

GECKO RUN

Vertical Action!

INGENIOUS EXTENSIONS FOR YOUR GECKO RUN



GECKO RUN - LOOP

With the loop extension, you can add even more speed, action and experimental fun to your marble run. How much speed does the ball need to race perfectly through the loop? Find out!



GECKO RUN - TRAMPOLINE

How can you align the trampoline to make the ball fly even further? Can you even bounce it downwards or catapult it to a higher section? Experiment with trajectories, bounce and rebound angles.

COOL extras two additional tracks to extend your marble run!

Do you have any questions?
Our customer service will be happy to help you!

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Manual

GECKO RUN

MARBLE RUN STARTER SET

SCAN QR CODE FOR FULL-COLOUR MANUAL

LANGUAGES:
English, Deutsch, Français, Italiano, Español, Nederlands
AND MANY MORE



or go to: www.kosmos.de/int/GeckoRun-StarterSet

Vertical Action!
The creative marble run



Nano ADHESIVE PADS



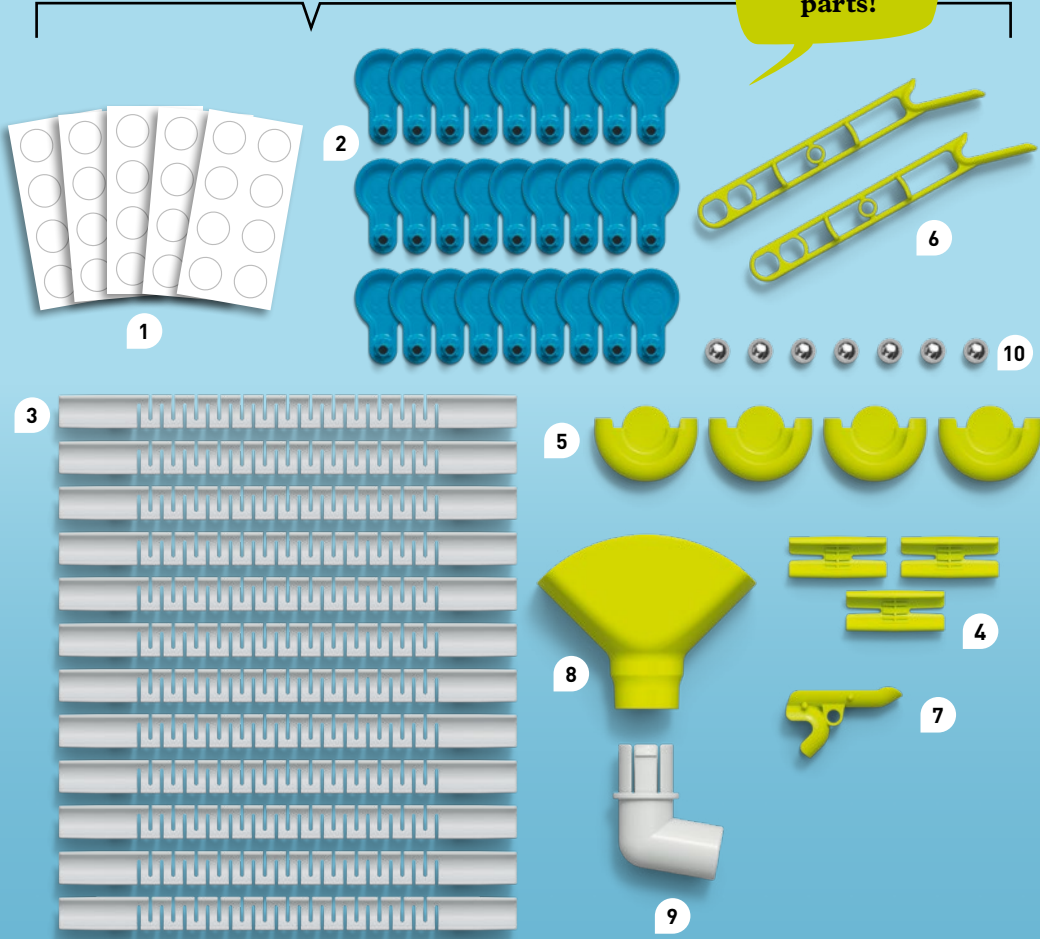
STEM EXPERIMENT KIT

KOSMOS



Your marble run set includes the following parts:

Wow!
So many parts!



