

# START HERE. IT'S YOUR DESIGN!

What makes the Weird & Wacky Contraction Lab so fun? YOU create the course design.

You are the architect, engineer, and builder. Create a different course every time you play. It can be simple or complex. And, like any great engineering feat, it's all based on trial and error. You'll test out your design and make changes as you go.

Start with our five courses to learn your way around all the building components.

## ASSEMBLING THE BOARD

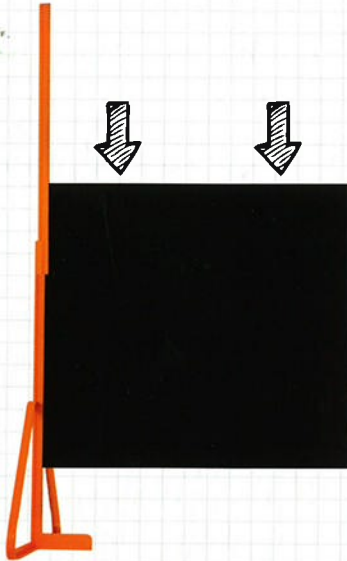
1

Firmly insert one of the two rails into a side stand.



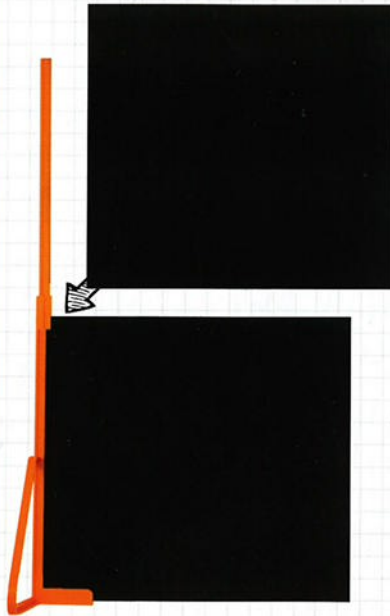
2

Slide one of the boards into the stand's groove, all the way to the foot of the stand.



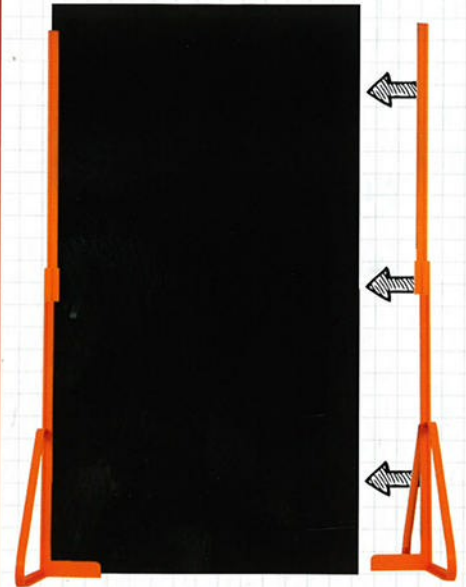
3

When the board is firmly in place, slide the other board into the stand, making sure it is flush with the bottom board.



4

Finally, insert the remaining rail into the other side stand, and slide it into the boards.



## TRACK CLIPS

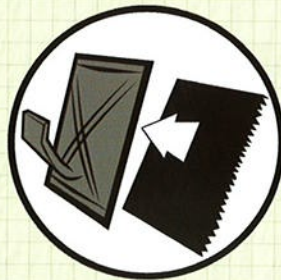
Track clips are used to attach tracks to the board.

They snap into the grooves on the outside of the track, and can slide back and forth on the track for better positioning.

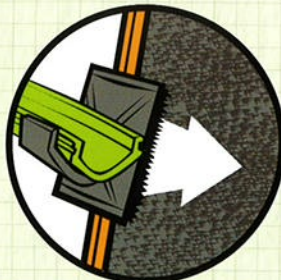


The hook-and-loop material on the clips and board grip together for a tight hold.

For each track clip or component, peel the backing from one of the enclosed hook-and-loop stickers and press the sticky side firmly to the flat surface provided.

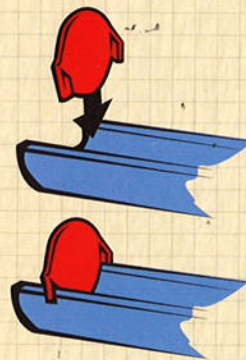


Orient all your track clips vertically on the board for a tighter hold.



