



## APPEARANCE CATEGORIES

The steps in this Design Portfolio will help you complete your MAGLEV vehicle design.

Writing down what you did or what you discovered in each step will help you learn from your work. It will also help the contest judges understand your design approach.

On the day of the contest, you must hand your **completed** Design Portfolio to the judge. Your Portfolio will become the property of BNL.

**1) Student Name:** \_\_\_\_\_

**2) School Name:** \_\_\_\_\_

**3) School address:** \_\_\_\_\_

\_\_\_\_\_

**4) Grade:** \_\_\_\_\_

**5) Teacher name:** \_\_\_\_\_

**6) Teacher e-mail address:** \_\_\_\_\_

**7) Contest Category:**

Scale

Futuristic

**8) Why did you choose this MagLev category?**

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**9) Problem Statement: The MagLev Challenge**

Construct a model which clearly shows a design concept for a MAGLEV vehicle. It **must** levitate and travel down a standard track which slopes downward with a vertical drop of 2 feet over its 16 foot length. It does not have to be self-propelled or carry pennies, and there are no length or height restrictions.

## 10) Investigation

a) What information do you need to know before you start?

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b) List questions which must be answered to create a successful vehicle.

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c) Can some answers be found by simple tests? Give examples.

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## 11) Brainstorming for Solutions

Write about the different designs you thought of using. For example, what materials it could be made from, the number of magnets, length, height, how to attach parts, etc. (Sketch your ideas on a separate piece of paper, and attach it to this Design Portfolio).

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## 12) Optimum Design:

Describe what you decided would be the best vehicle design, and describe the reasons for deciding on this design instead of the others you had thought of.

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**13) Design Changes:**

a) As the construction of your model progressed, describe any design changes you made and why you made them.

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b) Describe any unique techniques you developed or used to obtain the desired features or finish on your model.

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**14) Evaluation:**

a) Describe/sketch your final design. (If necessary attach sketch to Design Portfolio).

b) Where did you get your design inspiration?

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\* Please include your name on every page you attach to this Portfolio and make sure your name is on your vehicle!