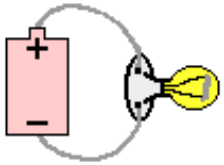
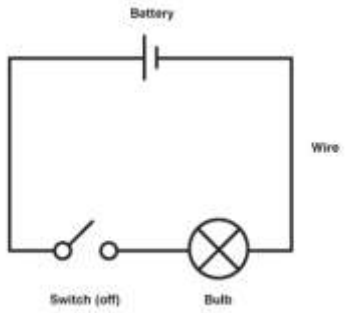
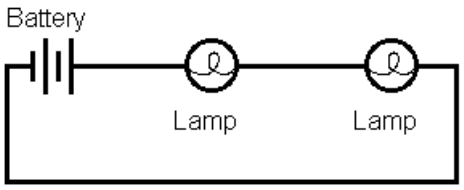
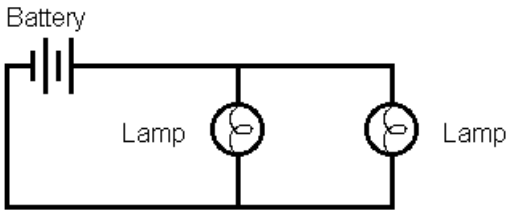
第六單元：電和磁性	**Unit 6: Electricity and Magnetism**
主要觀念:	**Key Ideas:**
6.1 觀察，形容，和研究能量在電路裏轉移的憑證	6.1 Observe, describe, and investigate the evidence of energy transfer in electrical circuits.
6.2 建造和圖解一個電路	6.2 Construct and diagram an electrical circuit
6.3 辨認一個電路裏的導電體和絕緣體	6.3 Identify conductors and insulators in an electrical circuit.
6.4 比較不同物品的電和磁的特性	6.4 Compare the electrical and magnetic properties of different materials.
6.5 研究磁鐵的特性	6.5 Investigate properties of magnets.
6.6 探索電和磁性的互動並創建一個電磁鐵	6.6 Explore the interaction of electricity and magnetism to create an electromagnet.
6.7 形容電如何幫助或傷害人類（安全性）	6.7 Describe how electricity can be helpful or harmful to people (safety).
單元大綱	**Unit Overview**
電可以令人興奮和好玩。它會讓你的頭髮豎立起來（靜電）。這種電是有趣的，但是沒有用處。人類可以控制大量的電來讓它變得有用。這些電量如果使用不當，將具有相當的危險性。	Electricity can be exciting and fun. It can make your hair stand on end (static electricity). This electricity is fun, but not useful. People can control larger amounts of electricity to make it useful. These amounts of electricity can be dangerous if not used safely.

第六單元：電和磁性	**Unit 6: Electricity and Magnetism**
關鍵問題: 電和磁性的特質（屬性）是什麼？	**Essential Question:** What are the properties of electricity and magnetism?
6.1 主要觀念 觀察，形容，和研究能量在電路裏轉移的憑證	**Key Idea 6.1:** Observe, describe, and investigate the evidence of energy transfer in electrical circuits.
科學用語: 1. 電子　2. 電荷 3. 電流　4. 密閉式電路 5. 開放式電路　6. 開關	**Scientific Terms:** 1. electron　2. electric charge 3. electric current　4. closed circuit 5. open circuit　6. switch
內容: **電子**可以在實體裏通順地流動。流動的電子，或一個**電荷**的流動， 造成**電流**。人類可以控制電流讓電為人類工作。	**Content:** **Electron**s can flow smoothly through matter. Flowing electrons—or a flow of an **electric charge**—make **electric current**. People can control an electric current to make electricity work for them.
電流只有當它在一個關閉的路徑稱作**密閉式電路**裏才可以流動。圖片裏的電路有三個部份。首先，電池在路徑裏推動電子。第二部份，當電流通過，燈泡點亮。第三，一條電線連接電池到燈泡。另一條電線連接燈泡回到電池。	 Electric current flows only when it can follow a closed path called a **closed circuit**. The circuit in the picture has three parts. First, the battery pushes electrons through the path. Second, the bulb lights up when current passes through it. Third, a wire connects the battery to the bulb. A wire also connects the bulb back to the battery.
如果你從圖片中的電路裏拿走其中一條電線，會發生什麼？你將會把電流遵循的路徑切斷。你打開了電路。因爲電流只可以在一個密閉式電路裏流動，這個燈泡將不會亮。	What would happen if you took away one of the wires of the circuit in the picture? You would break the path that the electric current follows. You open the circuit. Because current can flow only through a closed circuit, the bulb would not light up.
一個**開關**是打開或關閉一個電路的裝置。當你打開一盞燈，你關閉了一個電路。你讓兩個導電體碰觸在一起，所以電流可以流動。電燈裏的燈泡就亮了。	A **switch** is a device that opens or closes a circuit. When you switch on a lamp, you close the circuit. You allow two conductors to touch so that the current can flow. The bulb in the lamp glows.
當你關掉一盞燈，你打開了一個電路。當電路是開放的，電流不能夠流動，燈泡就不會亮。	When you switch off a lamp, you open the circuit. When the circuit is open, the current cannot flow, the bulb doesn't glow.