## STOPS

Clip a stop onto the end of a track to prevent balls from flying off the end!



## BALLS & BALL MAGNET

If a ball gets trapped, just use the super-powerful steel-ball extractor to get it out.



## READY, SET, CHECK!

Contraction Lab is different than most games because it has a vertical play surface. This way you'll be using one of the most essential forces in nature to move the steel balls: gravity!

Before you get the ball rolling, make sure all your components are in the right position and all the balls are preloaded where necessary. As you play, experiment a bit with the alignment of your components to get them just right.

# 01. PIGS IN SPACE!

Start your adventure with a course that uses all the TRACKS and ends with the STUNT PIG bravely astride his very own rocket!

## 1 STRAIGHT AND NARROW

The STRAIGHT TRACKS are your main roadways. Use them to move balls from the top of your contraption to the bottom, and to connect to all other components.

- Start this contraption with a long STRAIGHT TRACK.

## 2 OFF-RAMPS

The handle-shaped OFF-RAMPS are amazing at moving the balls around an existing contraption, as well as adding roadway inches.

- Attach an OFF-RAMP with a STOP at the higher end.

## 3 WAVY TRACK

With its hills and valleys, the WAVY TRACK is a cool addition to your course and a great place to start a ball.

- Attach the WAVY TRACK.
- Add a short STRAIGHT TRACK, placed vertically.
- Add a medium STRAIGHT TRACK.

## 4 ZIGZAG RAMP

The balls slalom through the ZIGZAG RAMP.

- Attach a ZIGZAG RAMP.
- Add a long STRAIGHT TRACK.

## 5 CURVED TRACKS

When you want to change a ball's direction or stop it from flying off the side of the board, use a CURVED TRACK. It can also help to catch falling balls (by design) and to build up speed.

- Attach a CURVED TRACK.
- Add a medium STRAIGHT TRACK.
- Add a short STRAIGHT TRACK with a STOP.
- Add another short STRAIGHT TRACK.

## 6 STUNT PIG STYLE!

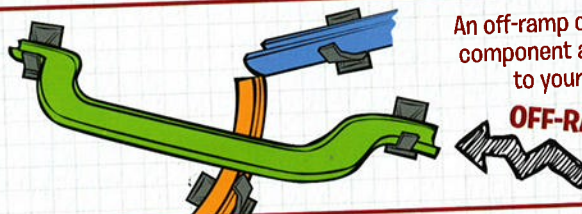
End your course with a bang using the STUNT PIG!

- Insert the stunt pig's ROCKET into the ROCKET LAUNCHER. (Listen for the click!)
- Place the whole piece on the table or floor at the bottom of the game board.
- Attach the launcher to the base of the board.

## TRACK TIPS & TRICKS!

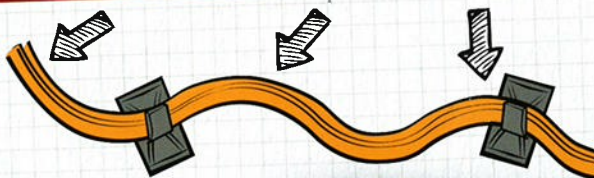


Straight tracks come in three handy sizes: **SHORT, MEDIUM, and LONG.** Remember, the short straight tracks only need one track clip.



An off-ramp can bypass another component and add dimension to your contraption.

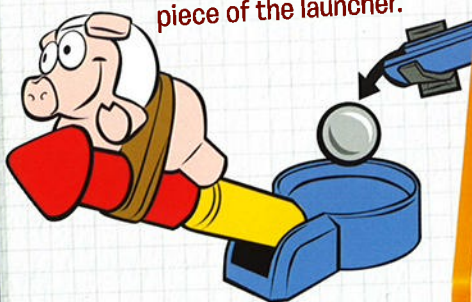
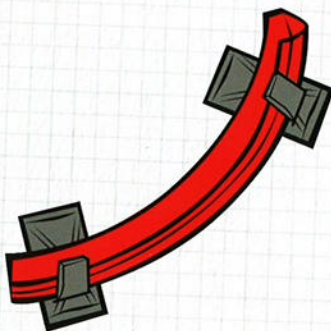
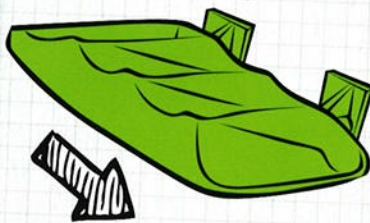
### OFF-RAMP



