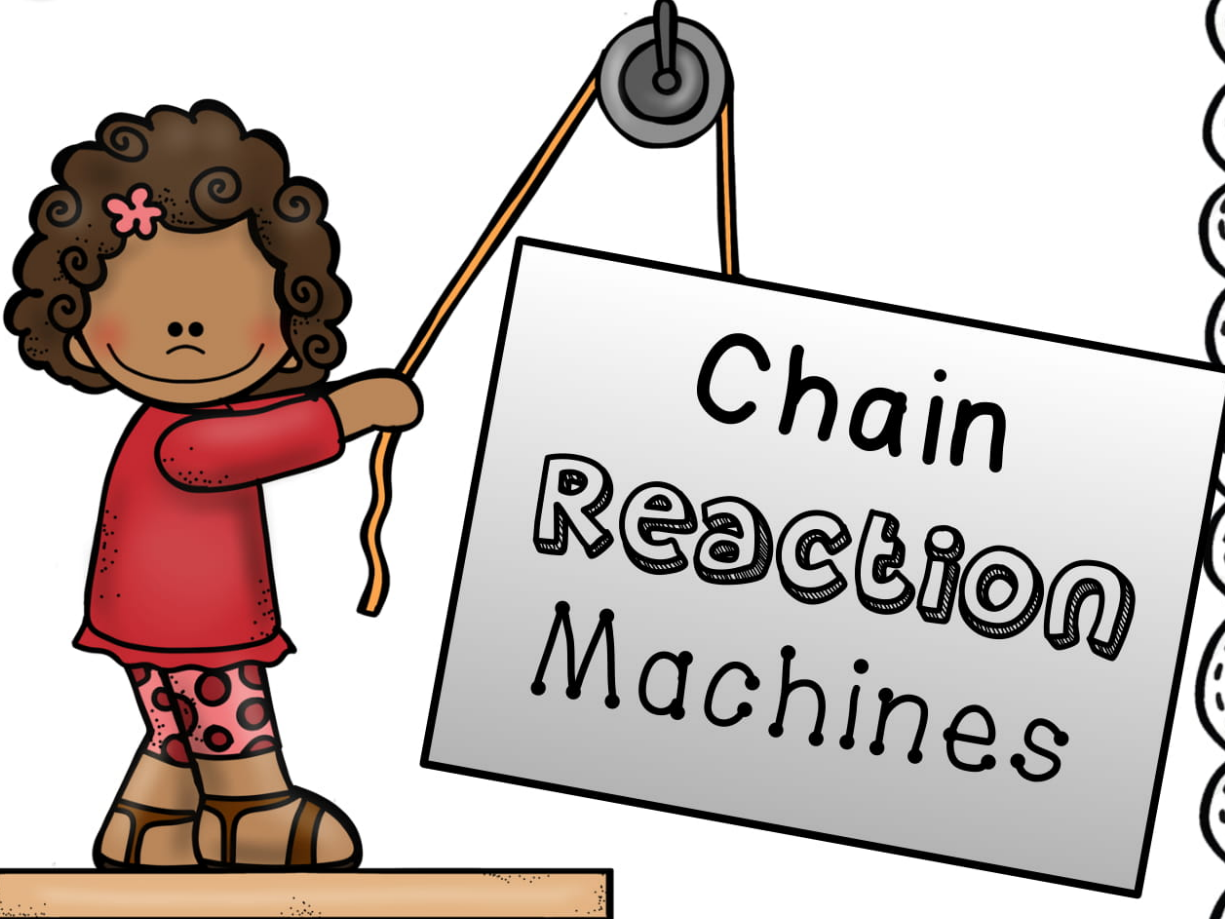




PBL STEM  
PROJECT



Chain  
Reaction  
Machines

# Rube Goldberg

Rube Goldberg was a cartoonist, a sculptor, author, an engineer and an inventor but he is most famous for his cartoon drawings of crazy machines used to complete simple everyday tasks such as, setting an alarm clock or ringing a bell.

Rube Goldberg's cartoon images of machines were filled with all sorts of objects such as, pulleys, ramps, strings, balloons, even birds! In later years, these cartoons became an inspiration to people who actually started to build these crazy contraptions!

Let's take a look at one of Rube Goldberg's most famous machines: The Self Operating Napkin. Scan the QR code to watch the video. Pause the video and answer the questions below.



Q1) Analyze the cartoon. What task is eventually completed?

Q2) What is the initial action that begins the sequence?

Q3) How many steps can you identify in the machine's mechanics?

Q4) What is the difference between energy transfer and energy transformation?

Score: /4







# Rube Goldberg Project

Can you build your own Rube Goldberg machine?

Team Members;

What simple task will your machine perform in a complicated way?

E.g Ring a bell, pop a balloon,

Examine the materials supplied. What materials will you use to build your Rube Goldberg machine? What could you bring from home?

# Rubric

How will you be assessed on this task?

	<b>4 EXCELLENT</b>	<b>3 GOOD</b>	<b>2 SATISFACTORY</b>	<b>1 NEEDS IMPROVEMENT</b>
<b>Energy Transfers/ Transformations</b>	Includes 5 or more examples	Includes 4 examples	Includes 3 examples	Includes 2 examples or less
<b>Steps</b>	Includes <5 steps.	Includes 5 steps	Includes 3 steps	Includes < 2 steps.
<b>Team Work</b>	The student WAS ABLE to work with the group and contribute equally.	The student WAS SOMETIMES ABLE to work with the group and contribute.	The student WAS RARELY ABLE to work with the group and contribute.	The student WAS NOT ABLE to work with the group and teacher intervention was required to remain on task
<b>Creativity</b>	Rube Goldberg Master! A novel and amusing ideal	A Rube Goldberg Apprecial Interesting, but no "wows!"	A straightforward implementation	A straightforward implementation
<b>Blueprint/ Diagram</b>	Picture and written explanation are well written, amusing and follows Rube Goldberg's format.	Picture and some written explanation of the machine.	Sketch and minimal explanation of the machine.	Missing written explanation and/or picture.
<b>Presentation /Audience</b>	Presentation was outstanding with clear explanations of the energy transfers/transformations to	Presentation was great with some explanations of the energy	Presentation was good but little explanations of the energy	Presentation was unprepared and had no explanations of the energy





# Rube Goldberg Project

Draw a blueprint of your design here.

# Rube Goldberg Project

Step	Explanation of Transfer or Transformation
1 - 2	



# Reflection

Date \_\_\_\_\_

Let's reflect on the group project. Think back to the beginning and reflect on the entire project.



What do you feel you have learned from completing this project?

How did your group perform? How could you improve next time?

What was your favorite part of this project?

Teacher's Comments: