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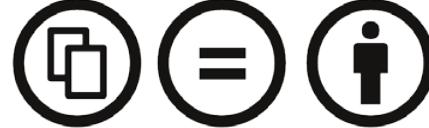
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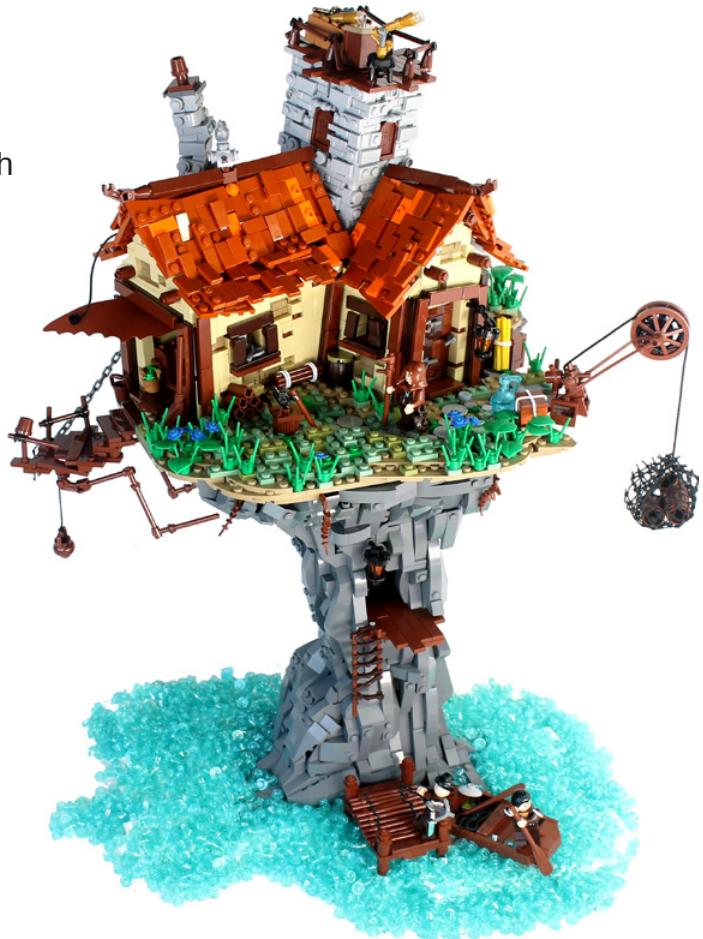
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Front cover by Delgax

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Editorial

by car_mp

Dear readers,

Some years ago we presented the first issue of HispaBrick Magazine. The magazine was born because of my idea that the Alien MOC by the arvo brothers did not deserve to be buried in the oblivion of the digital world, and that somehow I had to remove it from that world, to a more lasting place than the fleeting life and death the network of networks provides. Once that idea was planted I thought there were more creations worthy of being saved, many more. I joined a group of intrepid AFOLs with the same limited view of what would become HBM.

The road so far has been full of joys and sorrows, some of them, you humans could not even imagine. But after 22 issues here we are, true to our principles, free, without advertising and with more than 20,000 downloads every issue. I had to learn from scratch how a magazine is published, manage programs, layout and photography, and I was pleased to learn how big our AFOL community is, how willing it is to help, to share, to collaborate. It is the community of fans with the best quality worldwide, I have no doubt.

You may ask why I am saying all these things. Simple, I quit. After 22 issues the moment of my retirement has come, not because I'm old, just tired. I'm not a great builder, but I like building and little by little I have been letting it aside, spending more and more of my free time on the magazine. In the end I decided that it was time to pull away and let the magazine evolve. So this is my last issue. It hurts me just to say it.

The first thing I want to do is to thank all those who have echoed each of our releases on their websites, forums, blogs, ... I want to send a special thanks to Brickset, Eurobricks and The Brothers Brick. Their ability to reach AFOLs has been essential for us to continue being here.

And still more important have been our contributors and readers, who have given us a hand issue after issue. I will always remember this time in my life because of them.

I have just one request to all our readers: do not be so shy. Whether you like our magazine or not, do not forget to tell us about it. You would be surprised how it helps us every time someone writes us to tell us what he/she thinks about our magazine, our work, our effort.

I'll stop bothering you and leave you with the magazine. Maybe we will meet at an event or a project in the future, or maybe not. Stay tuned to the magazine, the new team will bring you news in the following issues.

Be careful out there.

Carlos

#



The medieval

creations of



Cesar



Soares

*By HispaBrick Magazine®
Pictures by Cesar Soares*



Bluewater Castle

My name is César Soares, I'm a 37 years old Sports Teacher and I'm from Portugal. I'm married and have a 2 year old son.

HBM: From what I have read in one of your posts on Flickr, you came out of your dark ages in May last year. How long were those dark ages and what brought you out of them?

CS: I stopped playing with LEGO when I was around 17 years old. I entered college to take my degree and had to move to a different city so all my collection was left behind. Besides I was getting too old to ask my parents to buy me more sets!

For roughly 20 years I did not play with the little plastic bricks nor did I buy any sets or parts whatsoever. Then, one day, around May 2014, while I was watching one of my favorite TV series, The Big Bang Theory, one of the main characters was playing with a huge Star Wars Death Star, Ultimate Collection Series set. I was mesmerized by the size and awesomeness of what I was seeing. Immediately I stopped watching the show

and went to the internet to look up what that was! I quickly realized that there was a huge community of adults that still play and build LEGO® models. Eventually I discovered one of my country's LUGs (Comunidade 0937) and joined them. I bought my first set a few weeks later (Grand Emporium) and so my addiction started!

HBM: Your first constructions were of different themes and scales, but your series of medieval constructions is probably what has given you most notoriety among AFOLS. Why did you decide to focus your effort on this theme?

CS: When I started to buy sets and parts my intention was to build modular buildings and houses with interiors as, at the moment, that was more appealing to me. With a smaller collection and with limited building experience I made microscale MOCs and also some with interiors. They were easy and fun to build and allowed me to gain experience and learn some basic techniques.

Then, once again without expecting it, I was re-watching the Lord of The Rings movie on TV and thought that would be fun to build some medieval/fantasy buildings like houses or castles. As my collection was very small, building castles in the true sense of the word, was difficult so I built a medieval tavern. I enjoyed so much and the feedback from the community was so good that I fell in love with the theme. Also, the opportunity to build landscapes with trees, vegetation and such was very appealing as I am a Nature lover.



Besides this, the colors that I get to use, the strange angles and shapes that this theme allows me to experiment and the whimsical and fantasy allure that surrounds it is just perfect to me.

So, I devoted myself to studying, experimenting and continuing to build in this theme as, at the moment, it is the one that attracts me most. I want to try different themes of course, namely space and Sci-Fi, but until May 2015 at least I will be doing lots of Medieval/fantasy MOCs.



HBM: Your medieval constructions stand out because of their variety, quality and level of detail. Where do you get the inspiration for these constructions?

CS: I study a lot! And by studying I mean that I research literally thousands of photos on various sources like Google, Pinterest and Deviantart.

Usually, I have a clear global idea of what I want to do. Be it a house, a cottage, a castle or just a big tree. Then I scout the internet for pictures that could give me ideas or concepts. I also happen to live in an area with lots of vegetation

Of course I also follow and admire some of the best builders from these theme and take lots of ideas and inspiration from their work.

I also have a huge database with pictures that I saved in all this time so I can look up later to become inspired.

HBM: What are the main stages you follow in the construction of your buildings?

CS: If I don't have already a final idea of what I want to create I look on the internet or in my database and start to collect ideas and thoughts. I take one aspect or one detail from one picture, another one from another picture and so on until I have a clear

idea of what I want to do. Of course there are lots of things I came up on my own, but I cannot overlook the help I get from various external sources.

The next step is to make a simple sketch of the final result that I want to achieve. These are nothing special or fancy, just rough drawings so I can get a clear idea in my mind.

The first thing that I always do is the base for the MOC. Usually an irregular one as it feels more organic and natural. Then I build the main structure (house, cottage, etc) and finally I do the landscape.

The roof, however, I always leave for last as it is almost always big and colorful and the color must combine with the rest of the building. Yes, most of the times I only choose the roof color after all the rest is finished.

HBM: How long does it take you to finish each of these constructions?

CS: I have a full time job, so my time is fairly limited. But the most common scenario for me is to wait until my son falls asleep and build like 2 or 3 hours per day. A regular construction from me takes roughly 3 weeks, taking up maybe 60 hours total.

*Gandalf's Retreat
Gardens of Lorien*



HBM: You use a number of original techniques for walls and roofs. Tell us a little about the tricks you use to get those textures on the walls. How do you get those original curves on the roofs?





Healer's Guild

Cesbrick Comunidade 0991

Black Hollow



After all these, again with the use of hinges and bricks with the stud on one side, I secure the roof on the base as you can see in the pictures. I take a final look and try to cover any gaps that are still showing.

The walls are a little simpler but also time consuming as I use lots of small parts as 1x1 round plates, 1x1 plates and 1x1 tiles. I also use many headlights, 1x1 bricks with on stud on the side and 1x2 masonry bricks. Although they seem completely randomly put together, they're not. I actually spend a lot of time trying to make the wall look random and that is not as easy as it sounds. I must consider several things such as: not joining too many round plates together, putting a natural mix of 1x2 tiles and 1x2 plates so the texture is not overly chaotic, avoiding to cover the masonry bricks with some of the tiles, if using more than one color (for example dark tan masonry bricks) join them on patches and not loosely as this seems more natural in my opinion. I also like to put the walls on hinges so I can make them lean as I want and give them a crooked and whimsical look.

Below you can see some pictures of one of my roofs during construction.

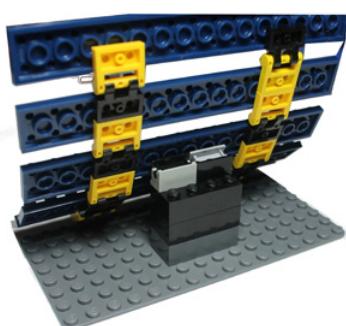
First I attach the plates with plate hinges like these.



Then it's a matter of covering the plates and the hinges with tiles and plates, like in these picture. Note that most of them are just semi-attached so it can accommodate the roof's curvature.



Then I secure the connected plates to the base of the roof structure with hinges.



With this method you can get the curves that you want.

HBM: None of the details in your scenes is random. When you plan a building do you already have a detailed idea of the scene that will take place around it or do those details emerge as you finish the building?

CS: In my builds I always try to create a scene that is the most organic and realistic possible. So usually they're packed with details and little things. Most of those little things are already in my mind or in my sketches, but of course that I make deviations and changes from the original plans. Also, as the build evolves, I experiment a lot with different accessories and parts (containers, vegetation, wagon wheels, etc) in various places and positions to achieve better results.

I have a keen aesthetics sense, so I when I feel that something doesn't look right or feels awkward I change things around (be it color wise or change the all part) until I'm satisfied. For instance, I change the color and positioning of the vegetation and trees all the time. Sometimes I experiment with all the available colors until it looks harmonious. This is the final touch that I do to my constructions.

HBM: What plans do you have for future builds? Will you change to a different theme or will you continue building medieval scenes?

CS: As I said, I will continue to build in this theme at least until May 2015 as I'm working on a display to my LUGs expositions that will have that fantasy and whimsical vibe that I love. After that, I would love to build on other themes and start to expand my experience. I also love space and Sci-Fi things so I will get to build on that line eventually.

But I don't think I will ever stop building medieval MOCs as I really love the good feeling that those give to me. And I have some new and crazy ideas that I would like to implement on the next builds, with unusual colors and unusual shapes. Stay tuned!
#

THE ARC HAMMER

Building Process

By Pierre-E. Fieschi

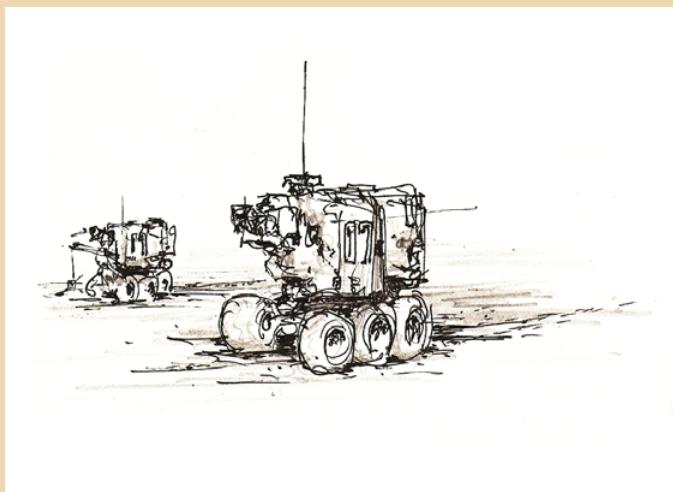


INTRO

Over the years people sometimes asked me how I plan my creations and how much it impacts the building process. It is a very interesting question because it forced me to think back at my old creations or to even take notes about my process while building new things.

In 2013 I was invited to an exhibition of LEGO® Models in Paris, by two talented builders; Sylvain Ballivet and Christophe Corthay. Considering the size of their creations and my mostly microscale models I decided with the time I had prior to the exhibition to build three models larger than my usual. Considering that these models were going to be shown to the public, I knew the question of the building process would be asked. So I had to pay attention to what I was doing. One of these builds had a particularly strange process that I had some time to write down: the Arc Hammer.

Because sometimes the process is more interesting than the result; this is how I built the Arc hammer.



INITIAL SKETCHING

As a kid I was lucky enough to have a lot of drawing and painting lessons with incredible teachers, and even though at the time I would rather have spent some time with friends, looking back I can only thank my parents for these lessons. Drawing and sketching is something I do every day, not only in my job as an architect / 3D artist but in more common situations as well. Building with bricks is no exception. I don't always sketch the idea before starting to build, but in most cases, and especially with large builds I try to.

Sketching allows me to lay down an idea on paper when my bricks are not nearby. It allows me to get a first idea of the proportions, perhaps the colors, a little detail here and there, sometimes even partial assemblies or structural solutions. But sketching remains highly conceptual. Sometimes I will realize that one of the things I wanted to do requires a completely different scale than what I had initially planned in my sketches.

So no, sketching is not the key to a fully linear building process. Rather it is a tool to test ideas, and help remembering them. In this case the initial sketch was inspired by Karen Quinn's very awesome Rollright Droids!



Rollright Droids by Karen Quinn <https://www.flickr.com/photos/karenleahquinn/>

SKETCHING EVOLVED

From the sketch to the build, you have to start with assembling bricks. And that is when the building process is somehow 'out of control'. That is when I realize that my initial sketch is really rough, and is perhaps not to scale with the bricks or not structurally possible, or that I don't own the proper wheels/metaparts in the right size.

Still this is a very exciting moment for me! The build isn't there yet, but the small boxes of bricks in assorted colors on my clean desk are a delight to the eye – even if I know that it won't last.

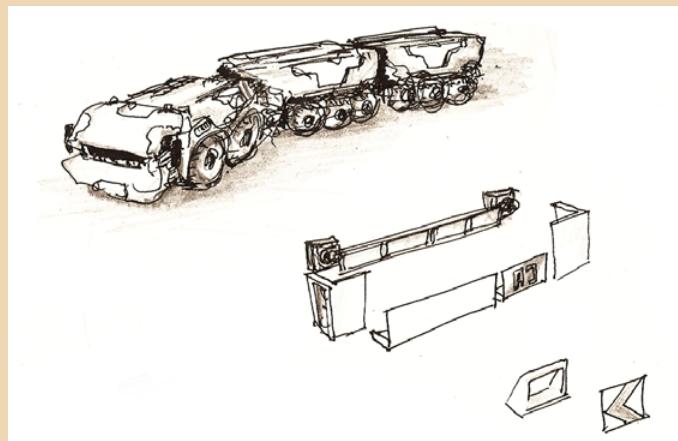
Even if I have an idea – roughly – of how I want the model to look, I try never to restrict my palette; colorful details give a lot of a life to a build. All I know in this case, that I want to reuse a color scheme I have been using for a long, long time: the Sobani tan and dark red combo. So there I am with a rough sketch, vaguely describing the model, and unassembled bricks all over my desk in a somewhat controlled color range. I have to find a proper scale because this is for an exhibition and Karen's Droids could fit inside the smallest of Sylvain's builds. So I have to make it bigger, exaggerate the proportions and the design, more wheels, more top heavy. Perhaps some kind of giant salvage vehicle with arms on the side? That leads to a new sketch.

The Concept behind the build is as important as the Design. What does it do? How does it work? Knowing what that thing you are building does and how it works adds so much sense to it. This is perhaps the essence of science-fiction as well, where completely impossible, non-physical aberrations are hidden behind myriads of technical credible details and functions.

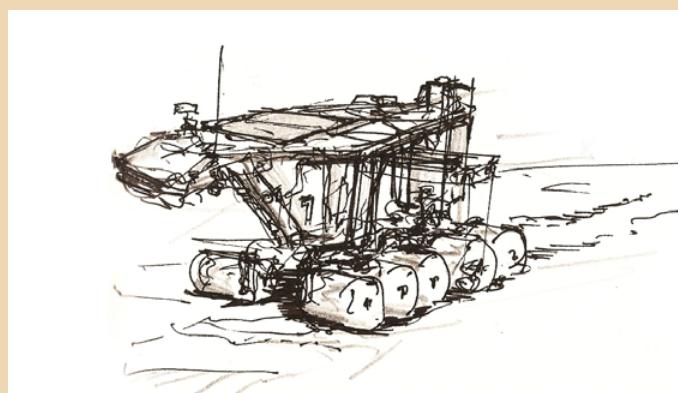


ARBORESCENT DESIGN

So now I know what the vehicle is meant to do and I start table-scraping with that in mind. Sometimes I take some old tablescraps out of that tablescraps box most of us have somewhere. And I start fiddling with them. At this point I have forgotten all about initial design and in the specific case of the Arc Hammer I started assembling the windshield I had imagined for another build, using the Trans-Light Blue garage door piece with the assembly detailed below.



This little detail once assembled, forced me to adapt the scale of the build. But this felt right and I knew the build was going to start from here. I only had to integrate this windshield back into the sketches!



This brick-induced decision is radical. If I had chosen a different solution for the windshield, the build would have been entirely different. This is what I would call Arborescent Design.

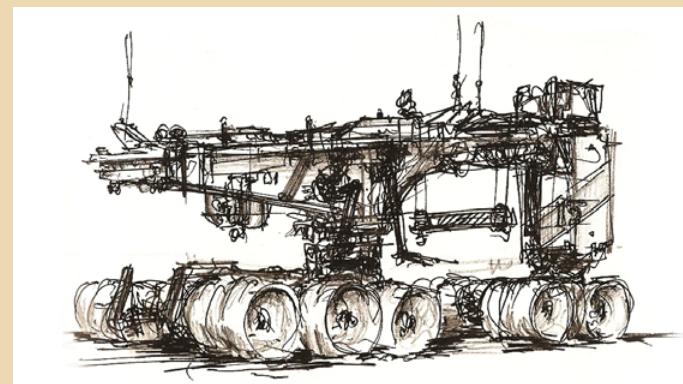
From my interview in Jordan Schwartz's 'The art of LEGO® Design':

Arborescent design would be starting from the idea of using a single brick for a certain purpose. That brick is the 'root' of the build. The design sketches (if any) will integrate and work around that detail. And so the build will start taking form, with the sketch in mind but always deviating from it. This leads to a different sketch, and so on. In the end the 'root' brick is just a small detail in a big MOC that could, at every point of the process, have taken a completely different direction.