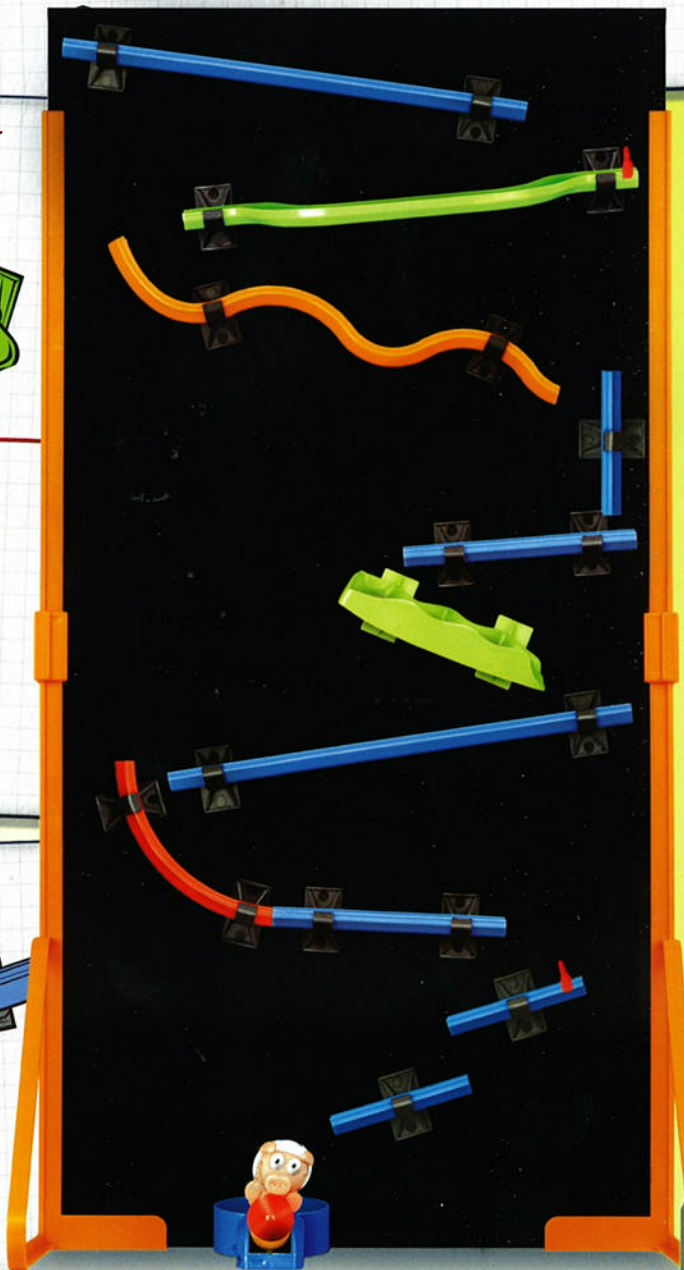
Make sure the ball falls onto this track at the top of a hill.

If it drops into a valley first, it might just get stuck there.

Tilt the ramp at an angle, so your ball doesn't get stuck.



The ball activates the pig when it hits the round piece of the launcher.



# 02. GOT TIME TO CLEAN?

Build this contraption to get a handle on creating designs with the TOILET and the CLEANING MACHINE!

## 1 GETTING STARTED

- ⚙️ Set a medium STRAIGHT TRACK near the top of the board.
- ⚙️ Attach the WAVY TRACK below it.
- ⚙️ Add a medium STRAIGHT TRACK with a STOP.

## 2 TOILET TIME!

The TOILET sits on top of a pipe. Its seat can be used as a backboard to catch and slow down a speeding ball.

- ⚙️ Attach the TOILET to the board.

