

Post-Assessment

Maglev trains

Phenomenon: “Maglev” (magnetic levitation) trains use magnets to move. Magnets are placed on the bottom of the train and on the track. The magnetic fields allow the train to move without friction.



Figure 1: Maglev train diagram

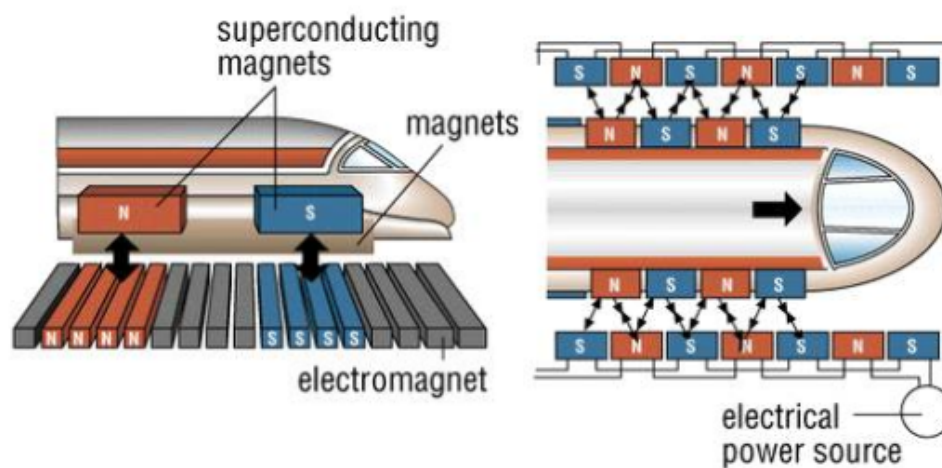
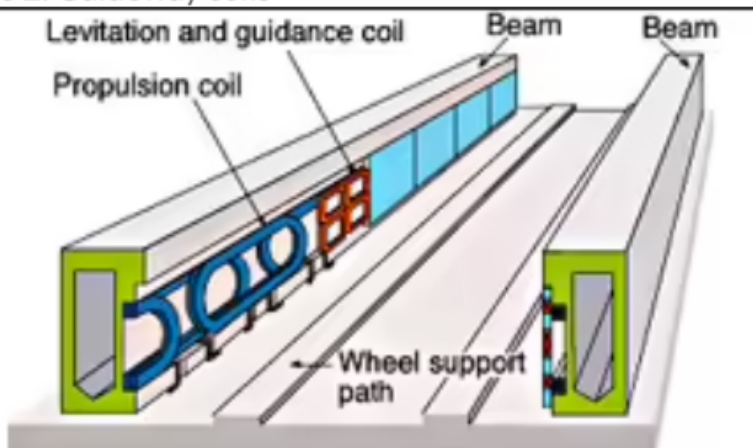


Figure 2: Guideway coils



There is a magnetized coil running along the track, called a **guideway**, which repels the large magnets on the train's undercarriage, allowing the train to **levitate** between 0.39 and 3.93 inches (1 to 10 centimeters) above the guideway. Once the train is levitated, power is supplied to the coils within the guideway walls to create a unique system of magnetic fields that pull and push the train along the guideway.

Your Task: Use the information about Maglev trains to answer the questions.

Quentin is an engineer for a maglev train company. He was given the task of improving the movement and increasing the speed of the trains. Which of the following idea(s) would help do this?

Choose **ALL** the following that would help the train move better and become faster.

- Making the power source less strong (less cells)
- Making sure that the beams used (see image 2) are pure iron
- Add more coils to the guideway
- Making sure that the beams used (see image 2) are pure granite
- Decrease the number of coils in the guideway
- Using a stronger power source (more cells)