Checklist:

✓ No.	Description	Quantity	Item No.
○ 1	Sheet with nano-adhesive pads	5	726192
○ 2	Adapter	27	726603
○ 3	Track	12	726605
○ 4	Track Bridge	3	726606
○ 5	Track Turn	4	726607

✓ No.	Description	Quantity	Item No.
○ 6	Lever	2	726608
○ 7	Switch	1	726609
○ 8	Funnel	1	726610
○ 9	Funnel tube	1	726611
○ 10	Ball	7	726604

Marking of packaging materials:



kosmos.de/disposal

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Manual for „Gecko Run – Starter Set“, Art.Nr. 7617288

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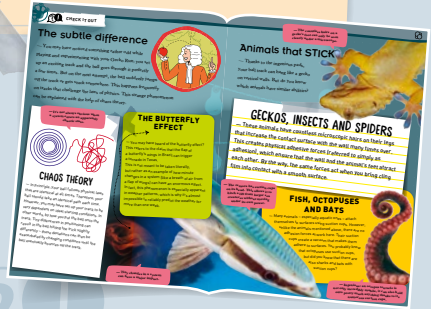
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ADDITIONAL INFO CAN BE FOUND ON THE "CHECK IT OUT" PAGE 17- 18





WARNING!

Not suitable for children under three years. Small parts and small balls. Choking hazard. Keep the packaging and instructions as they contain important information.

Instructions for using your Gecko Run and the nano-adhesive pads

The heart of this new type of marble run is the fascinating nano-adhesive pads. These are covered on one side with microscopic suction cups that allow the marble run to be securely attached to vertical surfaces. Just like large suction cups, they only adhere to smooth surfaces, leave no traces when removed and can be used over and over again.

The nano-adhesive pads adhere best to glass surfaces such as glass doors or windows, but you can also attach the track to other surfaces, as long as they are smooth enough (tiles, plastics, wood and imitation wood, glossy painted surfaces, metal, etc.). Try it out!

Before you use Gecko Run for the first time, you need to attach the nano-adhesive pads to the

adapters and some of the tricks. You can find out how to do this on pages 6 and 7.

Before you start building a track, make sure that your installation surface is clean, dry and free of grease. This will ensure that the pads can develop their full adhesive power.

The longer the pads remain on a surface, the greater their adhesion. If the pads have been attached to a surface for a while, you may not be able to remove them easily on your own. In this case, ask an adult to help you.

Dismantle the track after use and store its parts in the product packaging to ensure they remain clean and retain their functionality.

Good to know

If the nano-surface of the nano-adhesive pads gets dirty or dusty, you can clean them with a dry, lint-free cloth.

If a nano-adhesive pad suffers major damage, you can remove it and stick a new one on the same spot.



Dear parents!

Children want to marvel, understand and create something new. They want to try everything out and explore things by themselves. They want to know more! The Gecko Run marble run system is ideal for this, as it can be set up and altered quickly and easily. However, before using it for the first time, you should discuss the following points with your child.

Important information for parents

— The Gecko Run marble run can be attached to virtually any smooth vertical surface; glass surfaces work particularly well. Together with your child, discover which surfaces the nano-adhesive pads adhere to best – and agree on which surfaces in your home the Gecko Run marble run can be safely set up. When making your selection, bear in mind that hazards can arise due to open windows or doors, sliding doors that slide over each other, surfaces that are susceptible to breakage or are not securely fastened, and surfaces that are high up.

Only use the Gecko Run on closed windows and doors; all glass surfaces must be made of safety glass.

Playing surfaces must be firmly attached to the wall and stable when pulling on the pads (be careful with mirrors – these could be loosened from their mounts when pulling off the nano-adhesive pads).

Only build tracks within the child's reach; never climb on furniture to build the track.

The playing surface should be clean, dry and free of grease. This will ensure that the nano-adhesive pads can develop their full adhesive power.

The tracks must always be built and set up so that the metal balls do not hit breakable walls, dent metal walls/wood or cause defects. The flooring and surrounding furnishings must be able to withstand impacts from falling balls. If necessary, place a rug, blanket or towel underneath the track – this will also prevent the balls from rolling away.

Set up the track away from pets, babies and toddlers.

Before playing and experimenting for the first time, the nano-adhesive pads must be affixed to the adapters and some of the tricks (see pages 6 and 7). Help your child to apply the pads cleanly and with the correct adhesive side.

