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Interviews: Mads Nipper and Christian Iversen



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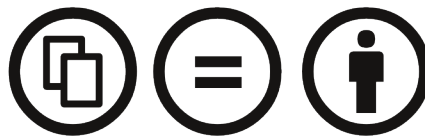
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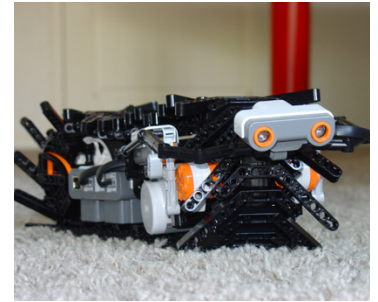


Frontcover by Menno Gorter

Backcover by Satanspoet

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Editorial

by car_mp

One more year with you, dear AFOLS. Another year working hard to keep this amateur (in every sense) magazine going. We are preparing some 'cosmetic' changes for the magazine but they will have to wait until the next issue, due out in August; until real life give us all a break.

As a novelty in this issue we present the first competition held in conjunction with a store. They wanted to advertise in our magazine, which is an honor, but we did not want to give up our slogan, "We do everything for free" (which sounds very bad sometimes). So even it would have been easier to take the money and toss our principles overboard, we got to this collaborative arrangement in which the main beneficiaries are you. If this goes well and more companies decide to advertise in our magazine, we will not hesitate to continue offering you opportunities to win prizes.

I also want to thank Classic-Castle.com for all the facilities they have given us to present you the most important of the Castle-themed contests. Hopefully this will be the beginning of a beautiful friendship with more and even better collaborations in the future. The same goes for TechnicBRICKs, which we butter up now that they are celebrating their birthday ... just like us.

To finish off, I'd like to remind you that despite appearances, we do not live on thin air, but on your contributions in the form of articles. Don't be shy, do not hesitate; write to us to make this magazine last another year.

We dedicate this number to all those affected by the misfortunes that occurred in Japan during the last month. Several members of this magazine are united to Japan and its culture and people for different reasons and we are devastated by what its people have suffered. We wish to extend our love and heartfelt regards.

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**EVERYTHING ABOUT THE CONTEST
ON PAGE 37**

Menno Gorter

This month we'd like to introduce you to Menno Gorter, a 45 year-old Dutchman who is known by the alias The Walker Dutchman. I suppose you can guess why.

By Hispabrick Magazine

*Pictures by Menno Gorter and
dutchbuttonworks.com*



Menno is a photographer and runs a shop where he specializes in large very high quality pictures, which explains the fabulous photography for the front page, although you might not expect that when you have a look at his BS gallery [1], but more about that later on.

HM: To start off, maybe you could tell us how you got started with LEGO®

Menno: There was LEGO in our house even before I can remember. My mother was a kindergarten teacher and fortunately she soon realized the great educational value of LEGO. It teaches you to think systematically, spatially and problem-solving; I can sincerely recommend it to all of you! ;-)
Only then I had to share everything with my two sisters and brother. Later on we got electric motors and rails – that must have been my father's input; he was a civil engineer. By the time I was twelve I already earned some money and I was the only one in the family who spent his own money on LEGO, and eventually all of it ended up being mine as I was the only one who continued using it. I've never really had a dark-age; the way I used LEGO was not usually considered childish and that kept motivating me. I did have a period when I felt I was the only one to still "play" with LEGO (I keep calling it playing, because playing with LEGO is fun... [2] :-)). That lonely period lasted quite long, until about halfway the 90s when I got in touch with De Bouwsteen, a then still small LUG. Ironically the first thing I was asked by this LUG was whether I was a builder or collector. When I explained what I did with my LEGO the reply I got was that I was neither of those. :-) There were no members then who used Technic the way I did.

HM: So when did you start with LEGO Technic? Your oldest walker on BS is from 1979!

Menno: I built my first reasonably working LEGO walker in December 1972, only I didn't make pictures of my creations back then. I did already have LEGO motors, but in 1972 I got one of those sets with gears, universal joints and tread links and that opened up a whole new world of possibilities for me! In short, it was a construction that had something like the push rods of a steam engine and as a result it did not so much roll as walk with a walking frame. Before that I had tried something similar with the white turntables on the red rims that were available then, but the result was not what I wanted. Later on

I have even created six-legged walkers with really old LEGO. There were so many more possibilities after the introduction of LEGO Technic! That's the kind of walker you can see in the 1979 picture in my BS folder.

HM: Do you still build with other LEGO themes as well, or do you only use Technic/MINDSTORMS?

Menno: I still have quite a large amount of 1960s LEGO which I use on occasion as background for my pictures or as test course for my Trial vehicles. Also, I want my models to be more than just Technic beams so I have continued buying some 'normal' LEGO sets over the years, in order to add something extra to my models. As far as I'm concerned, Technic and MINDSTORMS are practically the same. The two supplement each other so well that in order to simplify I'd say I'm a Technic builder who uses MINDSTORMS. In my opinion LEGO® is

meant to be used all together, mixing elements from different lines and themes. That's why it frustrates me so much that some new systems are so hard to combine like NXT and PF; the old 9V was a much better standard. I know perfectly well why 9V was abandoned; only I would have loved to see it being replaced by a single system.

HM: Personally I am especially interested in your walkers and what moved you to start building them.

Menno: Building walkers is probably a matter "why make it simple when it can be complicated" :-). I don't mean to sound arrogant, but in general terms it is easier to build something on wheels than something that walks and a good hobby shouldn't be a five minute job. Also, I'd rather do things not everybody is doing already – in a way it's the urge to be different. I'm not easily satisfied with my models either. They need to be able to function over extended periods of time and they need to be able to carry their own energy source. If I find something that doesn't work well during an endurance test or an event like LEGOWORLD I'll always try to improve it.

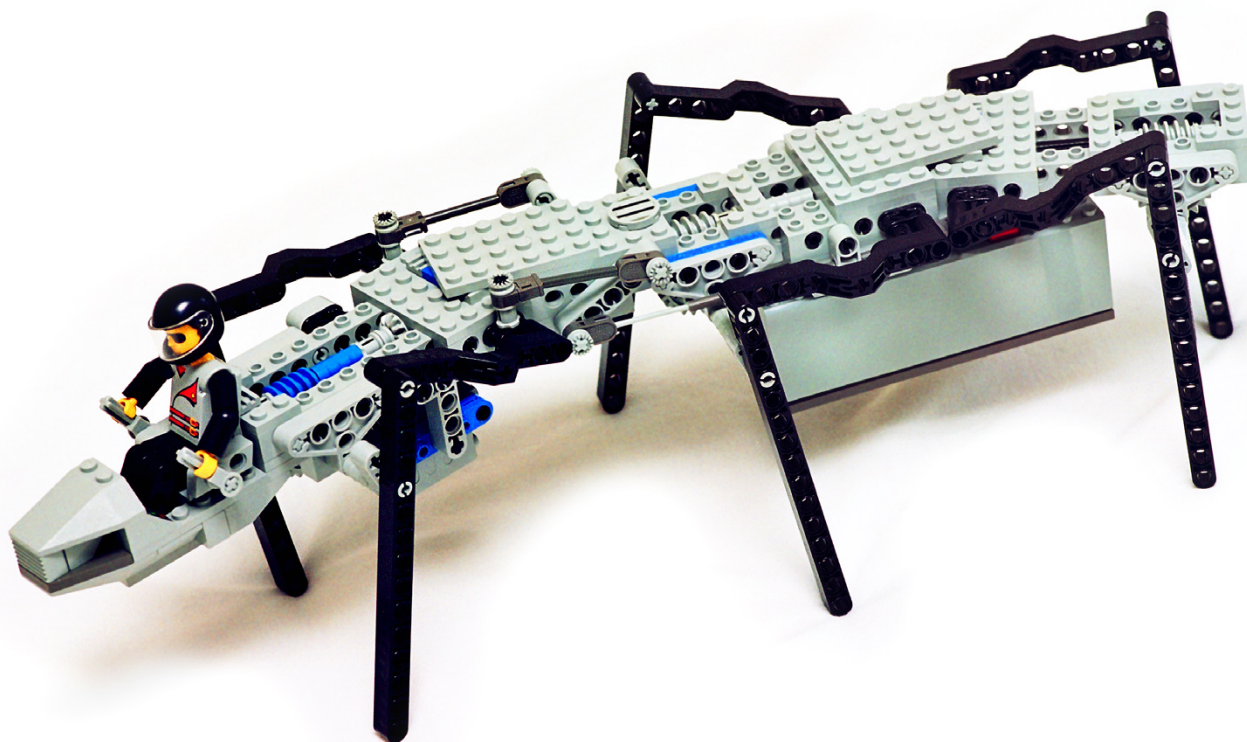
HM: Can you describe the evolution of your walkers?

Menno: The evolution of my walkers is largely determined by the evolution of LEGO®. My main motivation in building walkers is to make them as efficient and reliable as possible. I was quite young when I started building walkers and didn't know much about physics, but I've learned a lot by observation. Simple walkers are mostly based on a crankshaft principle, which means they need to lift a lot of weight with each step. Ideally the body should stay parallel with the ground. At first I tried to get as much of the available energy as possible into the horizontal movement. My first six-legged walker had legs that made an elliptic movement. In this way forward movement was prioritized with respect to vertical movement. I also wanted to make my walkers bigger, only that wasn't so easy with the 4.5V motors available then;

bigger meant more reductions which meant slower and slower movement and finally breaking gears and axles. With the arrival of 9V and Pneumatics larger walkers were possible to make and it was so much easier to keep the body of the walker parallel to the ground. In 2001, on the first LEGOWORLD event, I showed a large six-legged pneumatic walker with on board compressors that could steer.

I got very positive reactions and that really motivated me. In 2002 I also started to include MINDSTORMS in my walkers. Also, I didn't need to disassemble everything anymore to be able to build something new. In 2005 it got to the point where I showed no less than 24 models at LEGOWORLD in a huge stand just for me. Many of those walkers could be played with by the children that came to the event. You can imagine that drew a lot of attention, but if you've ever been to LEGOWORLD you'll understand it took me at least a month to recover from the event. In 2006 I had access to the NXT through the MDP project. The big motors and rigid cables required some thinking. As it turned out, the trick was not to try to build those big elements into something, but to use them as the starting point and build onto them. The NXT-Crab and the NeXTosaurus are good first examples of that. Then in 2007 PF came out and I spent some years building purely mechanical intelligent walkers. Currently I build models that include a lot of everything together. I used the Scout with PF motors in the Scout-Spider and assembled NXT+PF in the NXT/PF-Aragna and the NXT/PF-Omnispider. The NXT/PF-Aragna is so big I have space to combine anything I like, especially since in such a big model weight is no longer so much of an issue as it is in smaller walkers. In my Current WIP, the NXT-Tripod[5], I have used a number of RCX sensors; 2 touch sensors and 3 rotation sensors. The nice thing about these sensors is that since they connect with the old 9V plugs it is easy to stack them, so I could connect 5 sensors to 3 sensor ports on the NXT. If you add the US sensor and the encoders, the NXT-Tripod uses a total of 9 sensors!





HM: It's interesting that you build purely mechanical walkers that can still avoid obstacles. How does that work?

Menno: It gets even more interesting if I tell you that I limit myself with a special rule: I only use one motor, and a maximum of two 'special' Technic elements (differential, turntable, switch, etc.).

I had been toying with the idea of building a small ant that could avoid obstacles mechanically. That was not particularly easy. The idea behind this was to do something like the 8472 Street 'n Mud Racer, which reverses when it bumps into something, only a walker has virtually no kinetic energy which makes mechanical switching quite difficult. Also, there was no space for a bumper on the rear body, which, in any case, wouldn't have looked good. The solution was an extra mechanism which makes the ant go forwards again after taking a few steps back. All of that is in the front of the ant. I named the model Geared-Ant and coined the term 'anti-mindstorms' to indicate it worked without any electronics. The second model works on an even simpler principle although that doesn't mean it's easier to explain. The PF-Raptor is derived from the NXTosaurus. While observing the model I realised this biped could avoid obstacles even when the sensors didn't work. I managed to amplify this effect. Basically it works like this: the walking movement of the biped makes the long nose section swing and when the nose bumps into something the biped takes a different direction at its next step. There are a few films on my YouTube channel where you can see this happening.

A third model has an automatic gear box that changes the direction when the walker gets stuck. It works, but I'm still not 100% satisfied with it, so for now it's in my prototype box. I'm never short of ideas and sometimes you need to let something rest to continue with something else.

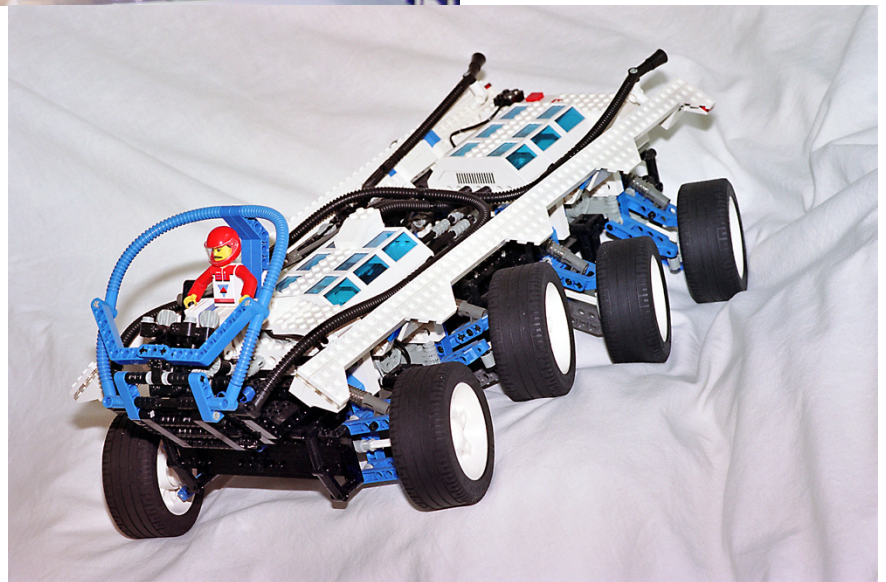
HM: LEGO® Technic has changed a lot over the years. To what extent do those changes affect the way you build your models?

Menno: If you were to step straight from the time of the 850 into present day Technic you'd probably not know where to start :-). It's simply a challenge to make the most of what you have. During my time in MPD[4] (the NXT beta test program) some complained about the rough shapes of NXT motors and sensors. I looked at it differently. Instead of building that big motor into something you need to use it as a starting point and attach things to those motors. It's hard to find more sturdy elements! New elements mean new possibilities.

HM: How do you classify your walkers? By the number of legs, COG shifters, overlapping footprint etc...?

Menno: That's a tough question: the result could result in a very complex 5 or 6 dimensional model :-). One method could indeed be by number of legs, but there is also size, studless or not, Pneumatic, electronic (or not), and things like adder-subtractors, skid-steering, omni-directional, articulated steering, etc. (In my attic they are usually neatly arranged in plastic folding crates – that's a lot easier :-)). I'd rather keep it simple. Models are built with colours according to the type of elements that have been used: PF gets orange, 9V red, NXT orange and/or very light grey, RCX yellow, Buggy-RC black, Manas-RC orange and Pneumatic models mainly yellow. During a show I usually arrange them by colours :-).

HM: This is the second time you mention events. You have been to every LEGOWORLD Holland event in the last decade – How important is the AFOL community and participating in events for you? Has your view on events changed over the years?



Menno: Before the Internet, events were the only way to meet other LEGO® fans and to exchange ideas. Now it still is the best way to interact with the public. With everything I build I always keep in mind that I need to be able to show the model non-stop during a full week without any defects. Especially LEGOWORLD is an important endurance test while at the same time I can show my models really work, whereas I could fake things in a video. The last time I showed my models in Skærbæk the owner of LEGO[3] asked me why I wasn't afraid to let my models walk between the public. I told him it is the best and most enjoyable way to see how the public reacts to my creations. MINDSTORMS models also react to the public themselves of course and it isn't uncommon for children to lie flat on the floor to see how my 'animals' behave. Also, my models are quite sturdy and if anything should go wrong the models are usually quite easy to repair in a click or two. In response he lifted my Scout Spider up by one of its legs, shook it and remarked it was a good design. It is clear he looks at models in a different way than the general public; I like that.

In addition I have often spent time with people who later on have worked in Billund; it is quite special to see that kind of

development, especially when you have shared a stand on a convention for days and discussed many things, in addition to LEGO.

HM: In addition to walkers you also build other mechanisms, although you are less well known for those. Why do you prefer building walkers to vehicles or don't you?

Menno: I enjoy all types of constructions as long as they are highly challenging. It's not that at a certain point I decided to only build walkers, but it was especially the walkers that attracted people's attention and that stimulated me to focus mainly on those. In the past (and to a more limited extent that is still the case) I have built many different things; maybe the best description would be 'vehicles you don't see every day'. Wheels are, however, a ready made product: you click them on to something and it's good to go, and so the challenge to me is less. When the 8880 came out I bought two and for some time I built extremely powered vehicles. From 2000 on, especially inspired by trucktrial which could often be seen on Eurosport, and cranes with many big wheels and crab steering, I built several 8x8x8 vehicles with fully functional power steering (not

electrical steering, but electrically aided steering) and crab steering. Those vehicles could easily take an obstacle like the 8880 box! Maybe not as fast as is possible today with PF motors, but that slow speed certainly gave models something majestic and they were virtually unstoppable. Later, in 2005, a couple of Dutchmen came up with rules for LEGO®-Trucktrial (so that is not exactly a Polish invention). At meetings not even a dozen trucktrials could stop my 8x8x8: when I build something I go all the way. Other vehicles I have built include Killough platforms, vehicles with the big hailfire droid wheels, a lightweight mars-rover driven by micro-motors and the NXT-Grub: a vehicle with a single track that can steer because the track is flexible.

HM: Some people say it is a pity there are no better pictures of those creations and it is virtually impossible to see any construction details. Why is that?

Menno: I don't like to show technical details. You need to be able to see something works, but not exactly how – people will spend more time watching models that way. Additionally, I believe that if you want to learn something you shouldn't simply copy or follow building instructions. I am absolutely against the current 'cut and paste' culture. And to make things worse there are even people who claim those copied constructions as their own. Another reason is that I spend most of my day working with photographs. Since 1996, photography is an important part of my job, so at home I'd rather build than take pictures.

Anyway, when I did take more detailed pictures people were always asking for video footage and I suppose now they'd want building instructions... I do make videos now so people who cannot come to any of the events I go to can see my creations in action.

[1] <http://www.brickshelf.com/cgi-bin/gallery.cgi?m=Menno-Gorter>

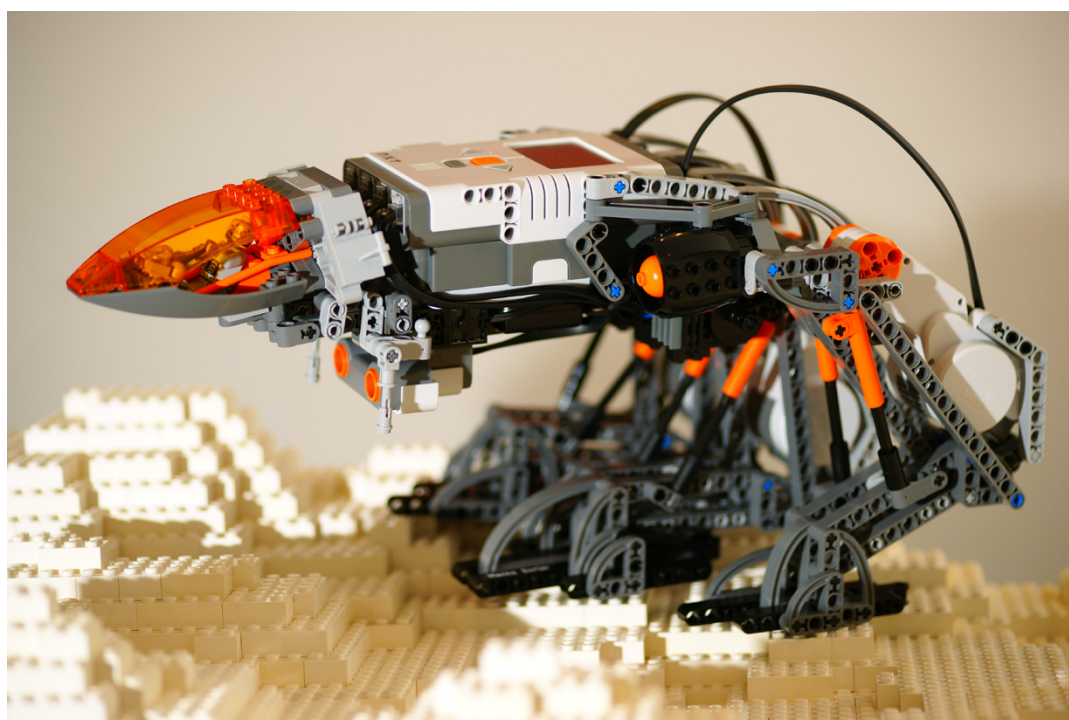
[2] slogan used by LEGO to advertise their product in Holland

[3] Kjeld Kirk Kristiansen

[4] for more details on MPD read "MCP – the origins" in HBM 009

[5] you can see the NXT-tripod on the front page!

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LEGO® SPORTS

Playing the game

Text and pictures by Iluigib

SPORTS is one of those themes that has always been present in LEGO® models. Mainly in the motor sports area, there have always been cars, motors, speedboats and other vehicles for competitions in the catalogue, even before the appearance of the minifig. But in 2000 the company took an important step in the incorporation of sports sets. Captained by the image of Zidane, 15 official football sets were launched, and this would be the start of a significant series of sets related to different sports, all of which have a high level of playability. The theme was called SPORTS (although initially it wasn't presented under that name). Within this theme, there were sets dedicated to football, basketball, ice hockey and the Gravity Games (Skateboarding and Snowboarding).

The main strong point of the sets was their playability. They had to be fun and spark many hours of entertainment, be it alone or in company. The sets were not limited to the playing fields or ranks, but there were many complementary training sets, which allowed the gradual introduction of the sport up to the set that recreated a championship. This philosophy was applied mainly to the football and basketball sets. The other sports were more of a secondary nature, as they more minority

sports (skateboarding and snowboarding) or more focussed on local markets (Ice Hockey for the USA and Canada).

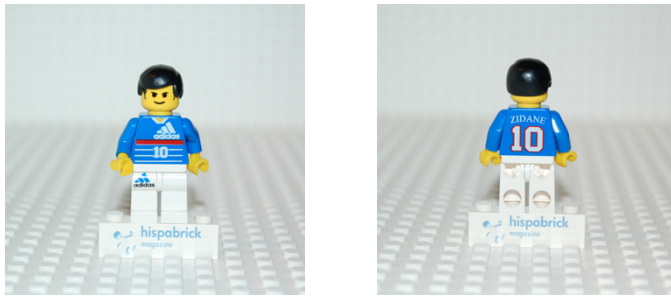
Football

Before going deeper into the SPORTS line I need to make reference to 1998 when, coinciding with the World Championships in France a number of promotional sets for the oil company Shell were launched. The first LEGO football field was made up of two 48x48 baseplates decorated with the lines of the field and in two shades to simulate the different cutting of the grass. There were some polybag with players from different teams, like Holland, Scotland, England, Germany and Austria. In order to complete the team, there was a set with a goal keeper, another one with referees, and accessories to finish the playing field, like grades, a press area, a medical unit, and even riot police. The sets weren't very playable as far as the sport is concerned as there was no system to play the ball. These sets were not widespread as they were difficult to get and today the prices of those sets are quite high.

On the occasion of the Eurocup in 2000, celebrated in Belgium



and Holland, LEGO® launched playable football sets with the star player Zinedine Zidane depicted on all the boxes. These sets allowed you to build a complete football stadium, with a playing field, grades, a score board, a commentator's booth, first aid, buses for the teams and expansion and training sets.



The football field was 6 against 6, which could be increased to 11 against 11 by adding 3 expansion sets. The players of this championship wore t-shirts and there was a sticker sheet to personalize each minifig with a number. The buses on the other hand corresponded to players from different teams all over the world. Their torsos were plain and the different bus sets contained sticker sheets to personalize each team with flags from different countries. Each of the 4 buses had a different set of stickers so if you wanted to have all the countries you had to buy four of them.

The training sets were quite curious and reflected different methods to practise scoring. There was also a special set that allowed you to play just about anywhere, consisting of a box on which a lid was placed and that could be attached to your belt. Inside the box two minifigs could be stored in addition to the necessary parts for the training and after taking off the lid, the box was used as a goal.



The method of playing is simple but efficient. Using a part that was especially designed for this set, the Sports Field Section 8 x 16 [picture X]. This element has a hole in the centre that can hold a Technic pin onto which a second part is attached that is specific for this system, the White Sports Minifig Stand Soccer with Spring and Green Pin [picture X]. This part has a spring, two studs to place the minifig, a small notch in the front part for the ball and a lip on the backside. By pressing the lip on the back and releasing it suddenly the ball is shot. It can be shot in any direction as the Technic pin allows the pedestal to turn 360 degrees in the Sports Field Section.

In order to make this first edition collectible some special parts were added:

- A Zidane minifig
- An Adidas™ ball

The minifig was exclusively available in the 3401 training set. As a curious detail, this set exists both with and without the Zidane minifig. I don't know what criterion was followed for the distribution of these versions. The ball was exclusive of the 3409 football field.

In 2001 two small sets were launched, one of a Japanese football team, exclusive to Japan and a feminine team, exclusive to the USA.



In 2002, coinciding with the World Cup in Japan and South Korea there was another massive launch of football sets. Most of these were promotional polybags for the Coca-Cola™ company, exclusively available in Japan. There were players for two teams with Coca-Cola t-shirts, and all kinds of accessories, like ice boxes, stretchers, benches etc. There were also special bags, Secret A and B which could contain a minifig with a silver or gold coloured Coca-Cola t-shirt. The rest, available all over the world, were very similar to the sets from 2000. A football field 6 vs 6 (3420), a smaller one of 3 vs 3 (3421) and, finally a complete field of 11 vs 11 (3425). There was also some training sets similar to those from 2000 although with a better finishing.

In this year there were also special sets like the 3420 -the French football team - with a uniform consisting of an RFFF t-shirt and Adidas™ → shorts. This set was launched to commemorate the 1998 Worldcup and the 2000 Eurocup which were both won by this team. In this case, the box was also special, featuring a photo of the players of the team. There was also a special 3425 with the American football team, although in this case the minifigs were normal and came with stickers of the North American Football Federation.

