

# Thrill Ride

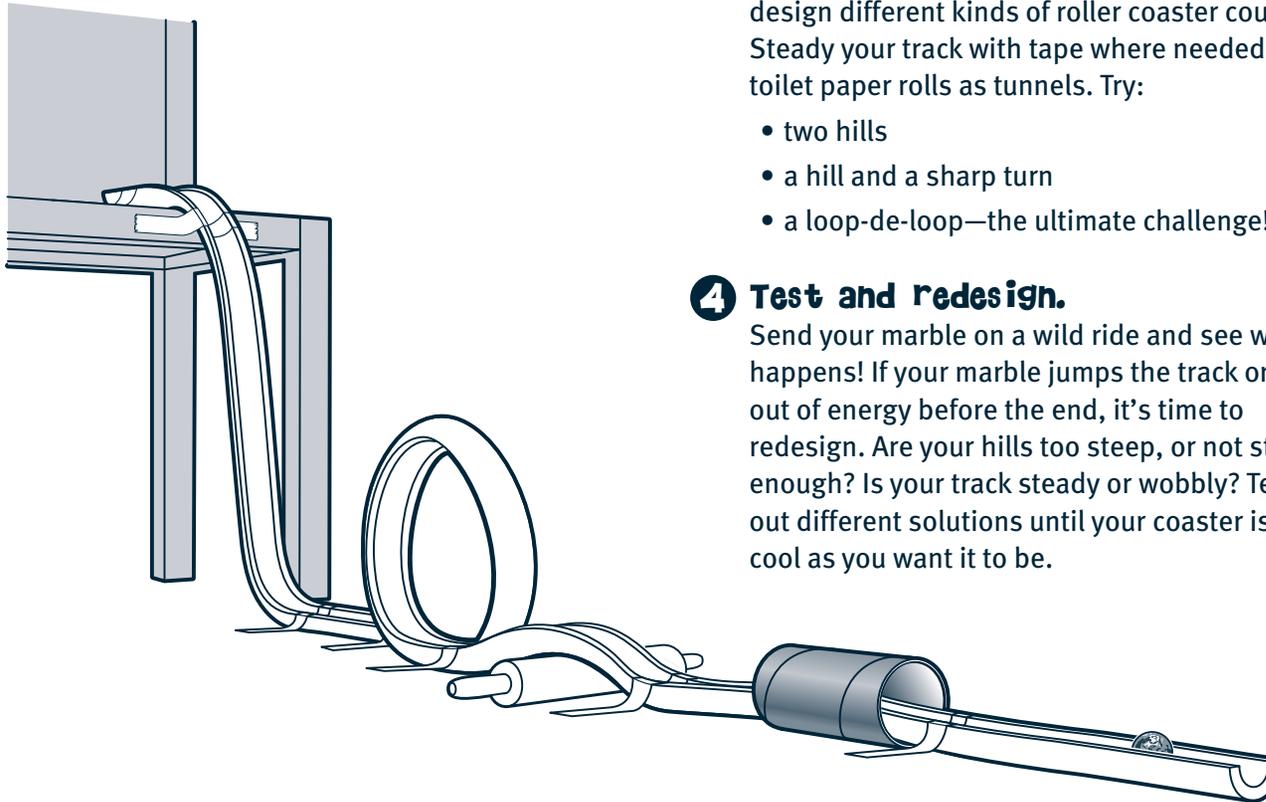
Education  
IOWA PBS

Fetch!  
with Ruff  
Ruffman™

Design a crazy roller coaster ride for a marble—but make sure it doesn't fly off the track!

## 1 Get what You need.

- marbles
- 6' foam pipe insulation tubing,  $\frac{3}{4}$ " or 1" in diameter, cut in half lengthwise (2 halves per kid)
- masking tape
- scissors
- various props: boxes, books, chairs, buckets, cups
- optional: toilet paper tubes



## 2 Make tracks.

Start your track at the top of a high place: tape one end of the tubing to the top of a ledge, table, or other high spot.

## 3 Challenge Yourself.

Use props (like chairs, books, and boxes) to design different kinds of roller coaster courses. Steady your track with tape where needed. Use toilet paper rolls as tunnels. Try:

- two hills
- a hill and a sharp turn
- a loop-de-loop—the ultimate challenge!

## 4 Test and redesign.

Send your marble on a wild ride and see what happens! If your marble jumps the track or runs out of energy before the end, it's time to redesign. Are your hills too steep, or not steep enough? Is your track steady or wobbly? Test out different solutions until your coaster is as cool as you want it to be.

### Chew on This!

Did you notice that your starting point had to be the highest point on the course? The higher the starting point, the more *potential energy* your marble has stored up to use later. When the marble started rolling downward, its *potential energy* began to change into *kinetic energy* (the energy of motion). If it has enough energy, your marble will make it up the next hill or even around the loop-de-loop!



# Dig Deeper

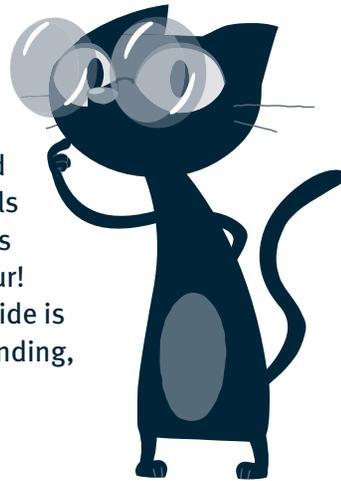
**Freestyle.** Find a partner and combine your tracks to double the fun. How many turns, loops, and hills can you have and still make sure the marble reaches the end of the course?

**Ski Jump.** Construct a ski jump with the roller coaster track and some props, and watch your marble take flight! How far can it go?

**WHOAHler coaster!** Build an online roller coaster and give Ruff the ride of his life! Play the FETCH! game at [pbskidsgo.org/fetch/games/coaster/index.html](http://pbskidsgo.org/fetch/games/coaster/index.html)

## Did You Know?

The tallest, fastest roller coaster in the world is in New Jersey. Called Kingda Ka®, it propels you an astounding 45 stories high and sends you zooming at a speed of 128 miles per hour! But before you know it, the world's wildest ride is over—it lasts just a bone-rattling, heart-pounding, stomach-churning 59 seconds.



Watch FETCH! on PBS KIDS GO! (check local listings) and visit the FETCH! Web site at [pbskidsgo.org/fetch](http://pbskidsgo.org/fetch).



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Fold

Fetch!

# Thrill Ride

Chet's birthday is coming up, and I want to throw him a party. He never did learn what the words "work" and "on time" mean, but he sure understands the word "PARTY!!" Help me build a pint-size roller coaster to give the little guy a big thrill.

GOOO  
FETCH!