In the case of sliding doors that slide over each other (e.g. on cupboards or patio doors), make sure that the Gecko Run track is attached to the outer door so that the track parts are not damaged when the doors are moved.



— THE PARTS OF YOUR MARBLE RUN

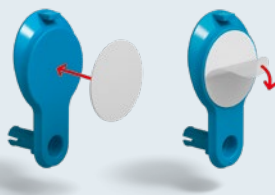
Adapter

— Use this to attach the tracks and some of the tricks to your vertical playing surface. You can see how to prepare the adapters below.



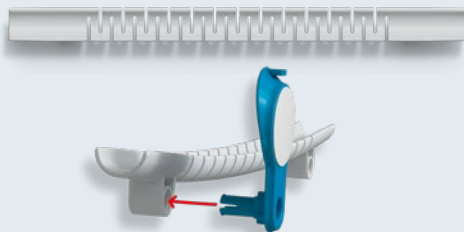
Nano-adhesive pads

— The pads have a normal sticky side and an amazingly powerful adhesive side with a nanostructure (see p. 4). To prepare the adapters for use, you must stick the pads onto the adapters. To do this, pull a pad from the sheet and stick it onto the centre of the back of the adapter as shown. Then remove the thin foil from the nano-adhesive side and you're ready to go.



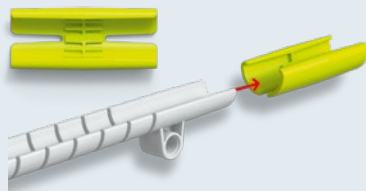
Track

— The tracks on which the balls roll towards their destination are another essential element of the Gecko Run. Their special design makes them bendable – this gives you lots of freedom when building a track. They are attached to your playing surface using the adapters. Be sure to push the adapters all the way into the receptacles on the tracks.



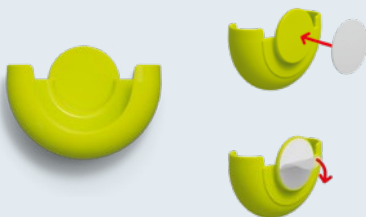
Track bridge

— This component lets you make one long track section out of two shorter ones. This is always useful, especially if you want to bridge window frames or build a transition from one surface to another.



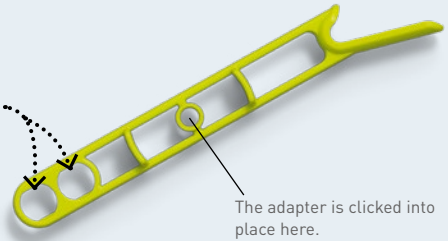
Track turn

— This element is a true all-rounder. It serves as a 180-degree bend, a ball store and a ball-catcher at the end of your track. Stick a nano-adhesive pad on the back of the turn to prepare it. It can then be attached directly to your playing surface. For more tips and tricks on how to use track turns, see pages 9, 10 and 15.



Lever

— The lever is fixed in place with an adapter so that it can rotate freely. It can catch a ball and pass it on immediately (provided that you have pressed a ball into the rear slot on the lever). If two balls are stuck, it can collect both balls and then pass them on. For more information on using the lever, see page 11.



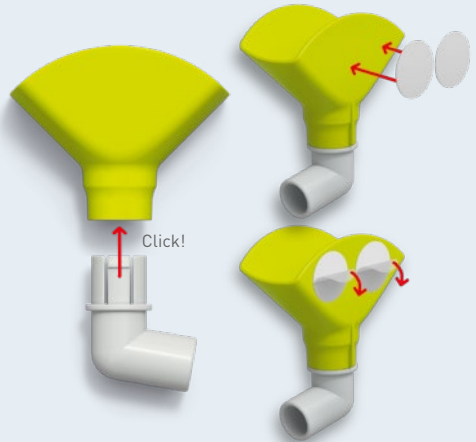
Switch

— This trick is a kind of rocker switch that alternates your ball in one direction or the other. To allow it to seesaw freely, this element is also attached to your playing surface using an adapter. See pages 11 and 15 for information on using the switch.



Funnel

— This element lets you recapture balls that you have really let fly. It consists of two parts that you will need to click together the first time you use it. The outlet of the funnel is then freely rotatable so that it can forward the balls in different directions. In addition, the back of the funnel has two nano-adhesive pads so that it can safely catch flying balls.



