

Magnets

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磁鐵

If you've ever experimented with magnets, you're familiar with the concept that opposite poles attract while similar poles repel each other. Maglev, short for magnetic levitation, harnesses the forces of magnetism and electromagnetism to not only elevate the train but also propel it forward. Maglev trains exemplify how engineers apply scientific principles to create remarkable technological advancements. In addition to their speed, these trains offer a smoother, quieter ride and consume approximately 30% less energy compared to conventional trains.

Maglev Train

Following hands-on activities introducing students to magnets, they were tasked with applying their knowledge to create their own maglev train model. The project involved constructing both the train and the track, which, while not overly complex, demanded precise measurements and accurate magnet placement to achieve successful levitation. This endeavor offered students numerous chances to troubleshoot and analyze why some trains succeeded while others did not. Overall, it proved to be an excellent learning experience for budding engineers, teaching them problem-solving skills through the engineering design process.

磁鐵

如果你用過磁鐵，那你一定熟悉異極相吸同極相斥的原理。「磁浮」是磁懸浮的簡稱，利用磁力和電磁力不僅可以讓火車懸浮還能使它前進。磁浮列車展現了工程師們如何運用科學原理來創造顯著的技术進步。搭乘磁浮列車除了快速，同時也很平穩且安靜，比起傳統火車的能源消耗減少約 30%。

磁浮列車

在認識磁鐵的實作活動之後，學生的任務是運用學到的知識來做自己的磁浮列車模型。他們要製作火車及軌道，雖然不是很複雜，但需要精準的測量和正確擺放磁鐵的位置才能成功懸浮。過程中學生有機會排除故障，並分析為何有些成功有些卻失敗。這個專題讓初露頭角的工程師有很棒的學習經驗，從設計的過程中學到解決问题的技巧。

1

ASK + IMAGINE

提問 + 創思

2

Students participating in hand on activities to learn more about magnets.

學生參與實作活動來學習更多磁鐵相關知識。



3

PLAN

計畫

4

We designed a train and track according to precise measurements.

我們根據精確的測量來設計火車和軌道。



4

CREATE

創造

5

During this stage, the train and track were constructed with magnets placed strategically for testing.

在這個階段，火車和軌道中放了磁鐵來測試。



5

IMPROVE

改進

6

Success! It took a lot of patience testing and improving our designs.

成功了!這需要很有耐心的測試和改進我們的設計。

