

电磁荡秋千

Electromagnetic Swing

实验原理

Experimental Principle

TX-11



利用了同性磁极相互排斥的原理。通电后线圈产生磁场,与磁铁同极磁场产生相互排斥,产生位置偏移。在重力,磁力和惯性力的相互作用下使秋千荡起来。

Utilized the principle of mutual repulsion between magnetic poles of the same magnetic poles . After being powered on, the coil generates a magnetic field, which repels the magnetic field at the same pole of the magnet, resulting in positional displacement. Under the interaction of gravity, magnetic force, and inertial force, the swing swings.



WARNING

警告

CHOKING HAZARD -Small parts. 小部件, 注意有窒息危险。

PUNCTURE HAZARD-Parts with sharp point. 尖锐部件, 注意有刺伤危险。

Not for children under 3 yrs. Keep out of reach of small children to prevent accidental swallowing. Only for use by children aged 8 yrs and older.

Toy contain scattered small parts. 因玩具内含小零件, 不适合3岁内的幼儿, 只适用于8岁或以上儿童使用。请将玩具放在幼儿触摸不到的地方, 以防出现误吞事故。

Make sure to read these carefully before use.
(Parents/guardians, read these instructions carefully.)

使用之前必须认真阅读操作说明书 (监护人也必须阅读)

●Instructions for parents are included and must be observed carefully and keep it. ●When inserting the battery, be careful not to make a mistake for the positive and negative terminals. ●Used batteries must be immediately removed. ●It is prohibited to make the positive and negative polarity close to each other to avoid short circuiting the electrodes ●When not used for a long time, the battery should be taken out and stored properly. ●Avoid direct sunlight and do not store in high temperature. ●Please read the assembly manual carefully and do not connect the wrong wires. If the wiring is incorrect during assembly, it may cause short circuit, heat or even damage.

●操作说明书内也包括针对监护人的内容, 故请务必认真阅读并慎重保存。

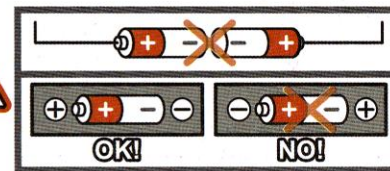
●放入电池时, 注意不要弄错正极与负极。

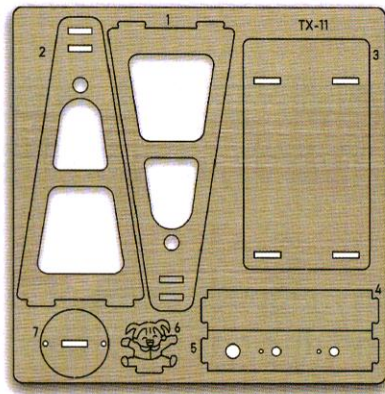
●用旧的电池必须立即取出来。

●禁止使电极的正极与负极相互靠近, 以免使电极短路。

●长时间不用时, 要将电池取出来保存好。●避免阳光直射, 不可放在高温之处。

●请仔细阅读组装说明书, 不要接错电线。如果组装时接线错误, 可能导致电路短路、发热甚至损坏。





Board
木板
x1

Copper Wire
铜丝
x1

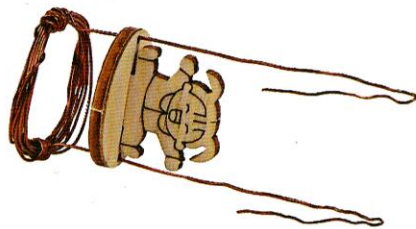
Sheep's Eye Nail
羊眼钉
x2

Foam Adhesive
泡沫胶
x1

Magnet
磁铁
x2

Battery Holder
电池座
x1

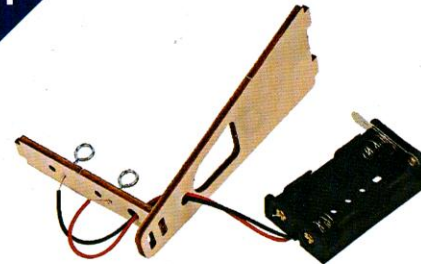
3



用小刀将铜丝前端的绝缘漆刮掉，把6号板装入7号板，再将铜丝两边先绕紧铜圈，固定好，然后两条铜丝穿过7号板的孔，再把前端弯成挂钩，方便挂住羊眼钉的圈

Scrape off the insulation paint on the front end of the copper wire with a small knife, install the 6th board into the 7th board, then wrap the copper wire tightly on both sides and fix it in place. Then, pass the two copper wires through the holes of the 7th board, and bend the front end into a hook to facilitate hanging the circle of the sheep eye nail

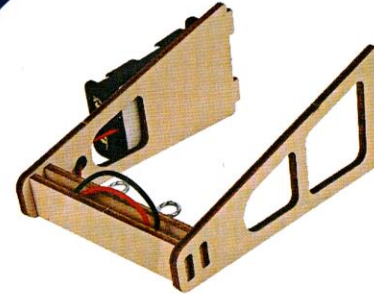
1



把电池座的电线穿过2跟5号板的孔红黑线先分别穿过5号板两个孔，再将羊眼钉对准细孔拧紧，电线绕紧羊眼钉上

Thread the wires of the battery holder through the holes of boards 2 and 5, with the red and black wires first passing through the two holes of board 5, and then align the nail with the small hole and tighten it. Wrap the wires tightly around the nail

2



组装千秋支架，先将4号板装入2号板的孔中，再用对准1号板的孔装入用泡沫胶把电池座沾到2号板上

Assemble the swing bracket, first insert the 4th board into the hole of the 2nd board, then align it with the hole of the 1st board and use foam adhesive to stick the battery holder onto the 2nd board

4



将千秋支架装入3号板，再将铜丝组件挂到羊眼钉圈，确保铜丝能够水平位置不要太高，如图所示的位置刚好再把两个磁铁放到铜丝下方，装入电池，轻轻推动秋千，观察现象

Install the swing bracket into board 3, then hang the copper wire component onto the sheep eye nail ring, ensuring that the copper wire can be horizontally positioned not too high, as shown in the figure. Place the two magnets under the copper wire, install the battery, gently push the swing, and observe the phenomenon