	
複習： 1. 當一個駕駛壓方向盤上的喇叭，會發生什麼？ 2. 形容當一個電熱器的開關打開的時候，電熱器裏的電流如何流動？ 3. 開關把什麼連接在一起？	**Review:** 1. What happens when a driver presses on the steering wheel to honk the horn of a car? 2. Describe the flow of current through an electric heater when the heater is switched on. 3. What does a switch bring together?

第六單元：電和磁性	**Unit 6: Electricity and Magnetism**
關鍵問題: 電和磁性的特質（屬性）是什麼？	**Essential Question:** What are the properties of electricity and magnetism?
6.2 主要觀念 建造和圖解一個電路	**Key Idea 6.2:** Construct and diagram an electrical circuit
科學用語: 1. 串聯式電路 2. 並聯式電路 3. 路徑	**Scientific Terms:** 1. series circuit 2. parallel circuit 3. path
內容: 電路並不是按照一樣的方式排列的。燈泡可以放置於兩種電路，**串聯式電路**和**並聯式電路**。 在一個串聯式電路裏，燈泡是位於同一個**路徑**。一個簡易的例子有兩個燈泡，一個電池，和電線。電流在路徑裏從電池流出，穿過第一個燈泡，再穿過第二個燈泡，然後回到電池。如果你把其中一個燈泡拿走或轉鬆，電路就打開了電路一旦打開，電流無法到達電路其他的部位。試想如果你家所有的燈和電器品都是串聯式電路的一部份，將會發生什麼？除非你把所有的燈和電器都打開，不然電路是開放式的。沒有任何一盞燈和電器可以運作。 一個**並聯式電路**有超過一條的路徑讓電流流動。如	**Content:** Electrical circuits are not all laid out in the same way. Light bulbs can be a part of two kinds of circuits—**series circuits** and **parallel circuits**. In a series circuit, the bulbs are in the same **path**. A simple example has two bulbs, one battery, and wires. The current flows in a path from the battery, through the first bulb, through the second bulb, and back to the battery. If you remove or turn off either bulb, the circuit opens. Current cannot reach the other parts of the circuit. Think about what would happen if all the lights and appliances in your home were parts of a series circuit. Unless you had all the lights and appliances on, the circuit would be open. None of the lights and appliances would work. **SERIES**  **PARALLEL**  A **parallel circuit** has more than one path for the