BUILDING FREE

Because of arborescent design, during the building stages, which also sometimes include long pauses (waiting for brick orders, being stuck at work etc...) the build deviates more and more from the first sketches. In the case of the Arc Hammer which was a really long build, the design continued to change drastically until the end. Even adaptations to scale were made at the very end - It is the advantage of unprecise microscale compared to minifigscale which is defined by the minifig itself – to make the vehicle seem even more oversized and massive. I also wanted to integrate a new feature to match the new size: a giant gantry underneath the main section of the chassis. This meant separating the chassis in 2 distinct mobile parts. Obviously the design changed radically into its almost final stage. The very final stage was the idea to inject Power Functions into the design to make the gantry controllable with an IR remote.

I feel building should always be a free process. No theme, scale, convention or initial design in your head should get in the way of building exactly what you want at a given time; because the point is expressing creativity, which beyond having fun, and sharing with our incredibly awesome community, has no purpose.



So this is not really about building process. But more about the Lack of a defined process. It is really the story of a small build, inspired by really great people, which degenerated into something completely unexpected, out of proportions, with a final design that I had no idea about at the start of the 6 weeks of building time. And that for me incarnates the magic of the incredible media that are LEGO® Bricks and the fantastic Builders community that enjoy it so much.
#

This graph compares the evolution of the sketches on the left with what was actually built at that time during the 6 weeks of building.

'ARC HAMMER'
> **CAPITAL PLANETARY
DEPLOYMENT UNIT**

CONSTRUCTION TIMELAPSE

SOBANI BUREAU OF EXPANSION
PIERRE E FIESCHI
21/09/2012

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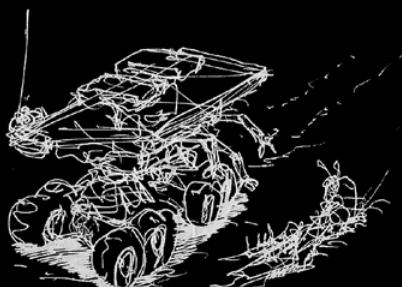
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'KUDON N4' COUPLED LOW PRESSURE TIRES
'DRAKE' DUAL RAPID AUTOCANNON
'ORCHID' CAPITAL MAINTNANCE GANTRY

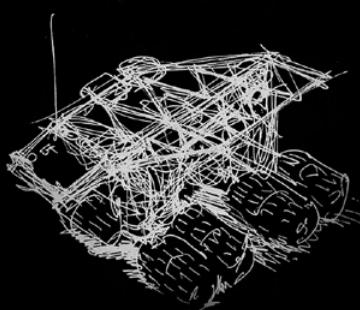
WEEK 1



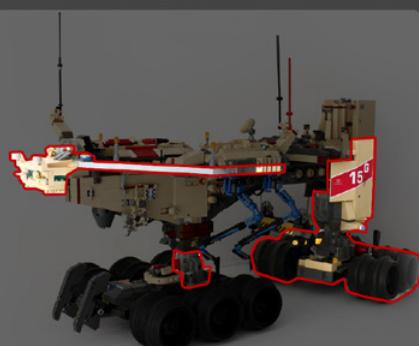
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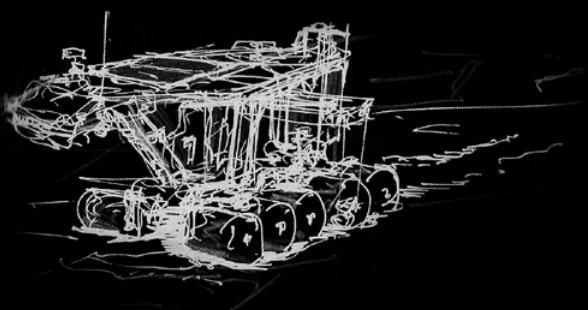
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WEEK 2



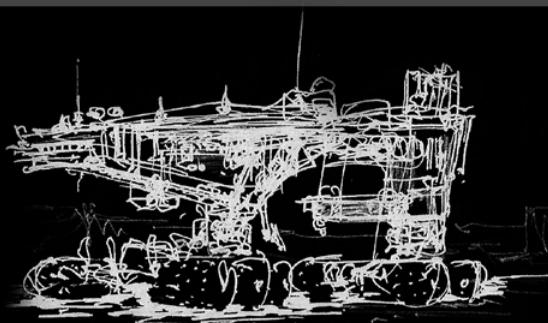
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WEEK 3



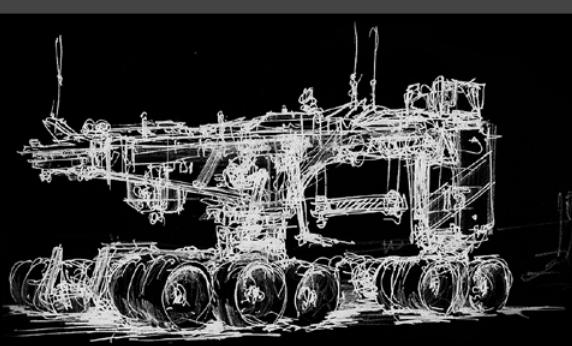
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WEEK 5



E



WEEK 6



F

Even Bricks look cute!

Building Your Own Anime Style Figurine

By Mike Dung



The Beginning

While I started playing with LEGO® bricks at the end of 2010, I was far from a MOC builder. Until I saw a wonderful anime style MOC in a blog, I never thought that an anime figurine could be made with bricks. MOKO, a Japanese LEGO builder, built a senior high school girl, it inspired me to build something by using bricks as you can see in picture 1. I was continuing to build small figurines with bricks and I thought it was time to start building something different!



Picture 1. Snow Miku in mini scaling.

Vocaloid Bricks

My first figurine is a 1/7 scaled version of Hatsune Miku, who is a humanoid persona voiced by a singing synthesizer application developed by Crypton Future Media. As a virtual singer, she has a great amount of fans from the entire world, and I am one of them. Deeply addicted to her songs, I tried to build my own LEGO Miku. After two weeks, I finally completed it and posted the photos on my flickr account. Fortunately some LEGO brick lovers saw my MOC and gave me a lot of positive feedback, thus I decided to build the next one.



Picture 2. Hatsune Miku

There are many characters in the vocaloid family, and each one has its own characteristics and voice. Just like Miku, they also have many great songs. After making Miku, I also built Megurine Luka, Kagamine Rin, and Gumi. Since their main feature is music, I also built some proper instruments for them and presented them as a band. Every time I built a new



Picture 3. Vocaloid Band

figurine, I tried to use different skill to make them perfect. As you can see in picture 3 and 4, different costumes are made in different ways. Luka, the one with pink hair, has the more difficult costume since there is a yellow line on her cloth. I used a technic wedge belt wheel part to sketch the curve of upper body. The one with yellow hair, Rin, who wears shorts, is somehow easier to build. By using technic joint parts, she could move like a real person. The last one, with lime hair, Gumi, is a newer one in my works. As more kinds of LEGO® bricks are released, I could build the hair smoother.

In my works, I have built Hatsune Miku many times. Some of them are called "SNOW MIKU", the character design based on a pure white snow sculpture of Hatsune Miku. In Hokkaido,

"SNOW MIKU" festival has been held every winter since 2010. I have built 2013, 2014, and 2015 snow Miku, and I will build all snow Miku in the future! 2013 snow Miku was designed to wear a white kimono. In picture 5 you can see that I used a new way to present the kimono. The main theme of 2014 snow Miku was "Magical Girl". In picture 6, you can see the cute costume, and since every magical girl needs a pet, there is special pet by her side. In this year, the costume is themed "SNOW MIKU x Plants". I spent lots of time constructing the costume. It is hard to build a shawl with bricks in such a scale. After trying many times, I finally found a way to present it properly.



Picture 4. Gumi



Picture 5. Snow Miku 2013

Picture 6. Snow Miku 2014



Picture 7. Snow Miku 2015



The second is Nagato Yuki. She is from anime "The Melancholy of Haruhi Suzumiya", which is the first anime I watched, so it is meaningful for me. If I didn't watch this anime, I would never build creations like this. In this work, I used a mudguard part to present the collar of the uniform. Since the character likes reading book, I built an appropriate scene for her: the library corner.



Anime Bricks

Besides vocaloids, I also built many figurines in different themes. Anime is one of them. Anime is a term used to refer to Japanese animated productions, featuring hand-drawn or computer animation. In my country, Taiwan, Japanese culture is related with us very closely and we can watch anime easily. The heroine in each anime has her own unique costume and characteristics. I often thought that if I could build them with bricks, it would be an interesting challenge for me.

The first one is Mikoto Misaka (picture 8), which is from the anime "A Certain Scientific Railgun". In this anime, some persons have special abilities such as controlling fire, electricity or even the mind. Misaka can control electricity arbitrarily. I built a scene to describe how she uses a coin as a railgun. Most of my anime figurines have postures that make brick-made figurines vivid.



Mikoto Misaka
MikeVd

Picture 8: Mikoto Misaka

Picture 9. Nagato Yuki

The next one is a little different, the anime is not from Japan, it comes from America. RWBY is the animation created by Monty Oum, which is set in the fictional world of Remnant, which is filled with supernatural forces. The series focuses on Team RWBY, which consists of Ruby Rose, Weiss Schnee, Blake Belladonna and Yang Xiao Long. One day I saw the preview of this animation online, and I was addicted to the configuration of persona and weapon. At first I only wanted to build Ruby due to her cool weapon "Crescent Rose". But I thought that a team shouldn't be separated, so I built the others in two weeks. As shown in picture 10, each one has her own representative color. Ruby is dressed in a black blouse and a skirt with red trimmings, completed with a red cloak. Weiss wears a pale blue bolero jacket over a similarly colored thigh-length dress with a piece of black lace making up the neckline of the dress. Blake has long black hair and wears a ribbon. Yang wears a tan vest and has long blonde hair. I enjoyed building these characters since I used all my imagination to figure out how to represent their costumes and weapons.

Game Bricks

Most of us play games in our life, and there are many people who build LEGO® brick models in game themes. Games can always inspire my imagination. With bricks, the imaginary creature or the high-tech robot can be built to satisfy everyone's dreams. The figurines I build often have some special features.

Picture 10.
RWBY



Picture 11. Flandre Scarlet



Picture 12. Yuyuko Saigyoji



Picture 13. Reimu Hakurei



Picture 14. Shimakaze



The first part is about the shoot'em up game "Touhou Project". Touhou Project is a game series focused on bullet hell shooters. All characters in this game are girls with different appearances. Until now I have built three of them, and I will try to build all of them in the future. In picture 11, a girl called Flandre is my first work in the Touhou Project. She is a vampire and has beautiful crystal wings. In the original design, she has eight crystals, arranged from her back to the tip of her wings, and they are presented in seven colours: light blue, blue, purple, pink, orange, yellow, light green and finally light blue again. To represent her wings, I collected the rare trans-light blue cone part for a long time.

A girl who is surrounded by two small formless phantoms is called Yuyuko. She is a ghost princess and wears a light blue and white kimono. I used the strap of LEGO® watch as a source material and it looks great! In this work, I started trying to use curved slope parts to make the sleeves and now I apply this skill to other figurines if they wear kimono.

The last one is the main heroine of most Touhou Project games, Reimu Hakurei. She wears a large red ribbon at the back of her head and usually wears a "miko uniform" with the red-and-white colour scheme. I built this character after Yuyuko since I watched an animation which describes the fight between Yuyuko and Reimu. The animation gave me inspiration and I decided to build both of them.

Then the final part is my "Kantai Collection", lit. "Fleet Collection", which is a Japanese free-to-play web game. The gameplay is centred upon building squadrons composed of individual characters represented as cards with different attributes, and then send those squadrons out on missions.



Picture 15. Amatsukaze

Each of the characters is an anthropomorphisms of a naval warship from World War II, depicted as girls, known as "Fleet girls". Up to now I only have built two fleet girls since that I did not play this game before. In this year I have started playing this game and I find out that there are so many girls that I can try to build them with bricks.

The two characters I built are destroyers: Shimakaze and Amatsukaze. Shimakaze is shown in picture 14 and Amatsukaze is in picture 15. Shimakaze typically wears a sailor collar and striped thighs. Family-like turrets by her side are called Renshouhou-chan which originated from Shimakaze's three turrets. She is my favorite character in this game and this inspires me to build one with bricks. I spent several days to figure out how to build her tights, fortunately, LEGO® released a part that could solve my problem. 1x2 curved slope part makes my work smoother and better looking. It's a pity that I cannot use tan parts to build her hair since the face and hair would be mixed together.

The last one is Amatsukaze. She wears black a sailor uniform and knee-high socks. Her black clothes are hard to represent with bricks if I have to consider the movability.

Finally I combined parts of cloth in the legs so it can have more postures. The most obvious feature of fleet girls is the weapon on their back or hand. Destroyers often carry torpedoes on their back and are equipped with turrets. I could present those details in the best way using bricks.

Brief Instruction

Before building a model, I spend some time to find the model sheet. Then I figure out how to construct the costume. The main differences between each anime character are hair and clothes. So how to present it with bricks properly is the first issue I consider. Here I use Ruby Rose as a sample.

Head

I use the same way to build the face as you can see in picture 16. Just use two inverted slopes, one 1x2 brick, and two 1x1 bricks (sometimes I use three plates instead) and you can easily build the face. How to build hair is the first problem when I am building. Typically I use a headlight brick as a base to build bangs. Depending on the different characters, the

Picture 17. Upper body of Ruby



Picture 16. Head part of Ruby



Picture 18. Skirt and Legs of Ruby



building technique is also different. Another issue is making a movable head. In order to make my figurines vivid, I use an easy technique to build the neck, which is shown in picture 16.

Upper Body

Most girls in anime have big curves, thus using bricks to build the body is the most difficult issue for me. I usually start with the chest. In picture 17, you can see that I use slope bricks and inverse modified brick with curved top to compose the chest. Although there are many ways to build, I prefer this method. The next step is the belly and the waist. Most of my figures use curved slope or slope brick to build the waist. Bracket bricks are the best choice for me. But in this case, in order to present the details of Ruby's blouse, I tried another way. The arms part is much easier if the character wears a single color sleeve. Fortunately, there are not so many details in this case. I used some old parts to make the elbow better.

Skirt and Legs

In this example, Ruby wears a black skirt with some decorations. The simplest way to build a brick skirt is using modified plates with bar frame octagonal. With this part and some plates with clip, you can easily build a nice brick skirt. In

my early works, I used hose parts to build skirts, but it is not stable at all. The last parts are legs and shoes. When I was building the first figurine, I found that if I use 2x2 round bricks to build both thigh and shin, the legs would look monotonous. I tried many ways and finally I found a great technique to present thighs. By using modified bricks with curved top and some cheese bricks, I could build thighs that the section is larger than a 2x2 round brick. The build method for the thighs is simply presented in picture 18. Shins are just using 2x2 bricks round if there is no other detail.

Since everything is prepared we can combine them easily as you can see in Picture 19, without her cloak the figurine could stand stable on a flat table. In fact, most of my figurines could stand without support. But in this case, Ruby needs some support if she wants to wear her cloak. With my brief guide, you could try to build your own figurine!

In the end, I am glad that I have this chance to introduce my brick figurines in this article. I often think that it is impossible to build a new character, but every time I keep on building and enjoying all the process. For me, LEGO® is the best way to enjoy my life!

#



Picture 19. Ruby Rose

75054 AT-AT OVERHAULING

Playing with LEGO® set 75054 AT-AT

By Legotron (A. Bellón)

Since I saw this set I realized that one of the things I wanted to do with it was to modify the AT-AT design. The set was very good and a perfect starting point to build an AT-AT model I always wanted to own.

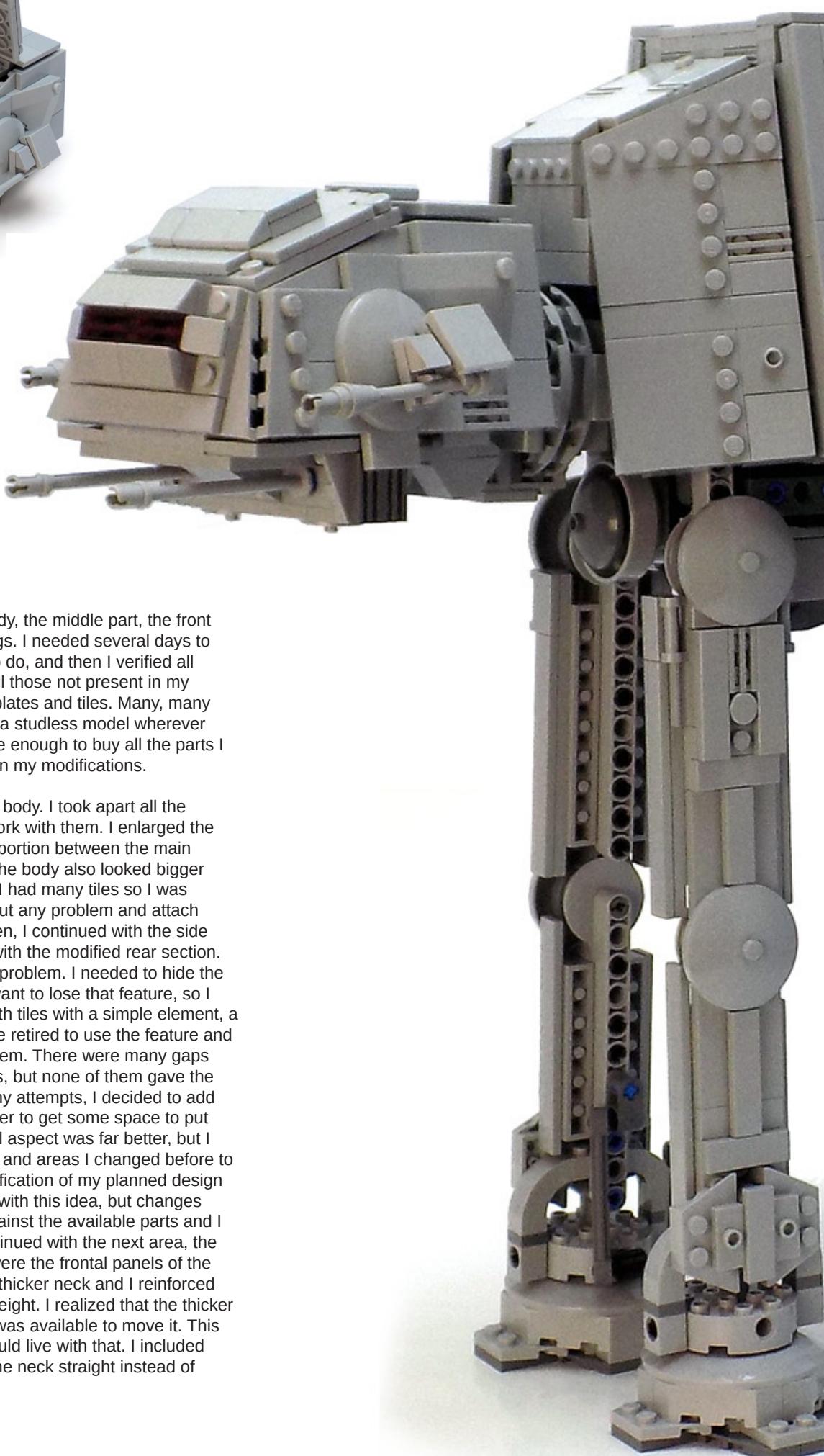
We have built a collaborative display made up of MILS (<http://www.abellon.net/MILS/>) modules to recreate the Battle of Hoth at our events. After several years the display has grown to a big diorama with many AT-ATs, but I didn't have one yet. So, the new set 75054 AT-AT gave me the opportunity to solve this little personal affront, mainly when I'm the "Imperial spirit" of that display. But this wasn't enough, I wanted to have my own customized AT-AT. As I was involved in some large projects as Panzerbricks or the MILS system that need a lot of time I needed something smaller or limited to refresh my mind. I saw the opportunity and I decided to start with the updating of my new AT-AT, although the available time in those days was a very scarce resource.