Finally, there was a re-edition of the 3407 bus (the red one), sponsored by Adidas, which included a real football decorated with LEGO motifs.



Between 2003 and 2005 there was a break in which - with the exception of a few promotional sets - there were no new football sets. During those years however, LEGO® launched sets featuring other sports which I will mention later on.

In 2006 there was a last return to the football sets, which would also be the last of LEGO SPORTS. There was a slightly different football field consisting of Sports Field Section 8 x 16 which were placed on a plastic base which also served as stands and lamp post support. The field was 6 vs 6. Other novelties were the lamp posts, the grades for spectators and the new goals, substituting the one consisting of LEGO parts and a net for a new 3-piece setup with the same function. There was also a 2 vs 2 field and a training set you could attach to your belt, similar to those from 2002.

Finally there was a much sought after promotional set which was launched in 2007 and was a gift from Adidas™ when you bought a pair of sports shoes - the set included a goal keeper you could personalize with Adidas™ stickers and, most importantly, a gold coloured ball.

The balls worth a special mention. In each of the stages, in addition to the standard black and white football, specially decorated balls have appeared depending on the different championships. In 2000 there was a replica of the ADIDAS TRICOLORE from the 1998 Worldcup. In 2002, there was a replica of the ADIDAS FEVERNVA and in 2006 of the ADIDAS TEAMGEIST. In addition to those three, in 2006 there was a blue ADIDAS ball with the 2 vs 2 field and the gold coloured ADIDAS TEAMGEIST reappeared in a promotional set. Some of these balls are very hard to get and others are collectors items. In my collection I only miss the gold coloured TEAMGEIST.

Basketball

In 2003 LEGO surprised its fans by launching a series of basketball sets after reaching an agreement with the North-American Basketball League (NBA). The engineering work done on these sets is among the best I have seen in the last couple of years. A simple system that, with the use of springs inserted in the legs of the minifigs, allows them to pick up and launch the basketball.

The underlying philosophy is the same as with the football sets. On the one hand there are play fields and on the other hand training sets. In this case there were 3 courts, a 2 vs 2 (3431) and two complete 5 vs 5. One of them only has two small stands at each end of the court (3431) and the other is just like a big NBA stadium with stands all around and with special concave parts to make sure the ball always returns to the court (3433). There were a total of 8 training sets with different activities like scoring, blocking and speed tests.

As you will no doubt be aware, the American are very interested in memorabilia and collectables. LEGO was well aware of this trait and launched 8 boxes (3560-3567) with 3 NBA players in each one. A total of 24 charismatic players which were placed on a base and a card indicating the characteristics of each player. Among those 24 players we can be proud to see Pau Gasol, playing for the Memphis Grizzlies. Although he had only been in the NBA for a short time

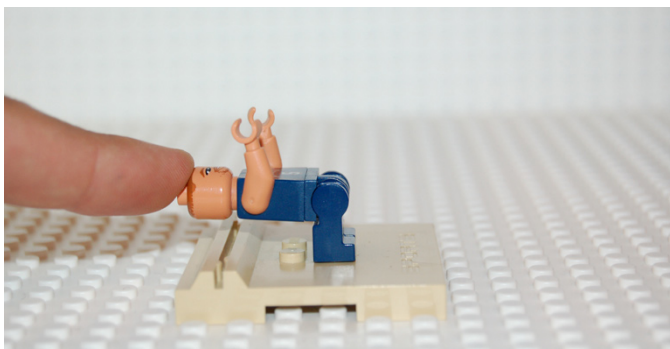
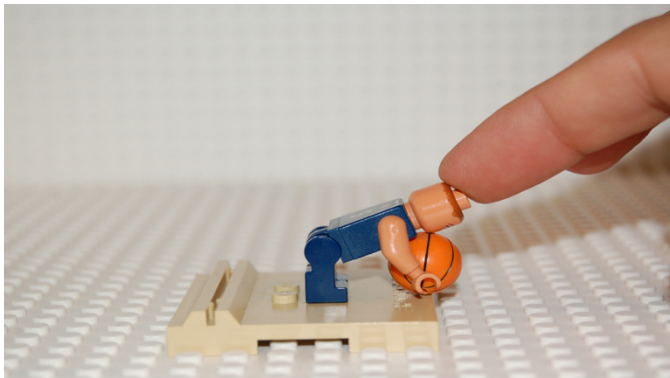




he already stood out as a player and his minifig was included in the first set of the series, 3560. These sets were not much appreciated in Spain (although only the sets 3560 to 3563 were available here) and until recently they could be found on sale in many shops.

The method for playing is simple but fantastic. The springs in the legs of the minifigs allow these to bend forwards and backwards. The arms are also special. The hands are fixed, the arms work like a hook and are prepared in such a way that they can be put at a 90° angle to the body and stay fixed in that position. The minifig is placed on a Tan Sports Minifig Stand Basketball, which is connected to the Sports Field Section which reproduces part of an NBA court by means of a Technic axle pin. To pick up the ball the minifig needs to bend forwards. The arms click around the ball. If you then bend the minifig backwards (pushing the head backwards) it is ready to launch the ball. When you let go of the head, the ball is launched. Depending on how much force you apply the ball will be launched a certain distance. For long shots there are legs with stronger springs (one of the springs is yellow) to allow a more powerful launch.

On the basketball courts and in some training sets there is a defence mechanism consisting in a player who can move both vertically and horizontally. Here another curious part is used, a



milky white car tyre, a colour that is exclusive to these sets. In my opinion these are the most fun and most playable sets in the SPORTS range. With only 5 minutes of practice you can score points and after that you're ready for hours of fun. Playing a game against anyone else is a sure source of laughs.

Ice Hockey

Another American sport that was licensed by LEGO® was Ice Hockey (NHL). In this case there were two types of sets, one at minifig scale and a second more similar to Technic. Personally I'm only interested in the minifig scale sets.

There were only two of these, but they caused a great impression. There is a small street hockey rink 1 vs 1 (3579) and an NHL stadium 5 vs 5 (3578). This last set contains a number of special parts like protection for the players, the puck or the first ever Tile 8 x 16. One team wears white and the other black. The protection had the NHL logo. The set included a sticker sheet to personalize the players with the colours of different NHL teams.



The way the game is played is somewhat different from the other sports,. A number of parts were designed that could hit the puck and be attached to a Technic axle. The minifig was placed on top of these parts and turned together with them. This way you can shoot the puck with considerable force, although the Technic axles hinder the movement of the players in the field. However, the game was well designed and allowed you to enjoy a good match.





As a special complement a reproduction of the Stanley Cup was designed - this cup is given to the winner of the NHL play-offs. It is quite a good reproduction made primarily with chrome silver parts and it is a good complement to this series.

Gravity Games

With this name, that originates from a multi-sport competition of extreme sports, there were sets with two different themes: Skateboarding and Snowboarding

There were two skateboarding sets. One street set and one with a half pipe. There isn't much to be said about these sets except for the excellent reproduction of the skateboard areas and a curious part, the Tan Turntable Spinning with Sports Trick Handle 2 x 24 x 4 1/3 which served to allow a skater to turn 180, 360 or 540 degrees. It takes a little getting used to, but it is fun to play with.

The three snowboarding sets are good fun to play with. The smallest one (3536 - Snowboarding in Air Comp) is a jump the snowboard can make with different movements, depending of the angle you set the lever that launches the snowboard. The snowboard is a specific part that has a weight inside, giving it a certain inertia and allowing it to make certain movements. The second one (3538 - Snowboard Boarder Cross Race) is a downhill race between two competitors. The piste, built

with white baseplates and curved slopes, presents different obstacles which, depending on how you start the descent (which can be changed in the vertical plane) can be taken in different ways. Additionally there is a part where you can make a jump by elevating part of the piste. I have to say that each descent is different and the way you take the obstacles varies even if you start from the same position.

The biggest one was the Half Pipe (3585 - Snowboard Super Pipe). You had to complete several turns to complete the run. There are two ways to play. The minifig could be launched from a ramp and be allowed to move depending on inertia, or using the Tan Turntable Spinning with Sports Trick Handle 2 x 24 x 4 1/3 which, like in the case of the Skateboard, allowed you to make different turns and movements.

As you will have noticed from the article I'm an unconditional fan of this theme. Of all the sports, the one that fascinates me most is Basketball. I think it is a brilliant system (often what is simplest works best). I think it is a pity these sets have gone unnoticed for many fans as they are highly playable and well designed. Finally I would like to encourage you to get a set from the SPORTS theme (although it is more and more difficult to find them) and try it out. It may change your perception of these sets.

#



Building Spheres

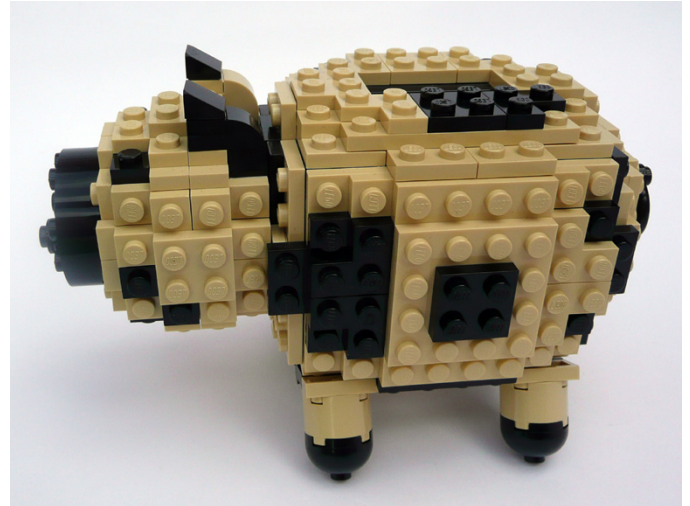
Rounding square blocks

Text and pictures by car_mp

Although I didn't have a "dark age" as such, since I managed to buy at least one set every year even if it was small, it is true that after the launch of the Star Wars™ line, LEGO® once again became my number one hobby. From the MOCs of my early years I keep a special memory of a version of Pikachu that I designed for my niece. As I had no idea about SNOT techniques and all those things, its design was the typical brick on brick. Looking back now, I would undo the whole design and start over from scratch.

Soon after, by chance, looking for the best way to design a sphere for the Classic-Space symbol, I found the sphere called Bram's sphere, after its creator Bram Lambrecht. For me it meant a before and after, and it is largely responsible for my continuation in this hobby.

The Bram's sphere is based on the design of six faces that are placed on the sides of a cube shape to approximate a sphere. By building in the six directions of a cube, first of all the ability of "rounding" the figure is increased, allowing you to smooth changes of volume using plates, and on the other hand it



allows you to add details to the faces as there are studs in all directions. All this opened up a new world of possibilities in my designs.

You can find the Bram Lambrecht spheres generator online. It generates an LDraw file with the design of the six identical faces you have to build, depending on the diameter you want. You just have to build the internal cubic structure to place the faces. Normally you can use Bricks modified with studs in many faces depending on your need or design.

Its configuration allows easy development of the sphere to other volumes as a rugby ball, half spheres, etc ... Very useful for other designs.

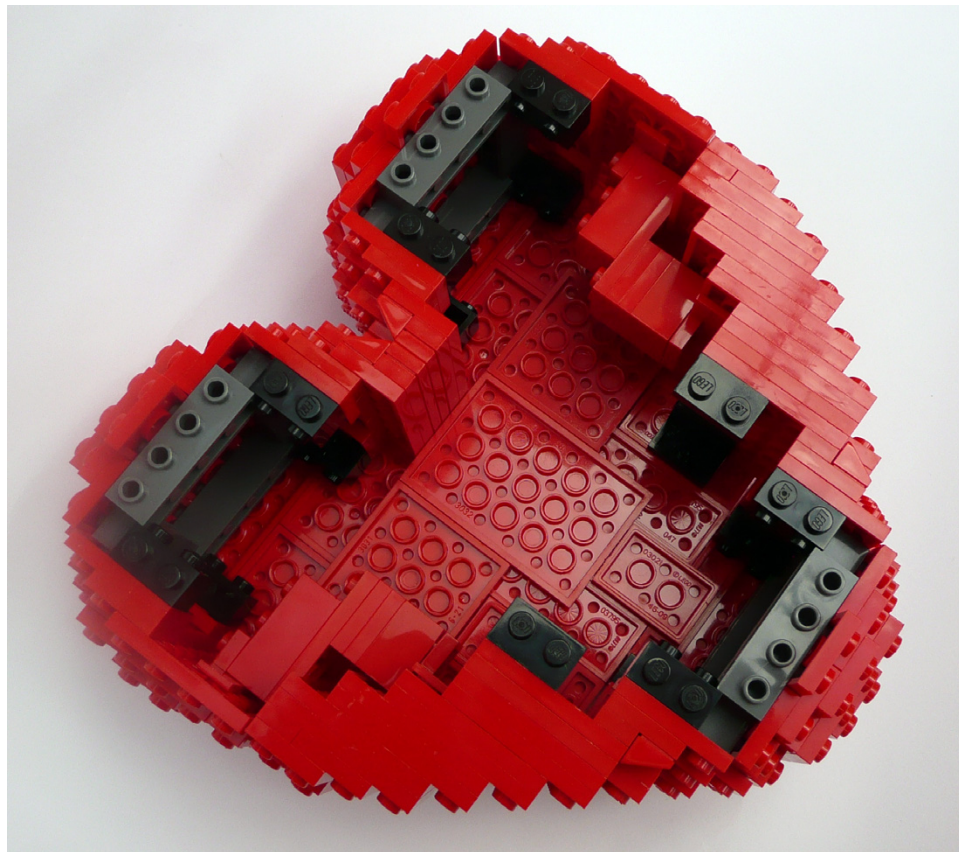
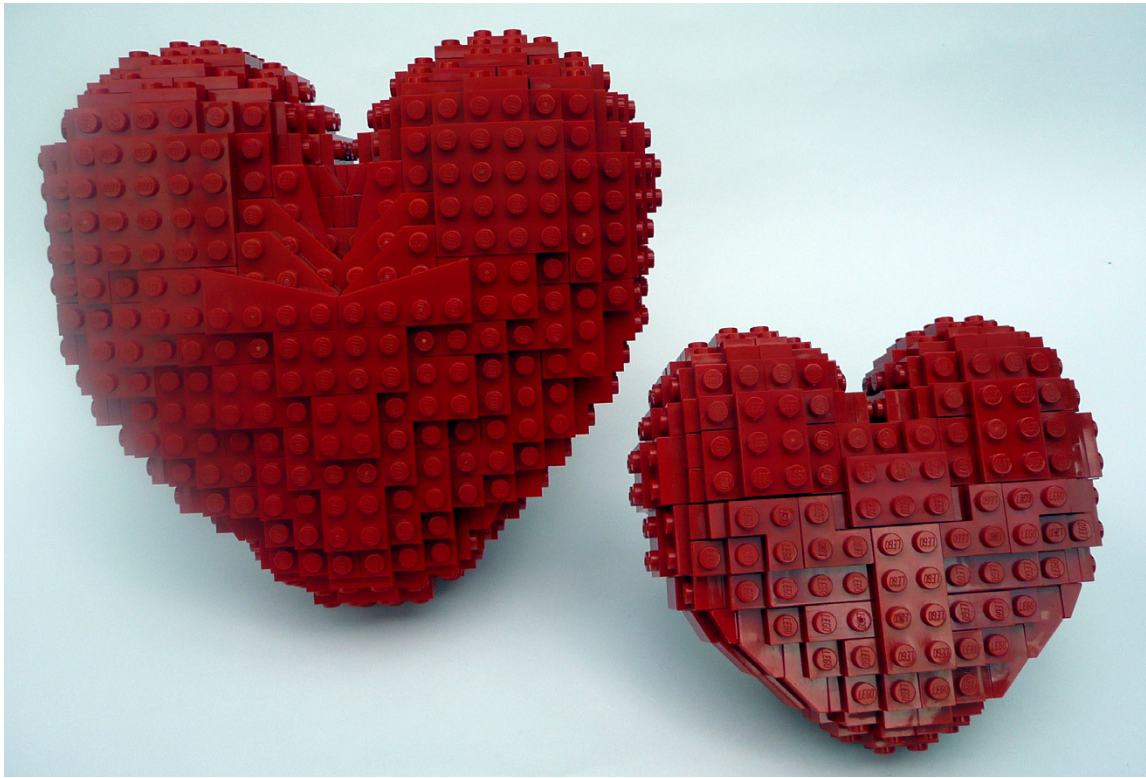
Shortly after discovering the Bram Lambrecht sphere, I was looking for smaller designs and found the Lowell sphere. The main novelty of this sphere is the use of jumpers to get a better "smoothing" effect in smaller sizes, by introducing a half-stud offset at the ends.

Bruce Lowell himself summarizes the origin of his sphere:

"The story behind the sphere is actually not that exciting (in my opinion). Basically, I made a rounded engine tip for a Star Wars™ spaceship using the rough idea of the sphere, but it wasn't until two years later at a LEGO convention that there were "play bricks" on a floor that had a large amount of the pieces I used to make the engine tip, so I tried expanding it to make a ball. Everyone at the convention loved it, and it was a few months after that I officially posted it on my website. The rest, I suppose, is history. :)"

This smaller design allowed me to work at a smaller scale, although I must say that the jumpers are a challenge in changing the design to change the sphere. In the Bram





Lambrecht sphere generator you also have the possibility to design the Lowell area if you enable the option of using jumpers.

Personally I can only show my appreciation to both for sharing their designs with the entire community.

Thanks to Bruce Lowell for letting us reproduce the instructions of his sphere.

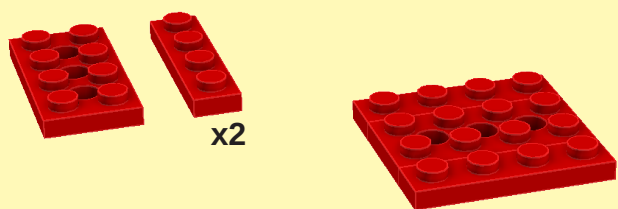
BRUCE LOWELL:

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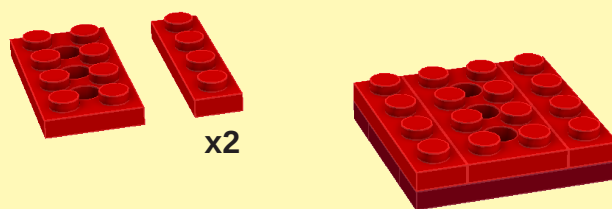
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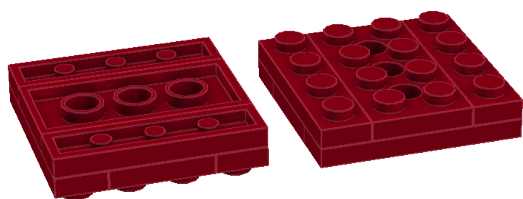


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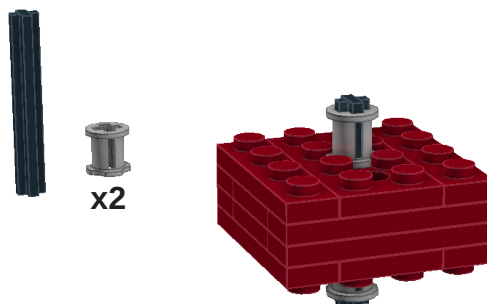


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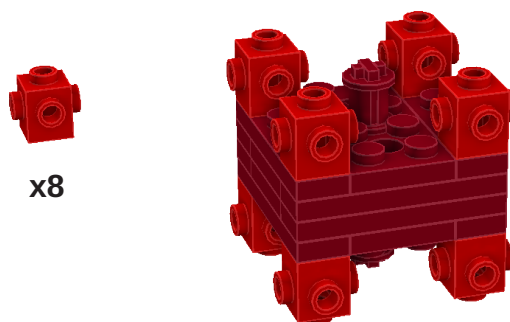
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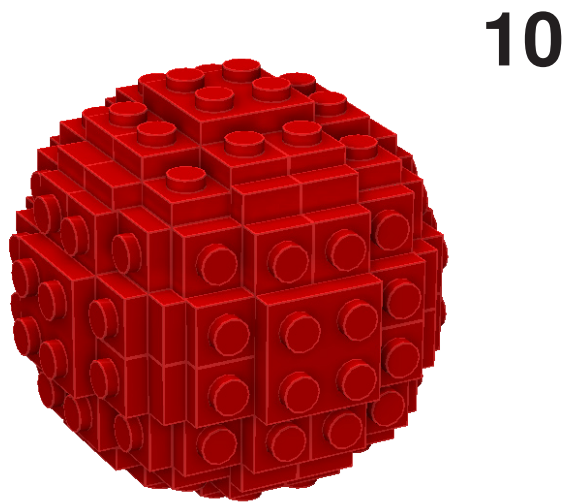
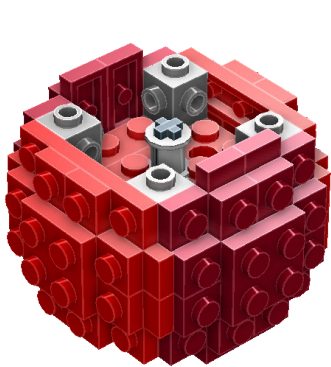
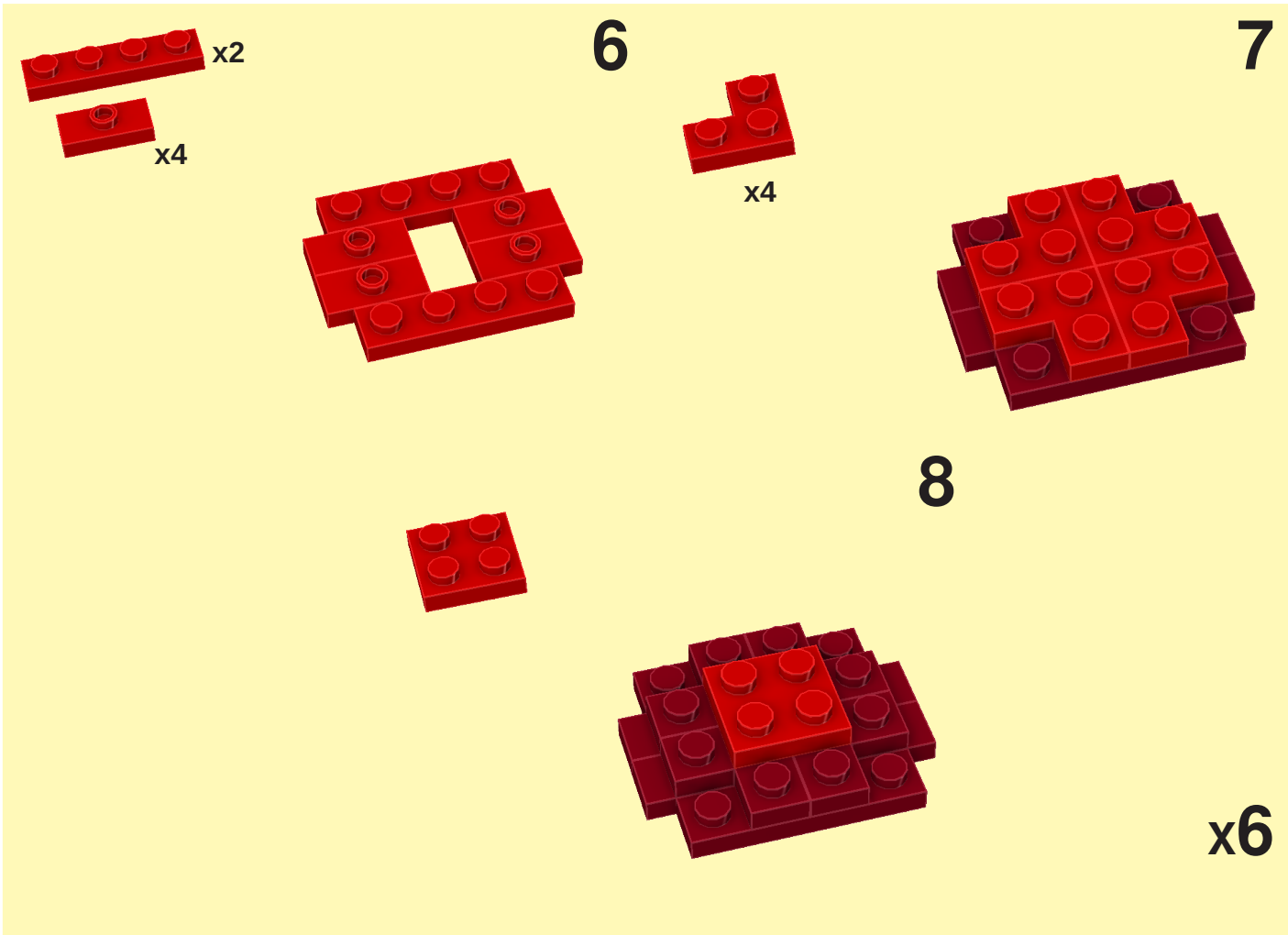


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5





Colossal Castle Contest

<http://www.Classic-Castle.com>

Text by Bruce N H

Pictures by their respective owners



At Classic-Castle.com, we like to refer to ourselves as “the source for all your LEGO® Castle needs”. In the pursuit of this goal we have resources like set guides and how-to articles, we host a vibrant online community that discusses all topics related to the LEGO Castle theme, and we hold regular contests to promote building in this theme. Our signature event is the Colossal Castle Contest, or CCC. This is a large contest announced each year around November 1. Multiple categories range from the size of a single customized minifig to large castle layouts covering multiple baseplates. Prizes include brand new LEGO sets, classic sets ranging back thirty years, and custom figures and accessories. Each year we attract a large number of entries from LEGO builders around the world, some who are old hands in our forums, and others who are trying their hands at the Castle theme for the first time.

We recently completed our eighth annual Colossal Castle Contest, and it was a huge success. Eighty-five different builders submitted two hundred and thirty-one different MOCs for the eleven categories. As a judge in this contest, I can tell you that it was tough to judge among the many excellent creations. People came up with great ideas, developed new building techniques, and wowed us with their creativity.

One category was called **‘Castle Evolution’**. The challenge was to present the same setting at three different periods in history. I expected we’d see lots of castles under construction at one point, and then completed at another. Or maybe we’d see things set during the middle ages, and now visited as tourist destinations in the present day. We did see those, but Turambar’s winning entry turned the category on its head in a clever way. He showed us the devolution of a Roman road - a fine paved road during the height of the Roman Empire, then the paving stones being dug up to use in another structure during the medieval era, and finally just a small remnant alongside a modern highway.

