

## Ravensburger 22416

# Ravensburger GraviTrax XXL Starter Set Instruction Manual

Model: 22416

## 1. OVERVIEW

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The Ravensburger GraviTrax XXL Starter Set is an interactive track system designed to engage users in building and experimenting with gravity, magnetism, and kinetics. This comprehensive set provides a foundation for creating diverse marble runs, fostering critical thinking, problem-solving skills, and creativity through open-ended play. It is suitable for ages 8 and up and is fully compatible with all other GraviTrax systems, allowing for expanded play possibilities.



Image 1.1: The GraviTrax XXL Starter Set, showcasing the product box and a complex marble run built with its components.

# Spark Learning with Every Twist and Turn

CRITICAL THINKING

CREATIVITY

REAL WORLD ENGINEERING SKILLS

PROBLEM SOLVING



Image 1.2: Children engaging with the GraviTrax system, demonstrating its educational benefits in STEM fields.

## 2. PACKAGE CONTENTS

The GraviTrax XXL Starter Set includes 242 diverse pieces, along with an instruction booklet featuring 9 track designs and 24 challenges. The complete contents are as follows:

- 9 Metal Marbles
- 6 Rugged 12" x 12" Card Bases
- 4 Transparent Levels
- 80 Large Height Tiles
- 24 Small Height Tiles
- 36 Tracks (6 long, 12 medium, 18 short)
- 42 Curves
- 1 Magnetic Cannon
- 2 3-in-1 Tiles

- 6 X-Intersection Tiles
- 2 Vortex
- 4 Switches
- 2 Launchers
- 8 Basic Tiles & Inserts (4 Catchers, 2 Freefall, 2 Y-Intersections, 2 Landings)
- 1 Loop
- 1 Hammer
- 2 Finish Lines
- Instruction Booklet with 9 Track Designs and 24 Challenges



Image 2.1: Key components of the GraviTrax system, illustrating their basic forms and functions.

### 3. SETUP

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To begin building your GraviTrax marble run, follow these steps:

1. **Prepare the Play Area:** Choose a flat, stable surface large enough to accommodate the 6 card bases

(approximately 12" x 12" each). The bases interlock to form the foundation of your track.

2. **Unpack Components:** Carefully remove all pieces from the packaging. It is recommended to sort the pieces by type (e.g., height tiles, tracks, curves, action accessories) for easier access during construction.
3. **Consult the Instruction Booklet:** The included instruction booklet provides visual guides for various track designs, ranging from basic to advanced. These designs are an excellent starting point for understanding how different components connect and interact.
4. **Place Baseplates:** Arrange the hexagonal card bases on your chosen surface. These bases feature a grid system that helps align track pieces and height tiles accurately.
5. **Begin Building:** Start by placing height tiles and track pieces according to a design from the booklet or your own creative vision. Ensure all connections are secure to prevent marbles from derailing.

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Video 3.1: An overview of the GraviTrax Starter Set, demonstrating the baseplates, instruction booklet, and initial setup process. This video highlights the visual nature of the instructions and the modular design.

## 4. OPERATING INSTRUCTIONS

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### 4.1. Building Tracks

The core of GraviTrax play involves constructing tracks for marbles to travel. The system is designed for intuitive assembly:

- **Modular Design:** All GraviTrax components are modular and connect easily. Hexagonal pieces fit together, allowing for flexible track layouts.
- **Height and Elevation:** Utilize the large and small height tiles to create elevation changes in your track. Higher starting points provide more potential energy for marbles to travel further and faster.
- **Connecting Tracks and Curves:** Straight tracks and curved pieces snap into place on top of height tiles or directly onto the baseplates. Experiment with different angles and lengths to guide the marbles.
- **Using the Instruction Booklet:** The booklet provides step-by-step diagrams for various track configurations. These are excellent for learning fundamental building techniques and understanding how different elements function together.

### 4.2. Experimenting with Gravity and Action Elements

GraviTrax allows for exploration of physics principles through its action accessories:

- **Magnetic Cannon:** This accessory uses magnetism to propel marbles, adding an extra boost of speed or allowing them to travel uphill.
- **Hammer:** The Hammer provides a kinetic push to a marble, often used to maintain momentum or change direction.
- **Loop:** The Loop challenges marbles to complete a full vertical circle, requiring sufficient speed and height.
- **Switches and X-Intersections:** These elements allow marbles to change paths, creating branching tracks and more complex routes.
- **Vortex:** The Vortex creates a swirling path for marbles, adding a dynamic visual element to the track.
- **Launchers:** Used to initiate the marble's journey down the track.
- **Catchers, Freefall, Y-Intersections, Landings:** These basic inserts help manage marble flow, collect marbles, or provide specific track transitions.