Although the set was very good, there were some details like the size of the head that I didn't like. I wanted to update the set and make some changes to get a better version of the AT-AT. I had some very specific ideas about this project:

- I wanted to use the maximum number of parts and structures of the original set, in order to keep the cost as low as possible.
- I didn't like the head, so I would build a completely new head, more in accord with the size of the neck and with enough space for at least two crew members seated and a third one standing up.
- I wanted to modify the size of the body to get a best appearance in comparison with the rest of the parts of the AT-AT. The size was to be similar to the other versions of AT-AT made by TLC that we use to display in the diorama.
- I didn't want to change the internal structure of the AT-AT. Because it was sturdy and very well designed to attach all the elements of the AT-AT.
- I had a 2 month deadline, because I wanted to display it at our main event, HBME 2014 in December 2014, but due to my real life job, I would only be able to work on this project some weekends, so there was very little time left and many things to do.

One of my favourite features of the 75054 set AT-AT was the way you could break off and snap the different components of the model: the panels of the body, the legs and the head, so you could work on each element separately. This was very important to make the updates easier. I divided the task in





sections: the rear part of the body, the middle part, the front part, the head and finally the legs. I needed several days to plan all the changes I wanted to do, and then I verified all the needed parts to purchase all those not present in my stock. They were mainly small plates and tiles. Many, many tiles because I wanted to make a studless model wherever possible. 4 Bricklink orders were enough to buy all the parts I thought were going to be used in my modifications.

I began with the rear part of the body. I took apart all the armour plates and I began to work with them. I enlarged the sides by 2 studs so that the proportion between the main body and the legs was better. The body also looked bigger when compared with the head. I had many tiles so I was able to finish the rear part without any problem and attach the plates to the main body. Then, I continued with the side panels. I modified them to link with the modified rear section. But then I encountered the first problem. I needed to hide the hinges and their gaps. I didn't want to lose that feature, so I decided to cover that feature with tiles with a simple element, a detachable section that could be retired to use the feature and placed to hide all the hinge system. There were many gaps so I made many different covers, but none of them gave the appearance I wanted. After many attempts, I decided to add a brick height to the body in order to get some space to put the covers. Surprisingly the final aspect was far better, but I needed to rework all the panels and areas I changed before to work well together. As this modification of my planned design solved the problem I continued with this idea, but changes on planned builds can count against the available parts and I didn't realize of this fact... I continued with the next area, the final steps to update the body were the frontal panels of the armour and the neck. I made a thicker neck and I reinforced the joints to counter the extra weight. I realized that the thicker I made the neck the less room was available to move it. This was not very important and I could live with that. I included another reinforcements to get the neck straight instead of

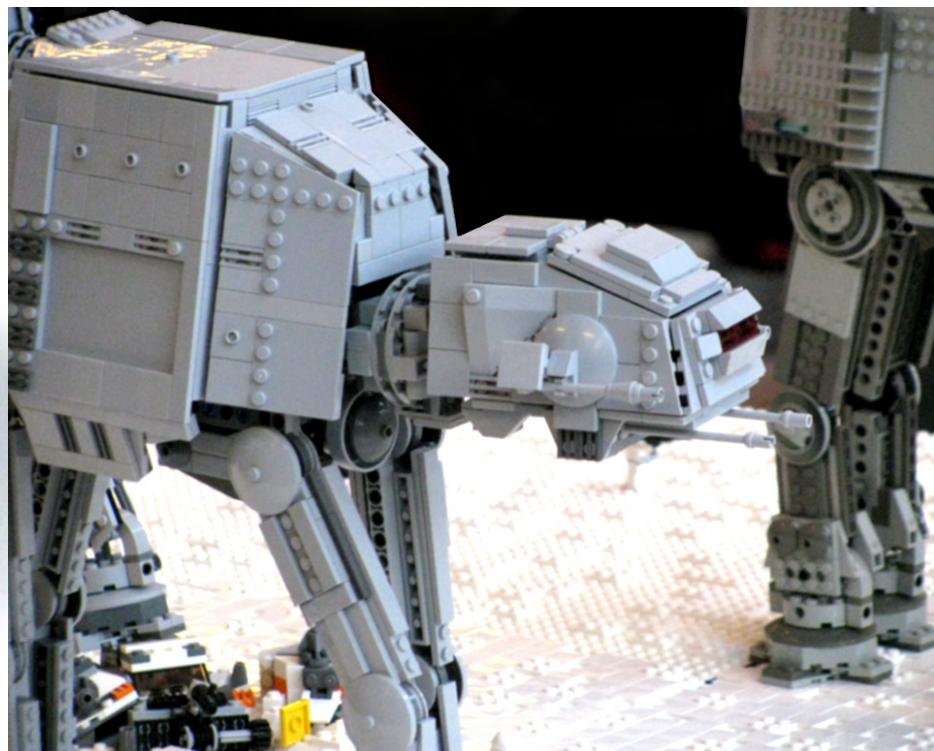
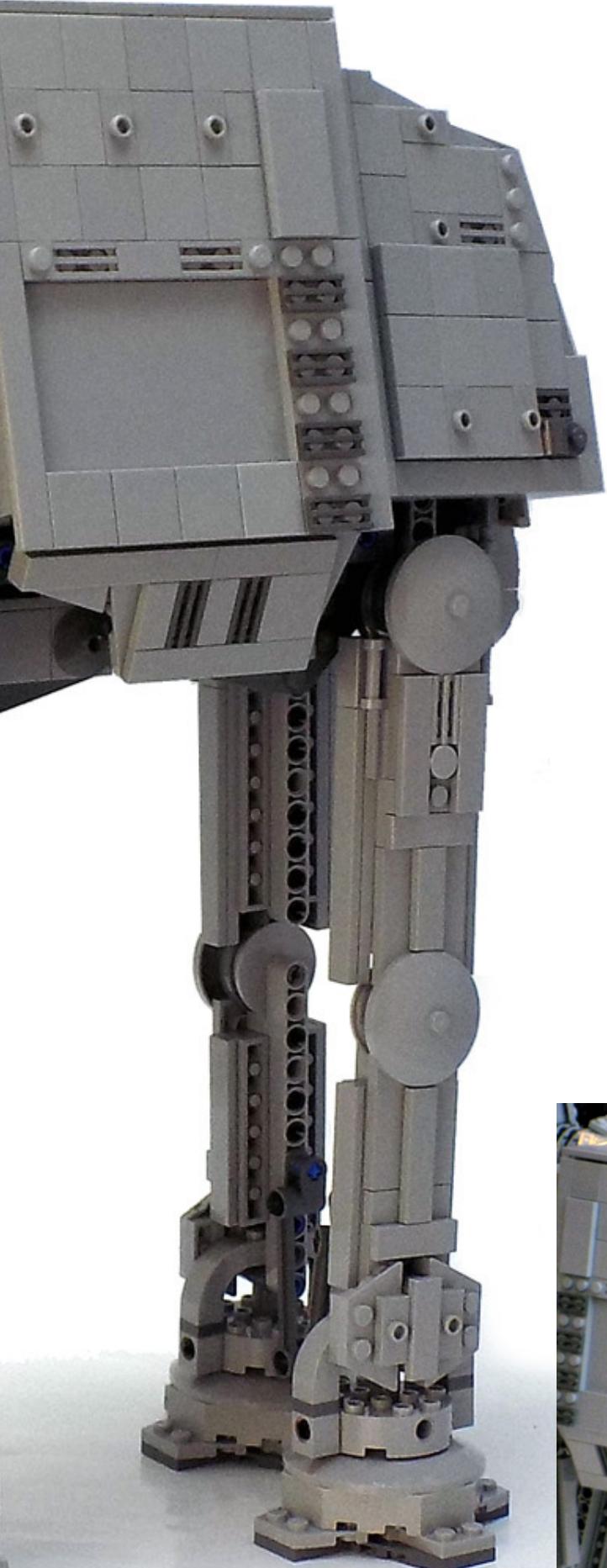
pointing to the ground. When I finished it I only had to wait for the parts I had purchased, all the tiles I needed to get a studless surface.

After receiving the purchased parts I continued with the build. The next part to change was the head. As I said before I didn't like the head of the original model, so I began to work on a completely new head. It was very complicated. I wanted to maintain the same size, but allowing more interior room, and of course I wanted to get a closer appearance to the real model of the AT-AT. I also wanted to make a design that could be attached to the main body with a single axle with stop. This would ease the transport of the whole thing. To get all those features I needed many attempts in order to get the head as I wanted to be. But the deadline was close, and all those attempts delayed the construction many days.

A week before the event I had to finish the legs and there were many parts of the body that needed many tiles to get a smooth surface. I didn't realize that the additional height would require more tiles than those planned. Many of my MOCs are heavily dependent on light bluish gray tiles, so they disappear very fast from my stocks, and very few were left for the AT-AT. The changes I wanted to make in the legs were very simple, I removed many of the outer dark bluish gray parts and replaced them with light bluish gray ones, and then I had to add some tiles to get a better appearance. At this point I ran out of tiles, and there was no time to purchase new ones, because December is a very bad month to get post on time. I couldn't cannibalize other constructions because they were expected to be shown at the same event, so I decided to use the tiles only in the key areas and conceal the less visible areas with plates. Not a single light bluish tile was left in my stocks, but the model was more or less finished, and I could display it in the Battle of Hoth diorama.

Some weeks later I got the missing tiles, and I was able to finish the model. I'm really happy with the final result. It is not as awesome as some of the AT-AT version that can be seen on the Internet, it doesn't consist of many thousands of parts and it doesn't require incredible building techniques. It is just a modification of an official set. But now I'm the proud owner of my customized version of an AT-AT, that can be displayed in our collaborative diorama of the Battle of Hoth. That was one of my priorities of the last three years and now it has come true.

⊗



The LEGO® House

By HispaBrick Magazine®

Pictures: HispaBrick Magazine and The LEGO Group

For my family and for me personally the LEGO Company has really always been much more than just a company and our products much more than just products. Children are learning through playing with our products and this is really the whole LEGO idea. (Kjeld Kirk Kristiansen)

My name is Astrid Müller and I am the Event and Programs manager of the upcoming LEGO House. I work in the LEGO House project in Billund, Denmark.

HBM: Were any other locations for The LEGO House taken into consideration?

AM: From the very beginning it was clear that it should be placed in Billund because that is where the LEGO Group comes from and that's where everything started, so finding a place in Billund was very important.

Billund is the hometown of LEGO. It is the town where my grandfather started making wooden toys already back in 1932 so it is very natural for me that we build the LEGO House here in Billund. And furthermore we have together with the community the ambition that Billund should become the Capital of Children and I see of course the LEGO House as a major contribution from our side towards that vision. (Kjeld Kirk Kristiansen)

HBM: Could you explain what "LEGO House" is?

AM: It is an experience centre (hands-on, minds-on) and it will be a place where you can be inspired by LEGO bricks and where you can experience fantastic activities with LEGO bricks. It's all about being inspired by the bricks and actually the LEGO House will be the one and only place on the globe you should go to, to be inspired by the endless possibilities of LEGO bricks.

I am very passionate about play and how children learn through play and this is really what the LEGO House is all about. (Kjeld Kirk Kristiansen)

HBM: Why did The LEGO Group think this project should be carried out?

AM: Because it is very important. It is so close to the LEGO idea values and to show this fascinating story of the LEGO Group and the LEGO brick and also because we realized that the LEGO Idea House is so popular. So having that LEGO Idea House with a very limited capacity it was more natural to think further how the LEGO idea could be brought to more people.

HBM: The architect of the building is Bjarke Ingels. Did he have any restrictions and/or recommendations when designing the building?

AM: No. There was a competition and within the competition he handed in this proposal and it was so close to the LEGO idea. It was referring to what you can do with bricks. The building looks as if it is made out of 21 bricks and so it was so natural to follow his proposal.



HBM: Did Bjarke look at the values of the LEGO Group, the AFOL movement, the Community, etc... when he designed the building?

AM: Yes, we know that he did and even at work he is using LEGO bricks for doing models and he really is into the LEGO values, so yes, he did.

HBM: What impact will the construction of The LEGO House have in Billund?

AM: It will attract much more visitors to the centre of Billund, at the moment visitors are more focused on the attractions outside the centre. LEGO House will drive a lot of visitors and interest into the centre of Billund, so it will be much more alive and much more active.

HBM: Did you have any complaints from the citizens? And from the shops around the place where the LEGO House will be located?

AM: No, and actually maybe you already know, the citizens and the shop owners of the centre have been involved in the process at a very early stage. So there have been dialogue meetings and they have always been informed and we started a weekly update about the construction site, so we are in very close dialogue and so we can learn from each other very well and so it works really well. And actually LEGO was proposed for a CSR award – you can also read about it on the website – there were three candidates for community relationships and the LEGO Group with the communication of LEGO House to the city of Billund was proposed for this award.

HBM: Who is the target visitor?

AM: LEGO fans of all ages

The LEGO House will be a very active place where LEGO fans of all ages can have a lot of different building experiences they can create themselves. They can express themselves, they can

get new ideas from what others have done, they can see some fantastic creations made by our adult LEGO fans. So there will be many different activities and they can also off course learn much more about our history, our values, so this will be a very learning rich experience. (Kjeld Kirk Kristiansen)

HBM: What will we find inside?

AM: You will find 4 experience zones and of course a history zone that will be based in the basement and the LEGO® Store.

HBM: Will there be specific areas for LEGO themes like City, Space, Technic, MINDSTORMS...?

AM: We have decided not to tell about the actual content of the house. One reason is that it is work in progress another is that we want to keep it as a secret until the opening date come closer.

HBM: In the first video that was released we have seen that there will be a kind of underground bunker. It looked like the famous "vault". Any clue about what will be there?

AM: In that video it was more a design study to show the inside of the house and the purpose for each area. At that time there was no decision or idea even of what could be in. Of course we will have a history zone, but it will look different. And that's something we'll keep secret.

HBM: Will there be any special lounge where AFOLs could actively participate?

AM: Of course the house is also going to be a community house and very much based on community thinking and how to get connected and share with each other. We are in very close dialogue with AFOLs, we even have a workshop in summer where we talk about what should be from events and programs side inside. We will have a very special focus on AFOLs and if there will be lounges I cannot say now, but of course we know that it is very important to make it special for AFOLs. We are working on it.

All the guests who have visited the LEGO Idea House have been thrilled by getting an in-depth experience of what is the LEGO idea, what are the values behind the company and how

has the product developed? So this has inspired us also to give the broader public an opportunity to get that kind of experience and therefore we are making the LEGO House. (Kjeld Kirk Kristiansen)

HBM: But there's not only life inside the LEGO House... What is planned for the terraces and the main square?

AM: Both terraces and main square, called LEGO square, are public and we hope that people from all countries and all ages will use it as a meeting place to gather. We also would like to develop an event calendar so we can say there are some events happening on the terraces and also on the LEGO square.

HBM: A lot of AFOLs are avid collectors of special LEGO stuff. Will there be something exclusive in the shop, available nowhere else, like the model of the LEGO House?

AM: I think it would be strange if there would not be anything.

HBM: Why is construction delayed?

AM: That is due to the complexity of the building. The LEGO House looks like it is built in LEGO bricks but actually it is built in concrete and steel and concrete and steel has no clutch power. One big challenge is the fact that the LEGO square will have no visible bearing structure like columns. To make this happen is much more complex than we anticipated, actually we realized it is more like building a bridge. Building that bridge takes more time and that's why the opening date has been postponed.

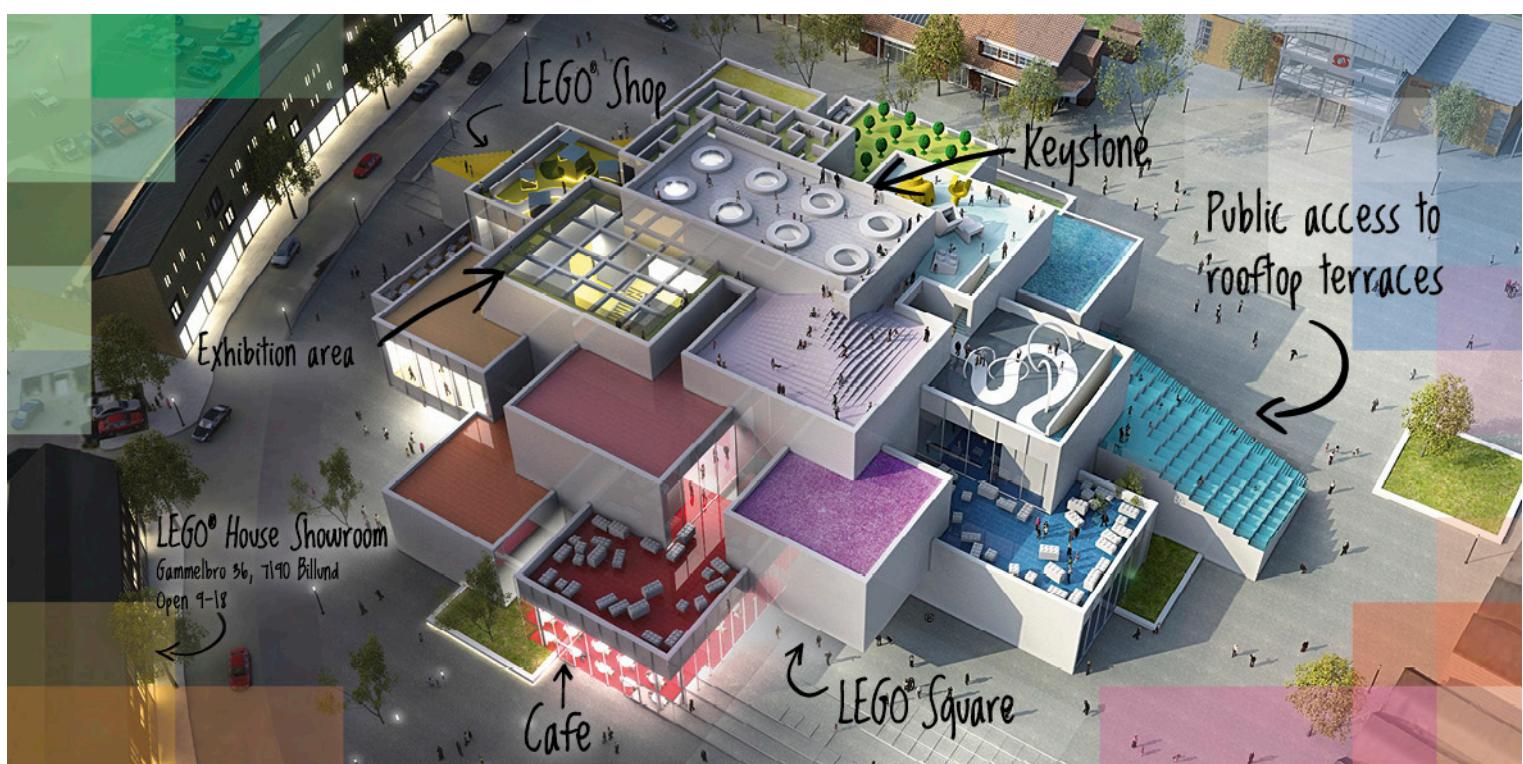
HBM: How many visitors are expected per year?