## 3 NEXT ADD:

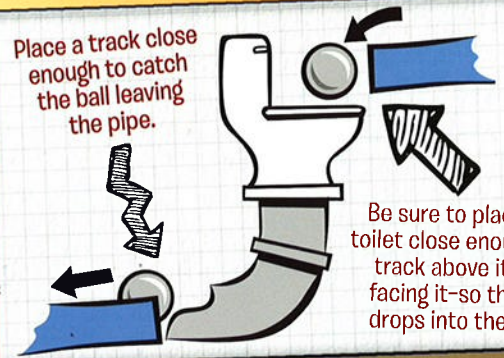
- ⚙️ Short STRAIGHT TRACK
- ⚙️ 2 CURVED TRACKS
- ⚙️ Medium STRAIGHT TRACK with a STOP

### TOILET TIPS & TRICKS!

The toilet can move in all directions, allowing you to place it anywhere on the board.



Place a track close enough to catch the ball leaving the pipe.



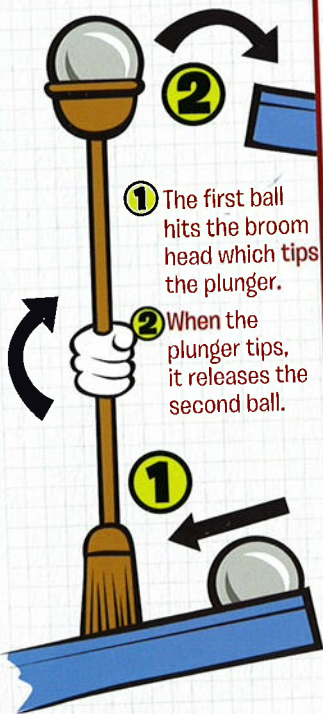
Be sure to place the toilet close enough to a track above it—and facing it—so the ball drops into the bowl.

## 4 READY FOR THE CLEANING MACHINE?

- ⚙️ Attach the CLEANING MACHINE to board so it's straight up and down.

### CLEANING MACHINE TIPS & TRICKS!

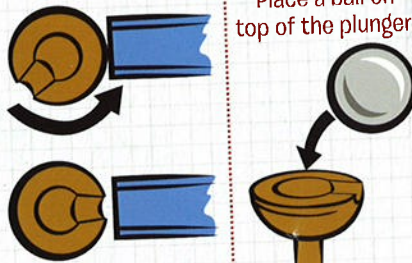
#### THIS PIECE IS A TWO-BALL OPERATION.



#### PLUNGER

The plunger has a channel.

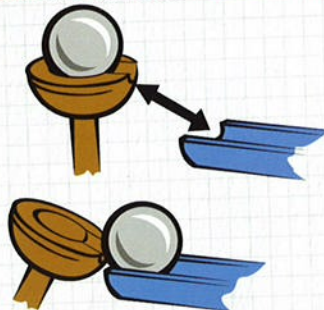
Twist the handle so the channel lines up with the track.



Place a ball on top of the plunger.

Pay attention to the distance between the plunger and the track.

Align the pieces close enough to each other that the ball falls onto the track.



#### HAND-LE

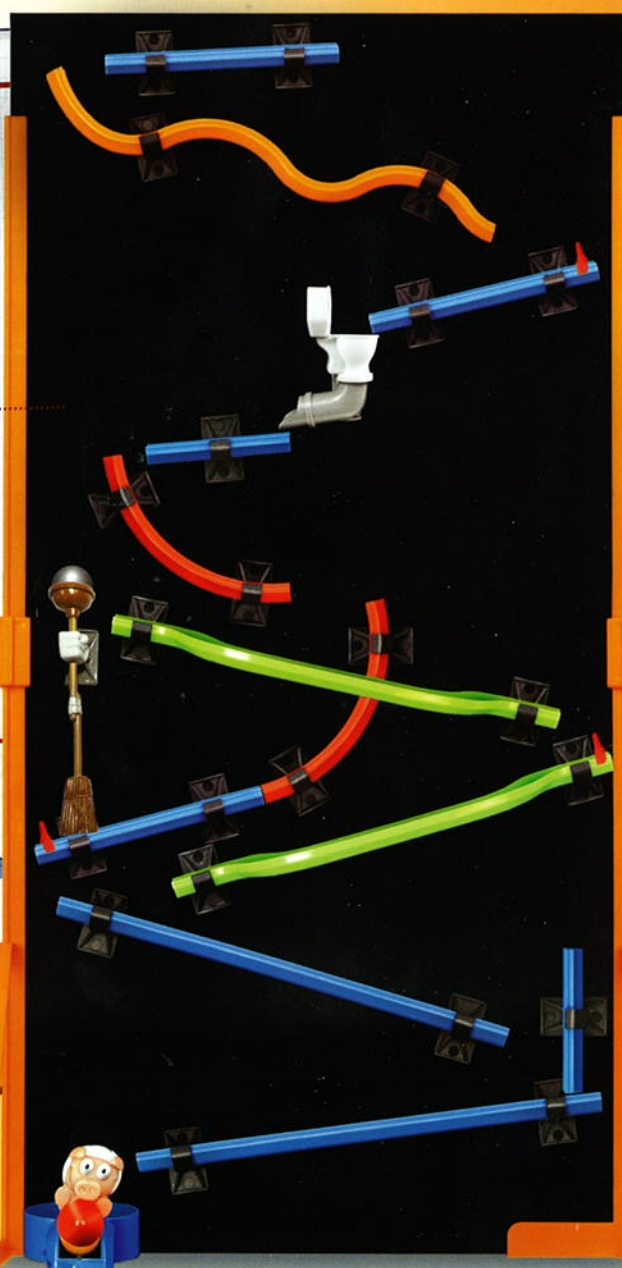
Move the hand up and down to experiment with the tipping angle.



