Relay Race - RCX

Suggested Time

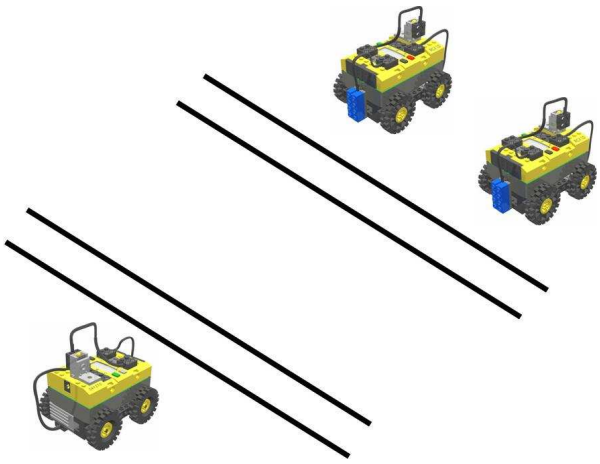
60 minutes

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

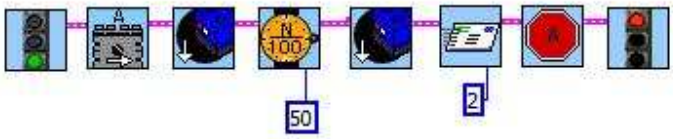
- 3 RCX Cars
- 3 Light Sensors
- Tape

Building Instructions

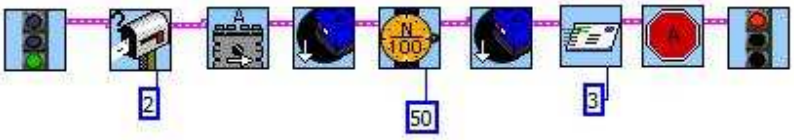
1. Build 3 RCX cars equipped with light sensors.

Programming Instructions

1. In ROBOLAB 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.

Related Activities

- Sturdy Car: The Drop Test
- Line Follower
- Light at the Beginning of the Tunnel
- Light Inside the Tunnel

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

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?