

# Relay Race - RCX

***Suggested Time***

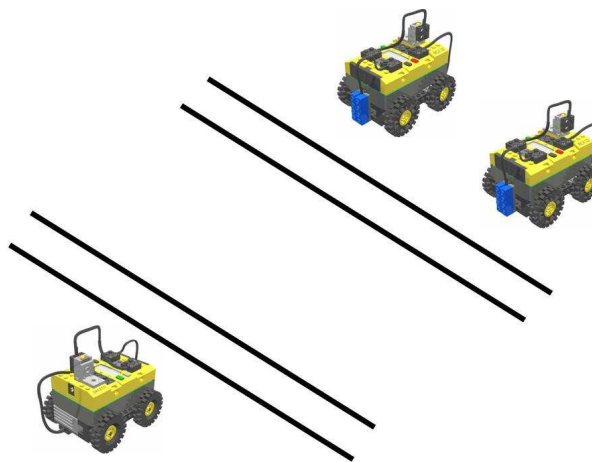
60 minutes

***Age***

11 - 14

***Challenge***

In this activity, design and construct three RCX cars and program them to run a relay race. Each car is programmed to start the next car on its team by using the Mail function in ROBOLAB.



***Topics***

Light Sensors and Communication

***Subjects***

Math, Engineering, and Technology

***Programming Themes***

Motor Forward, Wait For Light/Dark, Send/Receive Mail, Wait For Time

***Related Math & Science Concepts***

- Wheels and Axles

***Materials***

- 3 RCX Cars
- 3 Light Sensors
- Tape

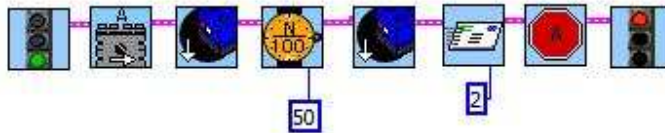
**Building Instructions**

1. Build 3 RCX cars equipped with light sensors.

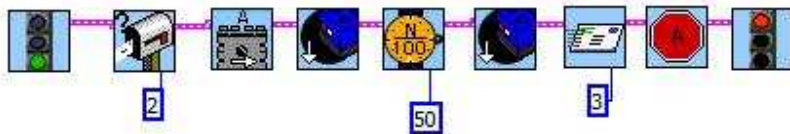


**Programming Instructions**

1. In ROBO LAB Inventor 4, program car 1 to drive to the second line it passes, send mail to car 2, and stop.



2. Car 2 is programmed to receive mail and then drive to starting line A, send mail to car 3, and stop.



3. Car 3 is programmed to receive mail and then drive straight to the finish line (which is also starting line B).



**In Action**

Three cars should complete a relay race in which each car is dependent upon the previous car to complete its task.

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***Related Activities***

- Sturdy Car: The Drop Test
  - Line Follower
  - Light at the Beginning of the Tunnel
  - Light Inside the Tunnel
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***Building and  
Programming  
References***

- Building With Bricks
  - Building With Plates
  - Building With Beams
  - Axle Uses
  - Connector Pegs and Bushings
  - Hubs and Tires
  - The RCX
  - RCX Motors and Wires
  - RCX Light Sensor
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***Knowledge Base***

- My car drives, but not straight.
  - My cars falls or tips backward when I drive.
  - My car is driving backwards.
  - My wheels spin but the car does not move.
  - My car spins in place – why won't it move?
  - My motors/wheels fall off when I drive my car.
  - Can you create a program that can send large values in the mail?
  - How do I use the mail command?
  - Is it possible to load programs on 2 different RCXs from the same VI?
  - Why is the light in my light sensor off?
  - What is the difference between wait for light and wait for brighter?
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