AM: 250.000

HBM: What is the relationship between the LEGO House and the "Capital of Children"?

AM: We see LEGO House as a major contribution to the vision of Billund to become the Capital of Children.

#



The LEGO® Journey

By Yun Mi Antorini and Lluís Gibert

We all use the acronym AFOL as a description of an Adult Fan Of LEGO®. It doesn't matter which kind of adult LEGO user we are talking about. "AFOL" comprehends all them. But there is a team in Billund, headed by Yun Mi Antorini, that has done long term research into the broad term called AFOL to have a better understanding of the people who have LEGO as hobby.

Yun Mi invited HispaBrick Magazine to share the results of her research with the whole community. We visited Billund on March 16th and we had a very interesting and engaging conversation which we will try to summarise on the following pages.

Introduction

AFOL means "Adult Fan Of LEGO". The acronym was created by a US fan on 1995 to define adults who play with LEGO bricks. It was quickly adopted by other people on the Usenet forums and very soon also by the LEGO Group (TLG). From that moment, AFOL has been the term to refer to all the adults who are playing or building with LEGO products, at all levels of involvement. TLG has been researching for a long time about fans of LEGO and they have concluded that AFOLs are only one of the subgroups among the adults who have LEGO as a hobby.

The research that has recently been initiated to shed light on the subgroups of adult LEGO users drew on various data sources:

- 2 huge surveys, one in 2012 and another in 2014. The survey was published in 14 languages. More than 14.000 fans answered the 2014 survey and respondents came from all over the world.
- 43 interviews were conducted with adult LEGO users to inquire the aspects of LUG membership and the LEGO hobby in general.





- 2 Workshops were carried out to learn more about adult LEGO® users' journey into the LEGO Hobby and the different stages of their hobby. The workshops had participation by adult LEGO users from all over the world. The workshops took place during the LEGO Fan Weekend 2014.

There are different types of adult LEGO users. From "occasional", casual users to the very active and engaged users. Thus, whereas all types can be characterized as LEGO enthusiasts, not all are AFOLs.

"On one end of the spectrum, we find the people who are really active. They organize events, host websites and manage forums. They spend several hours a week absorbed in LEGO related things like planning a new MOC, talking with friends and sorting their often huge collection of LEGO elements. At the other end of the spectrum, we find the type of users who are not that into the community or participating in events. They enjoy their LEGO hobby on an individual basis and have very little contact with other LEGO users. They like to build and read LEGO set reviews online, but they are less active", says Yun Mi.

The main difference is the time they invests in the hobby and the kind of LEGO related things they like to do. Less active does equate being less passionate. Thus, one of the main results of the research shows that whether one is at one or another end of the spectrum, users share many similarities. One of such similarities is what can be described as the typical LEGO journey users go through.

The LEGO Journey

To start this journey let's think about a child, 3 or 4 years old. The child receives his or her first LEGO set from a parent or grandparent. For the people who never leave LEGO play or who return after a dark age, this early childhood experience will often serve as a defining moment. Many will describe it as "love at first sight". But there is often something else at play too. A relationship between the child and the LEGO set is formed at a deeper and unconscious level. The relationship has to do with the perfect match between the interests of the child and the kind of play experience, LEGO products offer. It is not unusual that adults will clearly remember the exact LEGO set they were given and the feelings that was evoked when they first played with it.

Despite the strong bonds that many develop with LEGO products, many reported that they experienced a change of interest when they become teenagers. Studies, homework, lack of money to support a hobby... there are several reasons to enter the period known as the dark age. Yet, there is also a type of teenager who do not experience dark age, but a grey Age. Although they are not playing with LEGO as they did in their earlier ages, they are still in contact with LEGO, keeping informed through LEGO catalogs, buying some sets and building a MOC once in a while.



"It was very interesting to see that it doesn't matter if an adult LEGO® user is a very dedicated enthusiast or a more casual one. They all have very common stories about why they enter the dark age and what brings them back into the LEGO hobby" Yun Mi Antorini

For those who become adult LEGO users, the dark ages typically ends when they enter their 20s. There are several reasons for coming back to the hobby. Perhaps the most obvious one is when people form families and rediscover their LEGO passion when playing with their children. Many adults also end their dark ages because they see a new LEGO set, and the set appeals to their childhood recollection of what LEGO used to mean for them. Other will come across a MOC that they are exposed to online, become inspired, and start building again.

A decade ago, social stigma would play a much greater role for the adults who chose to come out of their dark ages, Yun Mi explains. "Playing with LEGO as an adult was seen as less socially acceptable. While there are still some people who can't get their head around the fact that LEGO can be a very gratifying hobby for adults, our research suggests that adult LEGO users experience a much greater acceptance. By displaying the creative ingenuity of adult LEGO users and by promoting the cultural aspects of the LEGO hobby and the user communities, the Internet and social media has clearly played a huge role in facilitating this shift", Yun Mi says.

Types of LEGO Users

As mentioned, all AFOLs can be described as adult fans but not all adult fans are AFOLs. Let's take a closer look at this fact.

An **AFOL** is "a person who is extremely creative, curious and skilled in many ways. Becoming an AFOL often represents a long journey that is closely linked to childhood". An AFOL is the addition of many interests and characteristics from his or hers childhood, like perseverance. An AFOL has an in build strong urge to creatively express him or herself. People who haven't play with LEGO when they were kids, have a much lesser chance of becoming an AFOL. However, people who were very much into LEGO play as children, when they connect two bricks after the dark ages, they are symbolically connecting themselves with their own history. There aren't too many things in life that can facilitate such a link. "When an AFOL builds something, he's is giving life to ideas that exist inside him or herself. Throughout the history of man, creative expression represents perhaps the strongest search for meaning, what it means to be alive and what it means to be a person. For many AFOLs, playing with LEGO elements offers the same fundamental opportunities of self-expression."

Not surprisingly, AFOLs are the most active people in the Community. When they come back from the dark ages, they typically become part of a LUG. They start to collaborate with others in many aspects and they often open a Bricklink store. They drive events and are engaged with the Community. For them the social aspect of the hobby is very important. They see a benefit in the relationship and the friendships they form. For some AFOLs, entering the LEGO hobby offers a chance to improve their skills and through becoming a LUG member, they see the opportunity to grow.

A second group of adult LEGO users are the ones who are very active online. They can be described as **Online Hobbyists**. For

the time being, the social aspects of the hobby may not appeal so strongly to them, not that they object to being socially engaged with other LEGO® users. In many cases, they just don't know where to find a LUG. At present they don't attend events and they are not into communities. But they build MOCs and they are very interested in reading reviews. They sometimes participate in online discussions and they even help others online. And of course they buy LEGO. For LUGs who wish to increase their number of members, it would make a lot of sense to try and recruit the Online Hobbyists.

A third group of adult LEGO users are the ones who have just recently picked up LEGO play and who don't spend a lot of time on the hobby. Most of them don't see any benefits in becoming part of the LEGO Community and they are usually the less active ones. They like to play with LEGO, but it's merely one spare time activity out of many. They can be described as the more **Casual users**.

Conclusions

When asked to pinpoint some of the findings that fascinated Yun Mi the most, she points to the fact that many adult LEGO users share the same pattern when it comes to how they pick up LEGO play, how they grow with it, how they drift in and out of the dark age. The things that attract people to LEGO and the things that keep appealing to them are often very similar. Yun Mi believes that we have to look beyond the physical LEGO products to fully understand what people are drawn to when they are drawn to LEGO. "Essentially, it's about being able to express yourself. And it's about having, in the abstract sense, a conversation with your younger self back when you didn't have to pay mortgages, be mature and all grown up! When you were free to just be and create whatever idea that came to mind. In a world where there are so many readymade experiences, so many perfect and complete products to consume, people still have a very strong need to freely express their own ideas. More than ever, there seems to be a need for people to go beyond the given. It's a very powerful emotion and drive. Combine that with the social aspects that LUGs offer, and it's no surprise to me why people choose to dedicate many hours of week on the hobby."

It doesn't matter if the person is from Hong Kong, Germany, Spain, US... *"There are many similar patterns and it's deeply fascinating"*

About Yun Mi Antorini

Yun Mi Antorini is Community Strategist at the Community Engagement & Events (CEE) department. She defines herself as *"Fan of the AFOLs, but I am not an AFOL myself"*. Yun Mi is very grateful to all the people who took time to answer the surveys, and participate in the interviews and the workshops.

There will be a CEE team meeting in April to analyze the research. All the results will give more insights to the team, and this will help to create new programs for the community, and to find ways in which the many more loosely connected LEGO users can get to know the fantastic LUGs all over the world. HispaBrick Magazine would like to thank Yun Mi Antorini for her kind support for this article.

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LEGO® SERIOUS PLAY®

Hands-on team work

By Ricard Huguet (www.learnbydoing.com)

What is LEGO® SERIOUS PLAY®?

LEGO SERIOUS PLAY is a methodology that uses LEGO blocks as a tool to facilitate learning, a powerful tool designed to develop competences that help innovate and improve the work of people in any kind of company or organisation.

Using your hands to develop think and imagination allows the establishment of a connexion to the brain that converts the process in an effective tool for change. This tool helps the participants to express themselves and listen to others, which in turn favours problem solving in an assertive way.

LEGO® SERIOUS PLAY® starts by posing a question, building with LEGO pieces, sharing in the building process and reflecting on the results. Starting from that basis, there are different techniques that can be applied, depending on the strategic objectives and the desired scope

The origin of LEGO SERIOUS PLAY is the search for a tool to unblock innovation inside the LEGO Company itself, and the solution came from within the company: for years it had invited children to build their dreams and now it was time

for adults to start building their own strategic visions for the future. This meant putting in practice the first and main idea of LEGO SERIOUS PLAY, which is the fact that the solutions come from within the group and not from external actors. In this way the team is forced to take full conscience of their company and their work.

Currently this methodology is used in companies all over the world as a way to fortify the work relationship and collaboration among staff towards the goals of the organisation.

Why do we use LEGO blocks?

There are numerous reasons for using LEGO blocks in this methodology.

In the first place, the power of knowledge that comes from the connection between hands and mind. Our hands are connected to 70-80% of our brain cells. The brain has limitations to the amount of information it can handle





consciously at any given time, but with the help of all the neural connections we have in our hands, we realise we know a lot more at a given moment than we thought. This tool allows participants to express themselves in more detail and they listen to each other. Additionally, the ideas and thoughts are more easily understood and remembered. In addition, LEGO® blocks give each participant a voice to express their ideas. This material makes it easy for the participants to physically model concepts and situations they wish to communicate. No technical knowledge is required, and even if they have never used LEGO blocks, building significant models is an intuitive process. LEGO blocks have different shapes and colours and they can provide inspiration for metaphors even fortuitously. So knowledge that is present in a person or work team is used to the full.

Why SERIOUS PLAY?

The LEGO SERIOUS PLAY materials and methodology are effective when there is more than one correct answer, and when a company wishes to be conscious of all the available knowledge in its team, to ensure that not only the best solution but also the biggest commitment will be found.

To give a few examples, the LEGO SERIOUS PLAY methodology is very effective when the subject at hand is complex and can be worked at from different angles. It is in those cases that the need to get the whole picture arises, and it becomes important to find all possible connections and explore all potential options and solutions. In these situations, we come to realise that the same question posed to different members of a team results in substantially different answers for each one, a situation in which the comprehension of the team is improved, a common vision can be outlined and the frustrations resulting from innuendo is avoided.

LEGO SERIOUS PLAY can also help when there are no obvious answers to situations that arise, forcing us to acquire new knowledge, perceptions and ways of thinking. Working on complex matters requires a constructive atmosphere, and this can be obtained if we make sure the participants, members of the team, express themselves without any barriers to their feelings or any intimidation. In addition, this tool helps to avoid discussions that could eclipse the purpose of the session without even needing to moderate the debate.

Finally, LEGO® SERIOUS PLAY® helps to elevate the interest in the meetings that some consider a useless waste of time, increasing the level of productivity of these meetings by focussing the debate on the message rather than the messenger. It also helps to avoid that members of a team feel their opinion is undervalued or don't feel part of the project.

In order to work as a facilitator you need to get a LEGO SERIOUS PLAY Certification, during which ideas and theories that underlie the methodology are set out and you gain the necessary knowledge to work as a facilitator for workshops using LEGO SERIOUS PLAY through practical training.

LEGO® SERIOUS PLAY® proposes a training and strategic transformation process that is profoundly experiential.

About the author:

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LUGs of the world:



By HispaBrick Magazine®
Pictures by Legend Bricks

HispaBrick Magazine: When did Legend Bricks get started?

Legend Bricks: We first established in 2009 as a group of Castle players.

HBM: How did Legend Bricks get started?

LB: We confirmed our group name "Legend Bricks" and had our first public exhibition "Bricks Adventure" in 2010. More players joined afterwards, not only Castle players but City, Technics, etc.

HBM: How many members does Legend Bricks have?

LB: Until now we have more than 24,000 fans on facebook. Our group doesn't have any membership system, so we count all the fans as our members.

HBM: Are there any other LUGs in your country? Do you have contact with them?

LB: Yes of course! In Hong Kong we had 3 LUGs altogether including us. Tracing the history of the Hong Kong LUG development, all LUGs come from the LUG, Minifigs.net, originally. Our group core committees come from that group and part of us are still the committee in the Minifigs.net now. Like me, I am the ambassador of LB and also the second contact point from Minifigs.net.

HBM: Do you organize events or exhibitions?

LB: We organise our own series exhibition "Bricks Adventure" annually since 2010. As the rental fee for the venue, wherever you rent for business / non-business venue, is really high, we choose to cooperate with the interest groups in the universities.

Other than this, we highly cooperate with LEGO® Hong Kong Ltd., to organise the public exhibitions in shopping malls or help in building MOCs in the ACGHK (Animation, Comics, Games festival of Hong Kong) annually.

Besides the exhibitions, last year we started holding monthly / bi-monthly event called "Legend Bricks monthly gathering" for the public, free-of-charge. These are aimed at sharing our building skills or some techniques, have funs and make friends.

And we may also partner with NGO sometimes to organise charity events / educational exhibition.

HBM: Do you have contact with TLC (The LEGO Company)?

LB: To some extents. Our group has participated in the LEGO Fan Weekend twice in 2013 and 2014. And also we have contacts with the LEGO CEE manager Jan Beyer, who is responsible for Asia at the moment. I have also followed Jan Beyer visiting LUGs in the area like Taiwan, China and Korea; it is a wonderful experience.





HBM: How is to be a LEGO® fan in Hong Kong? Do you have any advantage or lack?

LB: I would think, being a LEGO fan in Hong Kong is easy and lucky comparing to other Asian countries.

Hong Kong is a very small place, easier for travelling. This facilitates a high frequency of organising gatherings or events.

Secondly, there are many channels to buy LEGO sets in Hong Kong, whether in official shops, like buying in department stores or Toys-R-Us, or some private stores.

Thirdly, Hong Kong is a tax-free area, so buying sets is much cheaper than in other Asian countries. The only problem that makes the price still higher than Europe or US is the logistic cost.

Fourthly, you can still buy LEGO sets in Hong Kong if the sets is only available in Europe or US. There are several methods for the sellers to import the sets to Hong Kong.

The disadvantages are, we cannot contact the TLG easily; it is hard to meet the LEGO designers through the events / gatherings; It is hard to participate in other LEGO events in Asia (needs more travels by plane, high cost!) and international





LEGO® events like LEGO Fan Weekend (Skaerbaek Fan Weekend now), too far away from us; It is also difficult to get LEGO parts (only through Bricklink, LUGBULK, local sellers); And the price of the LEGO sets are still high compared to Europe or US.

HBM: Can you explain any interesting anecdotes related to Legend Bricks?

LB: Our first public exhibition in shopping mall, topic "The world 17 area", held near Easter holiday for 3 weeks in 2011. The event had over 200,000 visits and they needed to queue

up to a maximum 90-minute to enter the exhibition, this is so terrible and encouraging!

In 2012, we were invited by the Hong Kong Heritage Project, to build a 3m x 4m model about Tsim Sha Tsui (the middle of Hong Kong). The most difficult part of the project was all the distribution of iconic buildings, roads were following the real map of the Tsim Sha Tsui area. When there was a construction site in real life, we also built the construction site with LEGO too. The project was certified by Sir Michael Kadoorie finally. And it is honorable and memorable.

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How to build an Alternative Model out of LEGO® Technic Set

By Tomik (Tomáš Vít)

In a previous issue of HispaBrick Magazine I've shared with you how to build an alternative model out of LEGO Creator set. Now I'm going to advise you on doing the same with LEGO Technic. Since some steps are similar to building with Creator, I'll focus on those they are different. If you look at current studless Technic parts for the first time you may think: "Is this still LEGO?" LEGO Technic differs much from classic LEGO in parts, building techniques and above all in functions. While LEGO Creator is mostly about what the model looks like, LEGO Technic is more about how the model works.

Choosing the Set

The main advantage of building alternative models is the limited assortment and amount of parts – you don't have to think much which parts you're going to use because all of them were already chosen. The main disadvantage of building alternative models is the limited assortment and

amount of parts – you can use parts just out of one set. So choosing the right set makes building easier. At the beginning I recommend you to start with a set containing between 300 and 400 pieces. When you are looking for a suitable set it is wise to check its part list. I especially focus on the amount of gears (you'll use them for creating mechanisms), panels and flexible axles and tubes (you'll use them for adjusting the appearance of the model). If you want to build wheeled vehicles it's better to choose a set containing wheels of the same size. I think currently the best sets to start with are 42035, 42022 and 42004.

Preparation

Preparation is an important part in the process of building your own alternative model. It helps you to reveal possibilities of the set you've chosen. I always start building the main model with the help of the instructions that are included. It is the best way to get an overview of the

parts used in the set, the size of the finished model and sometimes I even find interesting details, techniques or mechanisms that I'll use in my own model. After dismantling the main model I sort the bricks according to their type. The most important categories of bricks are gears, panels, tubes, flexible axles, wheels and special parts (springs, parts of engine, cylinders and so on).

What Do You Want to Build?

