

KEVA Challenge Phase #2

Directions: Now that you've had time to build a larger contraption and show that you know the "Physics" behind how it works it's time now to play with design a bit with a few MORE challenges! With these challenges you will be given the additional element of "more mass" with your KEVA ball.....The larger marbles will serve that purpose. You may choose whichever ball you think best fits your challenge.



Remember as always you will need to work as a TEAM to create the best outcome!



CHALLENGE # 1

The objective of this challenge is to move your ball as **SLOWLY** as possible to the bottom of your contraption. Your contraption must have the following elements:

1. At least FOUR components (ramps, tunnels, etc..) for your ball to travel through.
2. Some type of element of FRICTION to slow down your ball.
3. Be at least 24” tall at it’s highest point.
4. You may NOT add force during your balls trip through your contraption. You may not touch it once it has begun its descent.

Record your data below:

Draw your Contraption here..	Describe your results:						
	<p>How long did it take from top to bottom?</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse; text-align: center;"> <tr> <td style="padding: 5px;">Trial ONE</td> <td style="padding: 5px;">Trial TWO</td> <td style="padding: 5px;">Trial THREE</td> </tr> <tr> <td style="padding: 5px;">____secon ds</td> <td style="padding: 5px;">____secon ds</td> <td style="padding: 5px;">____secon ds</td> </tr> </table> <p>What did you use to “slow down” your ball?</p>	Trial ONE	Trial TWO	Trial THREE	____secon ds	____secon ds	____secon ds
Trial ONE	Trial TWO	Trial THREE					
____secon ds	____secon ds	____secon ds					

Write a paragraph below explaining how your ball worked it’s way down as slow as possible. How did the laws of force and motion help your ball travel slowly? What design elements did you use to make your ball move as slow as possible?

Draw your Contraption here..	Describe your results:		
	How long did it take from top to bottom?		
	Trial ONE	Trial TWO	Trial THREE
	_____secon ds	_____secon ds	_____secon ds
	What did you do to “speed up” your ball?		

Write a paragraph below explaining how your ball worked it’s way down as quickly as possible. How did the laws of force and motion help your ball travel quickly? Explain any design elements that helped your ball go fast.

CHALLENGE # 3

The objective of this challenge is to move your ball from the top of the contraption to the as possible to the bottom of your contraption. In **EXACTLY FIVE SECONDS**. Your contraption must have the following elements:

- 4. At least FOUR components (ramps, tunnels, etc..) for your ball to travel through..
- 5. Be at least 24” tall at it’s highest point.
- 6. You may NOT add force during your balls trip through your contraption. You may not touch it once it has begun its descent.

Record your data below:

Draw your Contraption here..	Describe your results:		
	How long did it take from top to bottom?		
	<table border="1" style="width: 100%; text-align: center;"> <tr> <td style="width: 33%;">Trial ONE</td> <td style="width: 33%;">Trial TWO</td> <td style="width: 33%;">Trial THREE</td> </tr> </table>	Trial ONE	Trial TWO
Trial ONE	Trial TWO	Trial THREE	

	_____ secon	_____ secon	_____ secon
	ds	ds	ds
<i>*you may need more trials to get it perfect!</i>			
What did you do to meet the time requirement?			

Write a paragraph below explaining how your ball worked it's way down in exactly 5 seconds How did the laws of force and motion help your ball travel quickly and slowly? Explain any design elements that helped your ball go meet the 5 second time requirement.,