The **‘Medieval Maintenance’** category brought out a lot of blacksmiths, a couple of shipyards, and other construction projects. Shmails won the category with a humorous entry. His C.H.I.M.P. Squad, or Castle Health, Improvement, & Maintenance People, springs into action after battle to clean up the random bodies of orcs lying about and patch up holes in the castle walls.

‘Pastoral Life’ encouraged builders to focus on the role of animals in medieval life. Skaldyr’s Silence Before the Storm showed a lone shepherd living on a lonely island with his



*Evolution of a road
por Turambar*



*Order of Brothers
of the German House
Saint Mary
in Jerusalem*



*Grand Master
Dietrich von Altenburg
Anno Domini 1337*

*Teutonic Knight from XIV century
por Kris Kelvin*

sheep. The MOC truly captured the feel of the winds whipping up as a great storm batters the island. My favorite detail may be a bird swooping down to snatch a fish out of the ocean.

We had two different entries to entice the **minifig customizers**, one for realistic figs and another for fantastic ones. Kris Kelvin won the first category with a mounted Teutonic knight from the 14th century named Dietrich von Altenburg. Bluesecrets created Violette Étoile, a fairy with a flowing purple gown, to take the second category.



The C.H.I.M.P. Squad por shmails

Two categories looked specifically at wartime themes, and winners for both of these mixed scales in interesting ways. 'Preparing for War' had builders setting aside supplies to



Silence before the Storm por Skalldyr



Violette Étoile por Bluesecrets

withstand a siege, or building catapults and battering rams. Jalkow won with 'Destroy the Neighbors'. The king and his generals make their plans for attack by moving around microscale figures and buildings. The details created at both the minifig scale and the microscale here were impeccable. 'Mythical Battle' had the forces of good beating back hordes of orcs, monsters, and the undead. Unitronus' winning 'Dragon Raid' had an army in the foreground rushing to the aid of a microscale city in the background that was beset by dragons. Unitronus designed dragons at three different scales to help create the illusion of distance through forced perspective.

'Rob the Rich' asked builders to come up with two scenes. In the first a band of outlaws was to, well, rob the rich, and in the second was to show what they did with the loot. Anyone familiar with the MOCs of Derfel Cadarn knows that he has developed a very striking and recognizable building style. He has extremely realistic buildings made of a mix of stonework and timbers surrounded by lush landscaping, and this category was no exception. His outlaws rob a mill in one scene and purchase an inn in the other, and both structures are works of art.

Unlike most of the other categories, the 'Realistic Castle' category had no size limitations, so builders were encouraged to pull out all the stops and wow us. Legacek certainly did that. He built a wonderful recreation of Orlik Castle, a real historical



*Destroy the Neighbours
por Jalkow*





Dragon Raid por Unitronus



Reconstruction of Orlik Castle por Legacek

Rich Man's Mill



CCCVIII
Rob The Rich to...
Part 1

Drink And Be Merry!



CCCVIII
Rob The Rich To...
Part 2

By
Defel Cadarn

Rich Man's Mill & Drink And Be Merry por Defel Cadarn

castle from his home in the Czech Republic. The real structure was full of interesting shapes coming together at irregular angles, and Legacek reproduced these beautifully.

The **'Miscellaneous'** group was for anything that didn't fit the other categories. Entries included inns, towers, churches, monsters, attacks and other scenes, but Davee123's Viking village took the prize. Vikings in MOCs are often shown in battle, but here Dave showed the peaceful side of their lives. Most notably, he developed a very realistic design for thatched roofs that impressed everyone who saw this MOC.

The **'Fairy Tale'** category had builders illustrating stories from traditional sources like the Brothers Grimm and Hans Christian Andersen or from more recent sources like Disney movies. Legohaulic's Little Red Riding Hood took top honors and really emphasized the 'big' and 'bad' in the 'big bad wolf'.

Finally, we awarded the **Master Builder prize**. This went to the builder who scored highly across multiple categories. There was no question that this went to Derfel Cadarn. In addition to winning one category, he received honorable mentions in four others. His body of work shows a consistency of both style



and quality, and each MOC showed a great deal of creativity. In addition to winning a great prize (set 1592!), he will carry the title of Master Builder in our forum for the next year, until CCCIX rolls around.

And we encourage anyone reading this to look forward to that next CCC, which will be announced on November 1. Anyone is able to enter, whether you've ever posted in our forum or even built a castle MOC before. There will be small categories to allow for builders with very modest collections of LEGO, and larger categories to let people impress us on a massive scale. In the meantime, we'd also invite you to check out Classic-Castle.com to learn more about the Castle theme and to join in the discussion with a great group of AFOLs.

#



Viking Village por Davee123

Bron-Y-Thur



CCCVIII
Mythical Battle

No Remorse!



By
Defel Cadarn

Troll Baiting!

By Defel Cadarn



CCCVIII
Preparing For War

By Defel Cadarn

Ramble On!



CCCVIII
Pastoral Life

By Defel Cadarn

*Ye Old
Forge*



CCCVIII
Medieval Maintenance

By Defel Cadarn

por Defel Cadarn

SuperCar 8880

At the “top” of Technic

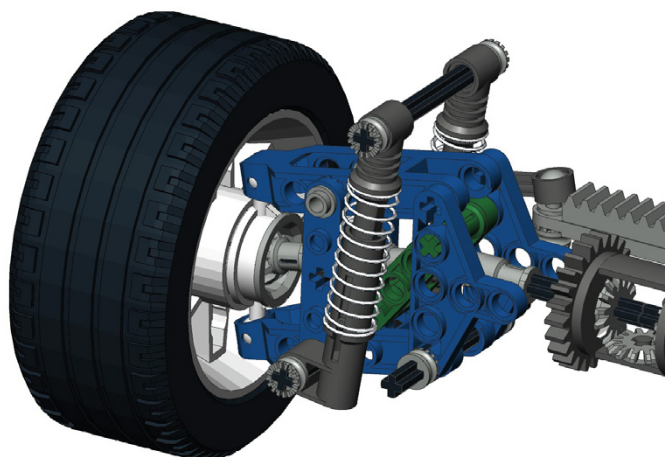
Text by Manticore

Images from Blackbird's Technicopedia

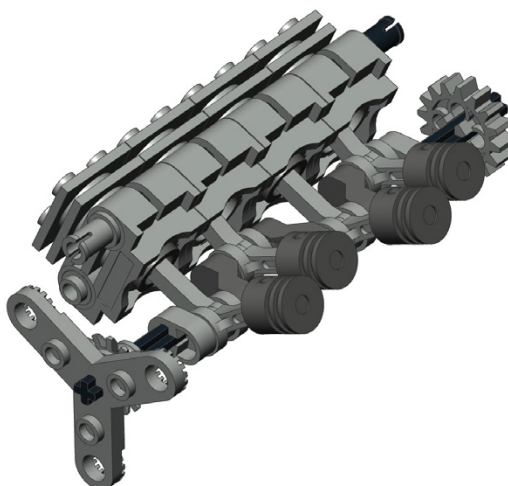
In 1994, International Year of the Family and Sports and the Olympic ideal, LEGO released the penultimate supercar we will analyze: the 8880. Allow me a brief personal note, as this was one of the sets that caught me in full dark-ages, at the “tender” age of 22 years. It was the first time my current wife looked at me strangely ... thank goodness that with time she has grown accustomed ... and me too.

Let's start with the box: EXTRAORDINARY. With a cover that shows pictures of the main model and a rear side with Pictures of the alternate model, a F1 car ... Was it a prelude to the Silver Champion? It was made of hard cardboard, with a tray with yellow plastic separators, typical of the sets of those years.

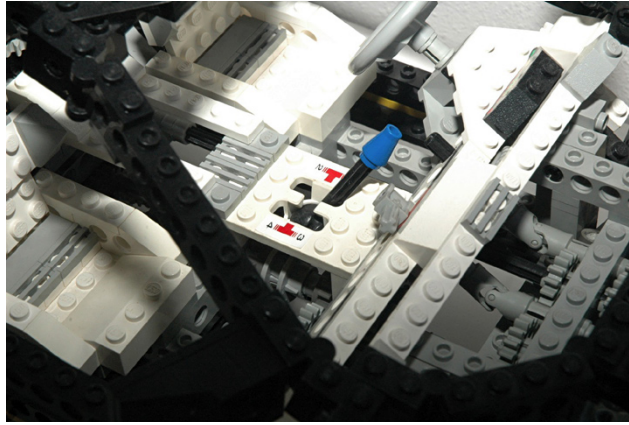
What is most striking is the change of the wheels, the traditional and even mythical 24x43 LEGO TECHNIC wheels that the three previous supercar models used are replaced with the much more realistic 81.6x34ZR wheels. It maintains the double wishbone suspension like the 8865 set (four-wheel independent):



It maintains also the swinging headlights but incorporates 4-wheel drive, differential in both axis, a V8 engine with smaller and more realistic cylinders that substitute the old Technic Piston 2 x 2 Block:



Four-wheel steering (unique among all TECHNIC sets to date) and a synchronized 4-speed gearbox (the first time in a set LEGO®). This system persists in the latest sets like in the 8043 bulldozer, as a gear selector as well as a function selector:



We can summarize that the numbering of this set (the highest numerical value ever given to a Technic set) is explained by many reasons. I'll briefly explain some of them. First, we will talk about the aesthetics of the vehicle's bodywork. It is built only with TECHNIC bricks, the liftarms appear years later. The large number of hinges also stands out, which gives the bodywork a curve that would not have been possible with basic bricks.

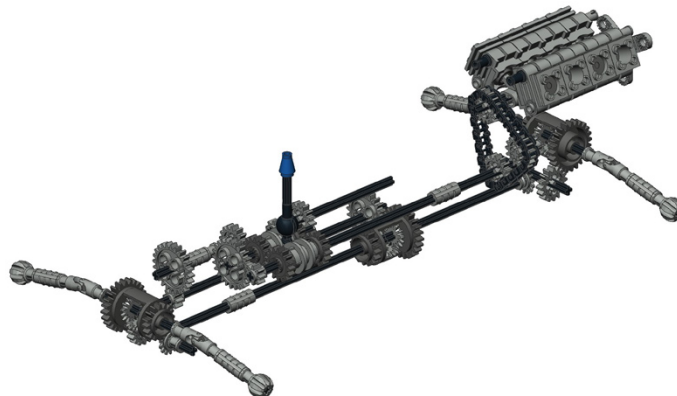
The rear lid opens revealing the V8 engine and the details of folding headlights, the mirrors and white seats provide a sporty yet classic style at the same time.



For the technical details we could start with a simple statistics of elements:

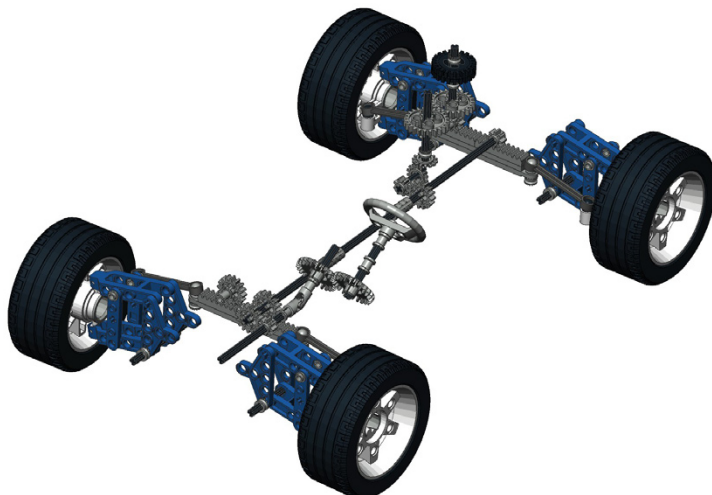
3 Differential, 50 gears, 8 shock absorbers, 8 pistons, a 21 link chain, 85 axles and 13 new pieces that had never been used before.

The centre differential allows the front and rear axis to rotate at different speeds, standard for total or 4x4 traction. This image shows the complexity of the complete transmission of this car:

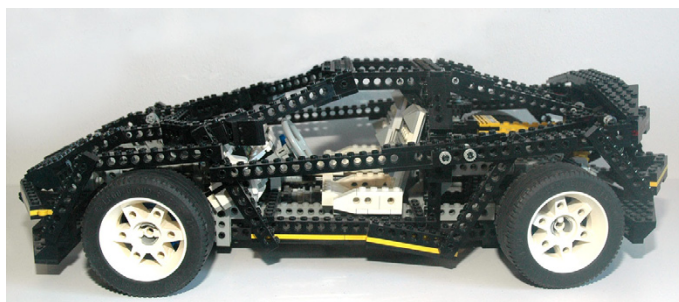
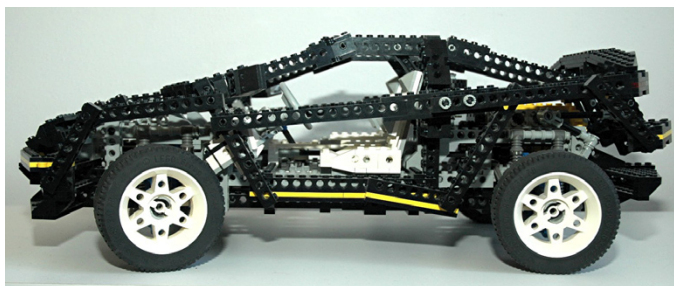


For the direction it uses the Ackerman Principle (when a vehicle turns the axles of all wheels must concur at one point), based on the shape of the steering arms. This allows the inside wheel to turn at a greater angle than the outside one in a bend.

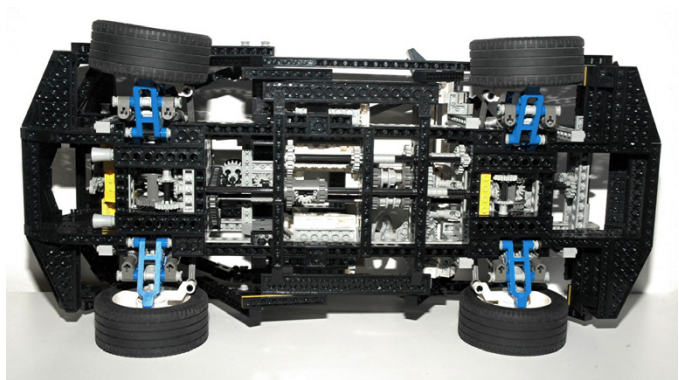
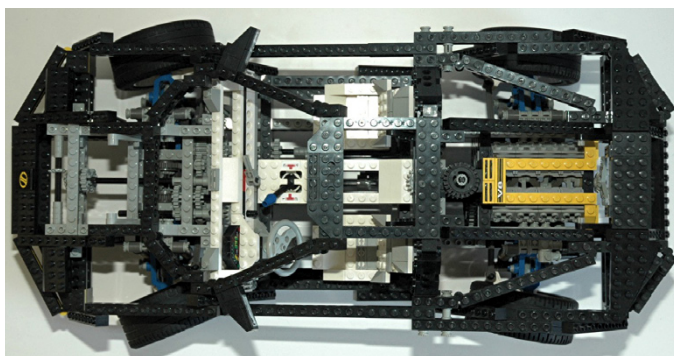
As is customary in many sets, it introduces the HOG (Hand of God) steering on top of the vehicle. As data regarding the steering mechanism of the rear axle, it uses an 8-tooth gear wheel, so compared to 16 teeth gear on the front axle it causes the rear wheels to turn less than the front:



Regarding the suspension, a curious fact we can see is that the set with the fully compressed shock absorbers looks more realistic and a more sporty:



Finally, a couple of images of the top and bottom of the set:



Since that distant 1994, which saw the realease of "Pulp Fiction", "Forrest Gump" and, why not say, "Godzilla vs. Space Godzilla", LEGO® has released more TECHNIC sets, but the AFOL community has only "allowed" the 8448 to be qualified as a Supercar. But that, my friends, is another story ...

PS: Thanks to Eric Albrecht for the artwork
#



A simple way to store collectible minifigs

With the recent release of the LEGO® minifigures series, collectors and fans of LEGO face a new challenge: how to store and display our minifigs.

Text and pictures by Legotron

Since these minifigs are collector's item it is not enough to find a way to save it, we should also be able to show them. Like any collectible item, we look for the best way to show our collection in an orderly manner and to protect it from dust and dirt. There are many types of displays or boxes that can be used for this purpose, but often they have a high cost. But it is also possible to find other items we have at home and that can be used to exhibit our collections of minifigs.

By chance I found some transparent cans for spices, with a flat wooden top and with internal dimensions that were perfect for placing 12x12 stud plates. Placed face down, the lid serves well as support for the minifigs, you can place them on 3 4x12 plates, and with the transparent cover that protects the minifigs from dirt leaving a clear view. You can store 9 or 12 minifigs per can, depending on how crowded you want make them, and even use the plates to decorate and give a nicer look to the set.

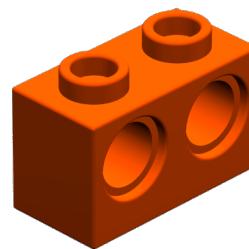


Furthermore, given their small size, these cans are ideal for showing the minifigs, having them stored in different places or for transportation. They are highly recommended even to display small vignettes or dioramas. These containers can be used to store parts, evidently placed face up, so while waiting for their turn to host new minifigs they can be used to classify some of those pieces that we always have in our assembly area.

There are different sizes of the model shown in the article, which allow you to store more or fewer minifigs. There are many different models, so the possibilities of showing your minifigs are endless.

#





The Technic blog

Text and artwork by The TBs Team

TechnicBRICKs

TechnicBRICKs (TBs from here on) was born overnight in October 2007, in the sequence of a couple of questions I put to myself, while trying to better understand how to create a blog. Basically, if I were to create a blog, what it would be about? And how would I call it?

About LEGO®... LEGO Technic, of course! Name? What about "TechnicBRICKs"?!

The next question on my mind was - Is that name still available? ...and it was!!! ;D

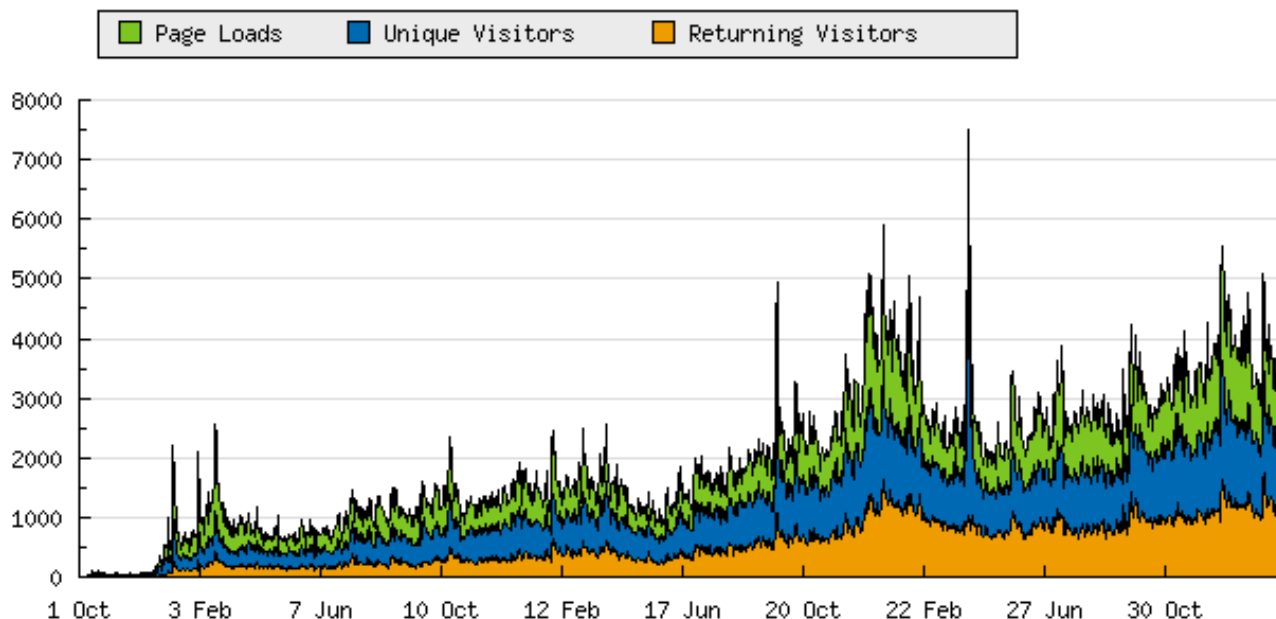
From this point onwards, everything developed really fast! New ideas on how to organize TBs and which content to add popped up several times a day. Soon another Technic fan from PLUG (Alexandre) was invited to take part in the project, which he promptly accepted.

At the time, there were already some blogs dedicated to MINDSTORMS, but almost nothing about LEGO Technic and probably none being updated with new content on a regular basis. Even EB forum, totally different from a blog format, didn't have a mature Technic community like it has nowadays. At that time Technic and Bionicle were put together in the same forum, and the discussions were dominated by the Bionicle topics. Also the Technic forum at Lugnet was already showing some signs of decline at the time.

So the opportunity was there, waiting for someone willing to take it.

Given the opportunity I must confess we set the target to make TBs a reference, with regards to the LEGO Technic theme and started to announce the initiative all over the AFOL community, like on the sites above mentioned. Today it is up to our readers to evaluate whether our initial goal was achieved or not. ;)

However, site traffic, number of visitors, page loads, comments left, etc... have grown consistently over the past three and half years. At present TBs gets an average of 3.500 daily pageloads and 2.500 unique visitors. TBs is also frequently listed by Google whenever you search for any LEGO Technic related subject.



TBs has also grown in number of bloggers, although there is not a specific objective to make it grow continuously. The editors have been: Fernando (Conchas, Portugal), Alexandre (AVCampos, Portugal) and Jetro (Linmix, Spain) who joined the team in 2009. In March TBs got its latest contributor - Nathanaël Kuipers (Industrial Designer, Netherlands), former LEGO Designer, who worked with the LEGO Technic team and designed some of the sets released in 2006-2009.

In 2010 TBs applied for the LEGO® Ambassadors Program with Jetro de Château, to represent the LEGO Technic fans community. TBs was recognized by TLG, and Jetro is now taking care of communication between the fans and TLG, exchanging feedback between the parts. If you have any issues or specific questions that you can't find answers to anywhere else, you may try the LEGO Ambassadors Program, through lego.ambassador@technicbricks.com

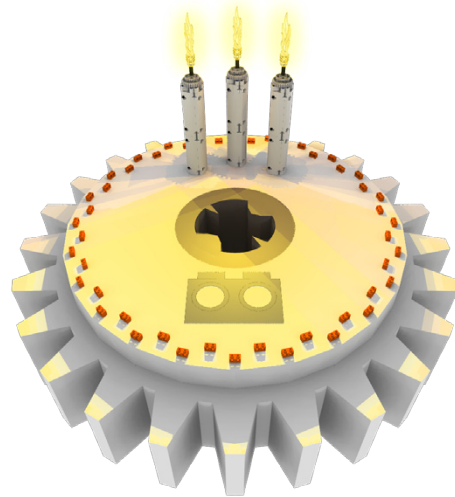
Over time TBs has developed also a close relationship with the LEGO Technic team in Billund. This has materialized in a number of interviews which aim to bring some insight into what's going on in the back stage, and also an annual challenge where a small Technic model still to be released is reverse-engineered by the fans. The CAD reproduction scoring the least differences wins and receives one of the LEGO Technic novelties signed by the respective LEGO Designer.

For the future we at TBs aim to continue as a channel to spread news in any way related to LEGO Technic and also as trend setters. At least we like to think the some developments that we have been assisting on the last few years, were also influenced by TBs and its readers. Thus we will continue to run some subtle polls and expressing our opinions and comments. ;)

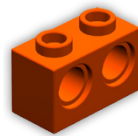
We may also expect some new contests, although we are still working on the format.

Hope to have you visiting us, reading and leaving your own comments and feedback!

#



LEGO 2010 TechREVERSE Challenge



Yet another LEGO blog

TechnicBRICKs



MEGA-CONSTRUCTIONS

Logistics and building techniques

By Manticore

Why choose this type of construction and not simpler ones?

A very good question. I hope I can answer it at the end of this article.

A priori this type of construction creates many problems. Starting with the obvious, the number of parts invested grows exponentially. It is never big enough and you can always add more and more items. There are no limits except the imagination, which by now is pretty battered.

Apart from this, the logistics gets very complicated. The place where you build must be large. But do not forget that apart from the surface for the construction you need to have the pieces handy, which becomes the dream of any traumatologist who needs to treat you. Boxes of parts start to invade the ground and you end up with back pain. Perhaps the younger ones won't understand it, but give it time ...

Well, suppose you have the money and / or sufficient parts and a large construction area. Obviously, the construction should be modular, unless you're willing to tear a wall down just to take the construction through the window. Every now and then you complete a module and have to start another. Where do you keep the modules you have completed?. The best option is to invade the higher areas of the house, where your wife cannot reach them, so she cannot throw them at your head.

Another complication is that this kind of project requires a lot of constancy. If we do not have time and we lack enthusiasm, it is easy to get tired and give up before the MOC is finished.

If after all you manage to finish all the modules of your mega-construction, it's time to transport them to the event. You can start reading van rental companies advertisements because it is the best option. And I forgot to mention the epic moment of taking each module down the elevator. Since that day my neighbors do not look at me the same way...

That said, I will briefly describe the process that I use in the construction of my mega-constructions.

FROM THE BEGINNING

Given the size of the project I don't use computer design programs. Sometimes I draw an initial sketch, but I have most of the construction in my fevered imagination.

Obviously the amount and variety of parts you have will determine the choice of what you want to build. Unless you have plenty of money, you can not build a gigantic mountain without gray, green or brown parts. In my case I have a

stockpile of gray and white parts, which is why I focus on space cruisers.

But it doesn't mind how many pieces you have, you will have to make monstrous part orders. As I said before, in these constructions there is no limit.

Once you have all the material, you have to spread boxes, suitcases, bags, Tupperware and even egg cups filled with bricks along the largest shipyards in the galaxy. And we're ready to build ...