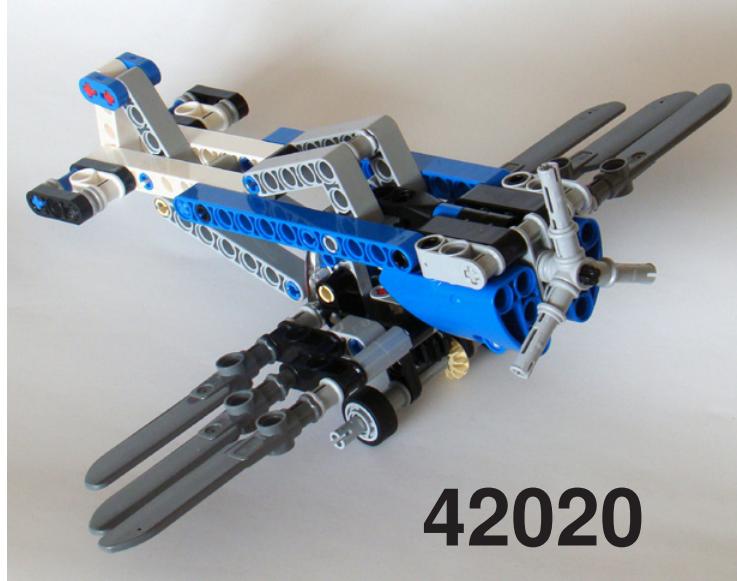
What you want to build is a very important question and you should know the answer before you begin building. It's possible that your "WHAT" will change during building. Sometimes it happens to me too. Anyway a clear idea about results leads to success. What should an alternative model be like?

- 1) Original – build something different from what the designers at the LEGO® Company have built out of those bricks.
- 2) Recognizable – build model in such way that others recognize what you've built easily.
- 3) Using as many parts as possible – if you use at least half the parts in the set you'll get an alternative model that is comparable with the main model.
- 4) Solid and stable enough – each model should be solid enough for demonstration of functions without breaking and stable enough for standing in its natural position without any support structure.

And where do I get inspiration for alternative models? The easiest way is to build something thematically close to the main model. For example you can build a car or formula out of a truck. Another way is to choose the subject of the model according to the number of gears and special parts that limit the number of mechanisms and functions. For example you can build a dump truck or crane with one linear actuator. If you have two actuators you can try to build an excavator or loader. You can also use type of panels or other big parts as hint. For example if there are flat panels in the set you can use them for building wings. And finally you can find inspiration in models that were built by other builders. You may find some interesting mechanism or another detail which you can try to imitate in your own model. For example my red shark arose this way. I saw a mechanism imitating flapping wings and later I've used it for the shark tail. When you know what you're going to build your next step is to find out what your model looks like and how it works.

Functions

Technic is mainly about functions and Technic without functions is not true Technic. So how can you add functions and mechanisms to your model? There are two ways to create them. You can take specifications of real machine and translate their mechanisms into "LEGO bricks" or you can design your own mechanism in order to get the required function (for example to connect undercarriage and propeller by gears to make propeller whirl when plane is going). You can also check the internet to see if somebody has already built a mechanism you need for your



model. If you find it you can just copy it and adjust it. Great resources of inspiration are books "The Unofficial LEGO Technic Builder's Guide" by Sariel and manual "LEGO Technic Tora no Maki" by Yoshihito Isogawa.

In a simplified way we can divide mechanisms into two groups: with continuous motion and with limited motion. The most familiar function with continuous motion is "fake engine" with moving pistons. It is based on a crankshaft that converts the rotary motion of an axle into the linear motion of a piston. The whirling propeller mentioned above is another example of a continuous function. These functions can be elegantly driven by wheels or an undercarriage. Mostly just ordinary gears are required for building them and sometimes you can build them even without gears. Mechanisms with limited motion are often more complex. It's not possible to connect them with wheels due to their limits so you need some knob (gear, crank or motor) to operate them. The most ordinary limited function is steering. Other limited functions are lifting, opening, tilting, extending etc. If you want to build them you'll need a worm gear, linear actuator or pneumatic cylinder. So by counting them you can easily determine the highest number of these mechanisms and choose a proper subject for model.

To Draw or Not to Draw?

Now it's time to choose which mechanisms provide the functions you would like and you're able to embody into your model according to parts in set. When I'm building complex mechanism with bigger amounts of gears I usually sketch transmissions in order to find out how many gears I need and how much space they require. Sketching is a very fast and effective way of recording thoughts and ideas.

If you decide to build an actual machine I recommend you to find technical specifications of this machine, especially drawings. Then you can draw a grid on these drawings where distance between lines represents length of one stud. Now you're able to determine how big each part of the model is supposed to be in order to keep the original proportions. I often use the size of wheels to adjust scale of grid.

Beginning Building

I always begin building mechanisms first to be sure that the model will work as I want. If you start with building mechanisms you'll be able to use any bricks out of the



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set for them. The size of mechanisms determines the size of whole model. So you'll quickly verify if you are able to include the planned functions in your model and you have enough parts to finish it. If you can't build mechanisms out of the available bricks I recommend you to simplify your model (lower the number of functions) or to build something else.

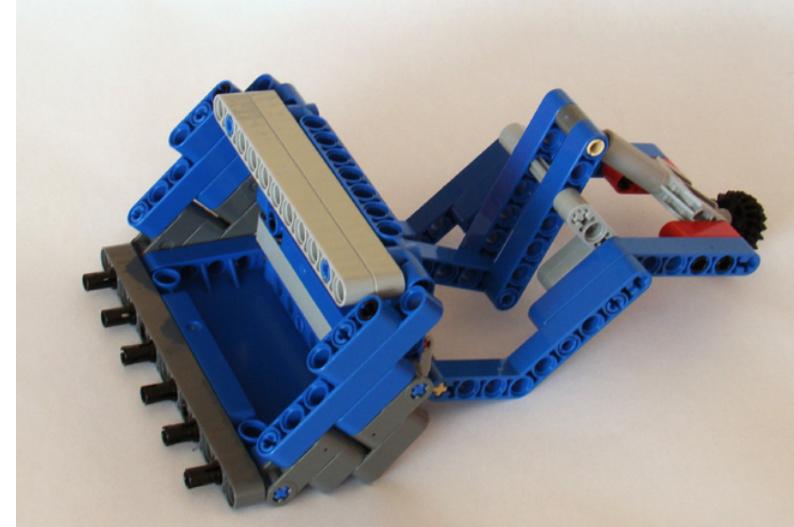
First of all prototypes of main mechanisms must be working. Continual functions should work smoothly within whole cycle. Extreme positions are crucial for limited functions – if there is no problem in them probably there will not be any problem between them either. Now when we've built the mechanisms it's time put them together to get an idea of the size and proportions of the model.

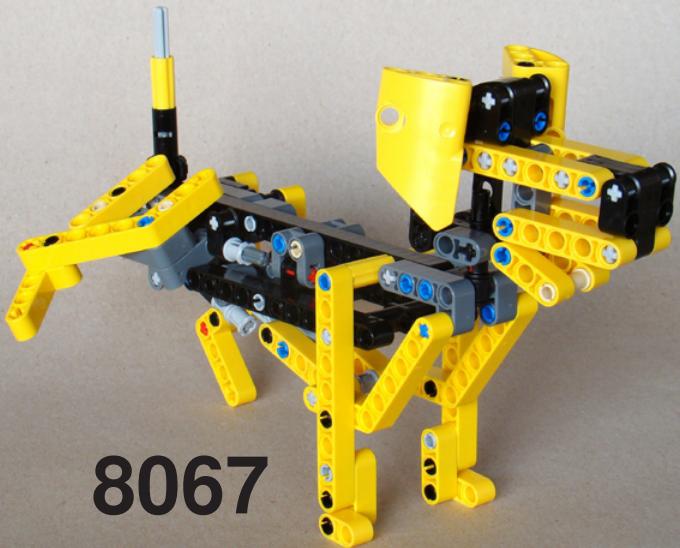
Sometimes it happens you've built all mechanisms but they are too big and you don't have enough parts for finishing (covering) the model. In this case I recommend you to scale them down or change the model. The final size of the model depends above all on the size of the mechanisms (mostly you can scale them down or up) and on the size of the available wheels when you are building wheeled vehicles. I've found out smaller wheels are worse than bigger – bigger wheels mostly don't hurt your model but wheels that are too small can look weird. Choosing a suitable size of your model helps you to use an optimal amount of bricks from the set.

Now when you've built all mechanisms we can begin working on the appearance of model. If the set contains panels I start looking for the most suitable places for them. I lay them on the model without connecting. At this moment my goal is not to find the way of attaching panels to the model but to find the best set-up for them. I'll look for ways of attaching them the in next step – improving.

Improving the Prototype

Improving the prototype in order to get a finished alternative model is usually the longest phase. In this phase I focus on covering mechanisms by body or framework to make model look like the original object while all mechanisms must stay operative. I also focus on making the model stronger, adjusting its size and proportions and tuning its color scheme.



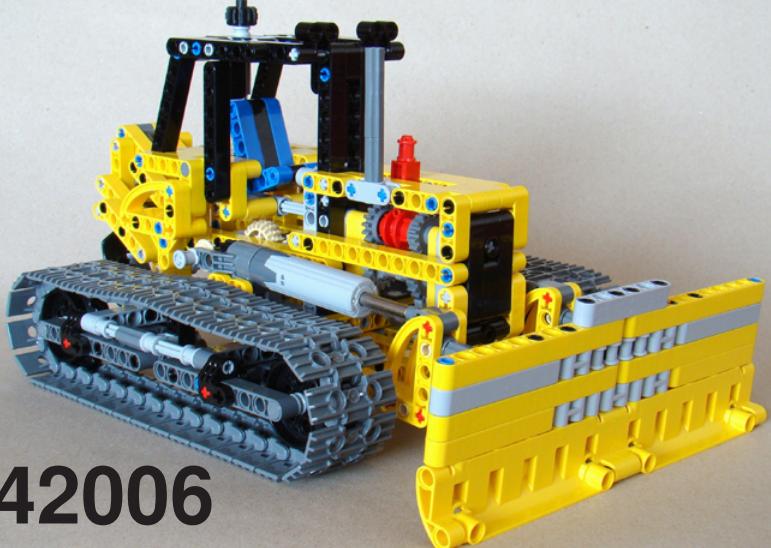


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Probably each of you will struggle with a lack of bricks during building model. If you miss just one part or several parts you can try to replace them with other similar parts. You can also check if you used needed parts somewhere else in the prototype and replace it there to be able to use it where you can't replace it. If you miss a large amount of parts you probably chose too big a scale and you have to make the model smaller. Sometimes it is sufficient to adjust just the proportions (make it slimmer or shorter) and at other times you'll have to rebuild the whole model or even change its subject. Limited assortment and number of bricks force you to use each part as efficiently as possible. It's crucial to work with a parts list (you can find it at the end of building instructions). It helps you to keep an overview over available parts in a set.

Sometimes the opposite situation happens. You've almost finished your model and there are still many left over parts around. You can solve this problem in two ways. You either expand the whole model or part of it or add something to present the model. You can add for example some accessories, new details that will become part of model or a separate model relating to the main one. For example when I was building a compact wheel loader I used left over parts for building forks that can be attached instead of the bucket.

Finally we shouldn't forget to make the model solid enough. Solidity determines overall playability of your model and is key quality for showing functions – I expect you don't want your model to fall apart during demonstrations. Models that lay on a shelf don't attract as many people as a model which you take into your with hands and try its functions. So

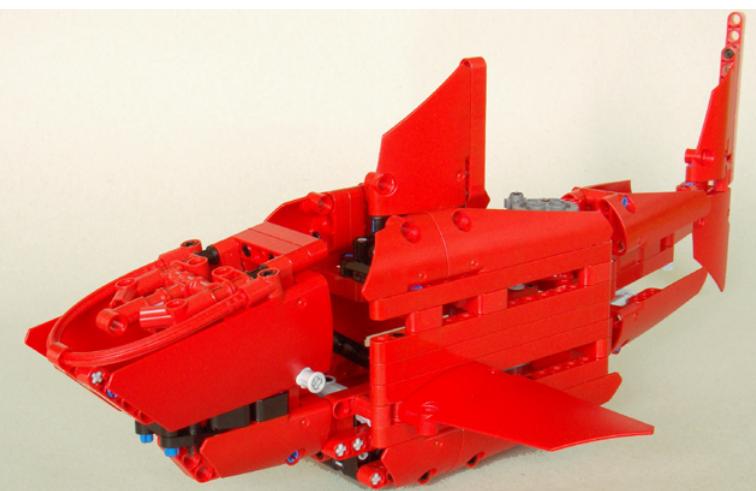


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I focus on preventing deformations of model or its parts.

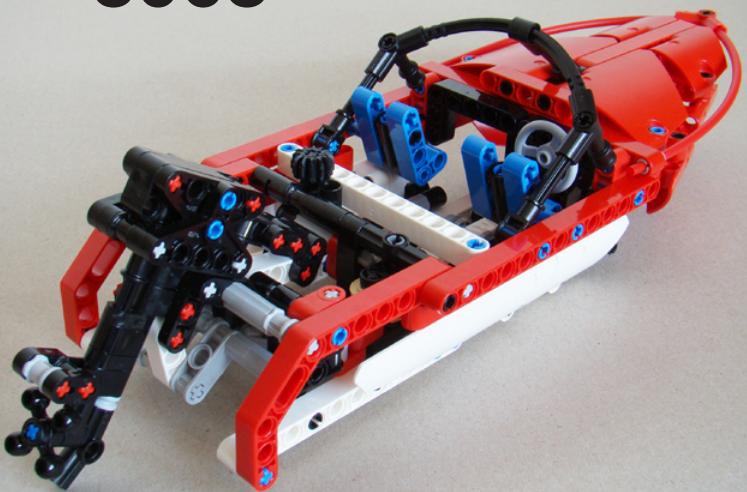
Conclusion

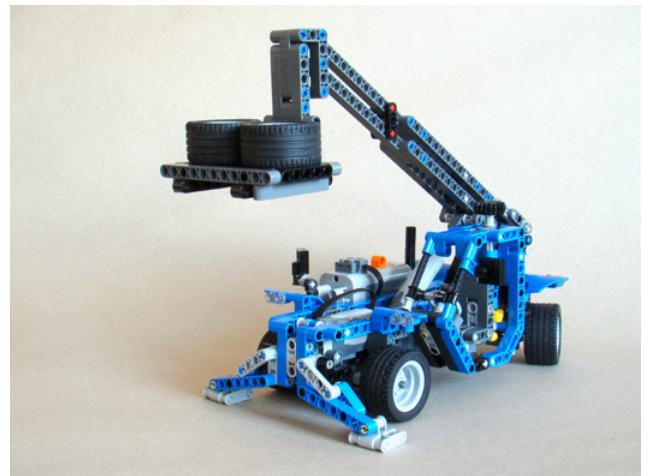
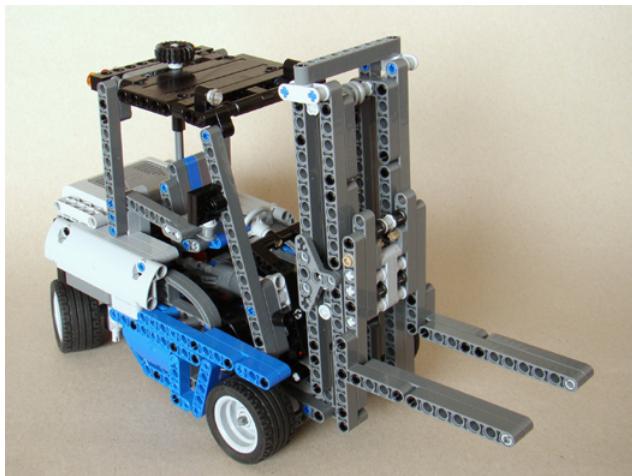
This article has showed you a step by step procedure for building alternative models out of LEGO® Technic sets. I've tried to show you the process more than describing particular building techniques (this is a topic for a book rather than for one article). I hope the hints introduced above will help you with building your own models. If you want to know more about my creations or even build them, visit my web site <http://buildinst.sweb.cz>. You'll find my alternative models and building instructions for them there.



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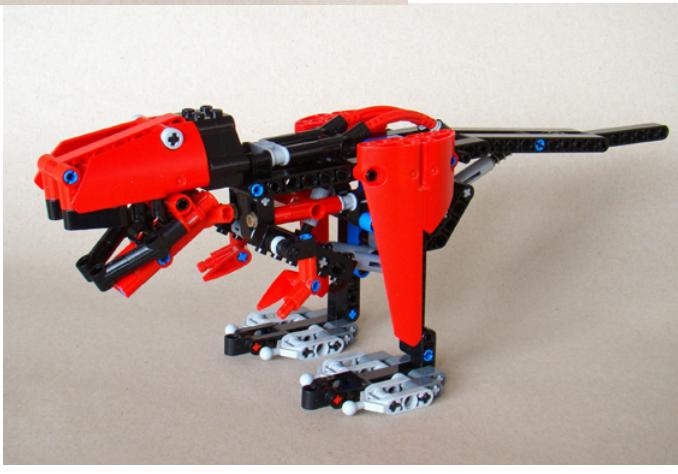




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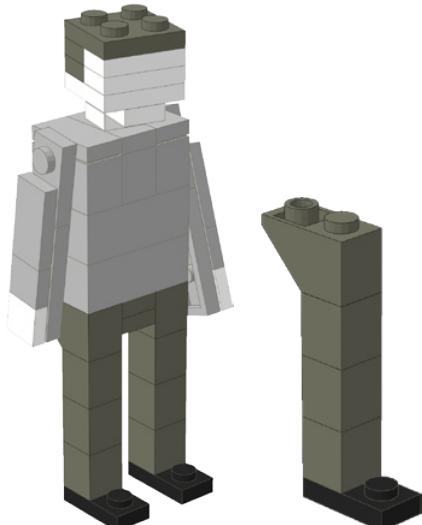
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Miniland Building: MINILAND character build

Extended Guidelines *Part V - The legs*

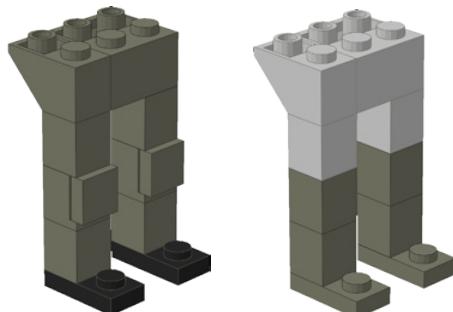
By Didier Enjary



As you can see from this basic MINILAND character, a prototype which illustrate these guidelines from chapter one, legs simply consist of a 1x2 plate as a shoe, a stack of three 1x1 bricks for the leg itself and 1x2 inverted slope brick to link with the torso. Although this is in no way an obligation, it is best to choose contrasting colors for the shoes and legs.

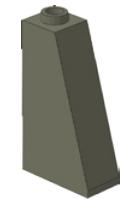
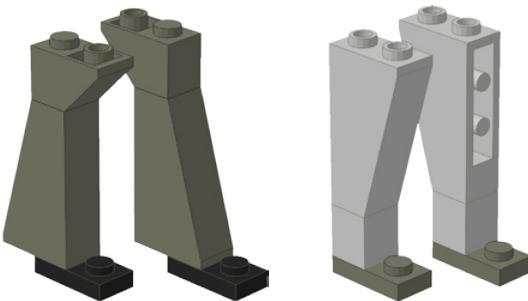
Let us see now how to improve this basis to represent different styles of clothing (pants, shorts, boots, socks ...) but also different postures through some examples.

The first thing we can do is to add details, for example by adding a knee. The 1x1 brick halfway up is replaced by an Erling brick covered with a 1x1 tile, thereby giving an illusion of thickness and the presence of a joint. You can also play with the contrast of colors to give the illusion of boots, such as a fisherman or a gardener's.



Erling brick

These trousers are obviously of a regular fit. They can be turned into bell-bottoms or flares using slope brick 2x1x3 or into an oversized or relaxed fit using the inverted slope brick 2x1x3.

