

Paper Roller Coaster Task

Paper Engineering



1. Go to PaperRollerCoasters.com and look through the gallery and videos to get a better idea of how these roller coasters work.

2. Look through the [Paper Roller Coaster Manual](#) to see how the building works.

3. Complete the GREAT ROLLER COASTER CHALLENGE

BUILDING TIPS:

- *Decide on what your frame will look like first and build that first. THEN design the track.*
- *When building the frame make sure the columns are less than 20 cm apart from each other (this is the length of the beams)*
- *Make a list of the things you want to incorporate at the beginning. Then create a track that puts them together.*
- *Use a LOT of tape, but not so much that you can see it!*
- *Be VERY mindful of the deadline. Use your time wisely and work together!*

- **YOU WILL BE GRADED OUT OF 400 POINTS!**

The Great Paper Roller Coaster Challenge

INTRODUCTION AND OBJECTIVE:

The local amusement park has issued a challenge to roller coaster designers to determine who should build their next roller coaster. You'll need to prove that you can make an exciting roller coaster that meets their requirements while staying within a budget.

EQUIPMENT NEEDED:

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- Paper Roller Coaster pieces
 - Cardboard base
 - Scissors
 - Instruction manual
 - Tape
 - Ruler
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COST OF MATERIALS:

Type	Cost	#	\$	Type	Cost	#	\$
Column	\$0.50			Straight Track	\$1.00		
Beam	\$0.50			Sharp Turn	\$2.00		
Diag. Support	\$0.50			Wide Turn	\$1.50		
Shelf	\$0.50			Funnel	\$2.50		
Bracket	\$0.10			Loop	\$1.50		
OTHER				Merge/Switch	\$1.50		
OTHER				OTHER			

TOTAL COST OF COASTER: _____

if you use any OTHER materials, please check with ms. p for the COST

FINAL SCORING GUIDE

After you're done building you need to test your roller coaster by placing one small marble at the starting point of your coaster and letting it roll through to the end of the track. You will do this 5 times and take the average time of all 5 trials. If the marble falls off the track give yourself a 0 for that trial. *minimum time = 15 seconds*

Trial #1: _____ seconds

Trial #2: _____ seconds

Trial #3: _____ seconds

Trial #4: _____ seconds

Trial #5: _____ seconds

Average Time: _____

CATEGORY	POINTS EARNED
Average time~1 second = 5pts	
Reliability Bonus (10 pts if all trials reached the bucket)	
Track > 150cm (10 pts)	
Loops (20 pts each)	
Turns (5 pts each)	
Merge/Switch (5 pts each)	
Funnel (10 pts each)	
Bucket at the end (10 pts)	
Up Hill (5 pts for each section where the marble goes UP)	
Jumps (20 pts each time the marble jumps)	
Originality Score (up to 25 pts)	
Excitement Value (up to 25 pts)	
TOTAL CONSTRUCTION SCORE	
COST OF MATERIALS \$1 = 1 pt	
FINAL SCORE	