Ball

— In your set you will find seven precision steel balls with a diameter of 12.7 mm. Take good care of them so that you don't lose them when the balls start flying!





Cool ...
— Now here
we go!



YOUR *first* TRACKS!

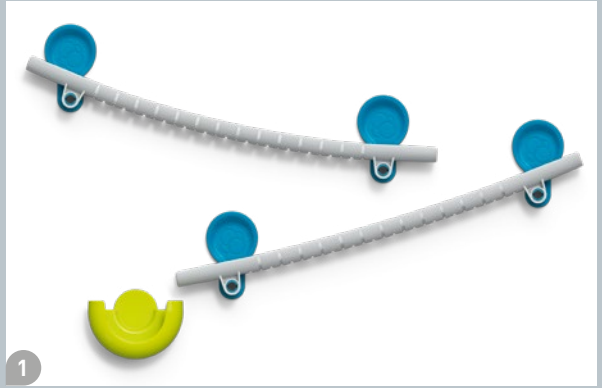
Your GECKO RUN is now ready to go! Here and on the following pages we will guide you through your first steps with your MARBLE RUN. You will learn how the individual ELEMENTS of your marble run work.

— YOUR FIRST TRACKS

1. We will start very simply with two pieces of track and a track turn as the catcher.

 **TIP**

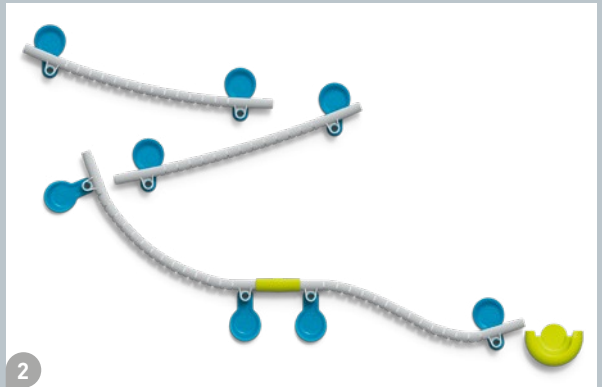
TO MAKE IT EASY TO REMOVE THE ADAPTERS FROM THE PLAYING SURFACE, THEY HAVE A SMALL LIP - USE YOUR FINGER OR THUMB TO PRIZE THE ADAPTER OFF.



2. Now add two track sections to your track. Exploit the flexibility of the track sections and use a track bridge.

 **TIP**

ALWAYS BUILD YOUR TRACKS FROM THE TOP DOWN AND TEST EACH NEW ELEMENT TO CHECK WHETHER THE BALL RUNS PROPERLY ALONG THE TRACK FROM THE VERY TOP. OTHERWISE, YOU MAY HAVE TO BUILD YOUR WHOLE TRACK FROM SCRATCH BECAUSE SOMETHING DOESN'T QUITE WORK AS YOU IMAGINED.



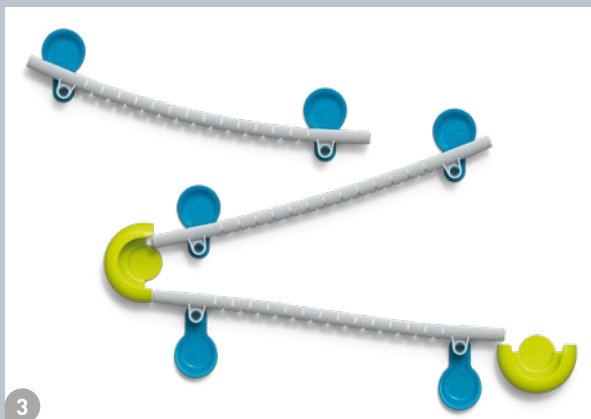
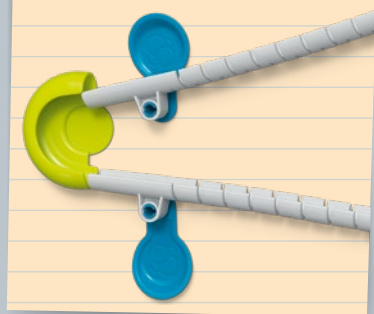


3. Now you can use the track turn not only as a ball catcher, but also as a fast 180-degree turn.



TIP

POSITION THE TRACK TURN AS SHOWN.