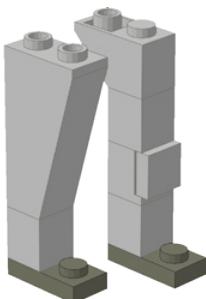


2x1x3 Slope



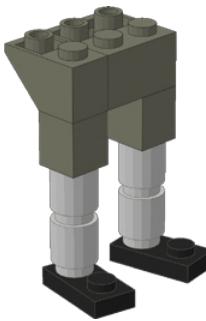
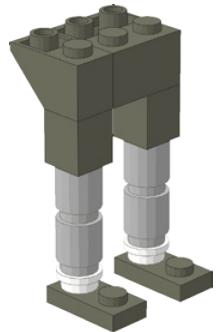
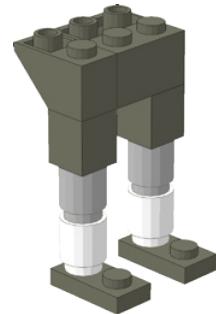
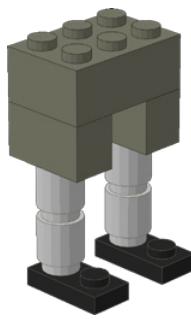
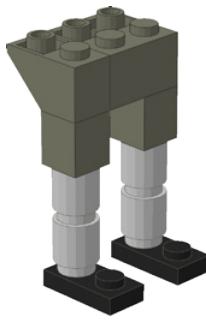
2x1x3 Inverted Slope

You can create a motion effect, as if the character sketched out a step, by combining different kinds of legs.



The bricks are very geometric, blocky. They may fit your needs to represent clothes such as pants or boots but bare legs deserve to be represented with round bricks. By substituting wisely a few bricks, it is easy to represent shorts (short trousers, Bermuda shorts, sport shorts...).

Playing with the contrast of colors and 1x1 round parts (bricks or plates), you can add more details such socks (knee-high socks, mid-calf socks, ankle socks...)

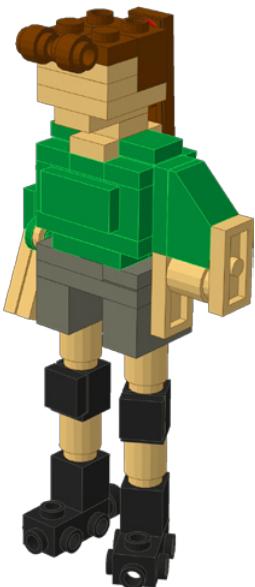


The connection between the leg and foot being carried out through a single stud, the two elements can rotate freely with respect to one another. You can take advantage of this opportunity to give more natural postures to your characters.

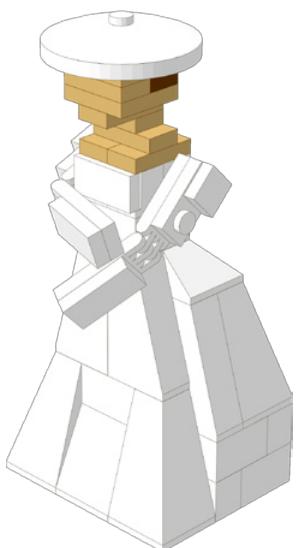
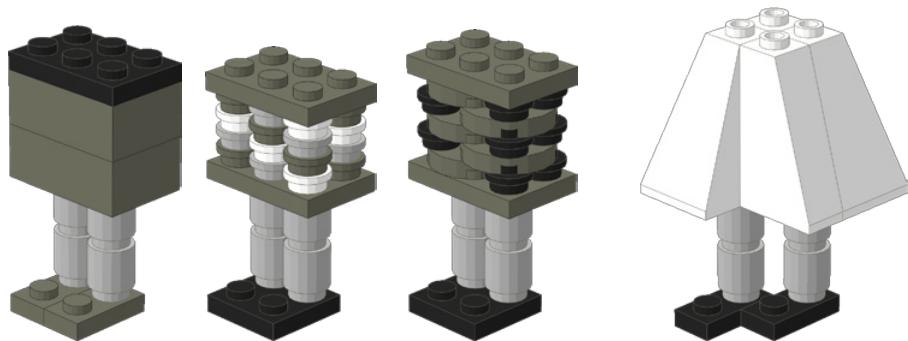
The character below suggests an in-line skater and implements several tips given above. The shoes are represented by a very specific part: the brick 1x2x2/3 with studs on sides. On bare legs, made of flesh-colored round 1x1 bricks, Erling bricks covered with 1x1 tiles represent knee protections. A slight rotation of the legs give the character a firm and natural posture.



1x2x2/3 Brick
with studs on sides

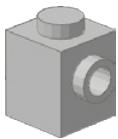


There are two main designs for dresses and skirts. In the first case they are straight and consist of a more or less complex and colorful stack of bricks and/or plates to recreate various pattern and material effects. In the second case, they are flared out by making use of slope bricks, sometimes in a massive way, as for instance for an evening gown or a wedding dress.

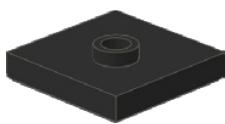


Conclusion

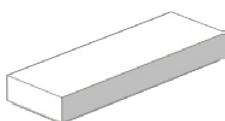
As a conclusion to this chapter, you will find on the following pages the building instructions for a mummy. This character is made of 64 parts and is 10 bricks tall (5'8" - 1.73 meters at scale). The parts to build it are very common - mostly white and grey regular 1x1 and 1x2 plates. But the legs are built in a somewhat unusual way. The design is by Brickshelf user k-hatch who has other great designs for Halloween. Check his gallery at <http://www.brickshelf.com/cgi-bin/gallery.cgi?f=282630>



1x1 Brick with stud on one side



2x2 Plate with one stud



1x3 Tile

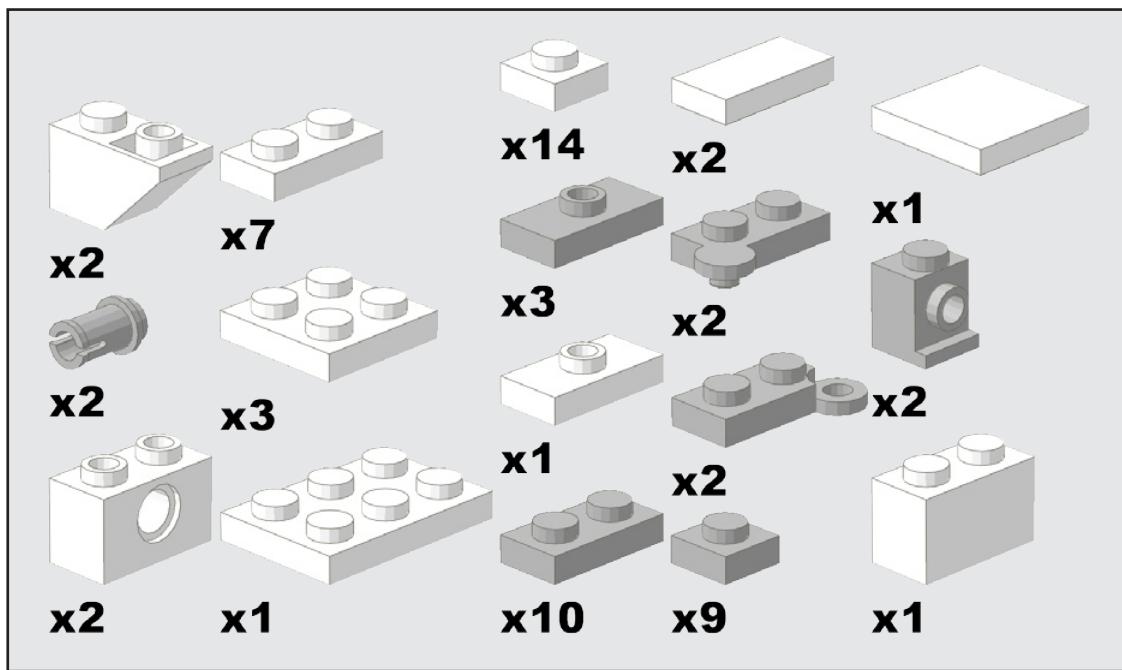


1x1 round plate with open stud

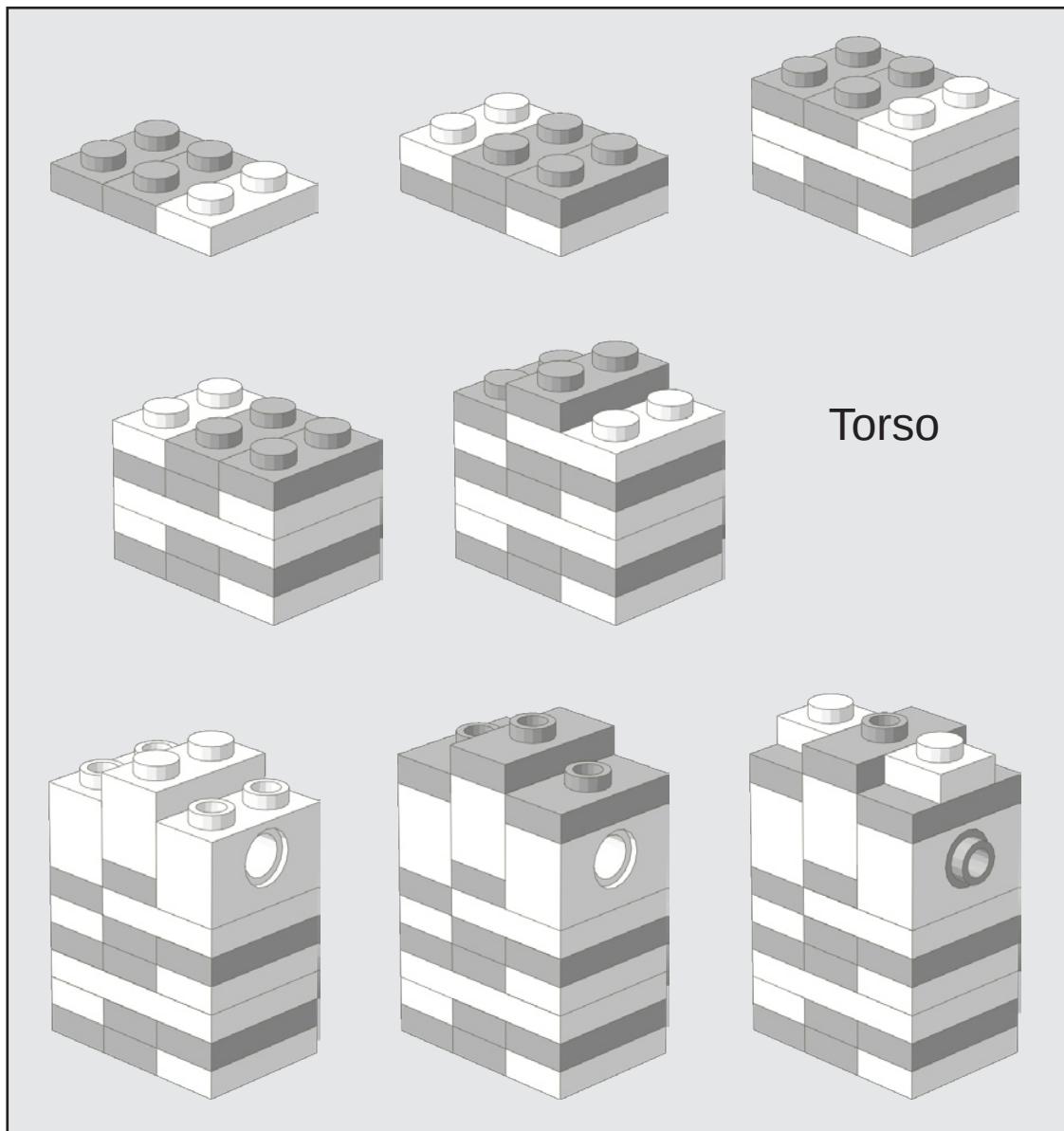
As a conclusion to these guidelines, I initially thought to gather and display in a table all the necessary parts to build MINILAND characters from small plates, bricks and tiles to various hinged parts, slope bricks and Technic pieces. But this is both unfeasible and useless.

Unfeasible because the part selection used is huge. And more than that, it is larger and larger as new parts are released and as new characters appear in MINILANDs around the world. Useless because these guidelines and building instructions are not meant to describe limits but to inspire builders, showing them that possibilities are endless with help of your imagination and creativity.

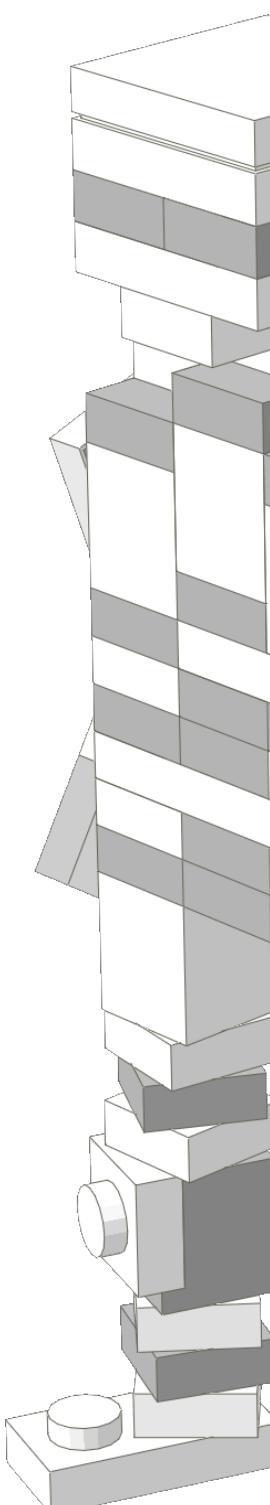
The guidelines here are based mainly, on designs older than 2007. Since then, new colors (dark tan) and new parts with great potential have been available or more widely available such the brick with stud on one side, the 2x2 plate with one stud or the 1x3 tile and the 1x1 round plate with open stud. The truth is that a bunch of new parts are coming out every year and that the guidelines are not meant to prevent you from using these new parts but to inspire you.
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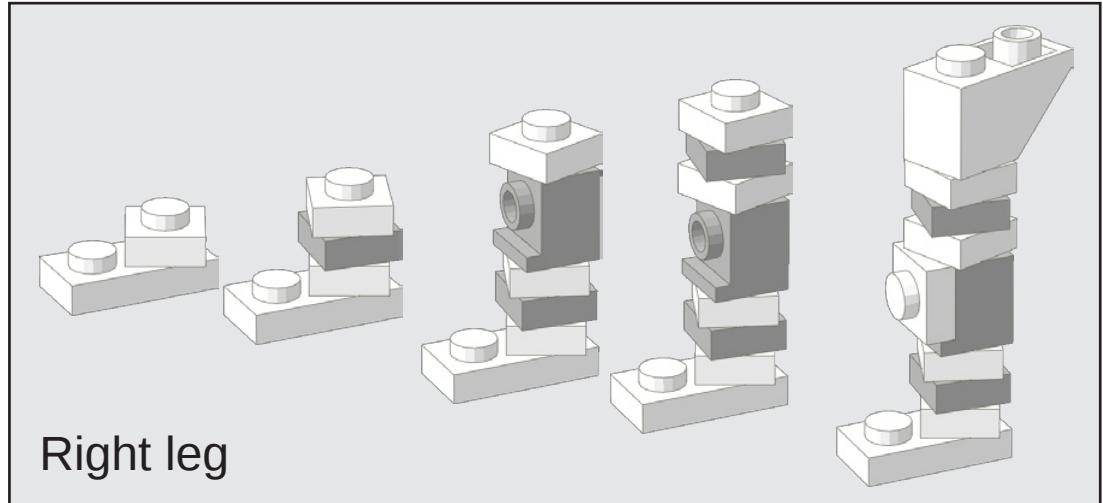
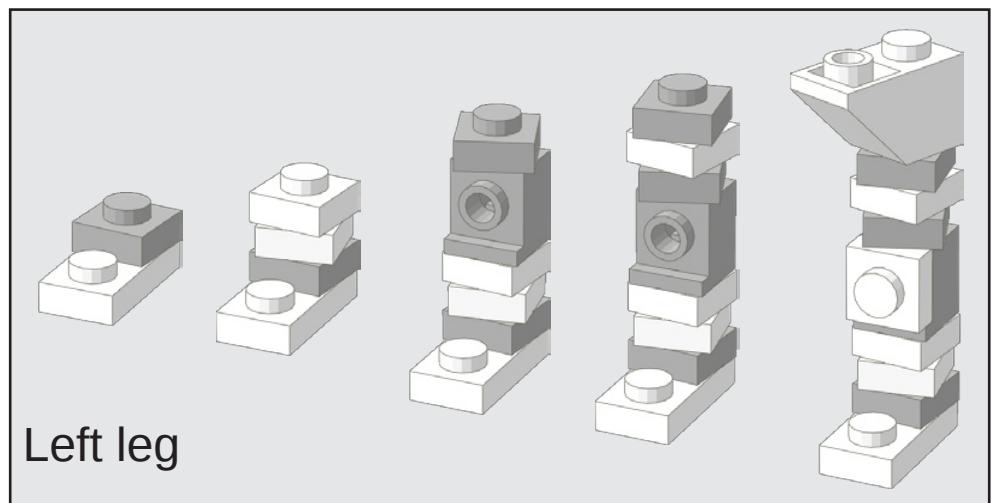
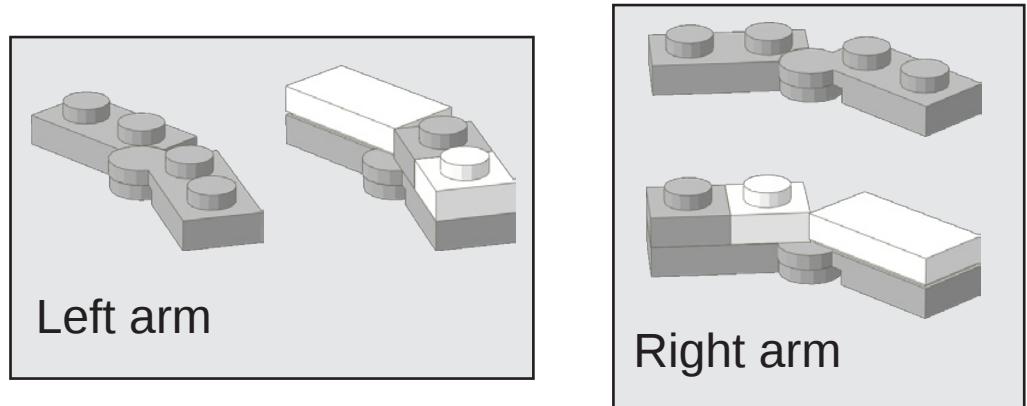
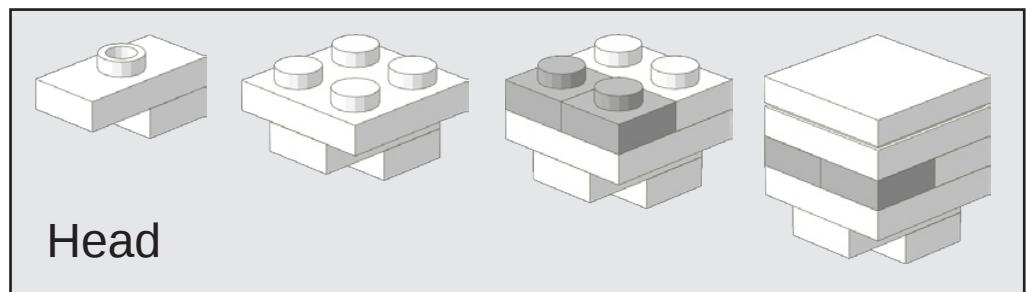
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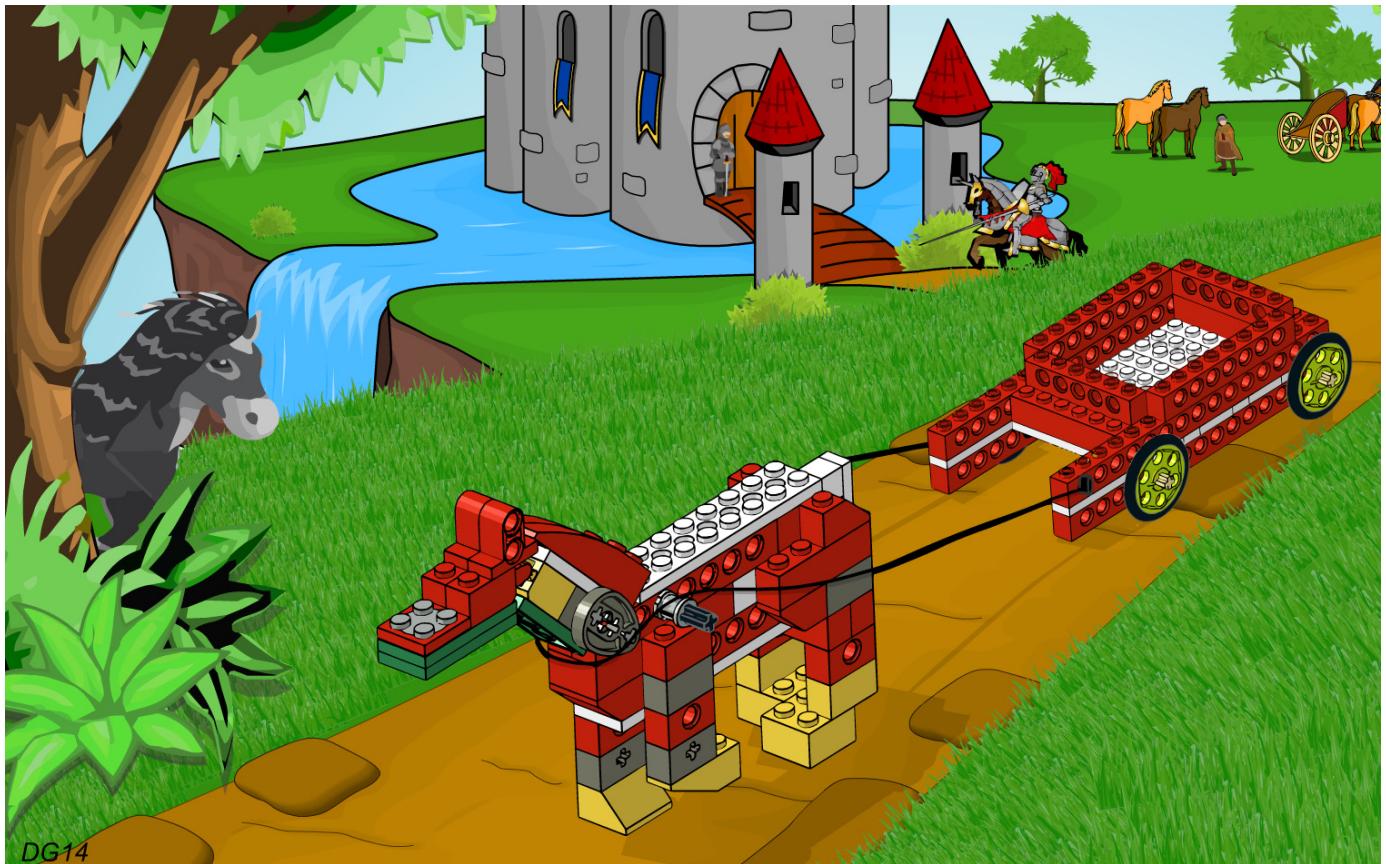


