

Name: _____



DESIGN PORTFOLIO: 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.

You must submit this **completed** portfolio with your vehicle to be considered for judging in the contest. Your Portfolio will become the property of BNL upon submission.

****Your name must be on your vehicle and on every page of this portfolio.****

1) **Student Name:** _____

2) **School Name:** _____

3) **School address:** _____

4) **Grade:** _____

5) **Teacher name:** _____

6) **Teacher e-mail address:** _____

7) **Contest Category:** (circle one)

Scale Model

Futuristic

3D Printed

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?

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

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

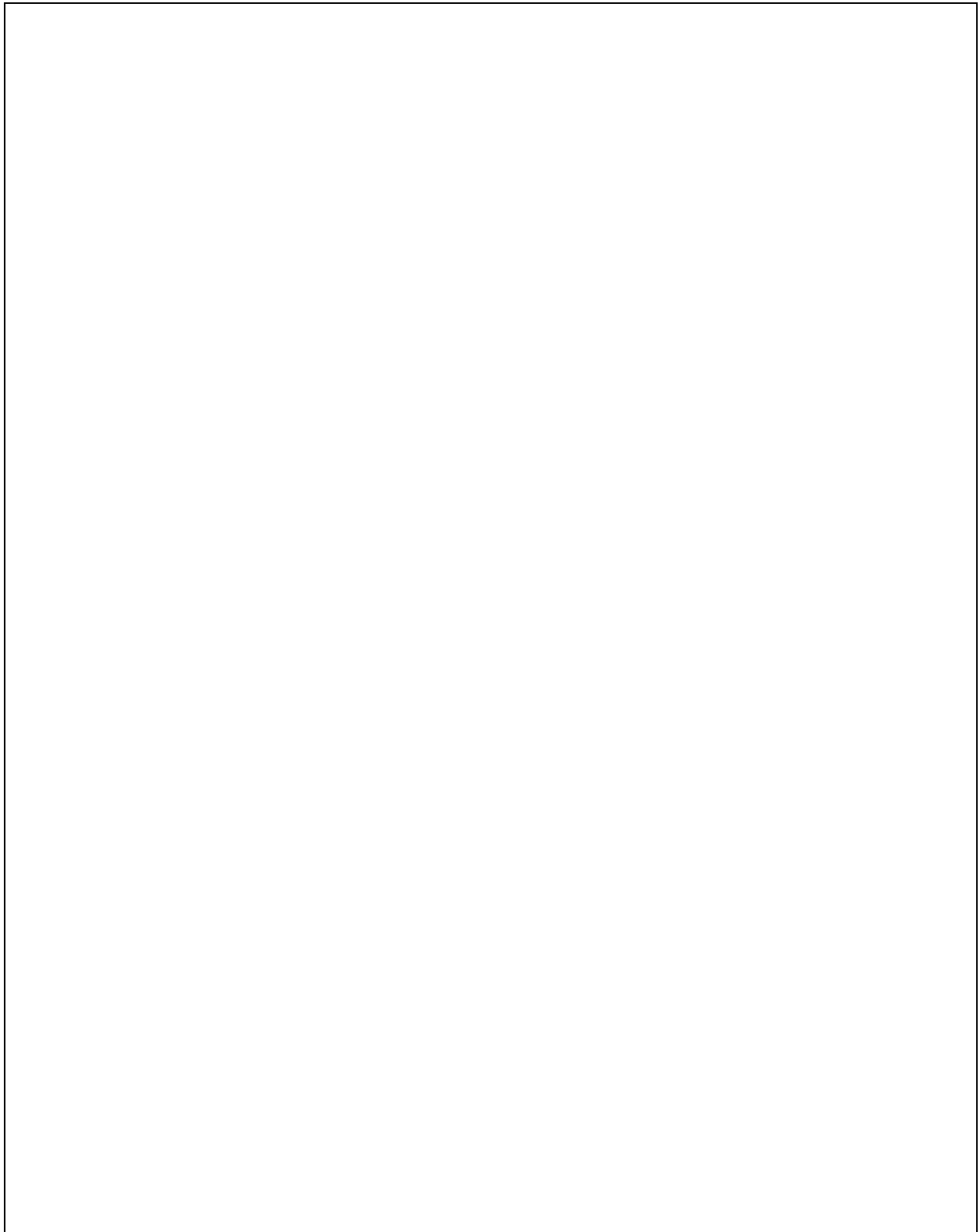
11) Brainstorming for Solutions

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.

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12) Initial Design Sketch:

Draw your ideas for the vehicle you plan to build in the space below.

A large, empty rectangular box with a thin black border, intended for a student to draw their initial design sketch of a vehicle. The box occupies most of the page below the instructions.

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13) 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.

14) Design Changes:

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

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

15) Evaluation:

a) Where did you get your design inspiration?

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15) Evaluation (continued):

b) Describe/sketch your final design in the space below.

A large, empty rectangular box with a thin black border, intended for a student to draw or sketch their final design. The box occupies most of the lower half of the page.