

# Building a Better Mouse Trap



This science activity challenge tries to answer the age-old question, "Can you build a better mouse trap?" Unfortunately, almost all the products on the market, today, only work on one mouse at a time. There is no product that can be placed out and used to collect several mice at one time. Further, there is no product available, which allows you to "safely" gather those mice together, at one time, and relocate them to a new habitat.



## Task - Develop a mouse trap that meets the following criteria:

- 1.) A two room box
  - The first room (or Entry Room) is where the mouse enters the trap and an Escape Door is ready to swing shut preventing the mouse from leaving the trap.
  - The second room (or Holding Room) is where the mouse is directed, to wait with the other mice collected, for relocation.
  
- 2.) In order to prevent injury to the mouse when closing the Escape Door in the Entry Room, use sensors to assure the mouse is moving into the Room and has cleared the Escape Door prior to closing it. Possible sensor or combination of sensors needed:
  - Light Sensor - used to detect something crossing the threshold of the Entry Room doorway.
  
  - Sound Sensor - used to detect the mouse moving along the Entry Room to the bait ("cheese").
  
  - Touch Sensor - used to detect the mouse is standing near the cheese and away from the Entry Room Escape Door. The sensor triggers the Escape Door to close and trap the mouse in the Entry Room. The Floor Panel below the mouse should be attached to the Touch Sensor to trigger the closing of the Escape Door when the weight of the mouse gets on top of the floor panel.
  
- 3.) Have some mechanism that forces the mouse to move from the Entry Room into the Holding Room. However, this mechanism must not let the other mice come running out into the Entry Room or for any of them to escape the trap.

- 4.) Have the Lego NXT Brick keep a count of the number of mice collected and display an audible warning when the Holding Room has gathered more than 5 mice (or some reasonable number given the space within the Holding Room) that need relocation.
  
- 5.) Reset the Escape Door, sensors and bait in order to capture the next mouse.

