

# Japan's Newest Hover Car!

## 1. Warm-up

Read the text and answer the questions.

Japan has introduced **magnetic levitation (maglev)** technology in personal vehicles, revolutionizing the automotive industry. This technology enables cars to float without friction by using **superconductors** and **quantum locking mechanisms**. These cars **hover** several centimeters above the ground and do not require engines or batteries after the initial creation of the **magnetic field**.

The **infrastructure** required for large-scale **implementation** remains a significant challenge, as current roads and highways are not designed to support the necessary magnetic fields. Additionally, the high initial cost and energy management issues such as **vortex damping** need to be addressed. Despite these obstacles, continued research and development could make this **innovative** technology **feasible** in the future, offering an environmentally friendly alternative to conventional vehicles.

1. Do you think maglev vehicles are feasible in the near future? Why or Why not?
2. What are some of the advantages of a maglev vehicle?

## 2. Reading

Read the article "From Sci-Fi to Reality: Japan's Magnetic Levitation Car Technology Set to Redefine the Automotive Industry".

<https://seasia.co/2024/08/14/from-sci-fi-to-reality-japans-magnetic-levitation-car-technology-set-to-redefine-the-automotive-industry>

## 3. Grammar

Match the modal verb with its meaning.

- |           |                                |
|-----------|--------------------------------|
| 1. Will   | a. Future prediction           |
| 2. Might  | b. Formal suggestion or offer  |
| 3. Could  | c. Future possibility          |
| 4. Should | d. Future obligation or advice |
| 5. Shall  | e. Future potential            |
| 6. Must   | f. expressing necessity        |



- 1 a
- 2 c
- 3 e
- 4 d
- 5 b
- 6 f

Complete with the correct modal verb.

1. I'm certain that magnetic levitation technology **will** transform the future of transportation.
2. These challenges **must** be fixed if this technology is to be implemented on a larger scale.
3. **Shall** we consider how Japan's innovation might influence global transportation standards at the next meeting?
4. The infrastructure **will** need to be upgraded to support magnetic levitation vehicles.
5. Our future children **might/ could** be driving levitating cars.
6. Do you think governments **should** upgrade roads to support the new magnetic fields required for levitating cars?

Choose the correct modal verb.

1. By the end of this decade, magnetic levitation cars \_\_\_\_\_ on our roads.
  - will have been hovering
  - will have hovering
  - **could be hovering**
  - could have hovering
2. I am afraid I have to skip the meeting tomorrow. I \_\_\_\_\_ at the research lab the whole day.
  - will have been working
  - **will be working**
  - might be worked
  - might be working

## 4. Vocabulary

Complete with correct words from the word bank.

*WORD BANK: magnetic levitation, superconductors, feasibility, hover, magnetic field, infrastructure, implementation, vortex damping, innovative, feasible.*

Imagine a city where traffic flows smoothly and emissions are greatly reduced. With **magnetic levitation** technology, this vision is **feasible**. Using

advanced **superconductors**, we can create vehicles that **hover** above the ground, reducing friction and reliance on conventional fuel. Upgrading our **infrastructure** to support the necessary **magnetic fields** will lead to quieter streets, cleaner air, and faster commutes. This **innovative** approach not only benefits the environment but also offers economic advantages through lower maintenance costs and improved vehicle efficiency.

There are challenges, such as managing **vortex damping** and adapting current roads, but Japan's progress in **maglev** technology provides a promising path forward. The **feasibility** of this technology has been demonstrated, and while the initial costs of **implementation** might be high, the long-term gains of a frictionless, emission-free transport system far outweigh these investments. Embracing this technology will elevate our city's status and enhance residents' quality of life. Let's take this bold step toward a sustainable future.

## 4. Pronunciation

Practice pronunciation using the dialogue.

*Scientist:* Imagine a city where cars **hover** above the ground, eliminating friction and reducing emissions. With **magnetic levitation** technology, this vision is not only **innovative** but also **feasible**. By using **superconductors** and **quantum locking mechanisms**, we can create a stable **magnetic field** that allows vehicles to float without the need for conventional fuel.