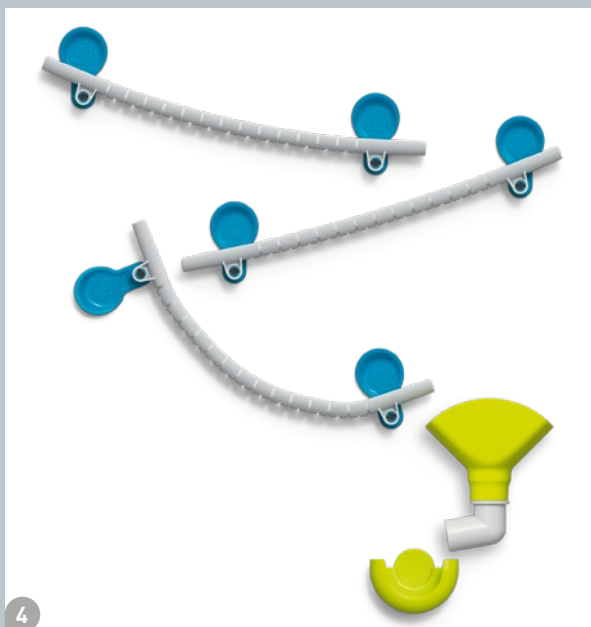
3

4. Next, test the funnel that lets you catch flying balls.



TIP

PRESS THE FUNNEL FIRMLY AGAINST YOUR PLAYING SURFACE - THIS WILL ENSURE IT CAN WITHSTAND HARDER IMPACTS FROM THE BALLS.



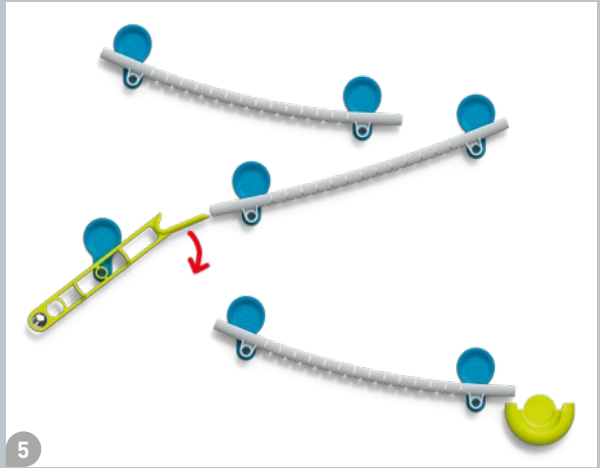
4



5. Now it's time to use the lever, of which there are two in your starter set. Remember to click at least one ball into the slots at the end of the lever as a counterweight.

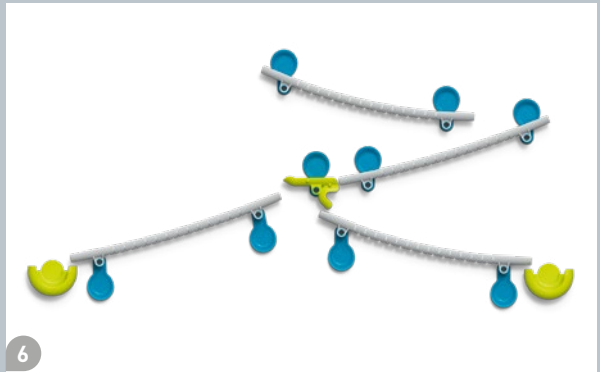
★ TIP

TO USE THE LEVER AS SHOWN, THE CORRESPONDING ADAPTER MUST BE MOUNTED AS VERTICALLY AS POSSIBLE.



5

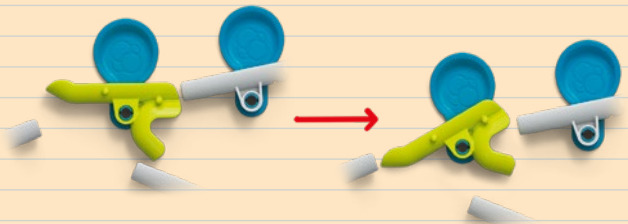
6. The switch makes your track much more complex, as it always alternates the balls in one direction or the other. This splits the path into two branches. Depending on how fast your ball hits the switch, it may react slightly differently. Therefore, familiarise yourself with its characteristics before using this trick on the main track.