果有某些東西將電荷在一條路徑上擋住，它們可以走另一條路徑。 在這個並聯式電路圖片裏，你可以看到兩條電流路徑。電流穿過兩個燈泡，將兩個燈泡點亮。如果其中一個燈泡不見了或損壞了，電流仍是可以流動到另一個燈泡。一條路徑被切斷並不會阻擋電流。當並聯式電路的一部份不能運作，電路的另外一部份仍然繼續運作。電流仍是有一條路徑可以讓它通行。	electric current to follow. If something stops charges from moving along one path, they can take another. In the picture of a parallel circuit, you can see two circular paths. The current can travel through both bulbs and light them both. If one bulb is missing or damaged, however, the current can still travel through the other bulb. Breaking one path doesn't stop the current. When one part of a parallel circuit fails, the other parts of the circuit continue to work. The electric current still has a path along which it can travel.
複習： 1. 一個並聯式電路和串聯式電路如何不同？ 2. 假設你想要裝飾一間房間來開派對。你計劃買一些燈來裝飾。哪一種電路比較好？爲什麼？ 3. 用以下的名稱來畫一個串聯式電路。 電線，開關，燈泡，電池	**Review:** 1. How is a parallel circuit different from a series circuit? 2. Suppose you want to decorate a room for a party. You plan to buy strings of lights. Which type of circuit would it be better to get? Why? 3. Use the following terms to draw a series circuit. wire, switch, bulb, battery

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6.3 主要觀念 辨認一個電路裏的導電體和絕緣體	**Key Idea 6.3:** Identify conductors and insulators in an electrical circuit.
科學用語: 1. 導電體 2. 絕緣體 3. 電阻 4. 超導體	**Scientific Terms:** 1. conductor 2. insulator 3. resistance 4. superconductor
內容: 電流在一些材料裏很容易的流過。這些材料是**導電體**。許多金屬都是很好的導電體，尤其是銅。 電流在其他的材料裏不能容易的流過。這些材料是**絕緣體**。空氣，橡膠，玻璃，和塑料都是絕緣體。 仔細看一下電線。裏面的金屬線引導，或帶領，電流進入電器。而外面的橡膠絕緣體防止電流流到它不該去的地方。 電阻是測量電在一種材料裏的流暢度。好的絕緣體有高的電阻。好的導電體有低的電阻。**超導體**沒有任何電阻。 許多日用品能夠安全的並完善的被使用，都是因爲絕緣體和導電體互相運作的關係。如果你仔細看一個電燈泡的底座，你會看到一個小小的金屬片將電流從插座導引到燈泡。就在金屬片的上方，你會看到一條黑邊。這個黑邊是一個絕緣體。它不讓電流從金屬片流到上面的金屬螺旋線。	**Content:** Electric current passes easily through some materials. These materials are **conductors**. Many metals are good conductors, especially copper. Electric current does not pass easily through other materials. These materials are **insulators**. Air, rubber, glass, and plastic are insulators. Take a look at an electric cord. The metal wire inside conducts—or carries—the current into an appliance. The rubber insulator on the outside keeps the current from flowing where it should not go. Resistance measures how well electricity flows through a material. Good insulators have high resistance. Good conductors have low resistance. **Superconductor**s have no resistance at all. Many everyday things do their jobs safely and well because of the way insulators and conductors work together. If you look at the bottom of a light bulb, you will see the small metal tip that conducts the current from the socket into the bulb. Just above the tip, you will see a black band. This band is an insulator. It does not allow the current to flow from the metal tip to the metal screw threads above it.
複習: 1. 當一個電流碰到一個導電體的時候，會發生什麼？當一個電流碰到一個絕緣體的時候，又會發生什麼？	**Review:** 1. What happens when a current reaches a conductor? What happens when it reaches an insulator?

2. 絕緣體和導電體有何不同？爲什麼兩者都很重要？	2. How are insulators and conductors different? Why are both important?