#### BROOM

Align the broom so it sits inside a track but doesn't touch.

When the ball hits the broom head, the plunger will tip.



## 5 NEXT ADD:

- ⚙️ Both OFF-RAMPS, the bottom one with a stop!
- ⚙️ 3 STRAIGHT TRACKS (long, short, long)
- ⚙️ STUNT PIG

**TIP!**  
If the balls keep flying off your contraption, add more stops!



# 03. HAVING FUNNEL YET?

Are you getting the hang of it now? This contraption focuses on the FUNNEL and the CHICKEN COOP.

## 1 GETTING STARTED

- ⚙️ Set a short STRAIGHT TRACK near the top of the board.
- ⚙️ Add a medium STRAIGHT TRACK.
- ⚙️ Attach a long STRAIGHT TRACK with a STOP.

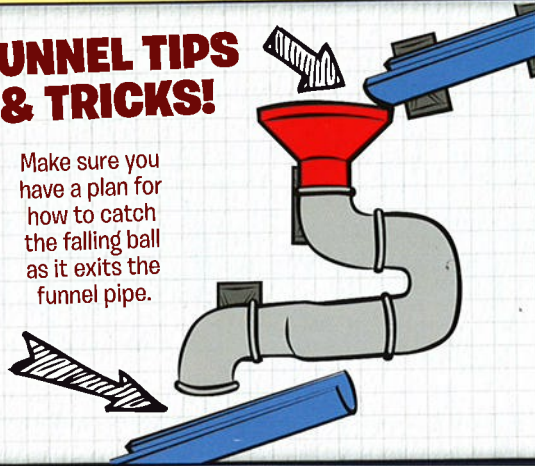
## 2 FUN FUNNEL!

The FUNNEL should be face up and the end of the pipe down so the ball doesn't get stuck.

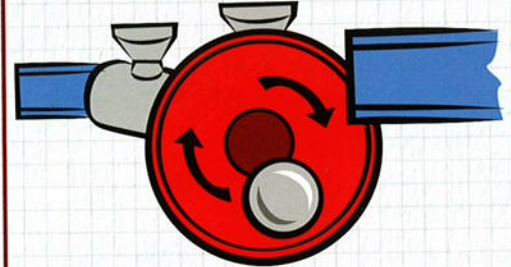
- ⚙️ Attach the FUNNEL.
- ⚙️ Set the TOILET just below it.

## FUNNEL TIPS & TRICKS!

Make sure you have a plan for how to catch the falling ball as it exits the funnel pipe.



If you align your track just right at the top of the funnel, the ball will spin around and around the funnel head before dropping into the pipe. This is centrifugal force in action!



TOP VIEW

## 3 NEXT ADD:

- ⚙️ Short STRAIGHT TRACK
- ⚙️ CURVED TRACK
- ⚙️ Long STRAIGHT TRACK

## 4 CHICKEN FLIES THE COOP!

- ⚙️ Attach the CHICKEN COOP to the board.

