
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### Word Bank

small  
medium  
large  
bar  
horseshoe  
coin



\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

### B. Let's experiment.

Question 1: Does size affect the strength of a magnet?

Step 1. I think the strongest magnet is the \_\_\_\_\_ magnet.

Step 2 . Let's try pick up paperclips with your magnets.

- The small magnet picks up \_\_\_\_\_ paperclips.
- The medium magnet picks up \_\_\_\_\_ paperclips.
- The large magnet picks up \_\_\_\_\_ paper clips.

Step 3 . Today I learned:

- Size affects the strength of a magnet.
- Size does not affect the strength of a magnet.





Question 2 : Does shape affect the strength of a magnet?

Step 1. I think the strongest magnet is the \_\_\_\_\_ magnet.

Step 2 . Let's try pick up paperclips with your magnets.

- a. The bar magnet picks up \_\_\_\_\_ paperclips.
- b. The horseshoe magnet picks up \_\_\_\_\_ paperclips.
- c. The coin magnet picks up \_\_\_\_\_ paper clips.

Step 3 . Today I learned:

- Shape affects the strength of a magnet.
- Shape does not affect the strength of a magnet.

**C. Which items will a magnet attract? Draw a line from the magnet to the magnetic items.**