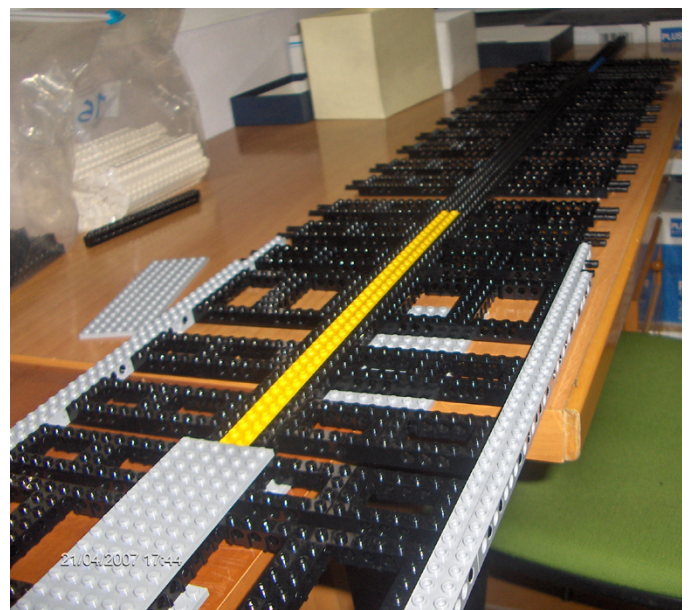
CONSTRUCTION TECHNIQUES

Without trying to make a treatise of a good mega-builder, I will try to provide some of the techniques I use for these mastodons don't to collapsing like a house of cards.

The most important thing is to create an internal structure that is as sturdy as possible and then fill it with whatever you want, including monorail tracks. For all this there is a magic number: 16. I call it the MU megaconstruction unit, and it's equivalent to 16 studs. Why? Very simple, because there are essential parts that I use to tons of, like 1x16 TECHNIC bricks, 8x16 bricks and 2x16 and 6x16 plates

It's not strange that in all my constructions have the standard width of 32 studs. At least the central structure.

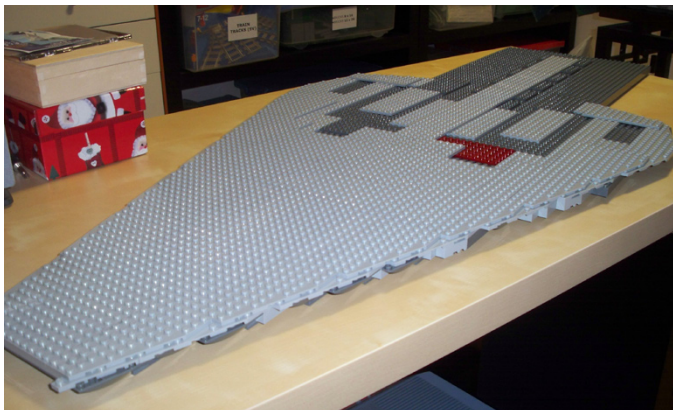
A picture is worth a thousand words:



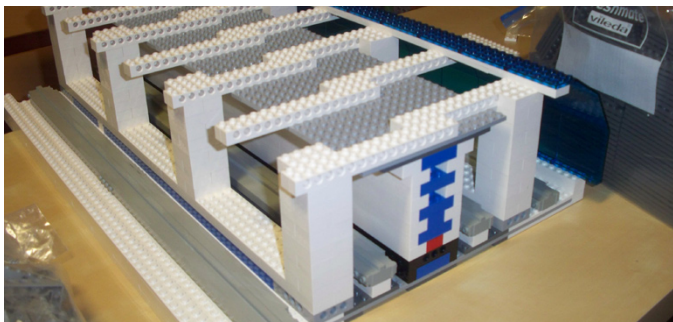
(Two MU wide, 32 studs) This isn't a good example because it wasn't a modular construction and for the transportation I had to do things like this:



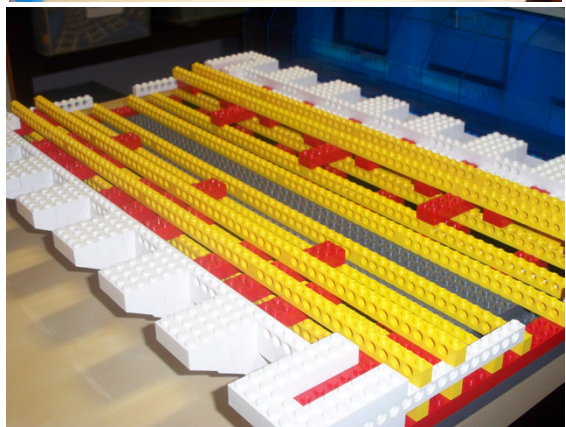
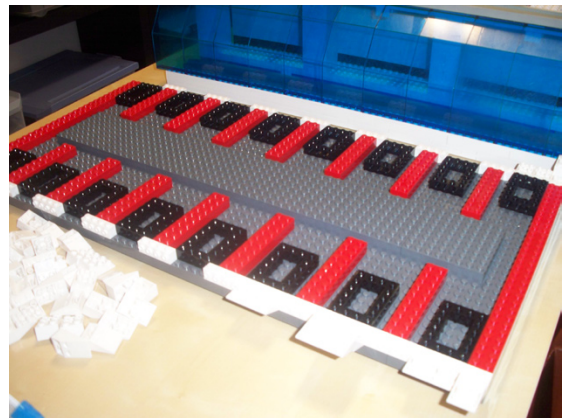
Once you have a structure of considerable size, it is important strengthen it. In my case I usually add three or four levels of plates on either side, and you get very long structures that don't warped:



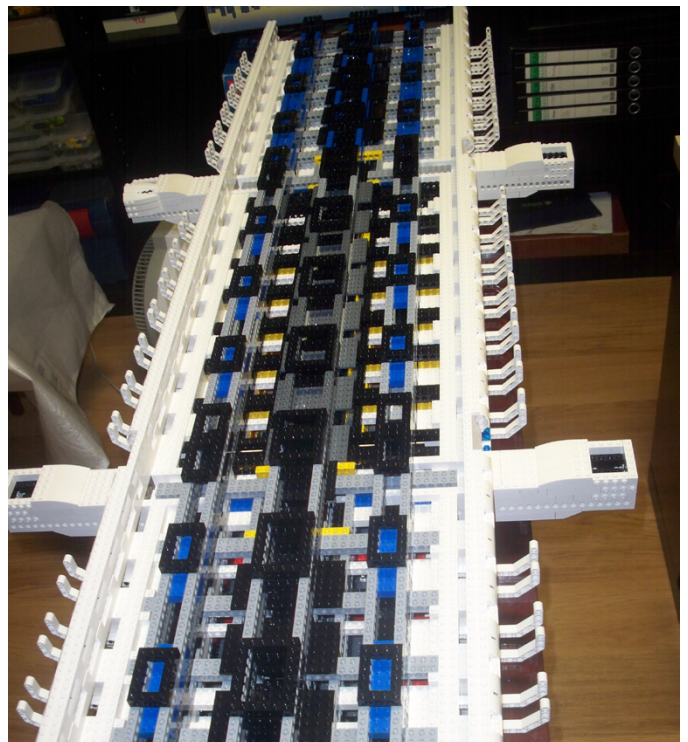
On this structure you build the central beam, as solid as possible and always 6 or 8 studs wide. Then you build two lateral beams of 4 studs wide minimum:



But how can you fill it up to the chosen height?. You are talking about many bricks, if you do not give consistency to the construction, it would not withstand even the move, but filling the entire volume with bricks would turn it into a weapon of mass destruction. The solution is obvious: raise small columns of three or four bricks and then use 1x16 TECHNIC bricks to join them. An example of the process:



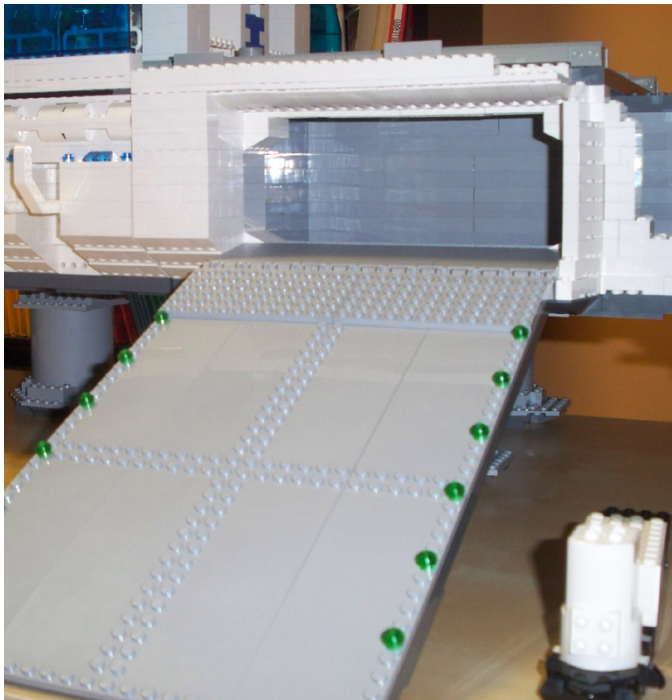
Very important are the (6x8 and 4x6) Technic Bricks with open center. You get to cover an area that is not achieved with 1x16 technic bricks. And prepare to spend 2x4, 2x8 and 2x10 bricks at discretion (blessed LUGBULK).



It is also vital to use 1x16 interlocking bricks to attach the two side beams with the central one:



A problem arises when the side beam must be “avoided”, for example in this case where I wanted to add an entry to a hangar:

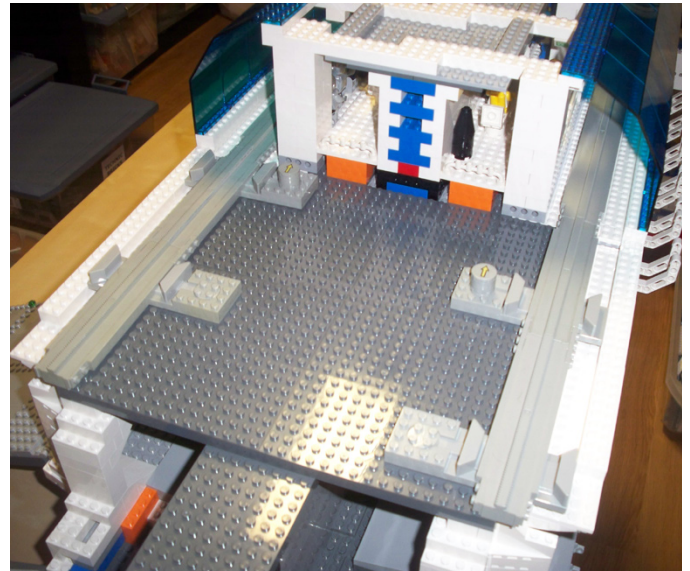


When LEGO® markets 2x48 bricks 2x48 everything will be all right ...

BASIC COMPONENTS

16 studs. That is the fetish and magic measure that can do anything. In my first two monsters I used a structure with Technic bricks together with pins and then reinforced with numerous plates (three levels at least) ... disassembling everything became a true madness. It ended with my fingers as an Ecce Homo.

For my latest project, the Sulaco III, it was clear that I should change the strategy. It was then that I invested enough money to purchase several hundred 8x16 bricks. With these pieces you can make structures with an enormous construction surface and quite solid:



Another piece I use a lot in all kinds of space constructions are 6x10x11 Panels. In the above picture you can see they leave the perfect hole to insert a monorail circuit. Travelling those distances tired all the minifigs and the Classic Spacemen Union demanded me.

PARTS DESIGN

When designing any MOC you realize that a particular part would be perfect. The pity is that that particular part usually doesn't exist. To shape the underside of the ship I had to employ hundreds of inverted slopes. Except 6x5x3 slopes, it is very difficult to give a curve to the underside of the ship:



I thought using Sport ramps upside down, but they did not meet the essential premise: an interesting quantity / price rate.

Another piece that would be ideal for columns is the 4x4 brick. They would be great for building Pillars of 4x4 studs. Also the 2x16 brick. Yes, I know that by joining two 1x16 you get the same thing, but when you have to put several hundred of them in, it is nice to think that they could be reduced by half.

You can use other more complex techniques that exist for sure. What I have described in this article is only the simple tricks I

use. I hope you find them useful. But before ending, let's make a final balance.

CONCLUSIONS

- Complex logistics
- Astronomical orders
- Where do you keep the modules already built?
- Difficult to transport
- Requires much perseverance.
- It's easy to get tired and quit

Then we have to answer the original question ... is it worth it?

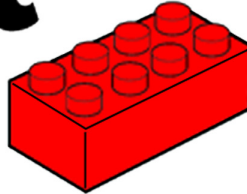
YES!

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IT SHOULD SHOW, AT LEAST, A STORM TROOPER (OR A DISTINCTIVE PART OF IT) ENJOYING OR SUFFERING THEIR SPARE TIME.

CLONE TROOPERS ARE ALLOWED INSTEAD OF STORM TROOPERS, BUT THE JUDGES ARE FANS OF THE CLASSIC TRILOGY, YOU CONSIDER YOURSELF WARNED.

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THE PRIZES ARE:

FOR THE WINNER A 7753 PIRATE TANK.

FOR THE SECOND AND THIRD PLACES, A SET BATTLEPACK 8083+8084 EACH.



Scaling Tutorial for Vehicles (I)

This tutorial covers the rules for choosing a scale and calculate the dimensions for LEGO® models on wheeled or tracked vehicles, plus some general tips on models.

Text and pictures by Paul Ian Kmiec

This tutorial covers the rules of choosing a scale and calculating dimensions for a LEGO® model of a wheeled or tracked vehicle, as well as some general tips on modeling.

My first tutorial (on Technic gears) has turned out to be very popular and useful. Many comments from builders who found it helpful have convinced me to continue with tutorials – this time I'm going to explain how to make a proper model of a wheeled or tracked vehicle.

Please note that I don't consider myself a very good model-builder. I often have to look for a compromise between the look and the functionality of a model, and my attention to details is usually insufficient. There are builders willing to spend months on getting all dimensions & proportions right, while I am ready to slightly compromise the accuracy of a model for the sake of its functionality or integrity. A good example is my Abrams M1A2 model whose road wheels were too small (3 studs in diameter instead of 4), because there were no larger LEGO wheels available and scaling the model accordingly to the 3-studs ones would result in a much smaller model with severely limited functionality. However, none of my models can be even remotely compared to the work of e.g. ZED or Arvo brothers.

Anyway, this tutorial explains all the rules needed to build a proper model, and how much attention is paid to the details is up to a particular builder. The rules of scaling remain the same for the best and the average model-builders. Please note that this tutorial assumes that you are going to build a motorized model with Power Functions elements, but if you just skip that part, it is just as useful for static models.

1. Choosing a vehicle to be modelled

Contrary to a popular impression, LEGO® model-builders usually seek to build their models as small as possible. This is because large size of a model results in many problems that are absent or insignificant with small models – such as the weight, mobility and the structural integrity (LEGO bricks become quite elastic under several kilograms of load), as well as e.g. distortion of the tires. This is a good direction, especially for inexperienced builders, and therefore this tutorial aims at building on as-big-as-needed scale, not on an as-big-as-possible one.

When choosing a vehicle to be modeled, you should focus on two crucial factors: its width and the size of the largest element you want to integrate into it.

There is almost always a technical limit to the model's minimal width, and this limit is usually set by the axles. In case of the steered axle you should expect its structure to be at least 6 studs wide (a narrower steered axle is possible but very hard to build), and then add the width of the wheels. So if you're going to use a 2-studs wide wheels, then your minimal width is 10 studs, if you're going to use 3-studs wide wheels then it's 12 studs, and so on. A driven, not-steered axle is sometimes even more demanding: it usually requires at least 2 studs for the structure (e.g. for two 1-stud wide stringers of the chassis), 3 or 4 studs for the differential, and then there is the width of the wheels, which in case of e.g. trucks often includes 4 wheels rather than 2. It is possible to skip the use of a differential (small & light models don't really need it except for a better manoeuvrability) but it will still take at least 1 stud to transfer the drive to the axle.

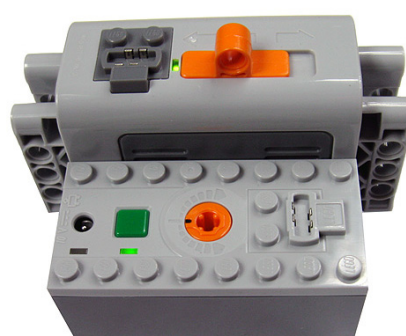
Consider this example: the rear axles of my Kenworth Mammoet model use 4 wheels per axle, just like in the real truck. It results in more than half of the model's width being taken by the wheels:



We will expand the topic of the minimal width in section 2, for now it is important to discard vehicles that are unusually long and narrow, as well as the ones that have extremely tight space between their right & left wheels.

The largest element you want to integrate into a model is usually the most important factor. If we omit the multipart custom mechanisms, whose shape and size can be usually somewhat adjusted, what we are left with are large single-piece elements. In case of the models using Power Functions it's usually at least one battery box and at least one IR receiver, in case of the models using pneumatics it can be an airtank too. The traditional PF battery box is 4 x 11 x 7 studs large and requires some extra space on the top for the plugs and for the access to the on/off switch – it means that our model has to be larger than these minimal dimensions. For instance if you want your model to have sides built with bricks, with the battery box fully enclosed within because e.g. its color doesn't match, then one of your model's dimensions can't be smaller than 13 studs. The newer PF rechargeable battery, on the other hand, is 4x5x8 studs large with the same extra space needed on the top. Since the battery has smooth sides and is easily integrated into bricks-based constructions, it is possible to integrate it into an e.g. just 4 studs wide model.

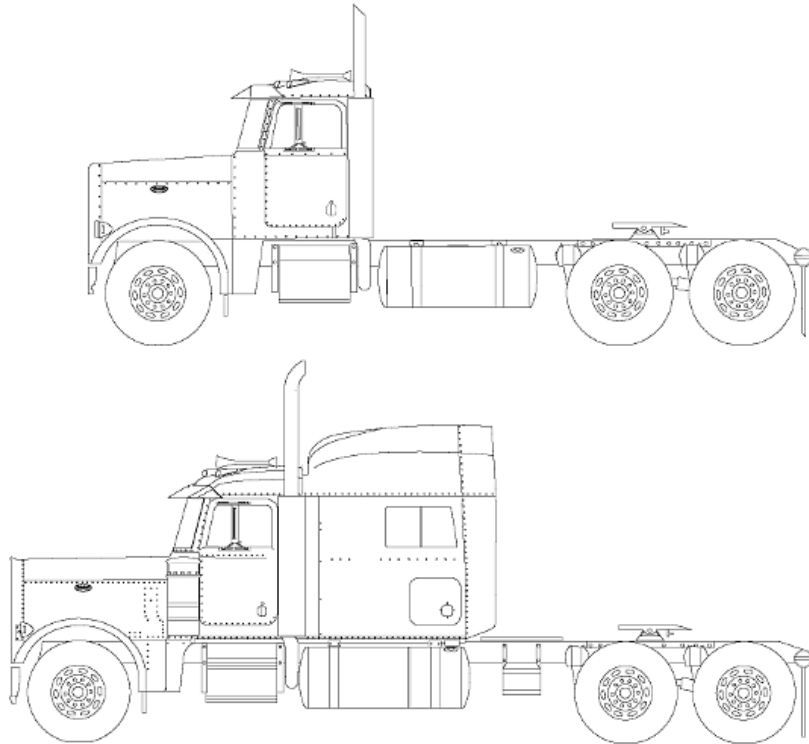
The PF battery box vs the PF rechargeable battery – the newer, the smaller:



The important thing is to estimate if it's possible to integrate the large elements into a model and where. If your model is going to be narrow, or run and turn at high speed, you should also seek to integrate all the heavy elements into its lower

part, because e.g. a battery box integrated into the roof would be fatal for its stability. The trick is basically to look for parts of the vehicle that offer plenty of internal space, because we usually want to keep all the mechanical/electrical elements inside. For instance if you're going to build a model of a truck, and you want it to have a cabin with an interior plus a model of the engine under the bonnet, then you can only integrate large elements into lower parts of its chassis. This is very likely to be insufficient, and therefore you should look for trucks with some extra modules behind the cabin, which are very convenient for housing e.g. battery boxes and IR receivers.

Here are two versions of the same Peterbilt truck: the upper one offers very limited internal space and can be motorized only in a large scale, with the battery/battery box housed inside the cabin. The lower one comes with a large sleeper module and a longer chassis – even with a small model it's possible to house all the large elements inside this module and preserve space for the cabin interior.



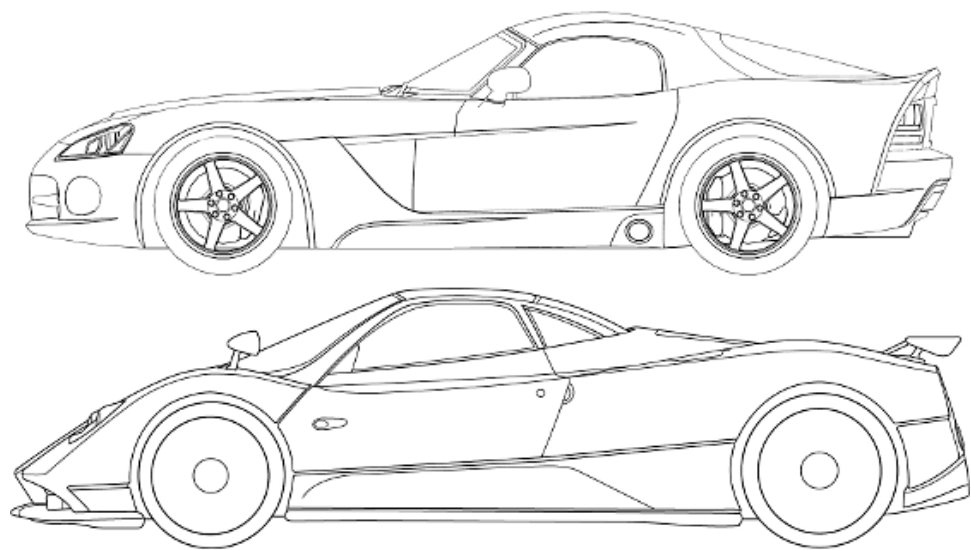
Side view of one of the trucks built for Hard Truck Contest reveals the traditional battery box housed inside the sleeper module (visible through the side window). Note the small size of this fully mobile model in comparison to the size of the battery box.



Situation with other types of vehicles is similar, but less obvious. When building a typical car with some space preserved for the interior, we are usually forced to place some elements in front of it and behind it. For instance we can place the steering motor in the front part of the chassis (usually the most convenient location), with drive motor and battery box located behind passengers'

seats. It's not a bad idea to pay attention to the location of the original engine while choosing a car. It's actually quite important for e.g. sport cars with large engines, because the ones with engine in front will always provide plenty of space in front part of the chassis while the ones with the engine in the center/back will have more internal space behind the cabin.

Dodge Viper (engine in front) and Pagani Zonda (central engine), two supercars of similar size. Note the difference in their general proportions.



There is a number of tricks that allow to integrate multiple PF elements into a limited space – this subject will be focused on in section 5. The particular case of tracked vehicles will be focused on in section 4.

2. Choosing the scale for a model

There are two possible cases here: usually our choice of scale is limited by the size of LEGO® wheels we have at our disposal, but sometimes a fixed scale is required, e.g. when we're building a vehicle for a competition whose rules determine the scale (for instance the Polish Truck Trial rules require all the vehicles to be at 13:1 scale). In the latter case we don't have to choose a scale – it is already determined. In the first case we have to decide which wheels to use. When it comes to the scale, the only thing that matters is the diameter of the wheels (together with tires, obviously) – it will be explained further in the section 3. Therefore it doesn't matter whether you're going to use wheels with sport tires (flat profile) or cross-country tires (round profile), simply pick the ones you like, with the size in mind. You should, however, pay attention to one situation: if you're going to use tires with a round profile located under mudguards or largely enclosed within vehicle's body, they are going to appear smaller. This is caused by the optical appearance of the tires and can be prevented by using wheels larger by 10-20% that the size imposed by the scale.

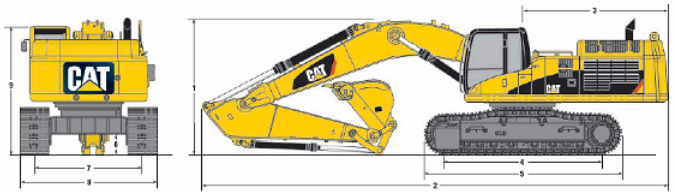
3. Calculating the dimensions

At this point we are going to need a blueprint of the vehicle of our choice. Blueprints of popular and not-so-very-new vehicles can be easily found on specialized websites, the best of them being probably Blueprints.com, and of course the Google Image Search. It's not a bad idea to look for it at places where many LEGO models are published (e.g. Brickshelf), as numerous model-builders (including me) have a nice habit of publishing their models along with some reference materials. When it comes to the construction equipment, the respective blueprints can be easily found via the websites of all the major manufacturers such as Caterpillar, JCB, Komatsu, Liebherr, Volvo etc. If you browse through their products catalogs every machine has usually a downloadable PDF brochure attached and all the dimensions are included in it. Hint: construction equipment often comes with multiple configurations of e.g. the bucket, and hence the bucket is not shown on the blueprint. If you look through the brochure closely, there are usually dimension tables that list size of every bucket variant available.

A typical blueprint from a manufacturer-provided product brochure. It's impossible to tell the bucket's width from the blueprint, but a dimension table included in this brochure lists width of every bucket variant available for this machine.