## CHICKEN COOP TIPS & TRICKS!

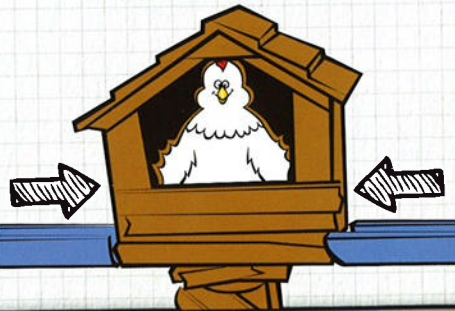


Tilt the nest in the direction you want the ball to go. And remember, the angle of the tilted nest affects the speed of the ball!



Be sure to line up your track with the opening of the coop.

A ball can enter the chicken coop from either direction.



## 5 NEXT ADD:

- ⚙️ 3 STRAIGHT TRACKS (medium, medium, short)
- ⚙️ STUNT PIG

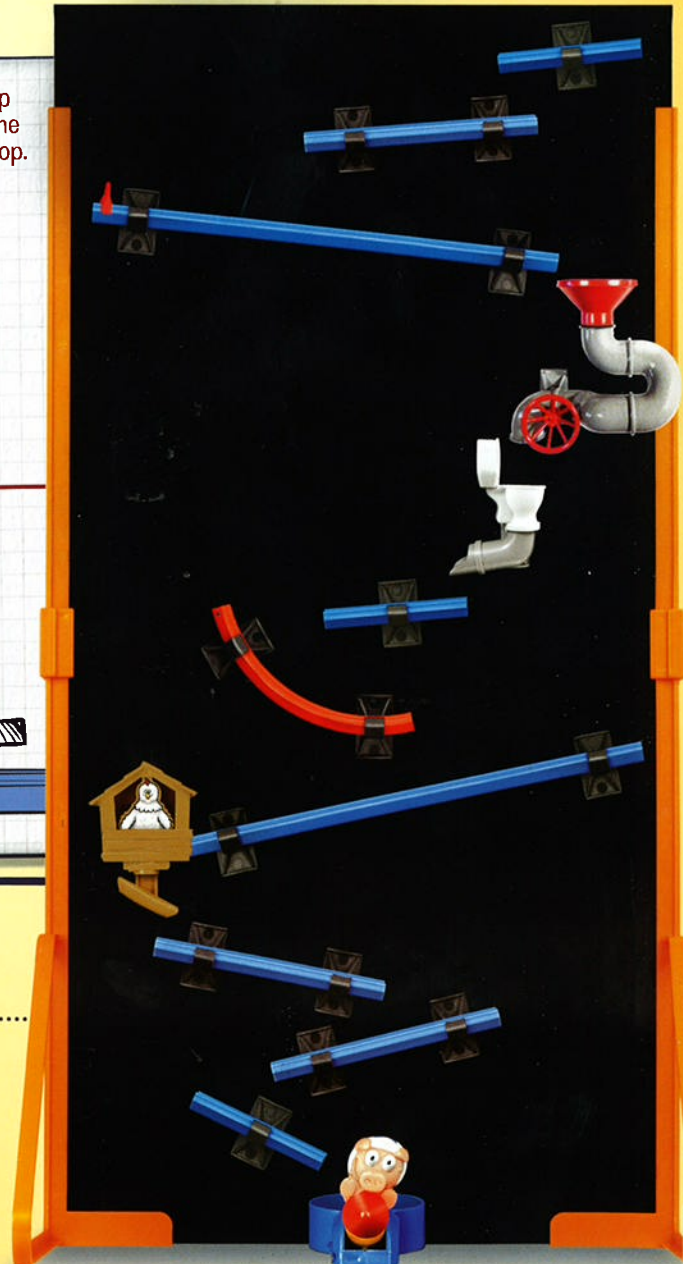
### TIP!

Gravity will move the ball down the board, but the speed (or velocity) the ball travels has a lot to do with how you set your tracks.

And don't forget the principle of momentum.

The longer the ball rolls downhill, the more speed it will pick up.

So, if you want a ball to move fast, set your tracks at a steep pitch. Too fast? Adjust your track's angle or pitch to a more level position.



# 04. TRASH CAN TIPPER!

Time to learn the tricky ways of the BOOT BUSTER. It'll knock your socks off!