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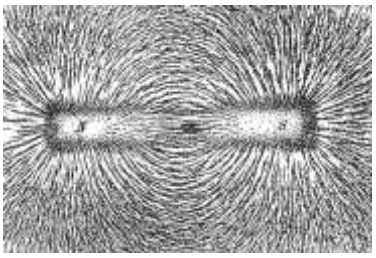
關鍵問題: 電和磁性的特質（屬性）是什麼？	**Essential Question:** What are the properties of electricity and magnetism?
6.4 主要觀念 比較不同物品的電和磁的特性	**Key Idea 6.4:** Compare the electrical and magnetic properties of different materials.
科學用語: 1. 特性 2. 吸引 3. 磁鐵 4. 鐵質 5. 銅	**Scientific Terms:** 1. property 2. attract 3. magnet 4. iron 5. copper
內容: 何種材料構成一個物體決定它的**特性**。我們知道一個軟木塞是來自一棵樹，它會在浮在水面上，但是一根鐵釘在水裏就會下沉。**鐵**釘的另外一個特性是它對磁鐵的吸引力，但是並不是所有的金屬材料都有這個磁性的特性。一個**銅**質的一分錢硬幣和一片鋁箔紙都無法**吸引磁鐵**。含有鐵質的金屬物體才會對磁鐵吸引。許多鋼製金屬物體，都有含鐵在內。 銅和鋁箔都無法和磁鐵相吸引，但是銅有一個特性是和鋁箔不同的。銅是一個很好的導電體。 鋁箔是一個很弱的導電體。 這就是爲什麼銅被用在電器用品的電線裏和我們家庭裏的電線裏。好和弱的導電能力是實體的另一個特性。	**Content:** The materials that an object is made up of determine some of its **properties**. We know that a cork, which comes from a tree, will float in water, but a metal **iron** nail will sink. Another property of an iron nail is its attraction to a magnet, but not all metals have this magnetic property. Neither a **copper** penny nor a piece of aluminum foil will be **attract**ed to a **magnet**. Metal objects with iron in them are attracted to a magnet. Many metal objects are made of steel, which has iron in it. Both copper and aluminum cannot be attracted to a magnet. However, copper has a property that is does not share with aluminum. Copper is a good conductor of electricity. Aluminum is a poor conductor of electricity. That is why copper is used in the wiring in electrical appliances and in the wires in your home. Good or poor conductivity is another property of matter.
複習: 1. 你如何測試磁力的特性？ 2. 如果一個迴文針可以被一個磁鐵吸引，那我們知道有什麼一定要在這個迴文針裏？ 3. 是否所有金屬的特性都一樣？給一個例子。	**Review:** 1. How can you test for the property of magnetism? 2. If a paper clip can be attracted to a magnet, what must be in this paper clip? 3. Are the properties of all metals the same? Give an example of your answer.

第六單元：電和磁性	**Unit 6: Electricity and Magnetism**
關鍵問題: 電和磁性的特質（屬性）是什麼？	**Essential Question:** What are the properties of electricity and magnetism?
6.5 主要觀念 研究磁鐵的特性	**Key Idea 6.5:** Investigate properties of magnets
科學用語: 1. 磁鐵　2. 吸引　3. 障礙物 4. 磁場　5. 排斥	**Scientific Terms:** 1. magnet　2. attract　3. barrier 4. magnetic field　5. repel
內容: 一個**磁鐵**是一個物體能夠**吸引**鐵質和一些其他的金屬材料。磁鐵能夠吸引鋼，因爲鋼含有鐵質。當你拿著一個鐵質物體或一個鋼質物體靠近一個磁鐵的時候，物體會朝磁鐵靠近。 所有的磁鐵都會吸引鐵，但是它們的樣子也許不同。有些磁鐵的形狀像棒子。其他的有 U 型的磁鐵。有些可以吸附在電冰箱門上的磁鐵，是扁薄型的。 距離影響一個磁鐵的吸引力。一個小的鋼質物體靠近磁鐵，便會往磁鐵靠近。但是，同樣的物體如果拿到遠處，它便不會朝磁鐵方向靠近。 其他的力可以抵消磁鐵的力。磁鐵吸附在冰箱的門上，但是你可以容易的把它們拔下來。 **障礙物**也可以干擾一個磁鐵的拉力。一個冰箱上的磁鐵也許可以吸住一張到兩張紙在門上，但是如果你放太多張紙在磁鐵下，磁鐵便會掉下來。 磁鐵可以讓一些其他的物體產生磁性。例如，如果你拿著一根針在一個磁鐵上同樣的方向摩擦數次，這根針將會變得帶有磁性並可以把另一根針吸起來。 磁場是圍繞在磁鐵的周圍，可以感受到磁力的範圍。如果你灑鐵屑在一塊磁鐵上，鐵屑會排列成	**Content:** A **magnet** is an object that **attract**s iron and a few (not all) other metals. Magnets attract steel because it contains iron. When you bring an iron object or a steel object close to a magnet, the object moves toward the magnet. All magnets attract iron, but they may not look alike. Some magnets are shaped like bars. Others are U-shaped. Some magnets that stick to refrigerator doors are thin, flat shapes. Distance affects the strength of a magnet's attraction. A small steel object that is close to a magnet moves toward it. However, it the same object is farther away, it will not move toward the magnet. Other forces can overcome the force of a magnet. Refrigerator magnets stick well to the door, but you can easily pull them off. **Barrier**s can interfere with a magnet's pull, too. A refrigerator magnet may hold one or two sheets of paper to the door, but if you put too many sheets under it, the magnet will fall. Magnets can make some other objects magnetic. For example, if you rub a needle over a magnet several times in the same direction, the needle will become magnetic enough to pick up other needles. The **magnetic field** of a magnet is the space around the magnet where its force, or magnetism,