6

★ TIP

WITH THIS TRICK, YOU WILL ALSO NEED TO HANG THE CORRESPONDING ADAPTER VERTICALLY. ALSO, MAKE SURE THAT THE SWITCH IS TILTED ALL THE WAY TOWARDS THE LOWER BASKET WHEN ATTACHING IT.





Wow ...
— Now build
a big track!

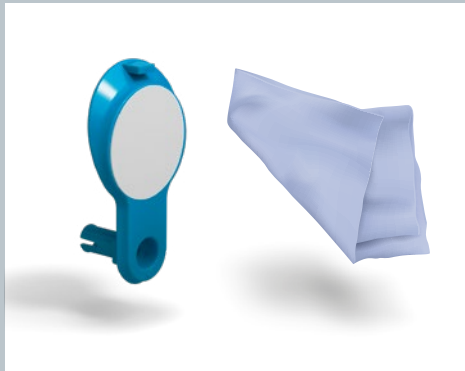
Tips AND TRICKS

Now that you are familiar with **ALL THE PARTS OF** your set you can build your **VERY OWN TRACKS**. On the following pages you will find more **TIPS** and exciting **CHALLENGES** on your way to becoming a **GECKO RUN PRO**.

— TIPS AND TRICKS

The playing surface

The nano-adhesive pads can hold your track on many **materials** as long as they have a smooth surface. So explore your home with your parents and find out where else you can put your track.



The nano-adhesive pads

If your pads are no longer sticking very well, check whether dust has settled on them. If this is the case, you should clean them with a dry, **lint-free cloth** (e.g. a microfibre cloth). If a pad has lost its adhesion, you can remove it from the adapter and attach a new one.

The track

1. Since the tracks are so bendable, you can easily turn a section of track into a **bend**. This is always very useful if you need a lot of **speed** for your ball – this is the best way to get the ball around the bend without losing its momentum.

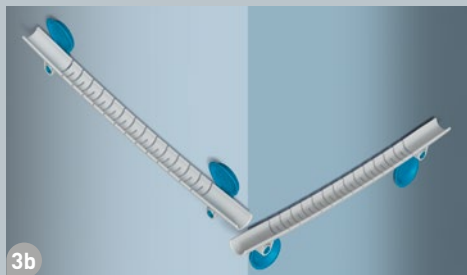
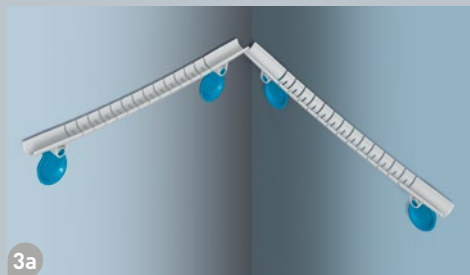




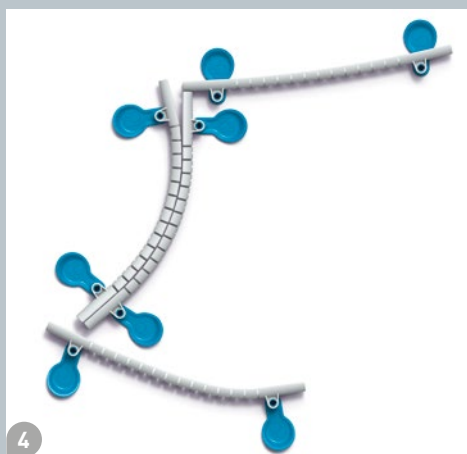
2. You can bridge **window frames** or similar with the tracks and the track bridges. All you need to do is attach adapters to the ends of a long piece of track.



3. As well as window frames, you can also bridge corners to get from one level to another. Position the tracks as shown below. Make sure the ball doesn't have much momentum so that it falls into the second track.

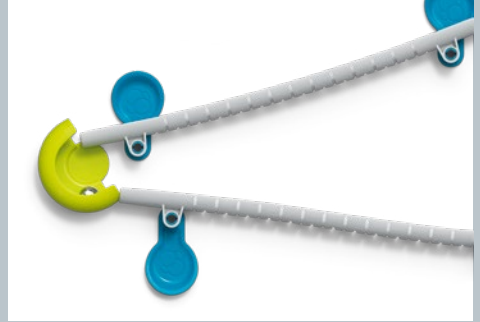


4. By mirroring two tracks as shown in the illustration, you can make them form a tube that ensures the ball falls safely to a lower level without jumping off the track.