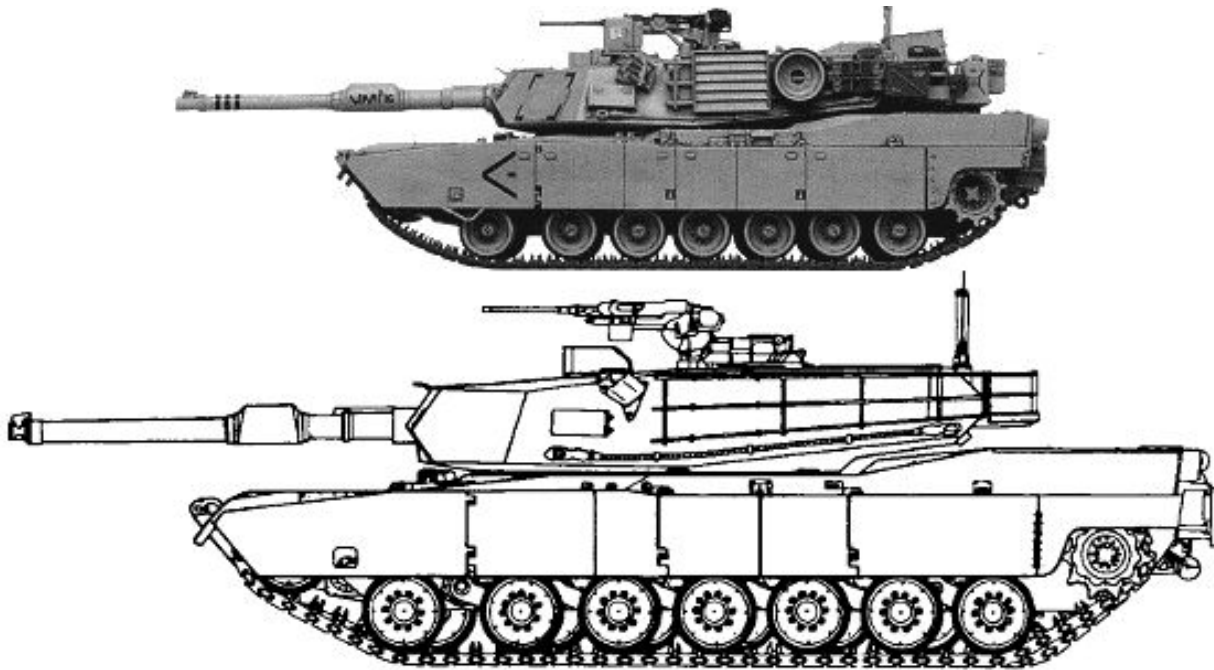
The perfect blueprint should:

- be large
- be clean
- include at least three views of the vehicle (side and front/rear view are usually crucial)
- not be distorted (by e.g. central perspective)
- consist of outlines only (blueprints are needed for dimensions only, if you want to check colors, markings etc., then it's better to rely on photos)



385C L Bucket Specifications and Compatibility													
	Capacity*		Width		Tip Radius		Weight w/o tips		Teeth Qty	Reach Boom Stick		GP Boom Stick	
	m³	yd³	mm	in	mm	in	kg	lb		R5.5HB	R4.4HB	R5.5HB	R4.4HB
HB Buckets													
General Purpose	2.1	2.75	1070	42	2372	93.4	2364	5207	3	●	●	●	●
	2.9	3.88	1374	54	2372	93.4	2761	6081	4	○	○	○	○
	3.8	5.00	1678	66	2372	93.4	3085	6795	4	○	○	○	○
	4.6	6.00	1982	78	2372	93.4	3500	7709	5	○	○	○	○
Heavy Duty Rock	2.0	2.63	1070	42	2288	90.1	2551	5619	3	●	●	●	●
	2.7	3.63	1374	54	2288	90.1	3075	6773	4	○	○	○	○
	3.5	4.63	1678	66	2288	90.1	3365	7412	4	○	○	○	○
	4.3	5.63	1982	78	2288	90.1	3887	8562	5	○	○	○	○

Two blueprints of the same tank: the upper one is bad (and small – this is its full size), the bottom one is excellent. Note how the clutter on the upper blueprint's turret makes it difficult to determine the exact size & shape of the turret.



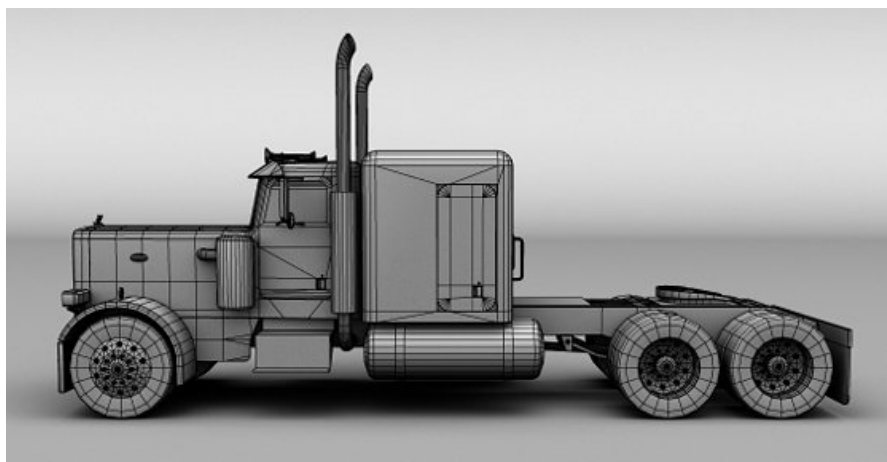
What if our long and laborious search returns no blueprints at all? In this case we can try to rely on photos, but this is a very inconvenient solution and should be avoided if possible. The Google Image Search is helpful here too, but there are many websites with galleries – e.g. a very substantial source of the cars' photos is provided by the NetCarShow.

When looking for optimum photos, we should think of them blueprint-wise. That is, we should look for the photos that show the vehicle from definite angles (side, front, top etc.) and are as little distorted as possible (photos taken from partial angles such as front & side are always very distorted). The photos should be obviously large, clean, unobstructed and preferably bright.

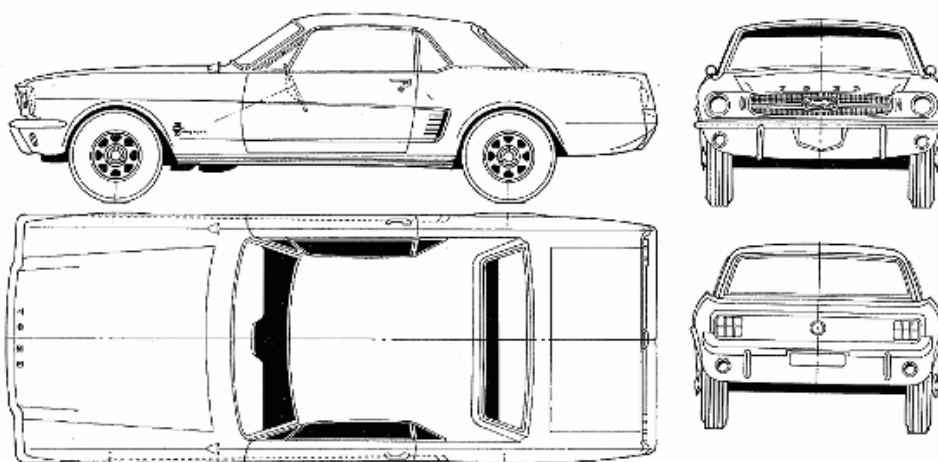
On the top: three photos that are useless for calculating dimensions (taken from partial angles, obstructed etc.). On the bottom: three photos that are very useful.



If you have a hard time finding some usable blueprints or photos, try looking for 3D models – popular vehicles often have an abundance of 3D renderings available. Note this rendering of a 3D model of the Peterbilt 359 truck – even though distorted by a substantial central perspective, it is still useful for calculating dimensions.



Important: a proper blueprint should show all the views of the vehicle in exactly the same size (note the blueprint for the Ford Mustang below – the size is clearly maintained). If you are forced to compose your own blueprint using photos, try to make sure that all the views show the vehicle in the same size. If this is not possible, you will have to calculate dimensions for each view separately.



With the blueprint / set of photos at hand, we now need to take some measurements. This can be done in two ways: analogue (print it out, take ruler, calculate) or digital (open the file in some editing program, take measurements, write them down somewhere). Personally, I'm a big fan of the analogue way – not only does it make me computer-independent and lets me put the blueprint on the pinboard above my workshop, but it also lets me conveniently write the dimensions directly on the blueprint, along with some notes if necessary.

Now, as mentioned in the section 2, there are **two possible cases**: the scale is already determined and known, or the scale is correspondent to the size of the LEGO® wheels we're going to use.

In the first case we know the scale and it goes like something:1, for instance 13:1. It means that our model needs to be 13 times smaller than the original vehicle. In order to calculate the model's dimensions we need at least one dimension of the original vehicle. Blueprints usually come with no dimensions (with the usual exception of those of the manufacturer-provided blueprints for the construction equipment), so we need to find some dimension somewhere else. Wikipedia is quite a good place to search in, as it often provides the general dimensions of the specific versions of a given vehicle. The dimensions we're most likely to find are the length and width, and those are very useful, while dimensions such as wheel span or wheelbase are not. I recommend looking for the general length, because it's the largest dimension and it provides the best accuracy for our calculation.

Let's assume we have our blueprint printed out already, and we know the length of the original vehicle. We're going to use a ruler and a calculator, and to do some maths (I know, I hate it too). Let's say that our original vehicle is 6 meters long and we want to model it in the 13:1 scale. We proceed as follows (black marks the general steps, gray marks the result for our exemplary blueprint):

- 1- Convert the original vehicle's dimension to the smallest convenient unit, usually millimeters: 6000 mm
- 2- Measure the corresponding dimension on the blueprint: let's assume our printed vehicle is 200 mm long

3- Divide the original dimension by the blueprint's dimension – the resulting number will be referred to as printout ratio: $6000/200 = 30$, so our printout ratio is 30

Now we can calculate any dimension of the model, let's assume we want to calculate its width:

- 1- Measure the width on the blueprint: let's assume it's 80 mm
- 2- Multiply the blueprint's dimension by the printout ratio: $80 * 30 = 2400$
- 3- Divide the result by the scale (the first number of something:1): $2400 / 13 = \text{approx. } 184.615$
- 4- Divide the result by 8 to get the dimension in studs (because we operate on milimeters and 1 stud is equal to 8 mm): $184.615 / 8 = \text{approx. } 23,077$
- 5- Round the result (on assumption that the smallest size unit we can model in a typical LEGO construction is half of the stud) : $23,077 = 23 \text{ studs}$

We can get any final dimension by repeating the steps 1-5. As you can see this is not so scary (yet). If you're perverted enough to actually enjoy the maths, you will probably enjoy putting the steps 1-5 into a single mathematical formula:

$\text{blueprint's dimension (mm)} * \text{printout ratio} / \text{scale} / 8 = \text{model's dimension (studs)}$

E.g. $80 \text{ mm} * 30 / 13 / 8 = 23,077 \text{ studs}$

If you're not operating on the metric system, you can convert your measurements to milimeters using one of many converters, or simply use the imperial version of the aforementioned formula:

$\text{blueprint's dimension (inches)} * \text{printout ratio} / \text{scale} / 0.31496 = \text{model's dimension (studs)}$

E.g. $3.1496 \text{ inches} * 30 / 13 / 0.31496 = 23,077 \text{ studs}$

The **second case** is easier. All we need is the diameter of the LEGO® wheel we want to use (together with the tire, measured in studs) and the blueprint. Let's assume our wheel has a diameter equal to 8 studs. We proceed as follows (black marks the general steps, gray marks the result for our exemplary blueprint):

- 1- Measure the diameter of a wheel on the blueprint: let's assume it's 50 mm
- 2- Divide the diameter of our LEGO wheel by the diameter of the wheel on the blueprint – the resulting number will be referred to as scale ratio: $8 / 50 = 0.16$, so our scale ratio is 0.16
- 3- The scale ratio simply shows how many studs in our model is equal to 1 mm on the blueprint, therefore we can now calculate any dimension by simply measuring it on the blueprint and multiplying it by the scale ratio: e.g. if our vehicle is 200 mm long on the blueprint, it will be 32 studs ($200 * 0.16$) long in the LEGO version
- 4- Again, the resulting numbers (scale ratio and final dimensions) should be rounded to reasonable values.

And again, the maths-loving perverts will enjoy putting steps 1-3 into a single formula:

$(\text{LEGO wheel's diameter} / \text{diameter of a wheel on the blueprint}) * \text{blueprint's dimension} = \text{model's dimension (studs)}$

This time the formula is units-independent. Consider two examples: we will calculate the same dimension (e.g. 100mm which is equal to 3.937 inches) with the same blueprint's wheel's diameter (e.g. 50 mm which is equal to 1.968 inches) for a LEGO wheel that has 8 studs in diameter using metric and imperial system separately:

Metric: $(8 / 50) * 100 = 16 \text{ studs}$

Imperial: $(8 / 1.968) * 3.937 = 16.004 \text{ studs}$ (the .004 studs results from rounding the dimensions in inches and should be ignored)

This is it. You should now be able to calculate all required dimensions, regardless of the case and units system, using just a calculator and a measuring tool. For some extra tips on scaling please refer to the section 5.

In the next issue you will find in Chapters 4 and 5, dedicated to vehicles with chains and tips and tricks.

#

Building Trees (IX)

The last to see the light, the first to be built

Text and pictures by Legotron

Panzerbricks



This article presents a tree model that has the distinction of being the first model of a tree I had in my hands, but it has been the last to have its final design. The idea of this tree is based on the shape of a fig tree. This idea was completed by incorporating the possibility of modular construction so we could put different types of branches to the body and have it available in different configurations for a single tree trunk. Because of the numerous attempts that have been necessary to reach a satisfactory design, this will be the last to have its own article, despite having been the first I began to design for this series.

The original approach was to make a main trunk, with a structure that allows us to sculpt complex branches with different forms. This construction was horizontal, so that different parts are mated starting from the trunk horizontally, like a SNOT technique [1]. With the idea of making it modular, the trunk became a structure divided into two parts, an inner part that would allow us to connect different parts of the tree, and a covering were the forms and visible elements of the tree are included. This last part could be formed by different combinations of coverings so that they were interchangeable, for creating different trees with no more than changing the covering or their position. It should be possible to make this change easily and without having to remove other parts of the tree. All these ideas, after many attempts, led to the design of the tree of this article

Parts required.

The part list is more complex than in the preceding articles, so it can be divided into two parts, structure and covering. As we have done in previous articles, we use the criterion used by the Web portal Bricklink [2]:

For the structure:

- 1 brown 2x2 brick.
- 2 brown 2 x2 round plates
- 1 brown 2 x2 round brick.
- 6 dark bluish gray 2x2 plates
- 8 dark bluish gray 1x2 technic brick with holes.
- 16 technic pin 1/2 (any colour)



For the base:

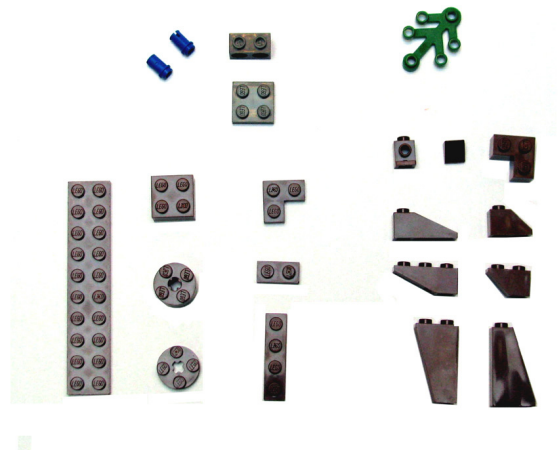
- 1 green 6x6 or 6x8 plate

For the trunk:

- A variable number of brown 2x2 bricks corner.
- brown bricks 1x1 with headlight.
- 4 or more brown 2x10 plates.
- brown 1x2 plates
- brown 1x4 plates.
- brown 2x2 corner plates.
- brown slopes 33 3x1
- brown slopes 45 2x1
- brown slopes 30 1x1x2/3.
- brown slopes 75 2x1x3.
- brown 33 3x1 inverted slopes.
- brown 45 2x1 inverted slopes.
- brown 75 2x1x3 slopes inverted

To make the branches:

- About 25-40 green plant leaves



Construction.

The first part of this construction is quite simple; you have to build the main structure of the tree. We start joining the brown 2x2 round plates with the 2x2 round brick. Over these we place two 1x2 technic brick with holes, adding the four technic pin 1 / 2 in their holes with their heads pointing outward. Then we put 2 2x2 plates and 2 1x2 technic bricks with holes, over those, turned 90 degrees from the previous ones, so that the heads of the technic pin 1 / 2 point away on all four sides. Next we put 2 new 2x2 plates and 2 1x2 technic bricks with holes turned again 90° from the previous ones. We repeat the process again, so we can see on each side 2 pairs of pins at different heights. All this is crowned with the brown 2x2 brick. This is the structure on which we will mount the various elements that give shape to the tree.

For the next stage we take the 2x10 plates. At one end we place a 3x1 or 2x1 slope to represent the roots, and along the plate we put any combination of plates acting as roughness and irregularities of the trunk. The drawing has to be different in each of the plates to give it a non-symmetrical look. At the top we build the branches, starting from the slopes and 2x2 corner bricks, so that the shape of the branch is as irregular as possible. All terminations have to be finished with a 1x1 brick with headlight, which is where we start putting the leaves. The more irregular and more completions we place at a branch the more attachment points for the leaves we have. Finally we place a few 1x1x2 / 3 slopes 30 to round off the look of the branches. Four of these plates can be placed in a structure, so we can have a few plates to make different trees with the same structure. We can build some with leaves and others without, some almost flat and with very small branches and other with large bumps and very intricate branches. Since their placement on the structure is very simple we can change easily. In addition we can build them individually before putting them into the structure, and so avoid bumping against the rest of the tree. As shown in the photos, this technique allows many possibilities and you just have to change one of the side plates to make the tree look completely different. The finishing touch is to end the central part of the tree, which can be left clear or crowned with a few pieces to add more leaves. This type of trees (e.g. fig trees) are not very dense and stand out because

of their irregular trunks and branches. It is not necessary to use a lot of leaves, enough to add 2 to 4 leaves on each end, above and below, to give it the desired look.

The bottom allows the tree to fit on a plate, although this connection is not too strong and should be reinforced with good roots. If used on a smooth surface it is desirable to remove one of the two 2x2 round plates from the bottom.

References:

[1] SNOT: Studs Not On Top.

[2] Unofficial LEGO® selling Portal on the Internet: <http://www.bricklink.com>

#



An introduction to Robotics with LEGO® MINDSTORMS (VII)

A challenge with LEGO MINDSTORMS

Text and images by Koldo

In this article I will present a challenge that must be solved by LEGO® MINDSTORMS robot, programmed with NXT-G, and the necessary steps to reach one of the possible solutions. I say one of the possible solutions, because just like with any problem in engineering, there is always more than one possible solution, some more efficient than others.

Challenge

Inside a circular area, limited by a black line, there are two full 330cc soda cans. You will need to build and program a robot capable of taking the cans out of the circle, after which it will emit a sound and stop.

The available material is a single box of LEGO MINDSTORMS NXT 2.0 which, for reasons undisclosed, contains no other sensors than a single touch sensor and a colour sensor (a light sensor can be used in substitution of the colour sensor).

Where to start

Planning is fundamental if you want to get a good result. Thinking about and determining the steps to take must be the starting point. While doing so, you shouldn't forget that any challenge involving robots consists of two clearly differentiated,

though closely related, parts: hardware (the robot itself) and software (the program). Each of these parts conditions the other so in our trial and error process we will have to take both into account.

The tasks that must be completed are the following

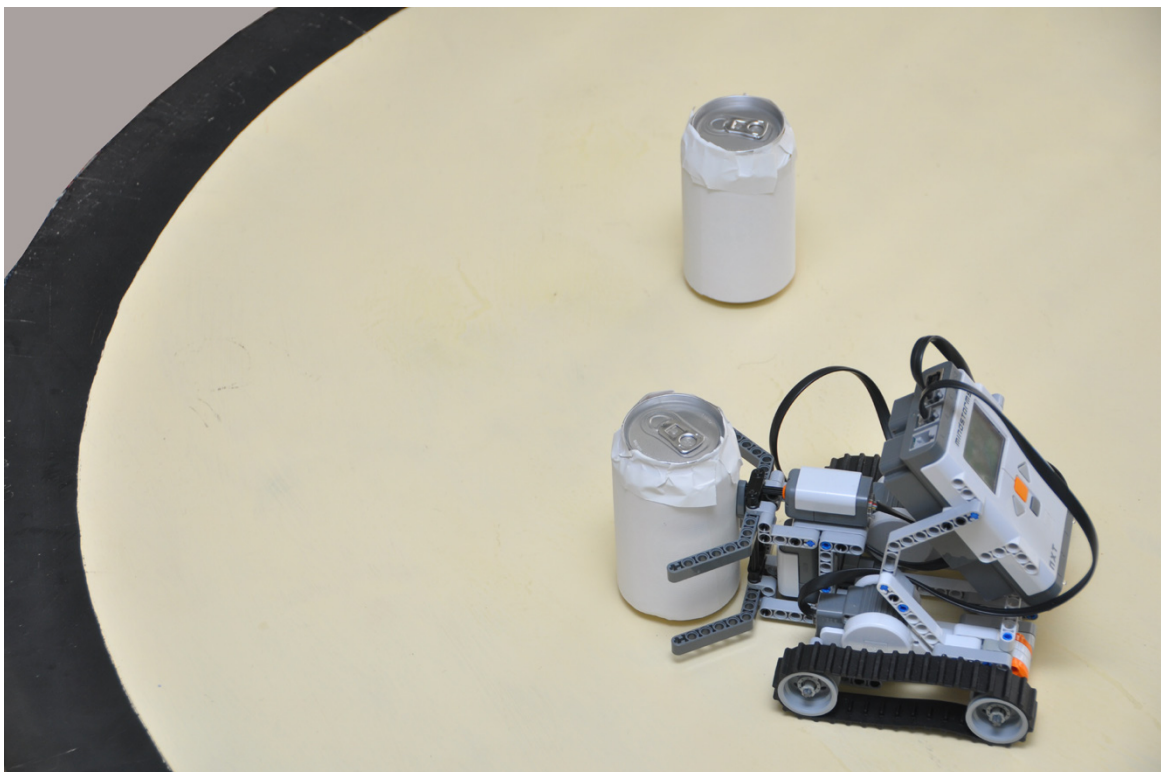
1. Designing and building the robot
2. Writing the program (in the case of NXT-G by combining programming blocks). In order to do this you will first have to write the algorithm and then convert that into the program.
3. Test it – and when the it is capable of carrying out the assigned task:
4. Improve it.

The robot

To start off, you need to keep in mind the restrictions (limitations in building and programming) of this challenge and the abilities the robot needs to have. These are as follows

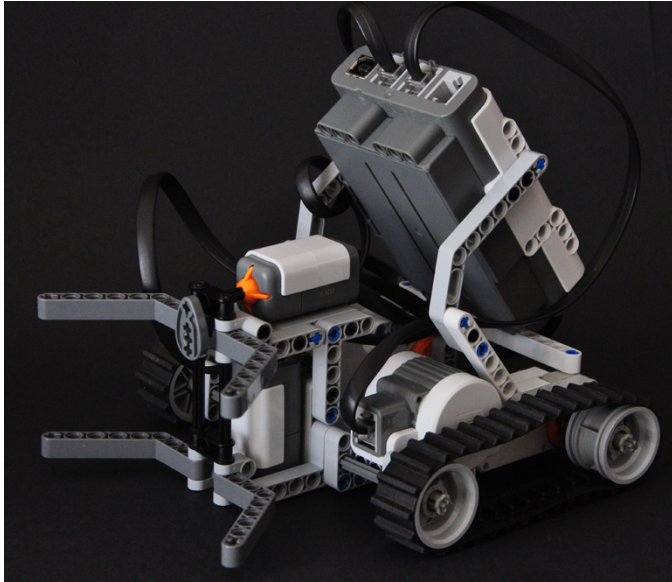
Restrictions

- The robot can only use a touch sensor and a colour/light sensor. There is no restriction to size or number of parts



Abilities

- The robot needs to be able to move and turn in the playing field.
 - It should be able to detect the black line that limits this area and stay inside it.
 - It needs to be able to detect when it bumps into one of the cans and move it out of the field
 - It needs to know when it has taken both cans out of the field.
- Once you have built the robot and you start testing it there



will likely be complications that will require modifications. For example, a complication I ran into is related to the colour sensor: while testing my first program I realized the colour sensor detected everything as black. After several tests, sighs and changes I realized the problem was that the sensor was too close to the floor and so there was no space for light to reflect into the sensor. Moving the sensor slightly up solved the problem.

The algorithm

Before you start to combine the code blocks that make up the program, it would be a good idea to write it down in normal language, that is, write down the steps the robot needs to take to accomplish its mission. There isn't one single solution for the task, just like people carry out the same tasks in different ways. So after writing it down, think about alternative ways to reach the same goal in a more efficient way.

In this case the programming tasks are as follows:

1. Create a counter and set it to zero (this will store the number of cans that have been taken out of the field)
2. Advance until the robot detects a black line or an object
 - a. If it detects an object, keep advancing until it detects the black line (which means the object is now outside the playing field) and add one to the counter
3. Stop, back up and turn
4. If the counter has reached 2, play a sound and stop. Else repeat the search.

This is only a starting point that may need to be modified or made more specific as you advance in your programming.

The program

You now know which steps the robot needs to take to finish the challenge, but it is neither necessary nor recommendable to start the whole program at once. It is a very useful strategy to break down complex problems into easier ones. In this case you can split the program into two parts and combine those later

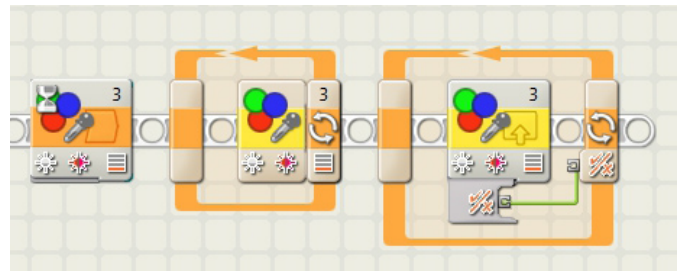
1. The robot moves randomly around the play area without leaving it.
2. The robot pushes the can out of the play area, backs up and plays a sound.

Challenge part 1

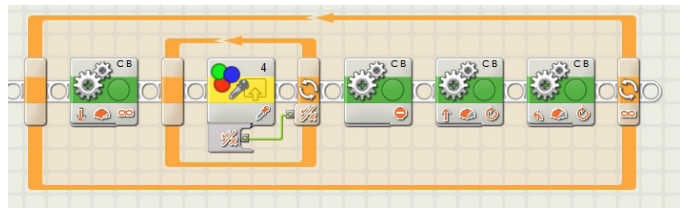
Let's have a look at the algorithm before writing the program:

1. Move forwards until the colour sensor reads black
2. Stop
3. Back up
4. Turn
5. Repeat steps 1-4

To tell the robot it needs to wait until the sensor reads black you can use any of the following three options. Each one will have exactly the same result, but the third option opens the way for combining the parts of the challenge.