曲綫的模式。鐵屑之所以產生這種模式是因爲最強力的磁場是位於磁鐵的兩端，或兩極。  如果一個磁鐵掛著，讓它可以自由的轉動，它的一極會指向北邊。那是因爲地球本身是一個巨大磁鐵。磁鐵有兩極，北極和南極。如果你把兩個磁鐵邊靠邊放，你會看到相反的兩極會互相吸引，而相同的兩極會互相**排斥**。	can be felt. If you sprinkle iron filings on a magnet, the filings line up in a pattern of curved lines. The filings make the pattern because the magnetic field is strongest near the ends, or poles, of the magnet. If a magnet is hung so that it can move freely, one pole will point north. That is because Earth itself is a large magnet. Magnets have two poles, a north pole and a south pole. If you placed two magnets side by side, you would see that opposite poles attract, or come together, and like poles **repel**, or move apart from, each other.
複習： 1. 如果你用一個磁鐵來撿鋼針，你認爲磁鐵的那邊會吸起最多的針？爲什麼？ 2. 解釋爲什麼有些金屬物體不會吸引磁鐵。 3. 距離和磁性的關係是什麼？	**Review:** 1. If you use a magnet to pick up steel pins, where on the magnet would you expect the most pins to stick? Why? 2. Explain why some metal objects are not attracted to the magnet. 3. What is the relationship between the distance and magnetism?

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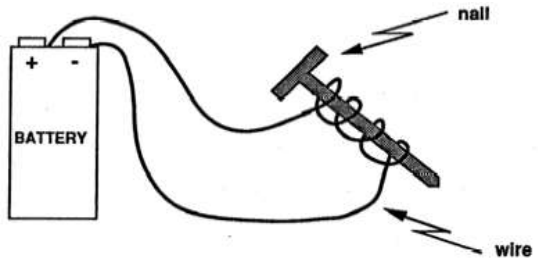
關鍵問題: 電和磁性的特質（屬性）是什麼？	**Essential Question:** What are the properties of electricity and magnetism?
6.6 主要觀念 探索電和磁性的互動並創建一個電磁鐵	**Key Idea 6.6:** Explore the interaction of electricity and magnetism to create an electromagnet.
科學用語: 1. 電磁鐵	**Scientific Terms:** 1. electromagnet
內容: 一個電流在電線裏流動在電線周圍造成磁場。如果電線是環綫的形狀，磁場就更強。一個電流循著環綫流動造成一個**電磁鐵**。如果電流關閉，這個電磁鐵就不再具有磁性。這個電磁鐵也被關閉。  一個電磁鐵通常有一塊鐵在中間。當電流從電線流過，電線和鐵變成有磁性。鐵的磁場加上電線的磁場。電磁鐵就變得更強。 利用許多線圈和強力的電流，電磁鐵可以非常強力。在廢鐵場裏，這種電磁鐵可以舉起許多噸的廢鐵和鋼。	**Content:** An electric current moving through a wire causes a magnetic field around the wire. If the wire is shaped into loops, the magnetic field gets stronger. An electric current running through a loop of wire makes an **electromagnet**. If the electric current is shut off, the electromagnet is no longer magnetic. The electromagnet is turned off. An electromagnet usually has a piece of iron in its center. When current runs through the wire, the wire and the iron become magnetic. The magnetic field of the iron is added to the magnetic field of the wire. The electromagnet becomes stronger. With many coils of wire and a strong current, electromagnets can be made very strong. In junkyards, such electromagnets lift many tons of scrap iron and steel.
複習: 1. 如何制造一個電磁鐵？ 2. 爲什麼一個電磁鐵不是一個永久性的磁鐵？	**Review:** 1. How can you make an electromagnet? 2. Why is an electromagnet not a permanent magnet?