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Video 4.1: A detailed unboxing and example track build, demonstrating how various GraviTrax components are assembled and function in a complete marble run.

## 5. COMPONENTS

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Understanding each component is key to mastering GraviTrax construction:

- **Card Bases:** The foundational hexagonal mats that define the building area and provide a grid for precise placement.
- **Height Tiles:** Hexagonal blocks (large and small) used to create vertical elevation for tracks. Stacking them increases the height and potential energy for marbles.
- **Tracks:** Straight or curved pieces that guide the marbles. Available in various lengths to connect different points on the track.
- **Curves:** Specialized track pieces that allow marbles to change direction smoothly.
- **Transparent Levels:** Clear hexagonal pieces that can be placed over existing tracks to create multi-level designs, allowing visibility of the lower tracks.
- **Action Accessories:** These include the Magnetic Cannon, Hammer, Loop, Vortex, Switches, and Launchers, each adding unique dynamic effects to the marble's journey.
- **Basic Tiles & Inserts:** Components like Catchers, Freefall, Y-Intersections, and Landings are used for specific track functions, such as collecting marbles, creating drops, or splitting paths.
- **Marbles:** The set includes both metal and colored marbles for tracking different paths or simply for variety.

# Endless Adventure in Every Build!

All GraviTrax products are compatible with other GraviTrax products



Image 5.1: A comprehensive display of the GraviTrax XXL Starter Set components, illustrating the variety of pieces available for track construction.

## 6. MAINTENANCE

Proper care and maintenance will ensure the longevity of your GraviTrax set:

- **Cleaning:** Wipe down plastic components with a soft, damp cloth. Avoid harsh chemicals or abrasive cleaners, as these can damage the plastic. Ensure all pieces are dry before storage.
- **Storage:** Store all components in their original box or a suitable container to prevent loss or damage. Keep marbles separate to avoid scratching other pieces.
- **Handling:** Handle all pieces with care. While durable, excessive force can cause breakage.
- **Magnetic Cannon Care:** Ensure the magnetic cannon is kept away from sensitive electronic devices.

## 7. TROUBLESHOOTING

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If you encounter issues with your GraviTrax marble run, consider the following common solutions:

- **Marbles Derailing:**
  - Check all track connections to ensure they are securely snapped into place.
  - Verify that track pieces are properly aligned on the hexagonal grid of the baseplates.
  - Assess the speed of the marble. If it's too fast for a curve or transition, it may fly off. Adjust the starting height or add elements to reduce speed.
- **Marbles Losing Momentum:**
  - Ensure there is sufficient elevation difference throughout the track to maintain momentum. Gravity is key.
  - Reduce the number of flat sections or uphill climbs that are not supported by action elements like the Magnetic Cannon.
  - Check for any obstructions or misaligned pieces that might be creating friction.
- **Action Elements Not Functioning:**
  - Confirm that action elements (e.g., Magnetic Cannon, Hammer) are correctly assembled and positioned according to the instructions.
  - Ensure marbles are entering the action element at the correct speed and angle for activation.
- **Difficulty with Complex Designs:**
  - Start with simpler track designs from the instruction booklet to build foundational understanding.
  - Break down complex designs into smaller, manageable sections.
  - Experiment with one new element or concept at a time before integrating multiple advanced features.

## 8. SPECIFICATIONS

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Feature	Detail
Product Dimensions	13.31 x 13.31 x 7.01 inches
Item Weight	9.57 pounds
Model Number	22416
Manufacturer Recommended Age	8 years and up
Manufacturer	Ravensburger
Number of Pieces	242

## 9. WARRANTY AND SUPPORT

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For specific warranty information, please refer to the documentation included with your product packaging or visit the official Ravensburger website. For further assistance, technical support, or to inquire about replacement parts, please contact Ravensburger customer service directly.

**Ravensburger Official Website:** [www.ravensburger.us](http://www.ravensburger.us)