The program would be as follows:

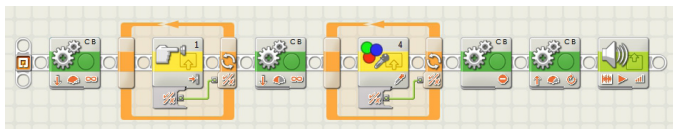


You will need to test it and make sure the behaviour is as expected. Before doing so, read Testing the robot at the end of this article

Challenge part 2

Let's have a look at the second part... To make matters easier, let's suppose the robot is on a collision course with one of the cans (so it doesn't need to look for a can) which requires an easier algorithm, for example like this:

1. Move forwards until you bump into a can
2. Keep moving forwards until you reach the black line at the edge of the play area
3. Stop
4. Back up
5. Play a sound

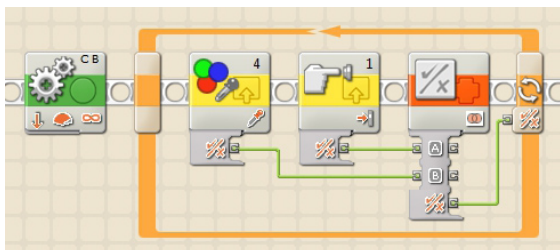


The complete program

If the two challenge parts work as expected it is time to combine them. We'll start creating a variable (represented by a block with a suitcase) in which we can store the number of cans that have been pushed out of the field. The variable is created with the option define variable in the Tools menu and is initialized with value 0 in this way:

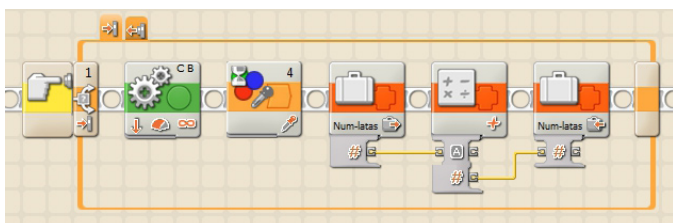


First let's see how you can monitor two sensors at the same time and take decisions based on those readings (step 2 of the algorithm).

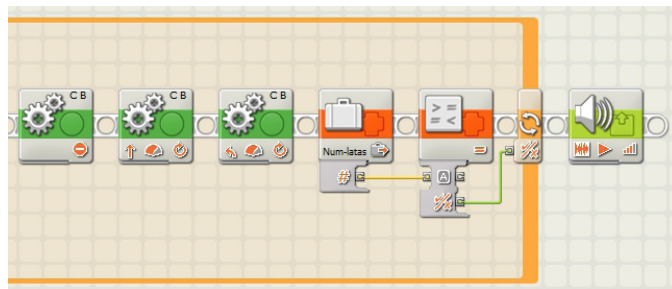


The code fragment in the image begins with a move block to set the robot in motion before starting a loop that is repeated until either the colour sensor reads black or the touch sensor is pressed (makes contact with the can). To this end the loop continuously reads the two sensor and by means of a logical operation (in this case OR), combines both readings, generating a logical value that is true if the can has been touched or the black line has been seen, or both readings are found simultaneously.

The robot needs to know if it has reached the border or has bumped into the can. For this purpose you can use a condition that will only be executed if the touch sensor has been activated. In this case it will push the can until it reaches the black line and then add one to the counter (step 3).



After stopping, backing up and turning (step 4) you need to check how many cans have been pushed out. So the program checks the value of the counter and if it is 2 ends the loop, after which it plays a sound and stops (step 5).



Testing the robot

Now we can test the robot and evaluate the results. If they don't match your expectations you'll need to evaluate if you need to change the robot or the program.

Recommendation! Don't apply too many changes at the same time as that makes it very hard to see which changes improve or deteriorates the behaviour of the robot.

How to continue

If you have come this far you can still make more of the challenge by making the following modifications:

1. After reaching the line the robot backs up and turns, but it always turns the same way. Modify the program to make each turn random (as if it throws the dice to decide how much to turn).
2. You have an ultrasound sensor so your robot doesn't need to move as if it were blind. You may be able to locate the cans without actually touching them.
3. Change the can for something heavier (a bigger can or something similar). This is an interesting exercise to get a feel of what a sumo competition is like with a dead weight.

Final remarks

You can find building instructions of the model in the pictures, the complete program and some more extensions to the challenge at <http://lrobotikas.net>. You can also pose any questions you may have in the associated forum.

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Lrobotikas.net

Robótica Educativa y Recreativa

Curso LDraw - Part 10

Installing LDraw

Text by Jetro

Strange as it may seem, after 9 previous articles I still haven't explained how to install the necessary tools to be able to use LDraw. It might seem evident, but it is not that simple. The LDraw set of tools uses LDraw.org as its hub, but you cannot download all the necessary tools from that website. Although there is an all-in-one installer [1] available on the LDraw.org website, it was prepared many years ago and does not include up-to-date versions of parts library (it only includes parts released up to 2005) nor of the necessary software, some of which has gone through substantial changes since then. Also, this installer only works if you use Windows and there appear to be some problems when you try to install on a 64-bit operative system

Below you will find detailed steps that will help you to install up-to date versions of all the most important elements of the LDraw set of tools, for different operative systems.



Downloading and installing the Parts Library

The core of LDraw is made up of the files that define the parts. To get the most up to date set of these parts, you need to go to LDraw.org. In the navigation bar on the left of that front page you'll find a group called 'Software' which contains a link marked 'Download'. On the page that opens you need to enter into the category 'Core Files and Libraries' and from that page download the LDraw Parts Library, either in zip format or as a Windows executable.

• Windows:

Download and run "LDraw Parts Library (Windows)"
By default the installer will propose to create an LDraw folder under C:\ and will run mklist to generate a file to describe the available parts in your library for any editing program you install afterwards.

• Mac:

Download the file LDraw Parts Library (zip)
After completing the download you need to decompress the file in a convenient location, e.g. "/Library/ldraw" or "/Users/yourname/Library/ldraw". Remember this location as you may have to inform the editing program you are going to use of where the parts library is.

• Linux:

Although it is possible to use only 'native' Linux tools, you can also use Wine to be able to use programs that do not have a Linux port. If you wish to follow this method, install Wine and follow the instructions for Windows. If not,, download the file LDraw Parts Library (zip) and decompress it in a convenient location (e.g. you home folder)

If you also want to have access to unofficial parts you again have two options. In the side bar to the left at LDraw.org, under the heading "Parts Library", you will find a link named "Unofficial Files". After downloading the zip file (this collection of parts is only available in zip format – also don't worry about the date that is indicated on this page as the file is updates regularly) you will have to decompress it and place the contents in a convenient location. Independent of your OS you can choose between the following options:

1. Mix oficial and unofficial parts.
2. Keep the two sets separate

If you decide to keep them separate, I recommend you create a folder named "Unofficial" inside the LDraw folder you installed/extracted the official parts.

Choosing an editor

There are a number of editors available, some more well known tan others.

• MLCad (Windows)

Available at <http://mlcad.lm-software.com/> which you can read in German or in English. You can also install MLCad in



Linux, under Wine.. También se puede instalar en Linux bajo Wine.

The all-in-one installer used to put most programs in a folder named "Apps" inside the LDraw folder that contains the parts library. You do not have to do the same, but it can be convenient to keep all LDraw related tools in the same place.

MLCad does not require any installation; just decompress the zip file and you are ready to go. If you want a shortcut for the program you will have to make one yourself.

After decompressing MLCad it's a good idea to get the latest version of MLCad.ini. You need this file to tell MLCad where to look for the Parts Library and the Unofficial Parts, to get LSynth to work in MLCad and for the minifig generator.

You can download MLCad.ini from <http://www.holly-wood.it/mlcad/ini-en.html>.



There is also an 'unofficial' version which includes unofficial elements for the minifig generator. This version is available from http://jc-tchang.philohome.com/manuel/mlcad_ini.htm.

You can find more information about MLCad.ini in HBM 004 (about unofficial parts) and HBM 005 (about LSynth 3.x)

• LeoCAD (Windows, Linux)

LeoCAD is available in specific versions for Windows and Linux (no need to use Wine). On its official webpage (<http://www.leocad.org/>) there are step by step installation instructions, including a compilation guide for Linux.

• Ldglite (Windows, Mac, Linux)

Available at <http://ldglite.sourceforge.net/>

A fast and light-weight editor, although you will need to learn a number of shortcuts to be able to use it effectively.

• Bricksmith (Mac)

The most complete editor for Mac, available at <http://bricksmith.sourceforge.net/>. On that same webpage there are tutorials on using this editor.

Installing a viewer for ldr files

Although all editors mentioned above allow you to see the model you are building, you may want to install a specific viewer for LDraw files to allow you to create high quality images of your creations.

The most well-known and complete viewer is LDview, and is available for Windows, Mac and Linux at <http://ldview.sourceforge.net/Downloads.html>.

You can find more information on installing and configuring LDview in HBM 005.

[1] <http://www.ldraw.org/Article126.html>

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DESCÚBRELAS
TODAS EN
camisetaslego.
eskimoeffect.com

TO BRICK
OR NOT
TO BRICK

¡ATENCIÓN!
Estas camisetas pueden
provocar tremendas ganas
de jugar con Lego, así
como miradas aviesas por
parte de amigos y
familiares. No utilizar en
caso de bodas, bautizos o
comuniones.



Visiting LEGOLAND Deutschland

Text and pictures by I Luisgib

Last summer, during my holidays, I made a little stop for a visit to LEGOLAND Deutschland. It wasn't the first time I visited the park (in particular this was the fourth) but it's always a pleasure to visit a LEGOLAND park, as you discover something that you hadn't seen on previous occasions.

Like the article of LEGOLAND Billund (HispaBrick Magazine 007), this will be a photographic article more than a written report, as an image will provide much more detail than tens of lines written.

The park is located just off Highway 8, at Günzburg, halfway between Stuttgart and Munich. The structure of the park is almost identical to Billund Park. The differences are located at some attractions and, above all, in Miniland. The reproductions are very different from the ones in Billund and for that alone, it's worth a visit to this park, even if you have visited other LEGOLAND Parks. The general theme is Central Europe and it played many icons known to everyone. For example, we

find a wonderful model of Venice, with the Piazza San Marco, Ponte Tivoli, the Gondolieri and typical streets. Another major attraction is the city of Berlin with the Brandenburg Tor and the Reichstag.

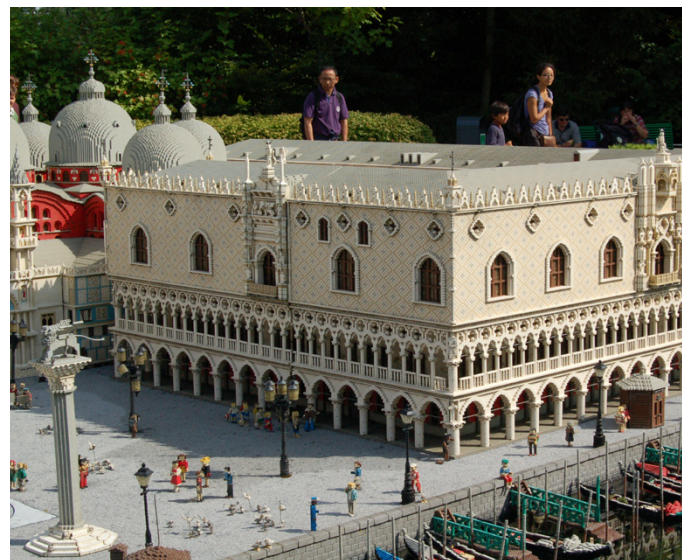
There is a model that particularly fascinates me, that was built to commemorate the 2006 Football World Cup held in Germany. The Allianz Arena was built in Munich and it is a modern stadium that lights up in blue or red, depending on which of the two city teams is playing (it can also light up in other different colors). The reproduction is superb. It has more than a million parts, the parts that form the outer cover were manufactured in a special color for this model (which also lights up) and 40,000 minifigs create a unique setting for a football game. Is not only reproduced the field and interior. Also there is the parking, the press room, locker rooms, massage areas ... There's even some riot policemen chasing hooligans. I'm not sure if it still holds that record, but when it was built it had the highest number of parts in the world.



Apart from these models that I have detailed, there are reproductions of Dutch landscapes, Swiss landscapes, or more specific as the Munich Airport or the City of Frankfurt. I don't want to explain more, because as I said the images, and above all, a visit to the park, will provide far more information than I can write, even if I fill pages and pages of text.

A visit suitable for all ages. One tip, bring an umbrella. I don't know the reason but always, at one time or another, during the four visits I have made, it rained:)

#



Japan Weekend 2011

Text and pictures by Satanspoet and Bitxa

On February 26 and 27, 2011, a new edition of Japan Weekend Barcelona took place and for the third consecutive year, LEGO® bricks were present at the fourth edition of the festival of Manga, Video Games and Japanese Culture.



This year the location of the Japan Weekend was changed and it was held at the Palau de Congressos de Catalunya in Barcelona and that is where a group of Spanish AFOL's met to show our dear bricks.

As usual in this type of event, once again we could confirm the great attraction and fascination that people have for the characters of SpongeBob SquarePants® and Toy Story™.

Hispabrick Magazine had its small representation and many people came to our booth to browse through the copies of the magazine. They were fascinated by the great work done by our LEGO fan community.





Also there were Star Wars™ UCS models, which were the main attraction and delight for many fans of the Star Wars saga.

There was also a representation of the city theme and of its farm that is getting bigger every year.

In last year's edition we had the chance to see the presentation of the Grand Emporium set, and this year, not to be outdone, we were fascinated to witness the presentation of that famous little blue train, the spectacular Maersk train, as a preview of a review you can read in this issue of Hispabrick Magazine.
#



4th Hispabrick - mNACTEC 2010

Text and pictures by Legotron and Jero

Another year Hispabrick has taken place, the premier event for LEGO® fans celebrated in Spain. The meeting took place on 4 and 5 December 2010, in the town of Terrassa, near Barcelona.

As in previous editions many of the Spanish fans, and some more from other countries, met to display some of their best creations to the delight of all attendees. Two major innovations of the Hispabrick 2010 compared to previous years were the location of the event, which took place at the Museu de la Ciència i la Tècnica de Catalunya [1] and the presence of members of EuroLUG [2], as it was considered a EuroLUG event.

The main change in the conception of the event by the organizing team was to get a location of the event in a museum rather than in a mall. This brings better prepared facilities for an exhibition, where you can perform the assembly and disassembly work more quietly. The facilities chosen for this purpose were those of the Museu de la Ciència i la Tècnica de Catalunya, in the main exhibition area of which were located all display areas and event activities.

It is important to emphasize the tremendous organizational effort it is to coordinate almost a hundred people including exhibitors and guests, search for hotels, coordinate access to the museum, etc.. A job of many months that go unnoticed by most, but without the selfless efforts of these people, this event would not have been possible. Therefore, this article is devoted to the organizing team and all the people whose cooperation made it possible to celebrate Hispabrick one more year.

Building up:

This is one of the moments of greatest tension, with the organization completing the final preparations, dozens of exhibitors moving boxes of material from one place to another and all checking if the material has arrived in good condition and nothing is missing. There was no lack of crowds when the most eagerly anticipated constructions began to take up their positions, and the little accidents that ended with hundreds of pieces scattered around the enclosure. It's a frenzy that occurs every year, but it is certainly a part of what happens at an event for LEGO® fans.

As new exhibitors were arriving at the hotel, greetings and the forming of small groups gave rise to another characteristic of these events: the LEGO gatherings. A meeting point for different fans where you can share various concerns about the event, activities and generally, all matters related to building with LEGO®.

The opening of the 4th Hispabrick - mNACTEC 2010, which took place in the reception area of the museum, was attended by a large group of people, including the event organization team, museum management, local authorities and the incoming and outgoing HispaLUG ambassadors. After the speeches and acknowledgements, the 4th Hispabrick was officially opened. In addition to the exhibition venue, the different parallel activities of the event, such as workshops and competitions were also inaugurated. Hispabrick had begun, it was time to enjoy the event.



The exhibition:

To begin the description of Hispabrick 2010, we have to say that it was held in a perfect setting, surrounded by exhibitions of industrial machinery, vehicles and vintage aircraft. Along the entrance hall, which gives access to the great hall of the museum we found the first stands of City and Medieval groups.

In this part of the exhibition we could enjoy a small town with all sorts of details, from the old town to an area of suburban houses, and this city came complete with rural areas, an amusement park and a train that kept all citizens fully communicated. An added attraction for this city was the feeling of life that the running trains and some working attraction conveyed. There were many attractions in the park that reminded of real-life attractions, an area with modular buildings consisting of a range of fantastic MOC's representing historic buildings, accompanied by a detailed replica of the Puerta de Alcalá. The area of houses with gardens gave way to farmland, well represented with gardens, animals and a farm, and far away from the city center, the observatory rose with one of the best telescopes ever built.

In the next stand you could see different scenes of the medieval-fantasy theme. The main one was a walled city with a spectacular, richly detailed cathedral where a royal wedding was being celebrated. The interior of the cathedral was more surprising than the outside because it was carefully lit. Along with the cathedral there were several very well recreated medieval houses and a small castle in which everything happening on the inside of the wall could be seen, banquets, parades of soldiers, witches gathering. The main concern of the medieval city were external attacks by hordes of orcs, trolls and skeletons who wanted to cross the mighty wall. A couple of scenes completed this group. A large white castle, soft lines, almost more like a palace, that everyone immediately identified as the Disney castle, no doubt. One last scene completed this stand representing two Viking ships attacked by sea serpents and dragons.

Magic and fantasy were present in every corner of this medieval-fantasy group.

Beyond the Medieval stand, to the right, we entered the area where most of the remaining exhibitions were placed. Right at the beginning stood the small EuroLUG stand, on whose behalf Svend Erik came to Spain on his first trip to a Hispabrick event. In this stand the small constructions that were submitted to the contest organized by EuroLUG were placed. Right



opposite this stand the new sets that were presented at this event were placed: 7895 "City of Atlantis" from the Atlantis theme and 2504 "Spinjitzu Dojo" from Ninja Go theme.

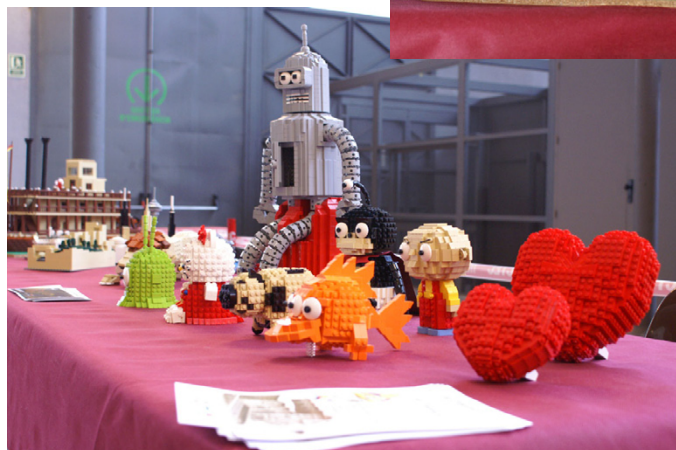
Continuing the tour we came to the next stop, which was the stand of the General group. This group contained all the creations that, due to their subject, could not be included in any other groups. This stand drew the most interest of the cameras, due to both the quality of the constructions and the fact that these were very familiar to children and adults. To begin with, visitors could see a collection of magnificent MOCs representing characters from series such as Futurama, Family Guy, Hello Kitty or the Simpsons. Many of these MOCs delighted the little ones who quickly identified the characters portrayed. At their side you could see several LEGO® Architecture sets, very attractive models despite their small size. Then there was a beautiful reproduction of a Mississippi River riverboat, whose lines and design were reminiscent of the ships in the novel by Mark Twain. Following





the row of tables was Panzerbricks tank collection, including most of his vehicles and a small diorama, an attraction for all fans of military construction. An excellent reproduction of the Cutty Shark was also on display, undoubtedly one of the constructions that attracted most attention during the event with a significant size and full of detail, highlighted by the smooth line of the hull construction and the complete rigging. From the Minifigs striking the sails to the details of the ship's deck, all was greedily taken in by the many cameras that photographed the ship continuously. Beyond the Cutty Shark there was a small nanoscale city inside a round plexiglass ball, which was very attractive because of its high level of detail and curious presentation. A brand new white Cadillac full of details stood out among the other buildings that gave way to the area of sets representing the Discovery theme and other themes related to space exploration.

Continuing with the tour, the stand next to the General group, was dedicated to Star Wars™. Obviously, this group was responsible for collecting all construction related to Star Wars. First you could find a series of displays from Gentle Giant LEGO® Studios, many of them limited editions and exclusive minifigs. You could also see some samples of the well-known Star Wars cube dudes from different events; a treasure for the eyes of the more veterans LEGO Star Wars collectors. Then there was a large diorama staging the battle of Kashyyyk, which was joint project of a large group of TFOLs, with dozens of vehicles and many minifigs, and full of details that recreated the battle. Along with the diorama there



was a reproduction of an R2-D2 at 1:1 scale - its size attracted attention from any point of the exhibition - and a collection of the Empire maxifigs (a bigger scale than minifigs), which have become a regular feature at the event and could not be missing in this new edition. Finally, we could find another diorama, this time of an Imperial hangar representing the arrival of Lord Vader to his command ship. This diorama is another of the veterans at Hispabrick as it has been present in all Hispabrick events held so far and it has grown in size with each edition.

In that same corner of the area the Technic group was located, which arranged its stand divided into several areas. To start off there's nothing like a little GBC circuit. Every time it was turned on there were many people who came to watch the movement of the balls between the different modules, the highlight being a spectacular ball shooter. The next table showed series of Technic cars, among which was a spectacular vehicle/bridge launcher and an all-terrain vehicle that had a lot of attention with all the requests from visitors to see them in action. There was a small obstacle course to demonstrate the abilities of these motorized vehicles. Finally, on the other end of the Technic stand, along with a new series of spectacular creations, one of the jewels in these constructions was displayed: the Bugatti Veyron, one of the most appreciated among the followers of Technic.

The next stand in the trip was the Sci-Fi group. This group was responsible for collecting all the MOCs with a futuristic, apocalyptic or steampunk theme. First of all there was a detailed diorama that could be a hypothetical set of a futuristic city with a building and its underground levels, with numerous nods to famous movie scenes, in which details such as vehicles and air traffic lights seemed to transport us to Blade Runner. Also you could see an exoforce diorama, a representation of the Red Army, with combat armor and war machines on guard against a detailed hangar and other steampunk style buildings. Finally, this group presented some replicas of the ships from the Battlestar Galactica series, with great detail. Also, with them you could see small groups of small-scale vessels ready to be used in space combat games.

As in previous years a small representation of our Portuguese neighbors was present at Hispabrick, next to the Sci-Fi stand, and they brought some constructions among which a beautiful building full of details, the beautiful architecture of which caught our eye.





Next there was the Space Group, whose stand was almost in front of EuroLUG, closing the bend in the main exhibition area. His stand was composed of a large diorama, where the Sulaco III was deployed, one of the most striking buildings of the event. This huge ship, which covered almost the entire size of the diorama of 4 meters, included inside a monorail double-circuit where two separate trains were circulating. Its size attracted the attention of visitors, who asked data about its size, weight and number of parts used in its construction. Throughout the ship numerous details and winks that recalled Space Classic line could be seen, like the striking lateral ramp the Classic Space minifigs, in the 5 colors they were built in, were charging up. Surrounding the huge ship there were a number of ships belonging to the classic sets of the theme.

Finally, located in a nearby area, was the large diorama of the Vintage Group. The group prepared a giant diorama, in fact the largest area of the exhibition, which included sets of the 80's and 90's from the old lines related to City and MOCs in accordance with the aesthetics of these sets. The entire diorama was surrounded by a monorail and a train that traveled from end to end.



It consisted of numerous areas in which sets and constructions of different themes were located. There was a mountainous area that bordered one side, where wind mills were located. The center featured an incredible amount of old sets of houses and urban elements that formed the city. An extensive and varied collection of classical sets that have come out of the LEGO® factories in the last 30 years. Not a single detail was left out. At the opposite end there was a port and the airport, where we could find again a number of LEGO® relics. The whole stand looked great, and added to the movement of the train and the monorail that toured it incessantly, it provided an excellent end to the tour of the exhibit.



Other activities of the event:

During the Hispabrick the exhibition of constructions wasn't the only activity. On the one hand there were activities organized for visitors, including educational and construction workshops. On the other hand, there were activities for the exhibitors which, like other years, were focused on the classical MOC contests or pick a brick, which like every year was not without crashes, races and massive overcrowding around the boxes with parts. Other activities included the LUG dinner, where participants and guests gathered to enjoy various activities and competitions. And the tour of the town, which, by courtesy





of the council, was offered to all exhibitors and guests of exhibitors, so that, for a few hours, they could break free from all those LEGO® parts.

Conclusions:

The possibility of organizing an event outside a shopping center has been proved possible with the commitment of the organizers, going beyond even the best estimates of the museum itself, which had to limit access at specific times to avoid crowds. Once again, the community of LEGO®

fans showed thousands of visitors what can be built and the possibilities of LEGO® parts. And the exhibitors themselves could enjoy the pleasure of returning to meet and live those incredible days enjoying our hobby. Now we only need to wait for the next event to relive the experience, with some more LEGO® parts ...

References:

- [1] Museu de la Ciència i la Tècnica de Catalunya (www.mnactec.com) in Terrassa (Barcelona)
- [2] Events EuroLUG: <http://www.eurolug.eu/>
- [3] Web Hispabrick: www.hispabrick.com



MINDSTORMS at LEGOWORLD Copenhagen 2011

By Jetro
Pictures by their respective owners

... Incoming transmission ... LGWCPH2011 ... MCPLMSMCH ... mWL3NSWH ...
[... decrypting ...]

..LEGOWORLD Copenhagen was another great succes for LEGO® MINDSTORM..

... Important presence of MCP with weel-known models and novelties ...

... NXT by land and air ...

... Enormous interest from
public of all ages ...

