**The World Runs Better on a Mousetrap!**

1. Pulled string
2. Mousetrap fires
3. Circuit connects(remote control for rat)
4. **Rat runs across platform**
5. Rat pulls string
6. Mousetrap fires
7. Lever pushed up and then falls down
8. **iPod plays music – Another One Bits the Dust1**
9. Battery falls
10. Mousetrap fires
11. **Ball floats from the bottom of the peg board to the top (weight pulls lever with a magnet on it) – Most Challenging Step!**
12. Ball rolls down wood ramp
13. Ball rolls down metal ramp
14. Ball hits lever
15. Mousetrap fires
16. Mousetrap pulls stop
17. Golf ball drops
18. **Golf ball hits pop-up toy – Borrowed from my daughter (Thanks, Noelle!)**
19. Pop-up toy raises lever
20. Lever tilts ramp
21. Bean bag falls
22. Blower toy stars
23. Balls blow up tube and roll down ramp
24. Balls hit mousetrap
25. Mousetrap fires
26. Mousetrap pulls string
27. **Car moves across ramp – Cars run better on Mouse Traps!**
28. Car hits mousetrap
29. Mousetrap fires
30. String pulled
31. Wedge removed
32. Ball rolls down ramp
33. Ball falls in car
34. Circuit connected
35. Car moves forward
36. Car hits battery
37. **Car moves backward – Chain Reaction Challenge #1, 2008 Tribute Step, Back to the Future Theme!**
38. Car hits ramp
39. Mousetrap fires
40. String pulled
41. Gun toy fires
42. Dart hits target
43. Target twist
44. Lever hits cylinders
45. **Cylinders roll up hill – Reversed Physics!**
46. Cylinders hit lever
47. Lever pulls string
48. Cup tilts
49. Ball comes out
50. Ball rolls down ramp
51. Ball hits poll
52. Poll moves up
53. Ramp tilts
54. Ball rolls down ramp
55. Ball hits lever
56. Lever tilts
57. Lever sends man flying
58. Man lands in cup
59. Ramp tilts
60. Cage comes down
61. Mousetrap fires
62. String pulled
63. Clamp opened
64. Credit card slides down ramp
65. Mouse trap fires
66. **Credit card destroyed!**
67. Pulls string
68. Gears moved
69. Marble released
70. Marble rolls down ramp
71. Marble hits rat trap
72. Rat trap fires
73. **Hand sanitizer dispensed – National Competition Challenge**
74. String pulled
75. Plug removed
76. Sand falls
77. **Sand hits pad wheel**
78. Pad wheel rotates
79. String moves
80. **Purdue Pete moves up – Boiler Up!**
81. Purdue Pete hits lever
82. Circuit connected
83. Motor rotates
84. Wheel rotates
85. Wheel pulls string
86. **Mouse flies up and down – Mighty Mouse!**
87. Mouse hits trigger
88. Mouse trap fires
89. Mouse trap hits rod
90. Rod turns dispenser
91. **Gumball is dispensed – Rube’s Gumball Machine!**
92. Gumball rolls down foam ramp
93. Gumball rolls down red ramp
94. Gumball hits bells
95. Gumball hits mouse trap
96. Mouse trap fires
97. Pulls string
98. Pulls switch
99. Circuit connected
100. Motor turns
101. **Lever turns – Spinning Squares – Tribute to Chain Reaction Challenge #2, 2010, Around the Square Theme**
102. Lever hits Arm-a-Tron Lever
103. Arm-a-Tron arm moves down
104. Drops golfball
105. **Golf ball hits launcher**
106. Mouse trap fires
107. Golf ball flies through air
108. Golf ball hits blocks
109. **Rube-ix Cube falls – Go Team Rube-ix Cube!**
110. String pulled
111. Plastic piece pulled
112. Connects circuit
113. Fan starts
114. **Fan blows pin wheel – Very Colorful (My 1 year old daughter’s favorite step!)**
115. Pin wheel pivots forward
116. Lever moves
117. Lever #2 drops
118. 4 mouse traps fire
119. **4 USA flags display**
120. Lever hits mousetrap
121. Mouse trap fires
122. Pulls string
123. **World spins – “The World Runs Better on a Mouse Trap!”**
124. Pulls string
125. Mouse trap fires
126. Mouse trap pulls open another mouse trap
127. Bean bag falls
128. Bean bag hits Easy Button
129. **Easy Button says, “That was easy!”**
130. String #2 pulled
131. Wedge released
132. Golf ball rolls down ramp
133. Golf ball falls in cup
134. Cup pushes remote lever down
135. **Car runs off platform**
136. Car pulls string
137. Wheel rotates
138. Wheel pulls string
139. Mouse trap fires
140. Lever swings up and connects flashlight circuit
141. **Flashlight shines**
142. Car pulls string
143. **Scissor contraption extends up with team flags**
144. Pulls string!

**Biggest Problem Overcome:**

 This year the toughest step was the floating ball step. The design that is working today is the 15th design that was tried. The main obstacle with this step was to slow the mouse trap activation down. Because the mouse trap has a lot of force it caused the ball to drop because the lever would move too fast. Friction was a major part of the design and troubleshooting. To make the ball slide across the wall, the wall had to be very slick on both sides. To address this issue, we put shinny labels on all the surfaces that would rub together. It took at least 10 man hours to get this 1 second step to work. But, it is sure worth it!

**Thank You!**

 We love participating in this event every year! Thank you for giving us the chance to ‘infect young Rube Goldbergs with the science bug’. We hope this machine can be an inspiration to others. We hope it encourages them to go discover science with their own hands. To further promote this, we’ve added a variety of promotions to our display…

* ‘Link Cards’ – cards of popular links for the kids to take home
* How To: - A guide on how to build a Chain Reaction Challenge Link
* Quiz – Quizzes for youngsters to fill out for a prize!
* Gumballs – a chance to interact with the machine… by eating one of the steps!
* National Rube Goldberg Challenge Link – We’ve accepted this year’s challenge to dispense hand sanitizer
* Stickers! – Everyone is a wiener… or I mean, winner! - Oscar Mayer stickers
* YouTube/ Facebook – We’ve posted videos of our link for all to see!
* Tribute Steps – RE-USED steps as a tribute to past Chain Reaction Challenges