第六單元：電和磁性	**Unit 6: Electricity and Magnetism**
關鍵問題: 電和磁性的特質（屬性）是什麼？	**Essential Question:** What are the properties of electricity and magnetism?
6.7 主要觀念 形容電如何幫助或傷害人類（安全性）	**Key Idea 6.7:** Describe how electricity can be helpful or harmful to people (safety).
科學用語: 1. 傳導　2. 絕緣　3. 電流	**Scientific Terms:** 1. conduct　2. insulation　3. electric current
內容: 電是電能。電可以改變成光能和熱能。如果使用得不正確，電是危險的。它可以造成燒傷和休克，如果電穿越過一個人的身體，它還會造成死亡。一個很重要的安全守則我們必須要遵守的是，當你是濕的時候，絕對不可以碰觸任何有電的東西。你皮膚上的水份可以**導**電。它可以引導電進入你的身體。 不要使用電線外面的**絕緣**材料有磨損或斷裂的電燈和電器。因爲**電流**可以很容易的行進到你的身體。電流也會引起走火。 人類也必須非常小心的是不要插太多的電燈和電器在同一個插座。太多的電流從插座穿過，可能會讓牆壁內的電線過熱而造成失火。然而，大部份的家庭都有一種開關裝置可以防止太多的電流在電路裏流動。如果有太多的電流在電路裏流過，這種開關，一種保險絲或斷路器，會打開電路。這樣，就沒有任何電流可以流過電路。	**Content:** Electricity is electric energy. Electricity can be changed into light energy and heat energy. Electricity is dangerous if it is not used correctly. It can cause burns, shock, and death if it travels through a person's body. An important safety rule to follow is never touch anything electrical while you are wet. Water on your skin can **conduct** electricity. It can lead the electricity into your body. Do not use electric lamps and appliances that have cords with worn, cut, or broken **insulation** around the wires. The **electric current** could easily travel to your body. The current also could start a fire. People also need to be careful not to plug too many lamps and appliances into the same outlet. Too much electric current flowing through the outlet might make the wires in the wall hot enough to start a fire. However, most homes have a kind of switch that stops too much current from flowing through a circuit. This switch—a fuse or circuit breaker—opens the circuit when too much current flows through it, stopping the flow of electricity. Electric current cannot flow through the open circuit.
複習: 1. 哪兩種方法可以防止電流進入你的身體？ 2. 爲什麼將電線從地毯下穿過是不安全的？	**Review:** 1. What are two ways you can keep electric current from getting into your body? 2. Why is it unsafe to run electric cords under a rug?

解答

6.1

1. 按喇叭控制一個電路，讓電荷從電池穿過喇叭在回來。流動的電流穿過喇叭讓喇叭產生聲音。
2. 當打開電熱器時，電流可以沿著一個完全的電路流動，從電源穿過電熱器然後再回來。
3. 一個開關可以把導電體連接起來。

6.2

1. 一個並聯式電路有超過一條路徑讓電流通過。如果一條路徑打開或損壞，電可以沿著其他的路徑流動。一個串聯式電路只有一條路徑可以讓電流通過。
2. 一個並聯式電路比較好，因爲如果一條路徑不能作用，其他的路徑仍可以運作。一個 串聯式電路比較好因爲它容易開關所有的部份。
3. （範例，開關可以放置在任何部位）