... Sending images



The enormous robot built by Eric Steenstra, and controlled by Kjeld Kirk Kristiansen, Camila Botke (Marketing Manager LMS Retail) and Henrik V. Hougaard Project Lead LMS) announces LEGO MINDSTORMS can be found in room C5



The Monster Chess, supervised by Martijn Boogaarts

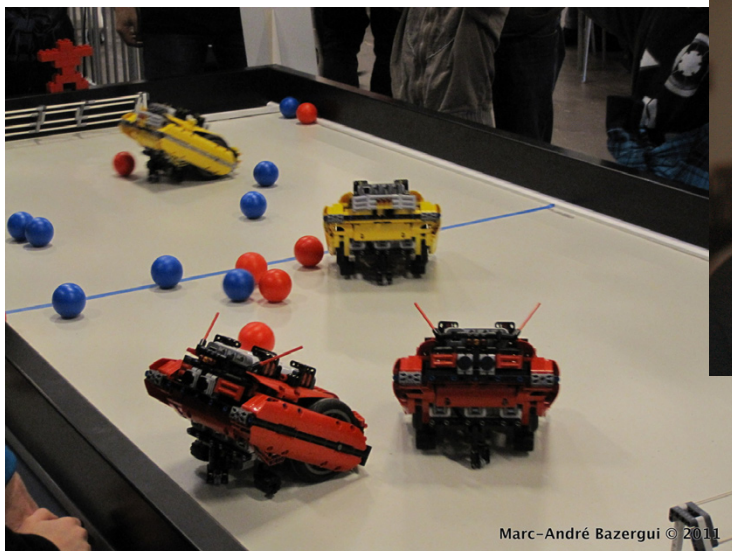


Marc-André Bazergui shows the latest evolution of his Wall-e



Lasse Lauesen and Kenneth Madsen show their NXT Blimp

NXT Soccer with Helmets: Vassilis Chryssanthakopoulos shows how to control the robots for a game of football



Marc-André Bazergui © 2011

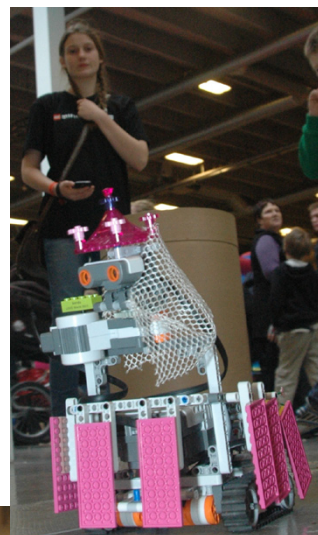


The pink robot controlled by MINDdroid



Fun for all present: Kjeld Kirk Kristiansen, Steven Canvin (Community Manager LMS) and Jørgen Vig Knudstorp (CEO TLG)

Harv Stanic (Software Producer LMS) shows how MINDdroid, a free Android application, works.



Camila Botke explains how to program the sumo bots with color keys.

Pictures by kind permission of Vassilis Chryssanthakopoulos, Martijn Boogaarts, Lotte van Zanten, Marc-André Bazergui and Lee Magpili.#



Review 7895: The city of Atlantis

Text by Jetro

Pictures by LEGO® Systems A/S

Set: The City of Atlantis
Set Number: 7895
Parts number: 640
Minifigures: 5
Recommended price in Spain: € 59.95

After the success Atlantis proved to be in 2010, the series continues in 2011. The expedition has reached Atlantis and prepares to enter its temple. Although the theme continues along roughly the same lines as before, some details have been changed and new elements are introduced.

The minifigs

I am not aware of the reasons behind the change, but whereas the minifigs used in 2010 had a diving suit with lime arms and flippers and a Trans Bright Green visor, the minifigs included in this edition have yellow arms and flippers and trans-yellow visors. The same difference can be observed in the vehicles used by the explorers which were red with lime domes and details in the first year and are red with yellow domes and details this year. By contrast, the colours of the 'defenders' of Atlantis are varied. Although black is predominant, even in the first year there were details in lime, orange and yellow. This year there is only one black animal in the sets, in the city of Atlantis: a kind of black lobster with orange details. However, the defenders at minifig scale appear to be more abundant.



Taking part in the expedition, the set includes the minifigs of captain Ace Speedman and doctor Samantha Rhodes. For the 'defenders' there are a Barracuda Warrior (Sand Green, with a printed mouth on the torso and large head which covers it almost entirely to which some fangs are added) a Crab Worrier (Dark red, with short legs and an equally large head which leaves the mouth that has been printed on the torso visible and some complements for the hands to make them look like crab claws – together with orange horns and prickly antennae that are added to the head to make it a very complete and interesting character).

The fifth minifig is actually the statue of Poseidon of the temple of Atlantis. The head stands out, as it shows an inexpressive face on one side which takes on life on the other side.

Poseidon has the same helmet we have already seen in the Spartan of the Collectible Minifig series 2 and a breastplate that stands out due to the use of Speckle Black-Gold.



Gadgets

The box for this set is a powerful advertising tool. The image of the temple and all the additional elements doesn't only show the contents of the set, but tells the story of the adventure with great realism. On the top side of the box all 5 minifigs included in the set are shown at real size, and the back of the box shows all the gadgets contained in the set. There's quite a few of them! Before the adventurers can use the purple/gold talisman that is included, they have to pass through an arch which hides a deadly trap in the shape of a swinging halberd that is put into motion with a simple mechanism at the top of the arch. Right after that there is a column that can topple over at any time. Upon using the talisman in the turntable at the base, the statue of Poseidon appears inside the temple. The statue appears to come to life giving the adventurers another good scare. After passing the statue there is a trap in the temple floor on one of the sides of the elevation. Finally, if they try to Access the lower part of the temple to rescue anyone who may have fallen into the trap, there is a voracious lobster hidden behind the doors.

There is another gadget, but I can't quite see how it fits in. The upper part of the temple façade contains a pair of flick-missiles, but I fail to see how this can be part of the ruins of the temple of Atlantis. There is also a small problem with the lobster that is hidden behind the side doors of the temple. Because this section is rather narrow, you need to make the lobster as narrow as possible too to make it fit and this way, if you closet he gates, the back of the lobster interferes with the mechanism that elevates the statue. Even so, both the lobster and its hiding place add value to the set.

Building

At first sight, the number of new round brick 2x2 with grille included in the set really stands out and give it an authentic feel – there are over 100. There is also an important number of green elements to create sea plants and algae, which give the set an even more authentic feel.

Building is divided into 5 main steps, and the bags for each one are duly identified.

The first bag contains the minifigs and the black lobster. The Plate, Modified 1 x 2 with Angled Handles on Side stands out as it is a new element for this year and allows the 6 legs of the lobster to be attached quite easily. Additionally, both the legs and the fangs are made with 87747 Barb Large which was introduced last year and has since been used in many Atlantis sets.

The second bag contains the parts for the submarine with articulated arms and flick missiles (I suppose there are included to balance out the ones that had to be included in the temple façade?) The submarine has space for one minifig and the dome opens. Also, the 'fingers' of the articulated arms are exactly the right size to take hold of one of the columns of the temple and so rescue anyone who may have got trapped under one of them.

The bags marked 3 contain the bricks to build the build of the temple which incorporates the mechanism to elevate the statue of Poseidon. With the contents of the bags marked 4 are added later to build the columns and the stairs that provide Access to the temple. This latter section is connected to the base with the use of technic pins which makes it easy to store the set in a smaller space. The upper structure of the temple is full of details, both in the pediment and behind the statue of Poseidon, with many Gold elements that stand out on the white background. In both places there is a large sticker, but it only covers one piece and really makes the set look a lot better. This is not really the case with the stickers that are placed on the rock elements in the temple base, which are practically hidden behind the marine plants.

Bag number 5 (together with two large algae that are included outside the bags) contains parts to add plants and the gate that provides Access to the temple complex. Since the columns in this section do not make up part of a larger structure, they are reinforced internally to make them more rigid so they won't break easily.

The set

The temple has a very attractive look which, combined with the large number of gadgets, make it a great and diverse play scene. In addition, the set contains 4 action minifigs and each side has an extra – the submarine for the adventurers and the lobster for the 'defenders' of the temple. This large number of elements not only makes this set the central piece in the story the Atlantis theme tells this year, but a single set provides a very complete play scene. Although the change in colour palette of the adventurers is a good move (introducing yellow in favour of lime green), it does mean there is a small break in the continuity of the story. The solution is easy: buy more Atlantis sets!

Thanks to: LEGO® Iberia for providing the set and the official images.

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Review 7327: Pharaoh's Quest - Scorpion Pyramid

Pharaoh's Quest presentation

Text by lluisgib

Pictures by LEGO® Systems A/S

Set: Scorpion Pyramid
Set number: 7327
Parts number: 792
Minifigs: 7
Recommended Retail Price: 89,95€

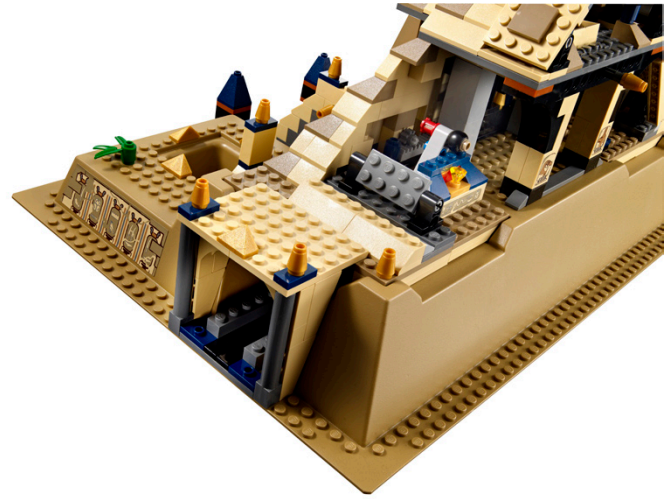
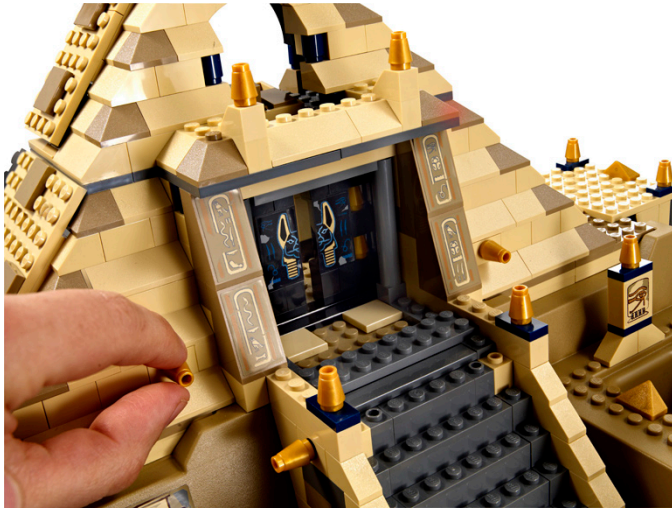
The last time LEGO® offered an Explorers theme was in 2003, when the last series of Adventure sets was launched under the name Orient Expedition.

In 2011 the Pharaoh's Quest theme is launched which answers a long standing demand on the part of the AFOLs: a LEGO theme based on ancient Egypt, although in this case in a slightly peculiar way.

If we have a look at the different sets that make up this theme, you can see there is a large influence of elements from the culture of the pyramids,, adding a touch of the fantastic with large animals that fight the explorers (characteristics we have already seen in themes like Atlantis or Vikings) or mythological minifigs.

For this presentation we have built the pyramid which, to date, is the biggest set of the theme. The set is made up of a desert vehicle, the pyramid, and an enormous scorpion that prevents access to the secrets of the tomb of the Pharaoh.





The cockpit of the vehicle stands out as it is 5 studs wide, allowing it to carry 2 minifigs. It also features tracks to travel on the desert sand.

The pyramid is full of details, secret chambers and traps against treasure thieves. It is built on a dark tan raised baseplate.

The stairs hide the first secret, as they can be lifted to allow access to a room full of scorpion that could contain part of the Pharaoh's treasure. Between the mounds at the base there is a secret chamber of the Pharaoh's tomb to which you can only gain access by means of a mechanism in the top part, in another chamber, which has been conveniently hidden by part

of the treasure. Other chambers inside the pyramid have more treasure and traps. The doors that give access to the inside of the pyramid can be opened with a mechanism and are protected by the scorpion, which is connected to the pyramid on the balcony of the upper level.

With a bit of imagination many fantastic stories can be recreated, involving explorers, archeologists and mythological creatures that fight to get or protect the secrets of the Pharaoh.

Thanks to: LEGO® Iberia for providing the set and the official images.

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Set: Off-Roader
Set number: 8066
Parts number: 141
Recommended price: 14,95€

After my previous article about the world of Technic, my fellow editors have punished me with another review of a Technic set, trying to broaden my knowledge on this line. Not that I agree very much, but I didn't have any other options ...

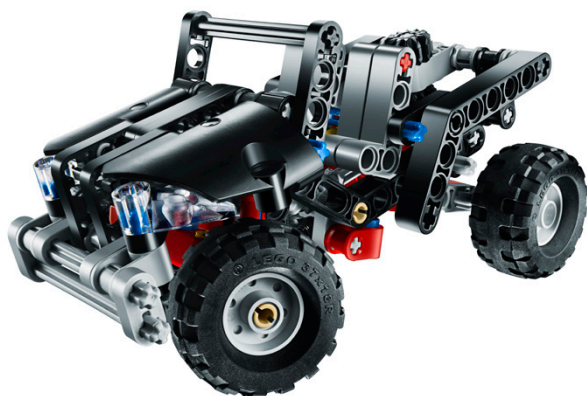
This time it is one of the smaller models of this year, the 8066 Off-Roader.

I must say that the first feeling was of disappointment. When I opened the box and turned it over I was startled to see two small bags of pieces land on my desk. Honestly, I thought that LEGO® had forgotten to put in a bag before closing the box.

The set comes with instructions to build two models, a jeep as the main model and a buggy as an alternate.

As for technical characteristics, the main model has steering and suspension. The steering is quite simple but it solves the problem very well in very little space. The suspension is a single central shock absorber between the two parts of the chassis with the axis. The suspension is appropriate, it isn't necessary to sit on it to work and it doesn't collapse under its own weight.

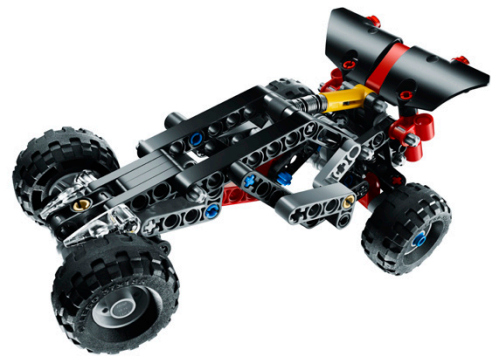
Visually a couple of seats made of liftarms and a few panels give the set, I would say a more than acceptably finished look for a model of this size. Well, in the end, all the parts were in the box.



Review 8066: Off-Roader

Text by car_mp

Pictures by LEGO® Systems A/S



Assembly is simple and fun except the typical steps where a liftarm has to fit in half a dozen pins and different axles at once, and it is a bit complicated at first. The gameplay is not excessive given its few mechanisms, but I consider it a great model to start in this world at a tender age. The mechanisms are easily understandable and will certainly stimulate the young builder (I am too old for these things).

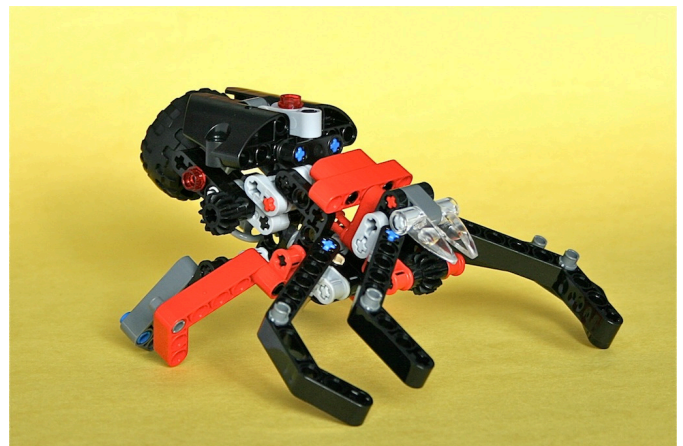
Regarding the secondary model, there isn't much to say. It's simpler than the main model and a little disappointing because it does not have steering, but a kind of "crazy axis" that turns when you balance the car in the desired direction. Curious but not very technic. LEGO has not been very original or bold in its design but it is clear that the pieces do not allow for much more.

In short, a good "starter set" for young people trying to get started with technic, since it is simple, educational and playable. For experts it will not present a challenge.

Thanks to: LEGO Iberia for providing the set and the official images.

Finally a fantastic alternative model with the parts of this set built by arcanemettles.

#



Review 2504: Spinjitzu Dojo

NINJAGO presentation

Text by Alvaro and car_mp

Pictures by LEGO® Systems A/S



Set: Spinjitzu Dojo
Set number: 2504
Parts number: 373
Minifigs: 3
Recommended price: 39,95€

All AFOLS were surprised when LEGO® announced the launch of the NinjaGo theme. “LEGO and spinners? We all thought that LEGO should have produced a Ninj theme and not this experiment. But sometimes we forget that what we take so seriously is nothing but a toy for children.

But let's talk about what brought us here, our first contact with this theme.

The set is one of the stars of the theme. It represents the Dojo where ninjas are trained. The set includes three minifigs, a spinner and a series of panels that create an oriental decor.

Notable among the minifigs is the Master Wu minifig, and its hat. The “bad guy”, represented by a skeleton, has a number of modifications. For starters it has a larger head and supplements on its feet to allow it to be placed on the spinner.

The scenery is simple but gives an acceptable result. The spinner, which does not come with a launcher, turns easily and its duration seems appropriate. It comes with a series of cards to be used during the spinner battles.

The method of combat is simple: you equip your minifig for battle and launch it against the enemy. The one left standing wins.



As I'm not a professional in this kind of things, I asked my friend Alvaro for his judgment. He is an 11-year-old student and an expert in all types of spinners, from wooden ones to the Beyblades.

His opinion is clear and perhaps surprising to those who see this theme only as a source of parts. He sees Ninjago as the perfect combination of two of his hobbies. He loves the ability to change weapons and the theme itself. What he likes least are the instructions which he thinks are not very detailed.

In conclusion, it is clear that it appears to be an ideal product for the age range it is targeted at. And for those who have left this range ... a long time ago, it is a source of parts and resources for different displays.

Thanks to: LEGO Iberia for providing the official images.
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Review 10219: Maersk Train

Text by Iluisgib

Pictures by Iluisgib and LEGO® Systems A/S

Set: Maersk Train
Set number: 10219
Parts number: 1234
Minifigs: 3
Recommended price: 109,95€

Introduction

After the re-release the Maersk container ship (10155) I don't think anybody expected another set to appear in collaboration with this transport company. This magnificent set, which reproduces one of the trains that are used in the United States for transporting containers across the country, was presented at LEGOWORLD Copenhagen (after images of this set were leaked some days earlier, something that unfortunately is becoming all too common).

The collaboration between LEGO® and Maersk has a long history. I believe it will be best to simply reproduce the text that appears on the first pages of the first building instruction booklet of the train, and which explains the development of this collaboration in 6 languages:



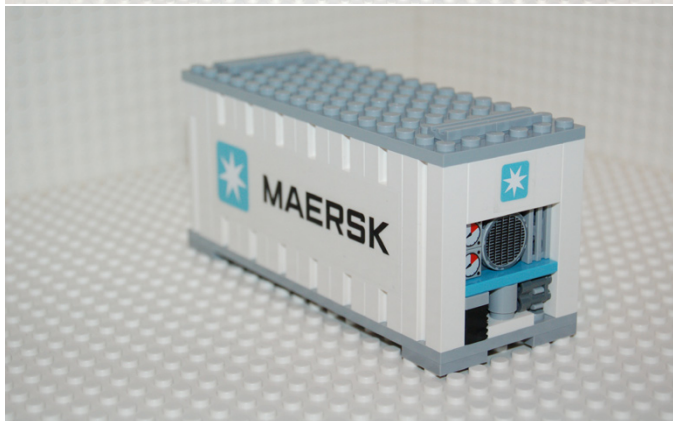
A.P. MOLLER - MAERSK GROUP - The LEGO Group History

The relationship between The LEGO Group and A.P. MOLLER - MAERSK GROUP was founded in a personal relationship between Godtfred Kirk Christiansen and Maersk Mc-Kinney Moller. The first Maersk promotional set was a Maersk Line container ship released in 1974. Now, more than 37 years later, 10219 Maersk Train is inspired by an actual train that transported containers across the United States.

2 million Maersk containers are currently in circulation worldwide. The white containers, or 'reefers', are different from the gray containers because they are refrigerated. One of the longest containers trains ever was pulled by nine locomotives and stretched almost 3.5 miles in length!

It is the first time the result of the symbiosis between these two Danish companies is a train, after several trucks and ships. Additionally, this train has a completely different design from the ones marketed up till now with the PF system, and it is more similar to the 9V system, like a mix between the 10133





Burlington Northern Santa Fe (BNSF) Locomotive and the 4549-1: Container Double Stack, although in the characteristic Maersk colours. If we also take into account the fact that the set contains a container truck this is truly a novel set.

Building

The building process is divided into two parts. The first part consists of the engine and takes up the first instruction manual; the second part comprises the wagons and the truck.

Upon starting to build the engine I find the first nice surprise. The two minifigs (plus the one you build in the second part) are exclusive to this set. They also have a special decoration on their torso (which curiously is covered by their safety vests), and wear the much desired Maersk blue worker helmet. A nice detail!

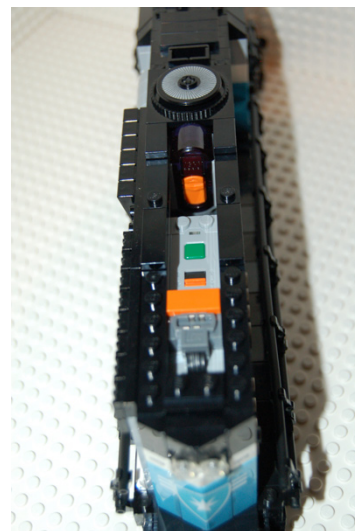
I start to build the engine from its base. Since it is very long, the 28 studs of the Train base is not enough and the first step consists in making it 6 studs longer on both sides, resulting in a total of 40 studs (over 30cm). It's an impressive length to see

Something to highlight in the construction of the engine is that, although it may seem that way at first glance, it is not



symmetrical. At the backside of the driver cabin both sides are different. This is a very positive aspect as it makes the building process more interesting and less monotonous.

For the front of the train an interesting technique is used. In order to obtain the angles shape, the designers have used a Slope 30 1 x 2 x 2/3 and some plates to adapt the distances and integrate it as if it were single piece. In the words of the designer of this set, it's a technique they could not have used in sets targeted at children due to its complexity (especially that of the support which uses interesting combinations of parts to change the direction of the construction by 90°). Later on the whole of this angles section is covered by stickers with the Maersk logo. That is also my biggest criticism on this set. It is understandable taking into account the cost, that stickers need to be used, but lately the stickers in the sets were adapted to the size of individual parts which allows you to disassemble those parts instead of having various parts covered by the same sticker. This is not the case here, and although I understand the difficulty of dividing, once you apply the stickers you cannot disassemble this part of the model and about 20 parts are affected. I consider this an important failure as without the stickers the train loses a lot, but if you apply them you lose the possibility of using those pieces for anything else or of storing the set disassembled.

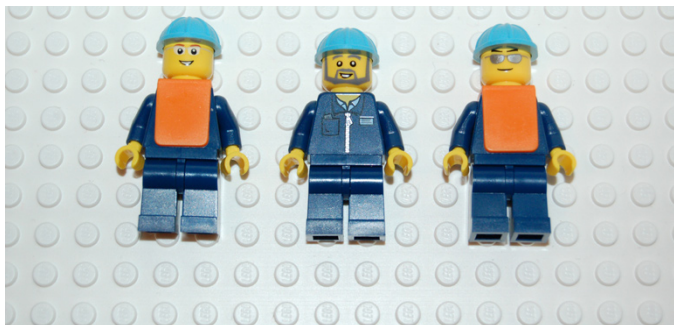


The driver's cabin opens which allows you to place a minifig inside. It contains controls and a seat. The funny thing is that if the driver sits down he cannot see the track. Fortunately, the minifig also fits standing. On the other end of the engine there is a structure that accommodates the diesel engine that gives this 'monster' its power. A notable fact is that the original set consists of a replica of the diesel engine and some parts to simulate the IR receiver. The second booklet contains instructions to motorize the engine with Power Functions. The diesel engine is replaced by the battery box, the IR receiver in the centre of the engine, well hidden between the ventilation turbines on the roof of the engine. The IR receiver is really well integrated and you need to take a close look to distinguish it from the engine. It is also possible to incorporate a 9V motor, leaving the diesel engine replica in its original place.

The covers for the area where the battery box is located are a bit fragile and difficult to remove, especially because of a tile 1 x 8 that is only fixed on one stud and comes off really easily if you are not very careful.

To finish describing the engine, I'd like to highlight the small details that make the design so much more realistic, like the horns on the roof of the engine, or the railings to the sides that provide safety to the maintenance crew.

The wagons are a lot simpler and there isn't much to say about them. The two-level train base is used again. Building the wagons was easy and few pieces are used for them. The interesting part of the wagons is the flexibility in the placement of the containers. You can place one in the central part, stack two or place them in parallel, adding a small extra to level the



centre part of the wagon. This flexibility allows for numerous combinations, making the train much more eye-catching.

The containers are very well recreated. Modified 1 x 2 bricks with groove are used to simulate the typical corrugated iron look of containers and at the sides there are 3 bricks 1 x 8 to place the Maersk stickers. Another characteristic that has been copied from the real containers is the colour. The set comes with 3 containers, 2 for general purposes and a refrigerated one. The general purpose containers are grey and the refrigerated container is white. The latter includes a reproduction of the cooling equipment and the control panel.

Finally, the truck is also different from the typical LEGO® truck you can see in LEGO CITY sets. It feels like the type of truck that is used in harbours or loading bays and that serves to move containers from a ship to a train or to other long distance trucks. The cabin is not centred and has a very modern, semi-octagonal shape. To the right of the cabin there is a small barrier the operator can hold on to. The truck is also very detailed, with mud flaps on the rear wheels of both the tractor and the trailer, mirrors, warning light on the roof and an exhaust. Like the rest of the model, it has its own stickers to clearly show it is a Maersk truck.

The set as a whole

When I finished building the engine I spent sometime observing. It is very beautiful and realistic. Compared to other engines, this one is very big and really transmits the feeling of great power. The colour scheme is beautiful and the stickers make up for what cannot be achieved with parts. It's a pity the engine cannot be fitted with the PF lights, at least not easily. There are no holes to pass the cable trough, nor a place to fit the tips. It would be spectacular to see the engine lighting the track.

