

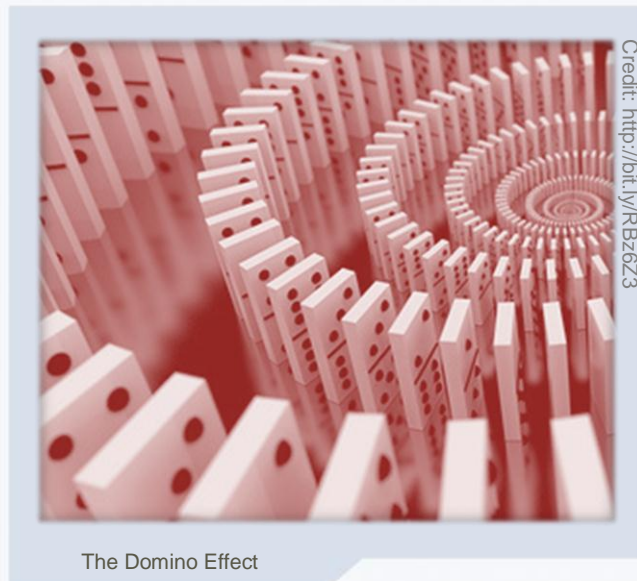


INTRODUCTION

“The Domino Effect” is a phrase we use to describe a chain of events that, once started, cannot be stopped. Most often, these chain reactions must be carefully constructed so that the energy from one step in the chain is transferred to the next step, continuing on and on until the reaction is complete.

Constructing complicated chain reactions has become something of a hobby for many people throughout the world. These chain reactions are collectively known as “Rube Goldberg Machines” for reasons we will see through this project.

As you work through this project, reflect on the energy transfers that surround us in everyday life. In particular, how the technology we use relies on the transfer of energy from one form to another.



Project Description

For this project, you will build a Rube Goldberg Machine out of everyday items found around the house. The machine that you build must:

- **Take at least 20 seconds from start to finish**
- **Include at least five energy transfers**
- **End with a balloon being popped**

The final project will include:

- **A live demonstration or pre-recorded video of your Rube Goldberg Machine in action**
- **A written description of each of the five energy transfers that are found in your Rube Goldberg Machine**
- **Written answers to the four essential questions below**

Noob to Rube

MODULAR



ESSENTIAL QUESTIONS

To successfully complete this project, you will need to be able to answer the following questions:

EQ 1: What is a Rube Goldberg Machine?

- Examine this site to learn about Rube Goldberg and his cartoons. (<http://bit.ly/NTS8e>)
- Watch this music video from OK Go based on a Rube Goldberg Machine (<http://bit.ly/bHEoaY>)
- Explore videos from the Discovery Chanel show, Unchained Reaction. (<http://bit.ly/z4mYbD>)

EQ 2: What are the different forms in which energy can be found?

- Review the introduction and first chapter of this site on energy. (<http://1.usa.gov/8V2dad>)
- Watch and learn how energy can be grown out of the ground. (<http://to.pbs.org/RBESStN>)
- Explore this interactive to learn more about different types of energy. (<http://bit.ly/Tv2xLU>)

EQ 3: How can energy be transferred from one form to another?

- See how energy is transferred in this medieval weapon. (<http://to.pbs.org/VaVVJz>)
- Experiment with this skateboarder as energy is continuously transferred. (<http://bit.ly/y7IUcB>)
- Explore three ways that heat energy is usually transferred. (<http://bit.ly/RGjt5Y>)

EQ 4: How does one construct a Rube Goldberg Machine?

- Read through these tips on making your own Rube Goldberg Machine. (<http://bit.ly/RGkCdH>)
- Watch this video for some practical construction tips and tricks. (<http://bit.ly/VaYMSU>)
- For inspiration, check out this incredible car commercial. (<http://bit.ly/WohjdJ>)

GOING FURTHER

You may choose to explore some of these resources to gain a deeper understanding of the topic.

- Check out these top 10 examples of Rube Goldberg Machines (<http://bit.ly/R9YuWS>)
- Consider entering your machine in one of the national contests. (<http://bit.ly/S3Vw7H>)
- Experiment with making a Rube Goldberg Machine online. (<http://to.pbs.org/6Knmdo>)
- Play this addicting game of chain reaction. (<http://bit.ly/ORYQv>)