## 1 GETTING STARTED

- ⚙️ Set the WAVY TRACK at the very top of the board.
- ⚙️ Attach the TOILET below it.
- ⚙️ Add a medium STRAIGHT TRACK.

## 2 BOOT BUSTER

The BOOT BUSTER can be attached to the board at many different angles.

- ⚙️ Attach the BOOT BUSTER, preloaded with a ball in the trash can!

### TIP!

If your boards are warped: rotate boards 90 degrees and reinsert into stand. This will straighten the warped edges.

### INCORRECT



### CORRECT



## BOOT BUSTER TIPS & TRICKS!

Just like the cleaning machine, the boot buster is a two-ball operation.

### TRASH CAN

Preload the trash can with a ball.



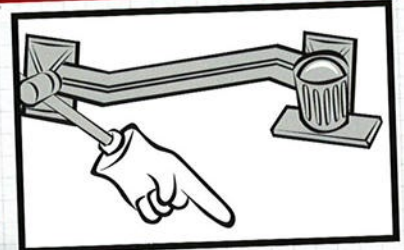
### BOOT

Be sure the ball can drop into the boot.



### HAND

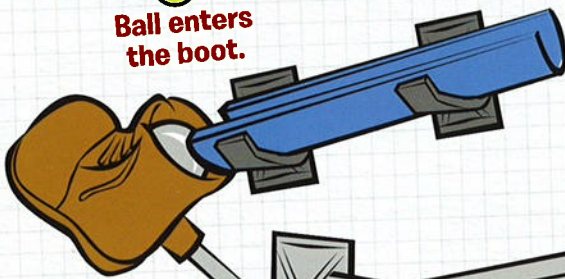
Adjust the trash can so the finger of the hand will knock it over.



## HOW IT WORKS

1

Ball enters the boot.

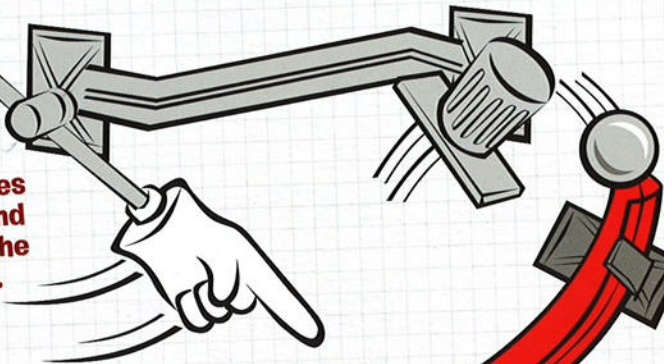


3

Hand tips over the trash can.

2

Boot goes down and raises the hand.



You need an exit strategy for the second ball, provided here by the curved track.



## 3 NEXT ADD:

- ⚙️ CURVED TRACK
- ⚙️ Medium STRAIGHT TRACK
- ⚙️ FUNNEL
- ⚙️ OFF-RAMP
- ⚙️ Long STRAIGHT TRACK with a STOP
- ⚙️ CHICKEN COOP
- ⚙️ Long STRAIGHT TRACK
- ⚙️ CURVED TRACK
- ⚙️ STUNT PIG

### TIP!

Keep components close together, or you'll run out of room.



Check out [smartlabtoys.com](http://smartlabtoys.com) for downloadable activities and more toys. Join our newsletter group so you don't miss a thing!



# 05. GEAR UP FOR FUN!

Be sure to read all the tips for the GEARS so your contraption is a smashing success!

## 1 START WITH:

- ⚙ Long STRAIGHT TRACK
- ⚙ CURVED TRACK
- ⚙ Long STRAIGHT TRACK with a STOP at the lower end!