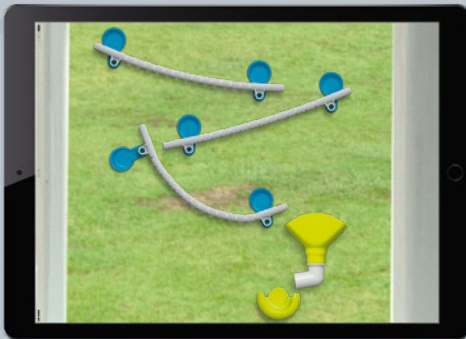
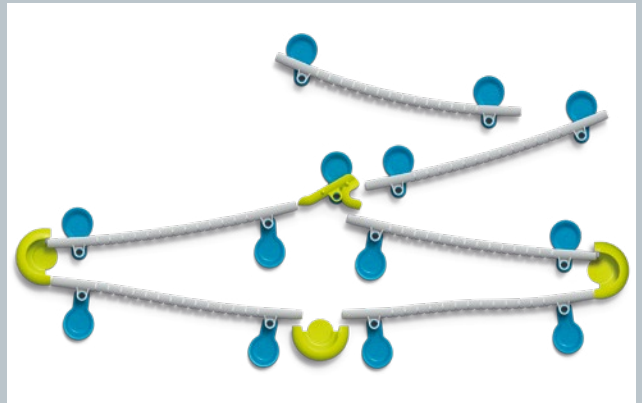
The track turn

You have already discovered that you can not just deflect the ball with your track turn, but also catch it. But that's not all! As shown in the picture, you can also use your track turn as a ball collector that will collect a few balls before releasing them one by one.



The switch

The switch splits your run into two different paths. If you don't have much space on your playing surface or if your components are running low, you can reunite the divided tracks under the switch.



Slow-motion videos

Perhaps you could borrow a smartphone or tablet with a slow-motion video app from your parents, or maybe you have one yourself. By filming your ball as it rolls along your track, you can make exciting, dramatic videos.

A slow-motion video can also help you spot problem areas if your ball keeps falling off track and you can't spot the cause with the naked eye.

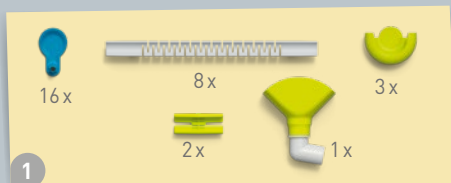


— CHALLENGES

In this chapter we will give you a few tasks for your Gecko Run. When attempting these you can compete alone or against friends and family.

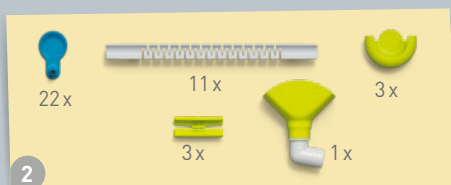
1. Challenge:

Use the components shown to build a track through which the ball travels as fast as possible and arrives at the destination, i.e. the track turn / catcher. Three times in a row!



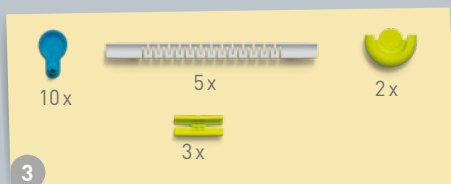
2. Challenge:

Use the components shown to build a track on which the ball travels for as long as possible. The destination is once again the track turn / catcher.



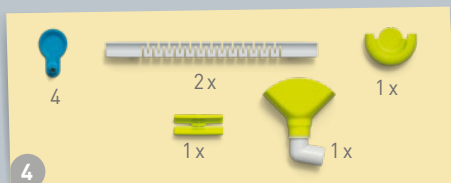
3. Challenge:

Use the parts shown to build a route that covers as much height as possible without losing the ball.



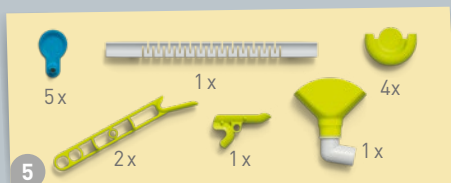
4. Challenge:

Build a jump for the balls using the components shown. Use the funnel and track turn as a catcher. How far will your ball fly?