Original Design



MUMMY





Robotics with LEGO® WeDo (VII)

An introduction to robotics for the young with LEGO® WeDo

By Diego Gálvez

In this part we will continue working with some aspects of the send and receive message blocks

Double Loop

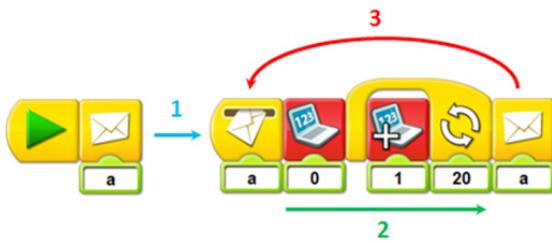
The WeDo software contains a repeat block that allows us to program loops. But what if I want to use a loop inside another?

Example

We will make a program that counts up to 20 and then starts over again, counting to 20 each time. The first thing to do is to create a program that is going to count from 0 to 20.



If we run this we will see that it indeed counts from 0 to 20, after that it stops. If we want to repeat the program we have to click on the start block.



To automate this process we are going to use the message block.

1. Message "a" is sent.
2. Message "a" is received and the program is executed.
3. The program ends and the message "a" is sent again, starting the program all over.

WORKING WITH CASES

In later parts this will be the function of the "send message" and "receive messages" blocks we will use the most.

What does working with cases mean?

Well, imagine the following everyday example. Depending on the hour of the day you have breakfast, lunch or dinner. From a programming point of view the hour of the day would be our variable, and breakfast, lunch or dinner the action to take depending on the value of that variable.

Before we continue, we need to know what a variable is in programming.

Variables

In programming, variables are spaces in memory that are reserved and which, as the name indicates, their contents can change during the execution of the program. A variable corresponds to a reserved area in the main memory of the computer.

Variables in WeDo

In the case of the WeDo software we can only work with a single variable which is the "number on screen". The add, subtract, multiply and divide



block allow us to change that "number on screen" and use it as a variable that indicates which case should be executed.

Example

Initialising a variable

In some programs you need to initialise the variable, which means you give it a starting value. In this case that value is zero.



This small program runs at the beginning to verify that the variable starts with the desired value.

Changing a variable

The next step is defining how the variable will change. This can correspond to the reading of a sensor or to the program adding, subtracting, dividing or multiplying another value. In this example we are going to use the keyboard block: when arrow up is pressed the value will increase one unit, when arrow down is pressed it will decrease one unit.

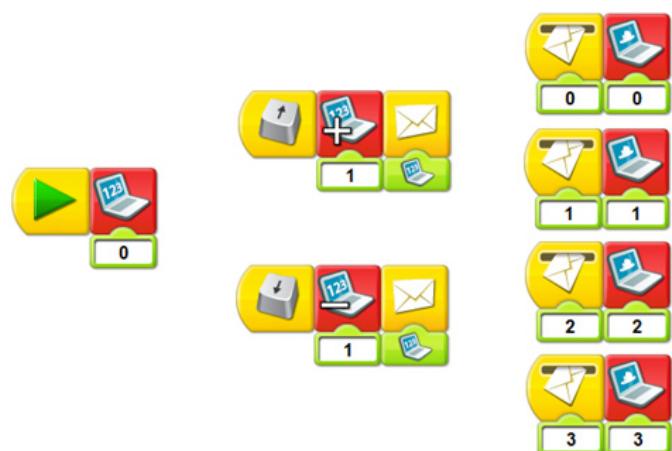


Adding cases

Finally we need to add cases. That is, the action that should occur depending on the value of the variable. In this example there are 4 cases.



The final program looks like this:



Let's try changing the number on the screen by pressing arrow up or down to see how the background changes.

As we have seen, the send and receive message blocks can be used to create more complex programs.

In the next part I will explain how to create and program a line follower with the WeDo set. For the program we will use these “send message” and “receive message” blocks.

On the website notjustbricks.blogspot.com you will find multimedia materials (images and videos) of the creations of the author, some of which come with building instructions.

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LEGO® WeDo (VI)

Programming in Scratch

By Edwar Romero

Cover image by Osvaldo Romero

We are still here with our world domination plan! We are getting close, just one more LEGO® brick, but give me the programmable WeDo™ bricks! Yes, we know that we can program those bricks with Scratch as we please. For the time being, we will continue with the basics until we are able to release our inner genius. We will learn enough so we will be able to create a Terminator-like robot, but decorated with a thousand color bricks!

In summary, we have compared codes elaborated in WeDo against codes developed using Scratch following the same approaches: from turning the motor and the different ways to do it to how to program more sophisticated versions.

We have discussed the Amazing Mechanisms: the Dancing Birds, the Smart Spinner and the Drumming Monkey. We have talked about the Wild Animals: the Hungry Alligator, the Roaring Lion and the Flying Bird. So, we are about half way through the basic WeDo models. Now we continue with the Play Soccer activities: the Goal Kicker, the Goal Keeper and the Cheerful Fans.

Let's start with the Goal Kicker. The WeDo program begins with the play button to turn the motor on counter clockwise, but just for a short time (only 0.2 seconds or 2 in WeDo, 10 corresponds to 1 second). This is enough to send the ball to the goal against the other team.



The code in Scratch is quite similar. You need to use the equivalent of the play button ("when the flag is clicked") under the Control Menu. You also need the motor commands under the Motion menu, "Motor direction this way" and "motor on for ___ seconds" with the time as 0.2 seconds.



That wasn't difficult, was it? It can be more interesting later on. For instance, why not use the distance sensor to detect when the ball is in front of the robotic leg. That way the robot can shoot straight ahead to the goal line.

This can be done in the WeDo software with the waiting block (the hourglass icon) attached to the distance sensor (the one with eyes) so when the ball is in front of it, the robot will kick it.



In order to do the same in Scratch, you need to know where to look for the commands since they are kind of hidden. You need to use the "wait until" block (the hourglass equivalent) under the Control menu. We know the distance sensor is required, but we need another block first. Scratch will not allow us to connect this command until we add a comparison block from the Operators menu (the light green commands). On that menu, there is the "___ < ___" (less than) code. Under the sensors menu, close to the bottom is the "___ sensor value". From the drop down menu you need to choose distance and you also need to write 2 on the right empty cell. Quite a journey, isn't it?



If we were able to configure a robotic leg to kick the unfortunate soul crossing in front of it with a mega kick, then we can dream about a sophisticated security system. So there is no need to settle for basic alarms, right now we can kick intruders to our property with our coding ability and our LEGO sets. One step closer to conquering the world!

In a soccer game we also have a goal keeper to face the goal kicker. Since not many people like to be the goalie, what better than having a robotic friend to block the shots and to run between the posts. Penalties now look more interesting!



For our goal keeper to be really effective between the posts, it needs to move really fast without the other team being able to forecast the moves. For that we need to use random inputs using the dice in the WeDo software.

We need to use the start button (the play icon) and then the repeat block for the goalie to continue moving like crazy. We need to assign one direction for the motor, then to wait a random time (using the dice), turn the motor the other way, then wait another random time before moving the other way, and to start all over again.



Coding in Scratch is quite similar. We need to look for the start block ("when the flag is clicked" command) and the repeat forever block. Those are under the Control menu. The wait command ("wait ___ secs") is also found there. The motor commands are found under the Motion menu for the motor to turn this way and to turn in reverse. You need to look for the "pick random ___ to ___ secs" code under the Operators menu. You need to fill out the numbers 1 and 3 on the empty cells.



However, who is taking note on the score? Is not easier to develop a program to do it automatically rather than manually? Why not coding it for the computer to carry the tabs. You can do it with the WeDo software in another piece of code running alongside the goal keeper. We need the Display block (the red icons) configured to start with the number zero (to start the score using a white background). A repeat block is also

required, the wait (hourglass icon) with the distance sensor attached (to detect if a ball crossed the goal line), another display block (add to display block to add 1 every time an annotation is detected), wait for half a second (the number 5 on the image), and repeat the procedure all over.



WeDo will show an image similar to the one shown below with the score of the game.



The programming in Scratch follows the same approach as the WeDo code (a second program alongside the goal keeper code). You need the start button ("when the flag is clicked") and a score counter starting from zero. For this, you need to create a new variable called score. That needs to be done under the Variables menu (Make a variable and click the checkbox to make it visible on the white canvas). The first time you enter the menu it will be empty. After that, you need to use the "set __ to __" block, choose the variable you created from the drop down menu and add a zero. Under the Control menu you need to choose the forever block, the "wait until __" and the "wait __ secs". On the Sensors menu you need to choose the "__ sensor value" block, find the distance sensor on the drop down menu. You need also to add a comparison block, the less than ("__ < __") command from the Operators menu. You can test variations of this number for better results (50 was found adequate for this part as in the image). You need to program the wait block for half a second, otherwise it may count the same annotation multiple times. Last, but not least, you need to choose the "change __ by __" block from the Variables menu and select the increment for the last command.



This program will show a counter on Scratch similar to the image shown below with the score.



We are almost done, next are the Cheerful Fans to complete the soccer match. The program developed in WeDo is as shown below. The motor is turned on to run one way, a sound is played, wait for a bit, another sound is played, wait a bit more and turn off the motor.



This program can be written in Scratch as the figure shown below. Yet again, the more complicated part is finding the sounds you like. For this you need to import them from the Scratch sound libraries (Sounds tab on the programming area) or to record one for your beloved soccer team.

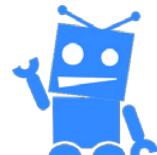


If we are capable of programming robots for a soccer game, including cheerful fans and multi colored bricks, I think we are capable of bigger things. It looks like world domination is getting closer, but let me first finish my robotic soccer game.

That's all for now folks, stay tuned for the advanced programming of these creations in the next issues of HispaBrick Magazine®. You can find more information, and building and programming instructions for the designs presented here and much more at:

www.wedobots.com
www.facebook.com/wedorobots

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wedobots
 The unofficial blog for LEGO® WeDo designs

Vehicle steering and centering systems

By Oton Ribic, LUG Kockice, www.kockice.hr

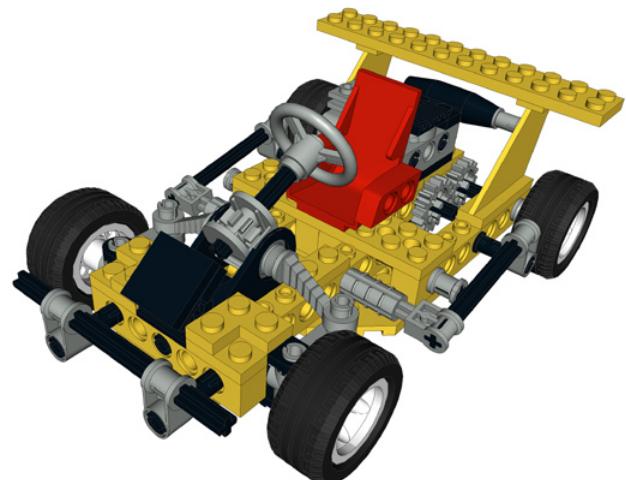
Apart from the smallest which simply don't offer enough space, most LEGO® vehicles rely on some sort of a steering system to allow smooth turning. They span from very simple cars with just a couple of moving parts, to complex multi-axle chassis with asymmetric steering locks, suspension and Ackermann geometry. In this article we shall focus on a few handy tips for building simple steering and centering systems, whereas those interested in advanced or "exotic" steering mechanisms can easily find plenty of further information online and in the literature.

In principle, the aim of a steering system is simple — letting a desired pair of wheels rotate along the vertical axis in a controlled fashion. Things can get slightly more complex if these wheels also need to be driven or suspended, but let us begin with the simplest case.

Among the many possible approaches, decades of experience in the automotive industry have singled out the rack-and-pinion steering as the simplest and the most reliable design, making it by far the most common in today's road cars as well as their LEGO counterparts. This is the design we will therefore aim our focus at.

Fortunately, LEGO has provided a considerable amount of parts with steering in mind. They are adapted for various levels of complexity, but if steering is all you need your wheels to do, a solution is rather simple: taking advantage of highly specialized parts 2790-2792, as done in over a dozen official sets, lets you build an entire suspension along with adjustable steering wheel angle, using just a couple of parts.

Its obvious disadvantage, however, is its fixed width, allowing just a narrow range of possible vehicle scales. For a cost of only a few more parts, this can be solved by using parts 32068 and 32069, as shown in the photo. It lets you choose an arbitrary width of the structure



An older set 8225 is an example of a compact steering using only a few specialized parts.



Using ready-made parts for simple steering allows for a very narrow chassis.

between the wheels, and therefore of the entire vehicle. Although relying on only two pins and smallish joints, they are actually pretty sturdy and capable of carrying significant loads, at least on a smooth surface.

Should you prefer the “custom” approach and build the steering using regular parts, or simply don’t have the specialized ones available, there are multiple possibilities. A rather practical one takes advantage of a widely available part 48989, a few standard studless beams, and either a compact or a custom rack. The basic concept is identical in all these cases, as well as the upcoming ones: the wheels are mounted on steering arms which are allowed to pivot around a static point of the chassis. Their rotation is controlled via movement of a single control arm which slides to either side as driven by the rack and pinion.

The next step, at which things tend to require more parts, is the introduction of independent wheel suspension along with the steering. By letting the entire steering structure for both wheels stay independent from the rest of the chassis (i.e. a pendular or a floating-axle suspension), one can use the same designs as before. However, independent suspension, particularly favoured by road cars, introduces more complexity.

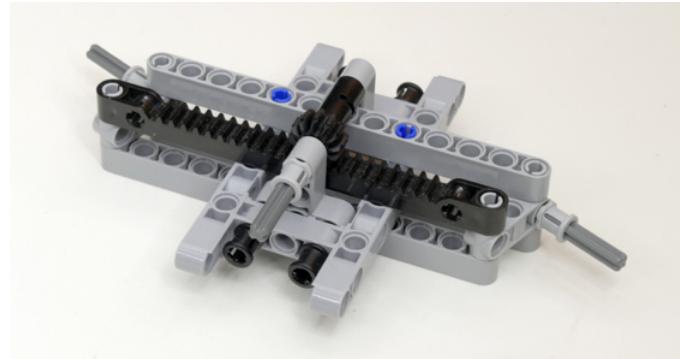
Again, LEGO® has created some pretty useful parts for this exact purpose which can, fortunately, be found in many sets. One can build a custom steered suspension with just regular Technic parts, and while this is a rewarding and occasionally a difficult task, particularly if plenty of mechanical strain is exerted on the wheels, if you are still dipping your toes into steered suspensions it is safer to go with the specialized parts.

First such parts were used in the 8865, a Test Car which was the flagship Technic set of 1988, and though somewhat rare, they are still pretty useful today, and fine as a showcase model. As the wheels need to be able to move in two ways simultaneously (steered and suspended), the steering arms are connected to the control rod via the ball links, as in most real cars.

These parts are notable for one other property worth pointing out: they introduced the so-called Ackermann geometry. Note on the photo that, as opposed to the previous examples where the widths were identical, the total width of the control arm here is slightly, by one stud, narrower than the full width between the steering arm pivot points. This detail makes the wheels turn at slightly different angles when the control rod, i.e. the rack and pinion, is moved. Namely, during the turns, the wheel at the inner side of the curve steers slightly more than the outer, as it indeed should: the inner wheel actually turns through the narrower radius than the outer. That makes the steering significantly more stable in turns for real cars, although in LEGO it is more of a mechanical curiosity than something that would yield an obvious effect.