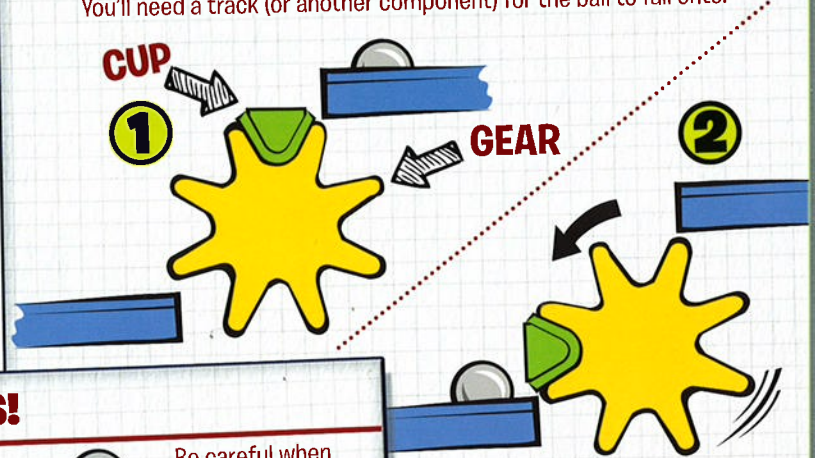
## 2 GEARS AND CUP

You can design your course to have a ball drop into the CUP or preload the CUP with a ball to tip when a gear tooth is knocked by another ball. This course is designed the preloaded way. See ONE-GEAR OPTION to the right for tips on how to use the GEARS in other ways.

- ⚙ Clip the CUP between the teeth of one of the GEARS.
- ⚙ Attach both GEARS onto the board, as shown.

## ONE-GEAR OPTION

Set your course with a track that will deliver a ball into the gear cup. You'll need a track (or another component) for the ball to fall onto.



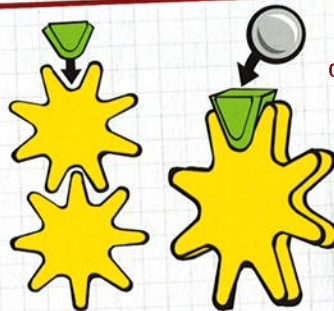
## GEAR TIPS & TRICKS!

When you use both gears, make sure the teeth are meshed closely but not too closely. They should move smoothly together.



For this course, be sure to load the cup with a ball.

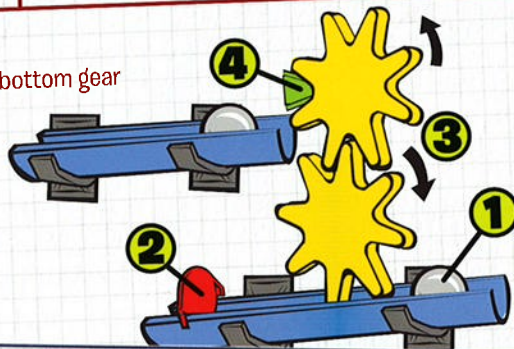
The gears and cup works well with the off-ramps, for catching newly introduced balls.



Be careful when you place the gears on the board. The ball can easily tip out.

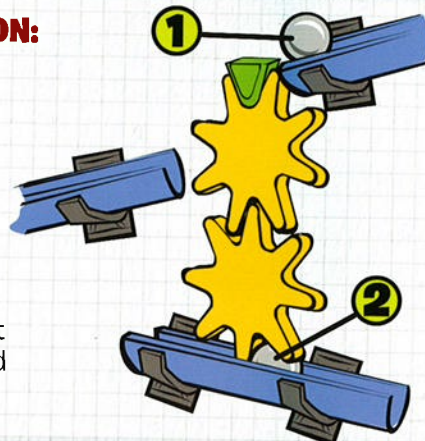
## HOW IT WORKS!

- 1 The first ball hits a tooth of the bottom gear
- 2 The ball stops at the stop.
- 3 The bottom gear turns, which makes the top gear turn.
- 4 The top gear tips over the cup that's preloaded with a ball.



## SUPER-ADVANCED OPTION:

- 1 Design your track so a ball travels down a track and lands in the top gear's cup. The weight and momentum of the action will cause the cup to tip.
- 2 Set a second ball between two teeth in the bottom gear.



## TIP!

The gears are a great component for introducing a second (or third or fourth) ball to the track.

## 3 FOR BALL #2 ROUTE, ADD:

- ⚙ Short STRAIGHT TRACK
- ⚙ OFF-RAMP
- ⚙ Medium STRAIGHT TRACK with a STOP
- ⚙ CHICKEN COOP
- ⚙ Medium STRAIGHT TRACK
- ⚙ WAVY TRACK
- ⚙ ZIGZAG RAMP
- ⚙ Medium STRAIGHT TRACK
- ⚙ STUNT PIG