5. Challenge:

Build a run that only includes one piece of track and otherwise consists only of tricks.



You can find out more about your Gecko Run marble run at: www.kosmos.de/GeckoRun



CHECK IT OUT

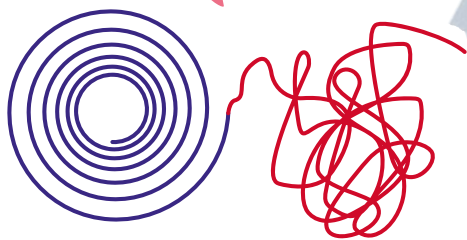
The subtle difference

— You may have noticed something rather odd while playing and experimenting with your Gecko Run: you have built an exciting track and the ball goes through it perfectly a few times. But on the next attempt, the ball suddenly jumps off the track or gets stuck somewhere.

This happens frequently on tracks that challenge the laws of physics. This strange phenomenon can be explained with the help of chaos theory.



— It's not always obvious when a system enters an apparently chaotic state.

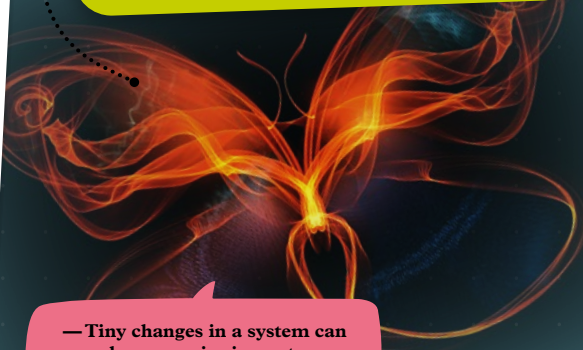


CHAOS THEORY

— In principle, your ball follows physical laws that are identical at all times. Therefore, your ball should take an identical path each time. However, you may have set up your track to be very dependent on ideal starting conditions. In other words, by how you put the ball onto the track. Tiny differences in positioning can result in the ball hitting the trick slightly differently – these deviations can then be exacerbated by changing conditions until the ball eventually bounces off the track.

THE BUTTERFLY EFFECT

— You may have heard of the butterfly effect? This refers to the claim that the flap of a butterfly's wings in Brazil can trigger a tornado in Texas. This is not meant to be taken literally, but rather as an example of how minute changes in a system (like a breath of air from a flap of wings) can have an enormous effect. In fact, this phenomenon is especially apparent in weather patterns, which is why it's almost impossible to reliably predict the weather for more than one week.



— Tiny changes in a system can have a major impact.



CHECK IT OUT

— The countless hairs on a gecko's foot can only be seen clearly under a microscope.

Animals that STICK

— Thanks to the ingenious pads, your marble run can hang like a gecko on vertical walls. But do you know which animals have similar abilities?



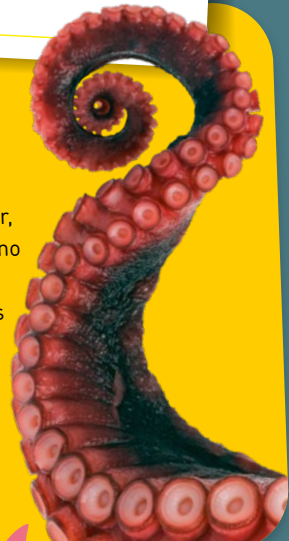
GECKOS, INSECTS AND SPIDERS

— These animals have countless microscopic hairs on their legs that increase the contact surface with the wall many times over. This creates physical adhesive forces (referred to simply as adhesion), which ensure that the wall and the animal's feet attract each other. By the way, the same forces act when you bring cling film into contact with a smooth surface.

— The remora is a species of fish with suction cups on its head. This allows it to hitch a lift from larger sea creatures without moving under its own power.

FISH, OCTOPUSES AND BATS

— Many animals – especially aquatic ones – attach themselves to surfaces using suction cups. However, unlike the animals mentioned above, there are no adhesion forces at work here. Instead, their suction cups create a vacuum that causes them to stick to surfaces. You probably know that octopuses use suction cups, but did you know that there are also sharks and bats with suction cups?



— Ingenious: an octopus tentacle is not only incredibly mobile, it can also hold onto pretty much anything thanks to its numerous suction cups.