6.3

1. 一個電流從一個導電體流過。當這個電流碰到一個好的絕緣體，它就會停下來。
2. 絕緣體阻擋電流的流動。它們對於安全來說是非常重要的。導電體讓電流過。

6.4

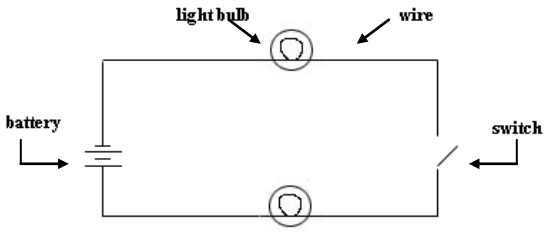
Answer Key

6.1

1. Pushing on the horn control completes a circuit and lets charges flow from the battery through the horn and back again. The current flowing through the horn makes it sound.
2. When the heater is switched on, current can travel along a complete circuit, from the power source through the heater and back again.
3. A switch can bring conductors together.

6.2

1. A parallel circuit has more than one path that the current can follow. If one path is open or damaged, electricity can flow along the other path. A series circuit has only one path that current can follow.
2. A parallel circuit is better, because if one path isn't working, another path will work. A series circuit is better because it is easy to switch all parts on and off.
3. (a sample diagram, switch can be placed anywhere)



6.3

1. An electric current flows through a conductor. When the current reaches a good insulator, it stops.
2. Insulators stop the flow of current. They are important for safety. Conductors let electricity flow.

6.4

1. 用一個磁鐵來測試一個物體是否可以吸引磁鐵。
2. 這個迴文針一定含有鐵質，因爲鐵有磁性的特性。
3. 不是，金屬有不同的顏色，電力，和磁力，等等。例如，鐵有電的能力和磁性的特性。然而，銅是一種金屬，導電能力很好，但是不能被磁鐵吸引。

6.5

1. 磁鐵的兩端，或兩極會有最多的針，因爲那是磁鐵最強的地方。
2. 這些金屬物體沒有含鐵。
3. 物體的磁力跟著距離的增加而減弱。

6.6

1. 一個電流在電線裏流動在電線周圍造成磁場。你可以將電線繞成線圈的形狀，讓電流可以通過。如果我們將鐵放進線圈內，通電後鐵和線圈都會變成電磁鐵。制造一個相當強壯的磁場。
2. 只有當電流通過電線的時候，電磁鐵才有磁力。如果電流被關閉，電磁鐵也被關閉。

6.7

1. 當你濕的時候，絕對不要碰觸和電有關的任何東西。不要使用有損壞的電線或電線的絕緣體破損的任何電器。
2. 把電線從地毯下穿過是不安全的。因爲我

1. Use a magnet to see if the item is attracted to it.
2. The paper clip must with iron in it, because iron has magnetic property.
3. No, metals differ in color, electrical and magnetic ability, etc. For example, iron has electrical and magnetic ability. However, copper is a kind of metal that good in conducting electricity but will not be attracted to a magnet.

6.5

1. The most pins will be on the ends or poles of the magnet, because that is where the magnet is the strongest.
2. These metal objects do not have iron in them.
3. The force of magnetism on objects decreases as the distance increases.

6.6

1. An electric current moving through a wire creates a magnetic field around the wire. You can make an electromagnet by shaping the wire into loops and allowing the current to flow through it. If you wrap the loops of wire around an iron core, both the iron and the loops of wire become magnetic as electricity flows through the wire, creating a much stronger electromagnet.
2. The electromagnet is not a permanent magnet because it has a magnetic force only when an electric current moves through the wire. If the electric current is shut off, the electromagnet is turned off.

6.7

1. Never touch anything electrical while you are wet. Do not use electric any appliances that have cords with worn, cut, or broken insulation around the wires.

們可能不會注意到有任何的電線有破損，斷裂，或電線外面的絕緣體有損壞的情形。電流會很容易的流動到你的身體。電流也很容易引起火災。	2. It is unsafe to run electric cords under a rug because we would not notice if there is any cords with worn, cut, or broken insulation around the wires. The electric current could easily travel to your body. The current could also start a fire.