

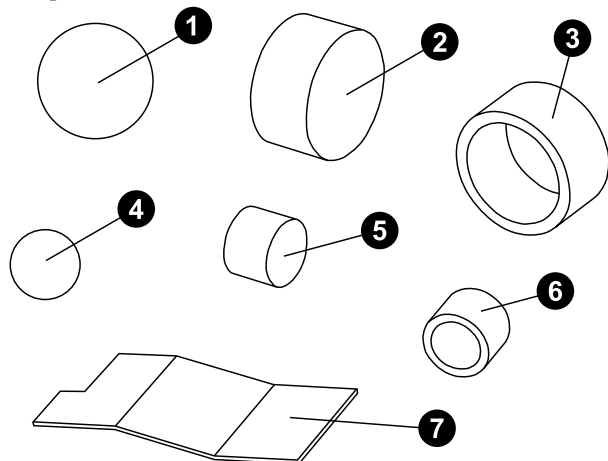
Rotational Inertia Set

ME-9774

Introduction

The Rotational Inertia Set includes two solid spheres, two solid disks, two rings, and a release mechanism. The large sphere, disk, and ring all have the same radius as each other, and the small sphere, disk, and ring all have the same radius as each other. Use these objects to demonstrate the difference in rotational inertia of differently shaped objects.

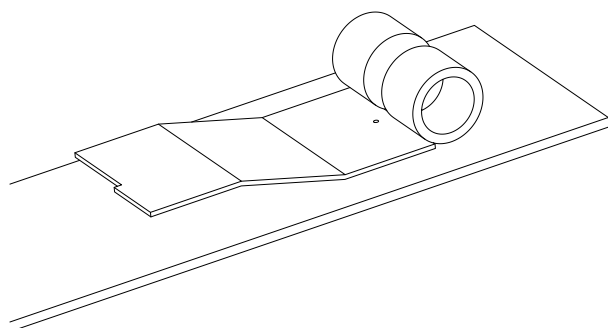
Components



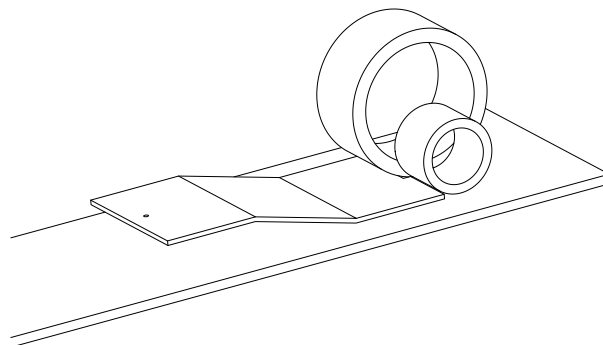
- ❶ Large solid sphere (10 cm diameter; 810 g mass)
- ❷ Large disk (10 cm diameter; 530 g mass)
- ❸ Large ring (10 cm diameter; 210 g mass)
- ❹ Small solid sphere (5 cm diameter; 370 g mass)
- ❺ Small disk (5 cm diameter; 110 g mass)
- ❻ Small ring (5 cm diameter; 90 g mass)
- ❼ Release mechanism

Usage

Set two of the included round objects at the top of an inclined ramp. For objects of the same size, such as the ring and disk of the same radius, use the straight side of the release mechanism to hold the objects in place on the ramp. This will allow you to release both objects from rest at the same time in the same position. Ask the students which object will reach the bottom of the ramp first. Release the objects by pulling the release mechanism away from the objects.



When using two objects of different radii, such as the small disk and the large disk, use the stepped end of the release mechanism, as shown in Figure 1. This will allow you to hold the two objects at the same starting position on the ramp.



Note that the results are not affected by the mass or radius of the object. The shape or distribution of the object determines the outcome. The spheres will reach the bottom first, followed by the disks, and the rings will be last.

An interesting addition to this demonstration is to compare the sphere with a PASCO Dynamics Cart. The Dynamics Cart will win the race with the sphere because very little of the cart's mass is rotating.

Technical support

Need more help? Our knowledgeable and friendly Technical Support staff is ready to answer your questions or walk you through any issues.

- Chat [pasco.com](https://www.pasco.com)
- Phone 1-800-772-8700 x1004 (USA)
+1 916 462 8384 (outside USA)
- Email support@pasco.com

Limited warranty

For a description of the product warranty, see the Warranty and Returns page at www.pasco.com/legal.

Copyright

This document is copyrighted with all rights reserved. Permission is granted to non-profit educational institutions for reproduction of any part of this manual, providing the reproductions are used only in their laboratories and classrooms, and are not sold for profit. Reproduction under any other circumstances, without the written consent of PASCO scientific, is prohibited.

Trademarks

PASCO and PASCO scientific are trademarks or registered trademarks of PASCO scientific, in the United States and in other countries. All other brands, products, or service names are or may be trademarks or service marks of, and are used to identify, products or services of, their respective owners. For more information visit www.pasco.com/legal.