The wagons, although simple, fulfil their aesthetic and functional objective. I really appreciate having the possibility of placing the containers in different ways, making the composition less monotonous. The Maersk blue decoration and the small stickers with the band name are discreet but appreciated in the context of the train. The containers in real-life colours are another attractive point that adds to the overall interest of this set.

The decision of incorporating a truck in the set was very good. The truck has a modern design and makes for a perfect complement to the train and its potential inclusion in a diorama. The minifigs are all the same but for the expression on their faces. This does not make the set less attractive as their specific design and the Maersk Blue colour, make them a collector's item.

At first I thought that 1234 parts was a lot compared to what you see on the box, but as you build the set you realize many parts are needed to reproduce the shapes and details of the engine. The set contains over 200 Maersk Blue parts.

Conclusions

I think every AFOL was impressed when they first saw images of this set. A cargo train that is different than usual and that, thanks to the collaboration with Maersk, has a very attractive colour scheme.

I believe it is probably the best cargo train set of the last 10 – 15 years. Big, beautiful, realistic and exclusive; what more can you ask for?

I look forward to seeing double, triple or quadruple engines to pull 40 or 50 container wagons in one of those miles long trains you can see in American documentaries. I know it sounds exaggerated, but I bet it won't be long before we see one of those in one of the upcoming events.

Thanks to: A LEGO SYSTEM A/S and Jan Beyer for making the set available and to LEGO Iberia S.A., Joachim Schwidtal and Rosa Seegelken for the official images.
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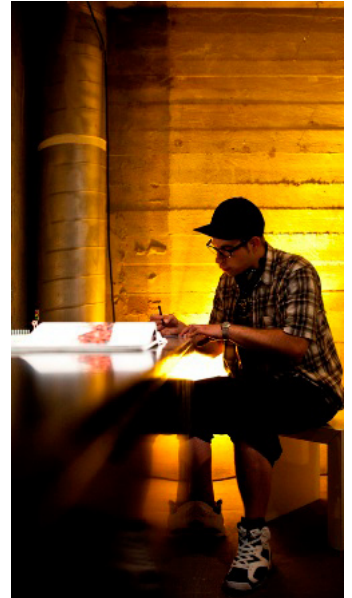
ORION PAX 2010

Great creators of the world: Alexander Schranz

A great creator known for mastering different disciplines of building with LEGO®. From minifig scale constructions to reproductions of everyday objects.

By Hispabrick Magazine

Pictures by Alexander Schranz



Hispabrick Magazine: Name?

Alexander Schranz aka Orion Pax

HM: Age?

AS: 30

HM: Nationality?

AS: German

HM: What do you do normally?

AS: Work for LEGO® as a freelancer

HM: When did you first start building with LEGO?

AS: When I was a kid and then after my dark ages when I was between 18 and 19

HM: Your first set?

AS: LEGO 4005 Tugboat

HM: And your last set?

AS: 10212 Imperial Shuttle

HM: Your favorite commercial LEGO building theme?

AS: I like Star Wars™ and Indiana Jones a lot.

HM: What is your favorite LEGO element and why?



AS: The 1x1 mini slope because it kind of gave me lots of inspiration when it came out.

HM: Which part would you like LEGO® to produce?

AS: I would love to have more organic elements and then it would be nice to somehow finish old element groups instead of open up new groups all the time.

The same for colors. For example i'd like to see dark tan mini slopes and plates to finally use all the other dark tan parts for a model.

An inverted 1x1 mini slope and a 1x1 stud to build upside down techs.

HM: How many hours do you spend building with LEGO?

AS: Between 40 and 50 I would say.

HM: What do your family/friends think about this hobby?

AS: Pretty supportive since I also work within my hobby.

HM: Throughout your gallery of photos we can see many MOCS about the Transformers world, there are characters that appear repeatedly. What do you find attractive about this theme? What advice would you give to get the right balance between the two facets of the model (robot and vehicle)?

AS: I guess it's kind of an old habit from my childhood.

I did not have that many Transformers when I was a kid even if I had pretty much LEGO.

So what I did when I was watching all that cartoons and nice movies that came out in the 80's I built them with LEGO.

I think that LEGO and Transformers fits together style wise because it's both very blocky and the colors are also an important design feature on both products.

When you for example take a closer look at Perceptor you can actually see that the parts and colors somehow were just there to build him that perfect in LEGO.

I don't think it's possible to build all of them that remarkable, but some characters will follow in my photo stream for sure....

One piece of advice to build them would be to make sure you got the right size compared to how much details you want to get in there. All my latest Tfs have pretty much the same scale and stability, which is also pretty tricky to figure out. They need to stand on their feet no matter the weight.

Lots of trial and error building is involved in doing these guys.

HM: Another theme you seem interested in is reproducing everyday objects. How do you choose what object will be the next to build?

AS: Actually I got inspired by the awesome famous ARVO brothers a long time ago.

It is a challenge to make LEGO look like something real.

And I love challenges within LEGO ;)

Usually the parts decide what they want to be made into when they are running through my hands.

And sometimes a color decides a creation.

I guess it depends on the degree of inspiration you got from your LEGO.

HM: Do you draw or pre-designs before you start building?

AS: I have a brain CAD which I use all day long when I'm not building.

So I always think about building techs or parts I need to get to



finish this or that.

While I'm building I sometimes sketch stuff to get an impression.

I also use the trial and error method a lot in my models which is more time consuming but can give you really crazy results sometimes.

You'll never know what parts could come together ;)

HM: How long does it take you to get from the idea to the finished model?

AS: Depends on the size of the model and the time and effort I put into it.

Usually I carry around lots of ideas for months until the next outburst where I spend hours being inspired to build on that model until I finish it.

I hate not finishing stuff !

HM: In your gallery you have pictures of you with the Arvo brothers at an event in Munich. Some of your themes are very similar (everyday objects, superheroes,...) How was your meeting? (talking about LEGO, apart from beer)

AS: Oh yeah that was good times. I miss STARBUCK and APOLLO ;)

We got invited for an exhibition at the STROKE event by LEGO.

We spend four days in Munich building there with the kids and presenting our models to the people.

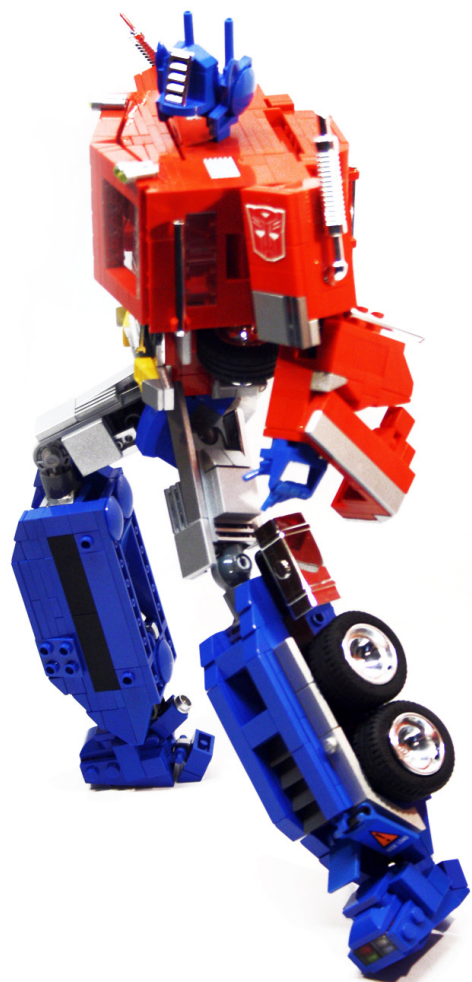
Apart from drinking beer for sure!

HM: What does your free-lance work for LEGO consist of? How does LEGO work with this type of creators? Do they propose projects or you can present your ideas freely?

AS: Since I'm working on the concepts for TLG I'm not allowed to tell anything. Sorry guys.

But I guess when you are interested in this topic there is plenty on the web to find.

I'm not the only AFOL working for them, right?





HM: If you had to choose one among all your creations, which one would you choose and why?

AS: Hmm... if it would be a theme I would immediately say TRANSFORMERS. And if it would be only one creation I had to pick while running out the burning flat it would probably be my latest built DELOREAN just because I love him.

HM: The increase of AFOLs and lines like Star Wars™ create new possibilities not imagined before by LEGO. What do you think about the old school LEGO® and the new LEGO?

AS: I think it's necessary that TLG works together with the "Fans" or how I would call them "Professionals" because a skilled product designer does not eventually come with the knowledge and skills some of the fans come up with. The possibilities for LEGO are lines like Star Wars™ and other IP's. And within that for sure awesome models like the new 10212

Imperial Shuttle for example.

I think the style we can see in the "new" LEGO is highly inspired by the AFOLs that work for LEGO. If old school or new school it only matters if it's cool, right?

HM: What do you think about the use of non-official parts (stickers, modified parts, non-LEGO elements,...)?

AS: When it serves the creations and creators need and it's not rule-bending within any contest or LEGO groups..... Actually I don't even care as long the creation looks cool it could even be glued cut bent flamed grilled nuked naked or send to moon and back ;) #



"PAX NYC Style" by Orion Pax



5 questions to...

Christian Iversen

*Executive Vice President
Corporate Center, LEGO® A/S*

Christian Iversen has had a wide-ranging career with the LEGO® Group since his arrival in 1993. Following several years as brand manager, he joined the staff of the Strategy Department, transferring later to the office of Kjeld Kirk Kristiansen as Executive Assistant.

This was followed by a period as head of Business Support at the LEGO Group's British subsidiary, where he was responsible for financial, administrative and personnel matters. In 2001 Christian Iversen took on global responsibility for LEGO Group Human Resources. In 2004 he was appointed head of Marketing Communications, and in 2006 he was also given responsibility for product development of LEGO Group Make & Create products.

In August 2006 Christian Iversen was appointed Executive Vice President, Corporate Centre, which comprises economy, IT, HR and legal affairs. At the same time he became a member of Corporate Management

• In the past 5 years, it seems that the economic situation of the company has cleaned up after the problems in the beginning of the last decade. What has led to reversing this situation and which are the prospects for the future?

I believe the answer is that there are no silver bullets. It is a combination of a strong brand and product that we started treating in a professional way. That means not compromising on the consumer proposition for what a good LEGO product is, listening to the customers and building organisational capabilities. I think that with that in mind we have succeeded in turning the company around and created a platform that holds great prospects for the future if we maintain that focus.

• Today no one can imagine a world without Internet, social networks, forums, virtual communities ... How important is IT in the evolution of the company and the LEGO game?

Today IT and the computer is a fully integrated part of children's lives and in order to be relevant to children we need to have a LEGO offer in the virtual world. And not just any offer. It has to be an offer that holds the core values, beliefs and promises of the real LEGO play experience. That's when we become relevant in the digital space.

• What complexity has the management of a workforce of about 10,000 employees worldwide, having in mind the differences between different cultures, social structures, economic levels, etc.?

There is not a 1-1 relationship between doubling the number of employees over the last 30 months and the complexity of the business, but for sure the increased number of employees and the expanded geographical footprint has increased complexity. The main area where we experience increased complexity is in onboarding so many new employees and ensuring that they quickly adopt the real values of the company.

• What strategy is followed to fight the clone brands that copy the LEGO product or system?

We still fight them through legal means wherever that is possible, but overall and longterm we must out-compete them through providing the best play experience for the \$. In that sense the competition keeps us on our toes and ensures that we constantly innovate.

• How has the LEGO Company been affected by the sentence that prohibits the use of the 2x4 LEGO brick as a brand, the brick being the icon of the company? In the future, does will the same happen with the minifig?

I guess the answer is the same as above. Losing the legal protection just means that we will need to work even harder to ensure that we deliver the best and most innovative construction product in the world.

#

5 questions to...

Mads Nipper

*Executive Vice President
Markets & Products, LEGO® A/S*



Mads Nipper joined the LEGO® Group in 1991 as a media consultant. During his LEGO career, Nipper has primarily worked with marketing and product development.

From 2001 until 2004, Mads Nipper held the position as Managing Director, LEGO Central Europe, being responsible for the sales and marketing activities in Germany, Austria and Switzerland.

In 2004, Nipper assumed responsibility for the LEGO Group's overall product development and marketing activities.

In 2006, Nipper was appointed Executive Vice President of the Markets & Products division, which is responsible for the LEGO Group's global product development, marketing and sales to retailers, and became a member of the group's Corporate Management.

• Is there a master line to be followed for the development of any LEGO product?

All new LEGO products except new concepts like LEGO Games are developed as part of a standard development process (LEGO Development Process, LDP). The process is a standard process that is applied in almost the same way in all development projects, although some products like LEGO TECHNIC sometimes take longer than the standard process. Part of the LDP is a set of very high demands on product quality, design and building experience that all products have to live up to. Everything has to be system in play - No exceptions!

• What determines the creation of a new line in the LEGO catalog?

We start with a strategy for what target groups, experiences and price points we should prioritize in our assortment. This sets direction for the innovation efforts in our team, and over a 7 month process, we go from more than 100 opportunities down to the about 20 development projects we do every year. And it really is the creativity and talent of our development and marketing teams that determines what lines are presented. The Leadership Team makes the final choice of new lines based on strategic fit, evaluated consumer appeal of the line, business potential, complexity, and cost of the proposed lines. Furthermore, we always evaluate if a new line is incremental – does it offer something new and exciting to our product range?

• How do you define a global marketing strategy taking into account that it has to fit in markets as diverse as the European, American or Asian?

So far, it has been surprising how much one product can appeal to the same consumer in different parts of the world. For example, our City fire truck sells very well both in Germany, US and Korea – even though the real world fire trucks look very different in these countries. The same goes for our marketing efforts which are largely global, but of course with lots of local initiatives that work well in that particular market. We are, however, ready to experiment with more regional assortments if it proves necessary. But so far, that has not been the case...

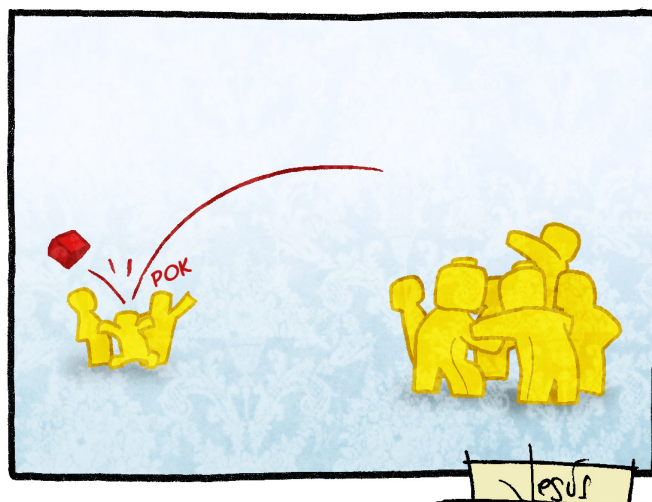
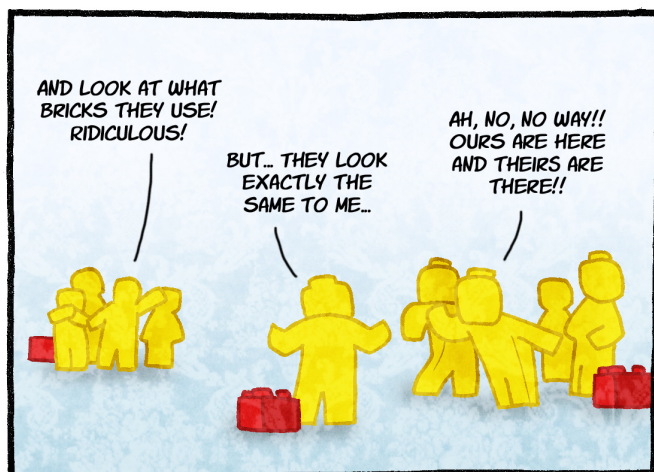
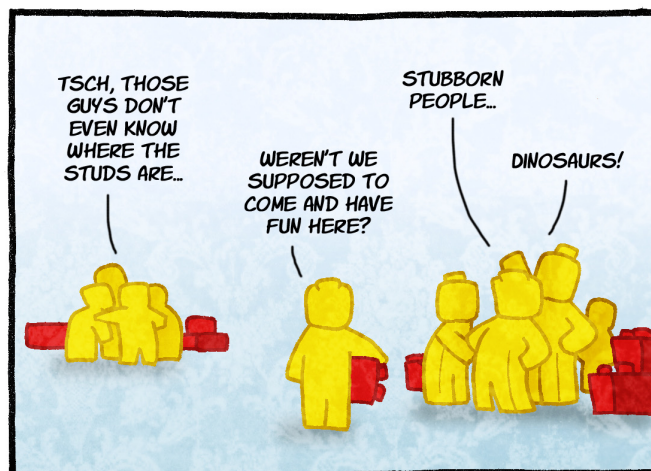
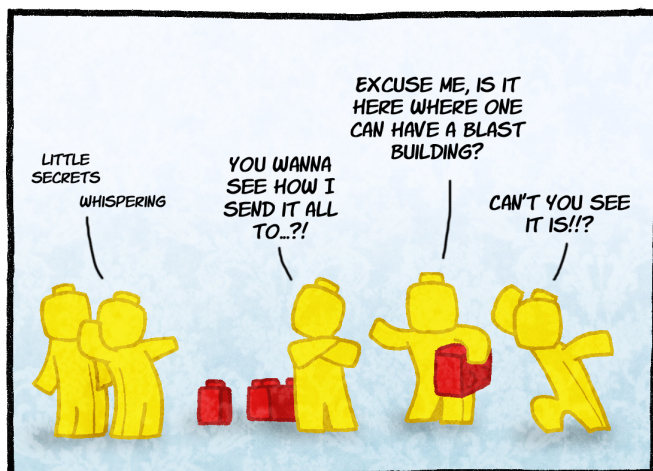
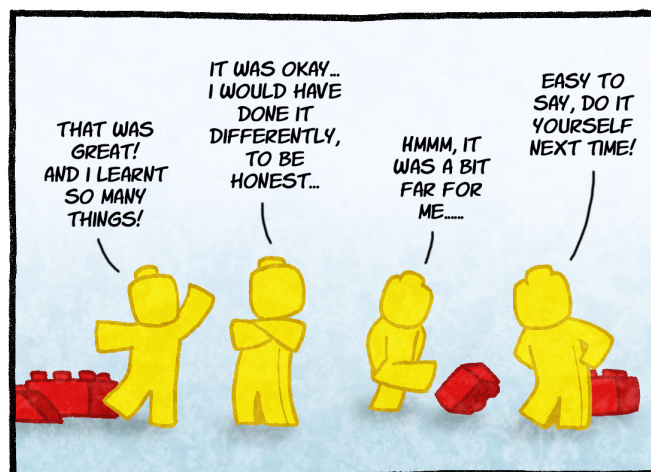
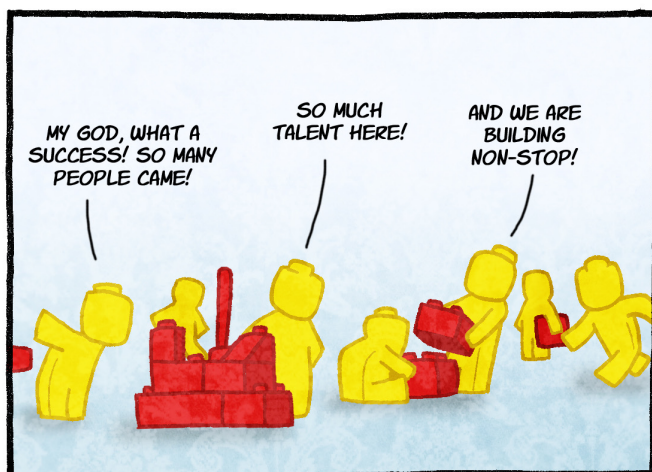
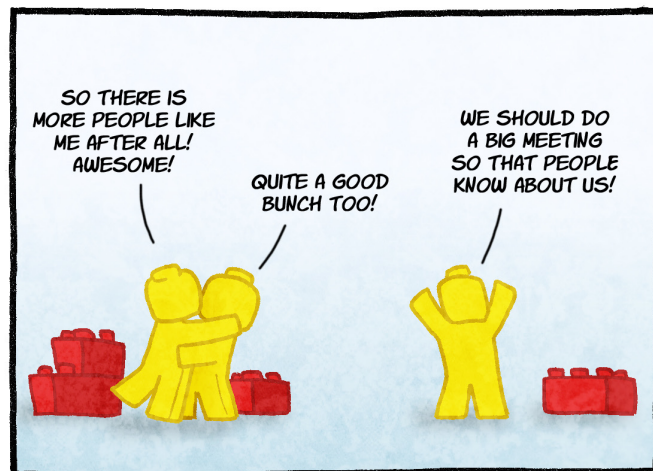
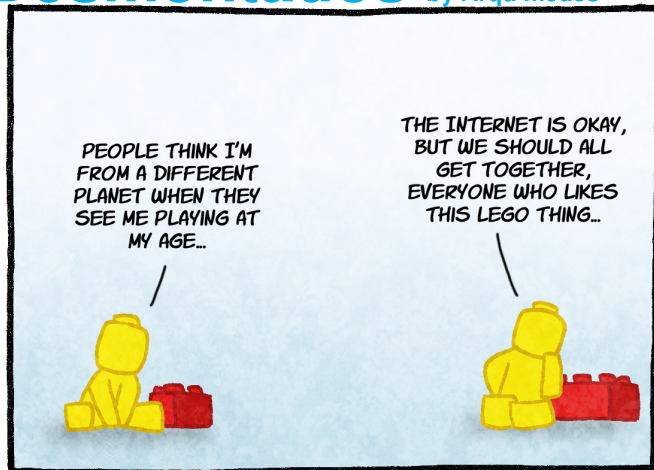
• The global toy market is not at its best. In contrast, the LEGO Company is presenting in the recent years spectacular results in all markets. What explanation is there for growth in the current difficult times?

I believe it is because difficult times make consumers think more about what they spend their money on. LEGO products cost quite some money, but more and more consumers know and recognize that our products are true quality experiences that deliver more play hours per euro spent. Or in other words: In difficult times, people buy more quality products like LEGO, and less "plastic fantastic" toys. On top of that, I am very satisfied with the appeal of the products that our team has developed the last few years.

• Why it was decided that the LEGO brand should no longer be linked to any food brand?

Because child obesity is an important issue that we needed to relate to. There are of course healthy foods that we could still work with, but it would be a very subjective evaluation of what is healthy and unhealthy, and this opinion is furthermore very different in different countries. Therefore, we decided to stop working with food companies altogether.

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Stupid Studs by Vrykolakas



Not everybody is happy with the launch of Pirates of the Caribbean franchise...

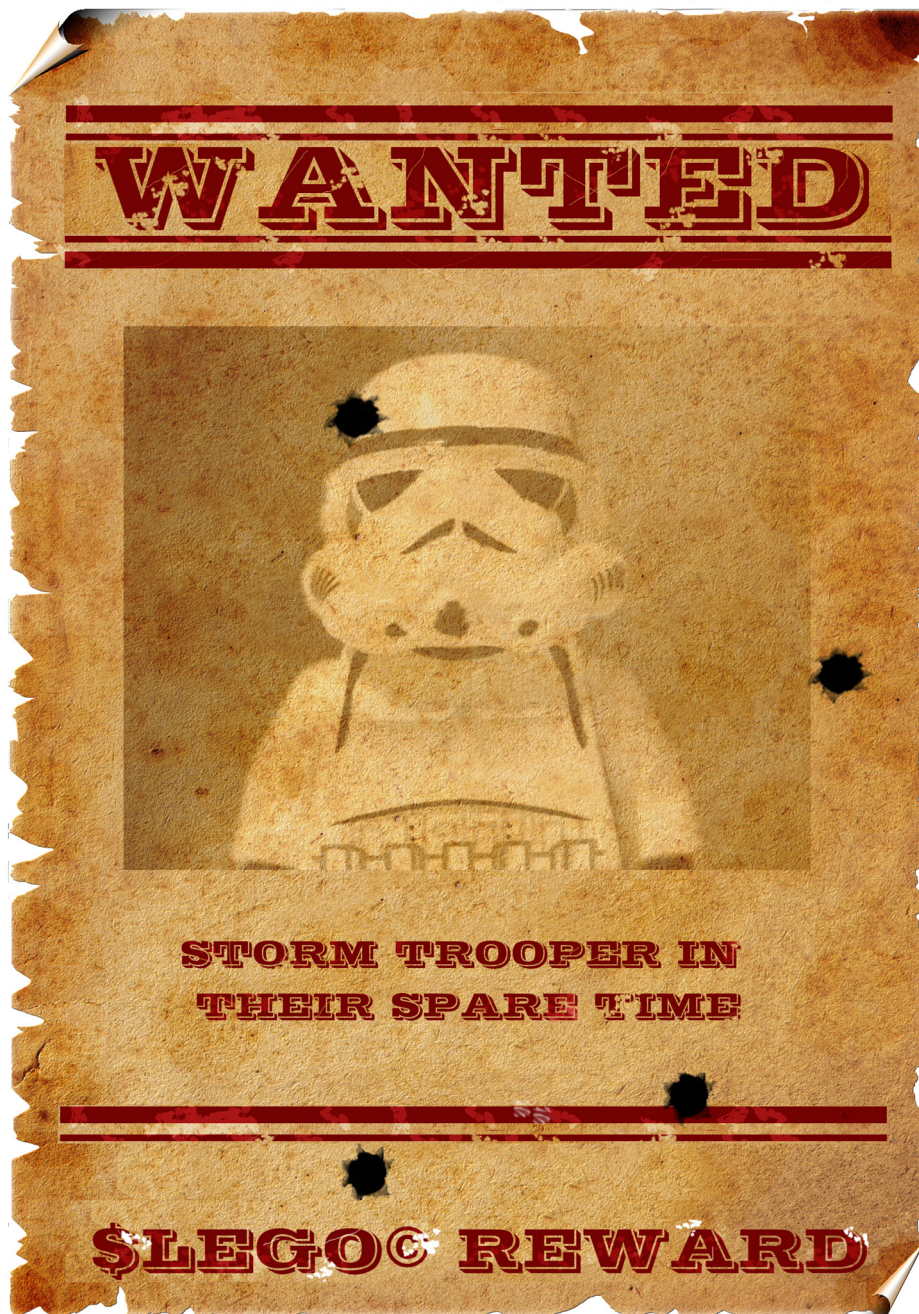


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