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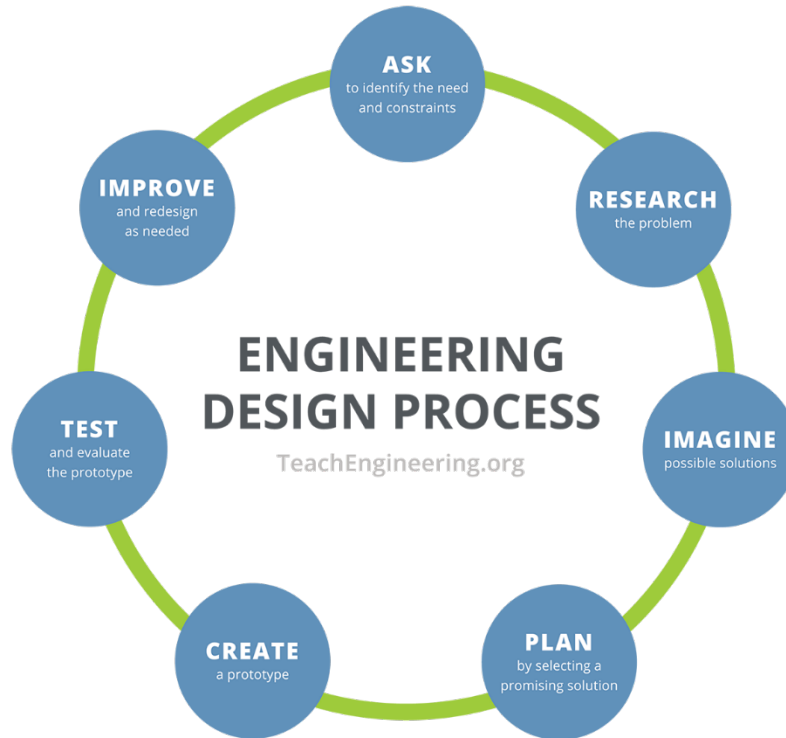
Date:

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Maglev Trains Engineering Design Worksheet

Introduction

Objective: You will use the engineering design process to design and build a maglev train prototype.



Ask

Your challenge (what you are asked to do): Each group will make a “train” car levitate above a magnet strip “track” so that it can freely move back and forth above the track. You will try to hold the most weight on your train prototype.

What are the constraints of the challenge?

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Research

Phenomenon: As you watch the video about the fastest train ever built, write down your observations. Include three questions you have from watching the video.

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Imagine

What are some solutions to this challenge? Make sure to consider the following:

- Where will you put your magnets on the track?
- Where will you place your magnets on your prototype?
- How will you arrange the poles of your magnets?

Brainstorm ideas with your group and sketch those ideas below. Remember, all ideas are good at this stage!

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Plan

As a group, pick one design you will create. Draw your maglev train prototype below, making sure to label the parts of your maglev system and indicate which materials will be used.

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Create and Test

Follow your plan and build your maglev train prototype. Then answer the questions below:

1. What worked well with your maglev train prototype?
2. What did not work well with your maglev train prototype?
3. How much weight did your maglev train prototype hold and successfully move?
4. What would you like to improve on your maglev train prototype?

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Conclusion

Answer the following question:

What factors affect the strength of the electric and magnetic forces?