*Politician:* While the idea sounds promising, the **feasibility** of such a project is questionable. Our current **infrastructure** is not designed to support the **magnetic fields** required for maglev vehicles. The cost of **implementation** would be astronomical, and we have other pressing priorities.

*Scientist:* I understand your concerns, but consider the long-term benefits. Upgrading our **infrastructure** to support maglev technology will lead to quieter streets, cleaner air, and reduced maintenance costs. The initial investment might be high, but the efficiency gains and environmental benefits will far outweigh these costs.

*Politician:* Even if we address these challenges, there are technical issues like **vortex damping** that need to be resolved. Plus, the public might be skeptical about such a drastic change in transportation.

*Scientist:* Japan's advancements in **maglev** technology have shown that these challenges can be overcome. By investing in **innovative** solutions and conducting thorough research, we can make this technology **feasible**. It's a bold step, but one that will position our city as a leader in sustainable transportation.

*Politician:* I appreciate your enthusiasm, but we need to ensure that this project is both **feasible** and practical. We must carefully weigh the costs and benefits before committing to such a significant change.

*Scientist:* Absolutely, and that's why we need to start the conversation now. By exploring the potential of **magnetic levitation** technology, we can



pave the way for a brighter, cleaner future. Let's take this opportunity to lead the way in innovation and sustainability.

## 5. Practice

Write your response or discuss.

**1. What are the potential environmental and economic impacts of implementing magnetic levitation car technology on a large scale?**

Consider both the short-term challenges and long-term benefits mentioned in the article. How might these impacts influence public acceptance and government policy?

**2. What are the key technological and infrastructural challenges that need to be overcome for magnetic levitation cars to become a mainstream mode of transportation?** Discuss the feasibility of addressing issues such as vortex damping, adapting current roads, and the high initial cost of implementation. How do these challenges compare to those faced by previous technological advancements in the automotive industry?

**3. How might the adoption of magnetic levitation car technology transform urban planning and city development?** Explore the implications for existing infrastructure, the design of future cities, and the potential changes in commuting patterns. What role could government and private sectors play in facilitating this transformation?

## 6. Review

### Modal Future Tense Review

**Modal Future Tense:** The modal future tense is used to express actions, events, or situations that will happen in the future. Modal verbs such as **will**, **might**, **could**, **should**, and **shall** are commonly used to convey different shades of future possibilities, predictions, obligations, and intentions. For example:

- **Will:** Indicates a definite action or prediction. (e.g., "Levitating cars will become commonplace.")
- **Might/Could:** Expresses possibility or potential. (e.g., "Levitating cars might face challenges.")
- **Should:** Suggests obligation or advice. (e.g., "We should invest in sustainable transportation.")
- **Shall:** Used in formal suggestions or offers. (e.g., "Shall we explore this new technology?")

### Vocabulary Review

- **Magnetic Levitation (Maglev):** A technology using magnetic fields to lift and propel objects without direct contact with the ground, reducing friction.



- **Superconductors:** Materials that can conduct electricity with zero resistance, making them essential for efficient magnetic levitation.
- **Quantum Locking Mechanisms:** A phenomenon where an object is trapped in a magnetic field, allowing it to remain stable and levitate.
- **Hover:** The action of floating or remaining suspended in the air without physical support.
- **Magnetic Field:** A field produced by magnets or electric currents that exert a force on other magnets and objects with magnetic properties.
- **Infrastructure:** The basic physical systems and structures needed for the operation of a society or enterprise, such as roads, bridges, and power supplies.
- **Implementation:** The process of putting a decision or plan into effect; executing a strategy or project.
- **Vortex Damping:** The loss of energy due to external forces, which can be a challenge in maintaining stability in magnetic levitation systems.
- **Innovative:** Introducing new ideas, methods, or products; creative and forward-thinking.
- **Feasible:** Possible and practical to achieve; capable of being successfully carried out.