The new suspension parts offer drive and steering, and are seen in many newer Technic vehicles.



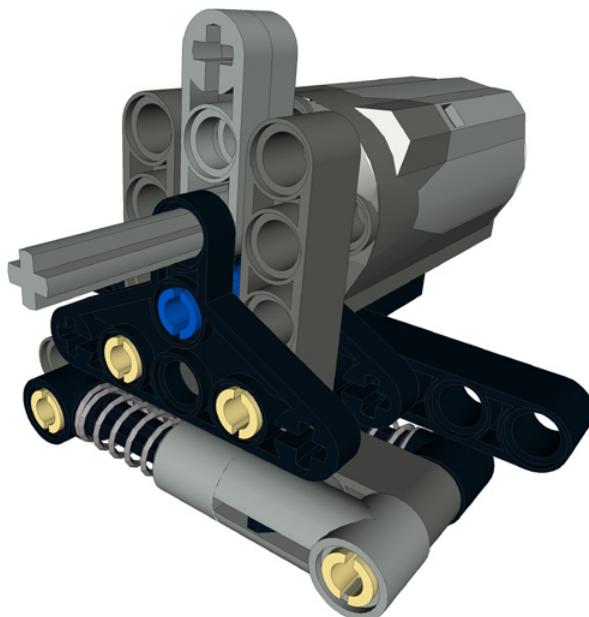
Sturdy custom suspensions can be also simply built with “Standard”, widely available Technic parts.



Parts brought out in the late 80's allowed the wheels to be both steered and suspended.

The widely acclaimed flagship Super car 8880 from 1994 went a step further, adding wheel drive to the mix. The new parts for driven steered suspension design, though ingenious, were short-lived and are nowadays rather rare. Instead, a new design has emerged and is in use for some time already, based around the steering arm part x873c01. It allows the entire driven, steered suspension package to fit on a smaller space, requires less control rod movement, and is easily built, as displayed; however, its frequently criticized weakness is its displacement. That is, the wheel is somewhat further from the steering arm pivot point, thereby making the wheel move significantly about when steered, in turn requiring more careful chassis design, wider arches, etc.

A simple return-to-centre system, with the "L" beams serving as spring-loaded pushers.



Servo Motor, a recent addition to the Power Functions family, is a very convenient and simple, though not the cheapest, recentering option.



Of course, there are various other suspension parts from other sets and Technic eras you may want to take advantage of.

While the steering system alone is sufficient if the model is built for manual steering, intending to motorize it, simply by connecting a motor to a pinion axle, typically requires some kind of a return-to-centre mechanism which of course straightens the direction of the vehicle once the motor is not engaged anymore.

True, LEGO® has already solved this problem by introducing the Power Functions Servo Motor, but it still isn't cheap nor widely available. Another ready-made solution is a part dedicated for the very purpose, a colloquially called "hockey spring", which can be easily attached to any axle.

But again, such recentering mechanisms can be built using standard Technic parts, at the expense of requiring slightly more space. At their cores, most such mechanisms rely on a lever attached to a steering axle which pushes against spring-loaded surfaces if turned. Specific design, especially the recentering forces, depend on the motor in use: they should be small enough to let the motor overcome it with ease, yet sufficient to push the axle back to a central position once the motor is inactive. Though the premise isn't particularly difficult, the challenge lies in tuning the aforementioned force, and building this mechanism as compact as possible. The pictured example relies on standard Technic shock absorber spring to produce the recentering force; using a rubber band allows for smaller mechanisms, though slightly more difficult to tune and run reliably.

LEGO steering and recentering in a nutshell:

- Regardless of whether you need only the steering, steering with suspension or drive, steering and suspension, LEGO offers a selection specialized parts from different eras which are suitable for the purpose.
- Most designs, both from ready-made parts and custom, follow the simplest, most reliable idea found on real cars: steering arms rotating around fixed pivots and turned by a common control arm via rack and pinion.
- Ackermann geometry is a feature found nearly all real cars, but in LEGO it is more of a curiosity and rarely affects vehicle performance visibly.
- When designing a return-to-centre mechanism, try to build it in a way which allows its force to be easily changed or tuned on-the-fly.

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An introduction to Robotics with LEGO® MINDSTORMS (XIX)

EV3 Science Activity Pack

By Koldo Olaskoaga

The LEGO MINDSTORMS EV3 Education software goes well beyond offering a programming environment for robots and some tools for collecting data in the science area. LEGO Education also offers a series of complements to facilitate the development of the full potential of the system. For now these are the following:

- LEGO MINDSTORMS EV3 Science Activity Pack
- EV3 Design Engineering Projects
- EV3 Space Challenge

Each of these packs are an aid to teachers who work in the STEM environment (Science, Technology, Engineering and Mathematics), a series of activities that can be used as-is or as a starting point to adapt them to the needs of a specific class. The activities in the Space Challenge come with a mat, a number and of models that serve to develop activities and can be an interesting resource for after school activities.

These complements do not include the EV3-G programming software, and in order to be able to

use them you need to have a licence for LEGO MINDSTORMS Education EV3. After installing each pack it will show up as a new option when you open EV3-G as can be seen in the following image.

In this article we will have a look at the characteristics of one of these complements: the Science Activity Pack.

Proposed activities

This pack contains 14 activities related to different areas of physics:

- **Energy:** 5 experiences to study the transformation of mechanical and solar energy into electrical energy, as well as from electrical to mechanical energy.
- **Force and movement:** 5 experiences about the effects of friction and inclined planes, kinematics and the use of gears.
- **Light:** an experiment that analyses the relationship between received light intensity on a specific surface and the distance to the source of that light.

The screenshot shows the LEGO MINDSTORMS EV3-G software interface. On the left, a vertical menu bar displays options: 'Inicio rápido', 'Archivo', 'Robot educador', 'Ciencias' (selected), and 'Información adicional'. The main workspace features a large image of the LEGO EV3 Intelligent Brick. Below the workspace, a sidebar lists activity categories: 'Energía', 'Fuerza y movimiento', 'Luz', 'Calor y temperatura', and 'Información adicional'. To the right, a grid of nine smaller images represents the activities: a house with solar panels, a ball on an incline, a blue car at a charging station, a campfire, wind turbines, and a cluster of gears.

- **Heat and temperature:** In the three proposed experiences different heat transfer mechanisms are treated, as well as the greenhouse effect and insulation.

Half of these activities require the use of the Renewable Energies set while the others require the temperature sensor.

Just like with the other proposals in the LEGO® MINDSTORMS EV3 Education software, the program can be used in student or teacher mode. In this way, when it is in teacher mode it is possible to adapt the experience to the dynamics of the classroom and then distribute it to the group. I should highlight that the activity guide has a section that can only be accessed in teacher mode, and which includes warnings and advice for the use of the activities.

In addition there is a lot of complementary material:

- **Teachers guide:** this guide links the activities to different of the curriculum. The curriculum refers to that of the United States, (and not to that of e.g. Spain) so the value of these references is very relative.
- **Review questions:** a series of documents in pdf format with tests that correspond to the proposed activities. These documents were created in English and their translation into Spanish leaves much to be desired. In some cases the terminology needs to be

adapted to be usable in Spain. One drawback is that these questionnaires are not in an editable format.

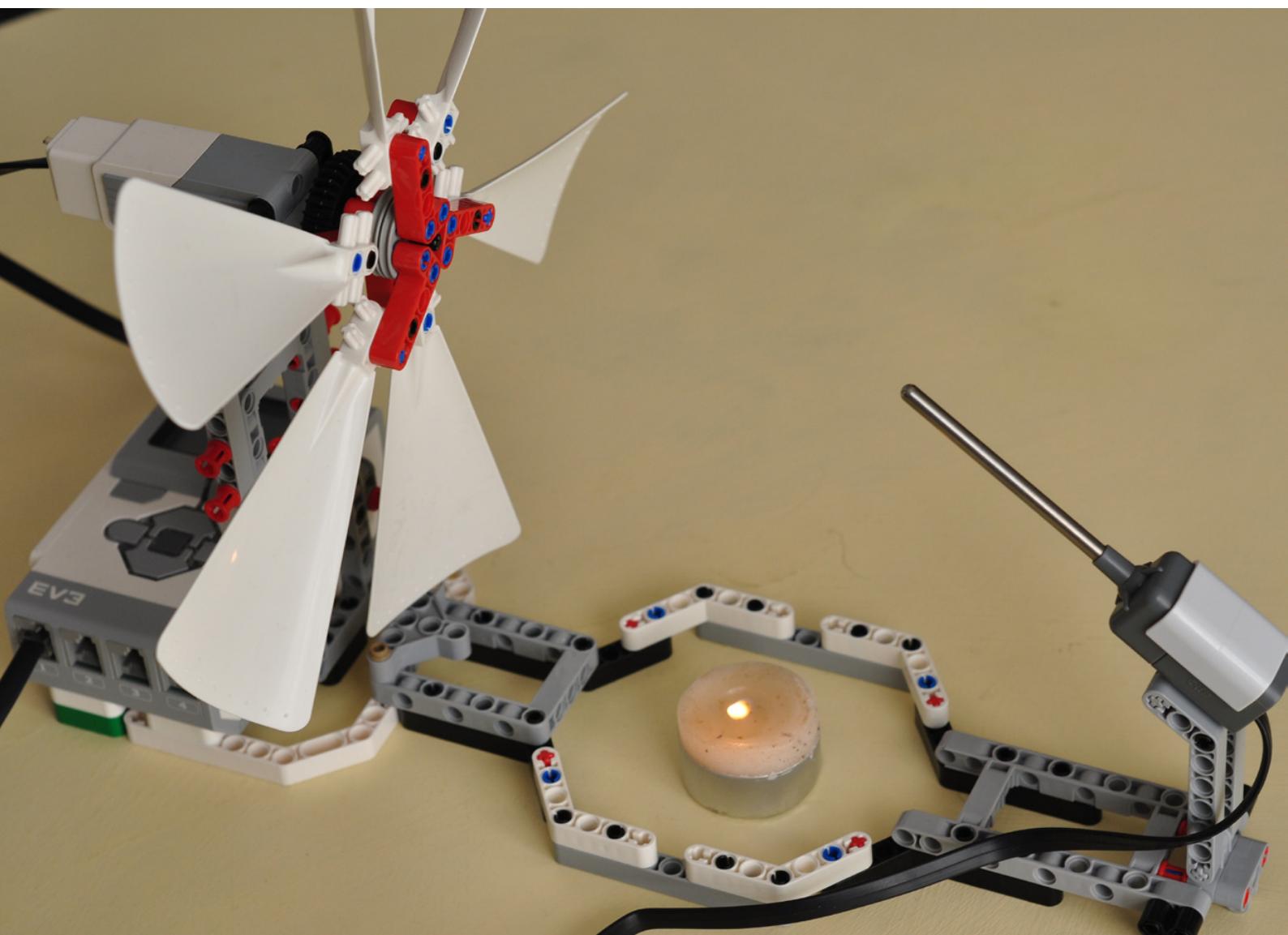
- **Review questions with answers:** the same documents as before, with the correct answers, available for teachers.
- **Building instructions:** the instructions for all the models in pdf format so you can print them.
- **Complementary materials:** 12 text documents in pdf format about electric cars, wind energy, friction... Just like the review questions, the translation and editing of some (though not all) of the documents is deficient. There are some surprising and sometimes inadequate terms, others are unknown and I haven't been able to find them anywhere.

The models

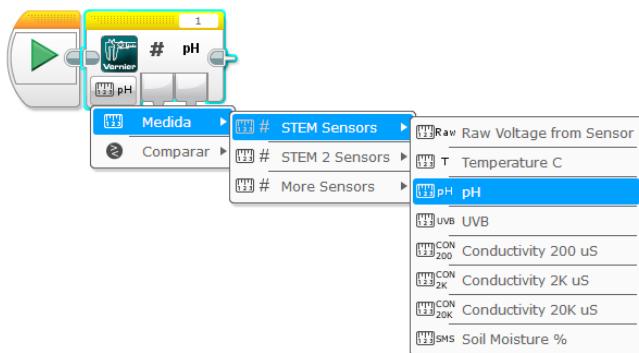
The models are simple and quick to build. This is important, because the objective of these experiences is not the construction techniques, but the fact that serve the purpose of observing and measuring certain natural behaviours. The simpler the better.

The programs

In each case the objective is to gather data that can be measured with the available sensors. This process can be done in different ways and so do these activities.



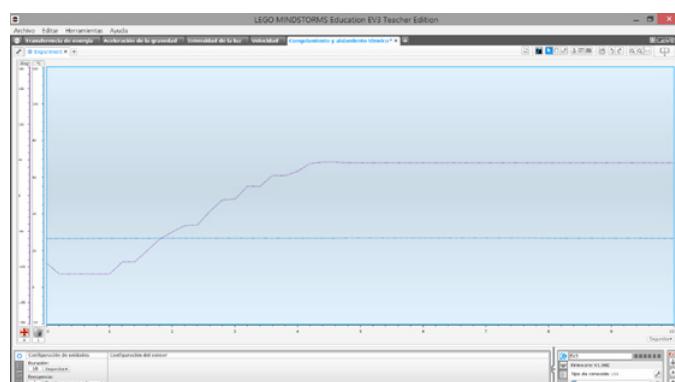
The first way is to present the data on the EV3 screen and then to record them manually. This can be done when the values of the data that is collected don't change constantly, but only when the target is reached. For example, in the study of a free fall in which you need to register the time it takes for a steel ball to fall between two points.



The next method uses the data recording block inside a program. In this case the program registers the data continuously, and this data can then be imported from a computer to analyse the data. As an example the movement of a vehicle is analysed, registering the degrees the motor turns over time.

A third way is using experiment mode instead of the program. This way it is possible to monitor readings from one or more sensors in real time. In addition it is easy to visualise the values and record them with frequency you desire.

In the following image you can see this monitoring in what is called oscilloscope mode.



A matter of interest when reading a program made by someone else is knowing the reasons why things have been done in one way or another. When you access the documentation of the project in teacher mode, the page corresponding to the program contains a link

(<http://goo.gl/t3YXEG>) that takes you to the LEGO® Education page that contains information on how the program was developed. This explanation is available as a PDF file in English. These files come together with a guide to the elements in the renewable energy set and another one with recommendations on light sources that can be used with the solar panel. These recommendations - in English - can be very useful as an inadequate light source can cause a lot of frustration since the solar panel will not respond as expected.

The activity pack has been translated into Spanish and while it is nice to see that all accents have been placed correctly, the use of these accents in the project titles means you cannot download the programs to the EV3 without changing the title of the project.

Evaluation

The activity pack is an interesting tool for science teachers as it offers a number of pre-designed activities about different aspects of science. The license is linked to LEGO MINDSTORMS EV3 Education software so a single copy is sufficient. The teacher mode allows you to adapt the guide to your own needs and even to create a new language version that isn't available (Basque, Catalan, Galician....).

However, using the activities as-is may lead students to simply follow the steps, and I believe it is more interesting to have the students design their own experiments and so have a more significant learning experience.

As far as the areas that are covered, they are limited to those that can be measured using official LEGO MINDSTORMS sensors. There are other compatible sensors on the market designed for this very purpose, mainly those by Vernier (<http://goo.gl/OQF4UR>): pH, conductivity, soil humidity... With these sensors and the working process presented in the pack it is possible to create experiments that encompass numerous other aspects of science.

The pdf complements, including the complementary materials and review questions do not add much to the value of the pack and are in some cases very confusing. I would like to thank ro-botica.com for the license that has allowed me to write this article.

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Lrobotikas.net

Robótica Educativa y Recreativa



Exhibition of LEGO® constructions at the XIII Collectors Fair of Mungia, Spain

By A. Bellón (Legotron)

The Collectors Fair of Mungia was held on April 11th and 12th. This year was the thirteenth edition, organized by the Bitxikiak Association (www.bitxikiak.org), in collaboration with the local municipality. One of the main activities of the Fair was a LEGO® fan event, that was coordinated by HispaBrick Magazine®. This year was the seventh edition of this event.

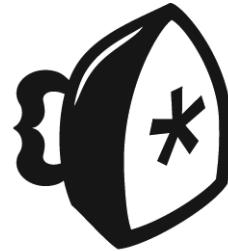
This edition was the most numerous ever and AFOLs from different LUGs in Spain participated in it. The exhibition was moved to a bigger hall so we were able to display more dioramas and constructions. Also we were able to do activities and contests with visitors and demonstrations with Technic constructions. This exhibition of LEGO® constructions is now one of the most important elements of the Fair, and many visitors came to see our constructions. Thanks to the great effort of all the attendants who came to show their creations, we were able to display many dioramas and constructions that make show the great things that can be done with LEGO® pieces.

We want to thank the organization, Bitxikiak Association, for the outstanding treatment we were given. They made it possible to celebrate this event without any problem and helped us whenever it was necessary.

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Interview: Bill Pollock



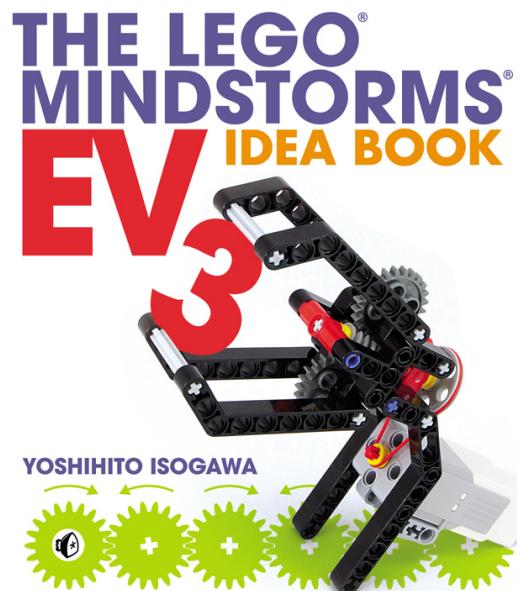
**no starch
press**

By HispaBrick Magazine®
Pictures by No Starch Press

I can remember the first book of LEGO® ideas I had in my childhood. Its reference was 6000 and told the story of a couple of minifigs traveling to the medieval and the Space Classic worlds. It's amazing how many times I read that book and how many hours of entertainment it provided me. Since a few years ago the world of publications on LEGO has experienced an explosion in quantity and variety. Today we talk with Bill Pollock, founder of No Starch Press, one of the publishers that have opted stronger by AFOLs books written by AFOLs.

HBM: Tell us about the origin of No Starch Press and your position in the company.

BP: I founded No Starch Press in 1994 after having been fired by from positions at McGraw-Hill and W.H. Freeman. My goal has always been to publish fewer, better books.



181 Simple Machines and Clever Contraptions

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CARS, CASTLES, DINOSAURS & MORE!

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MEGAN ROTHROCK



HBM: In the last couple of years there has been an explosion of books about LEGO bricks. What made No Starch take the decision to include LEGO books in their catalogue?

BP: LEGO books are not new to us. I've been publishing LEGO MINDSTORMS books since the early 2000s, beginning with Joe Nagata's LEGO MINDSTORMS in 2001 and Jin Sato's LEGO MINDSTORMS in 2002. In 2003 we released Getting Started with LEGO Trains, and we released the best-selling Unofficial LEGO Builder's Guide in 2005. We publish books to satisfy the needs and desires of our readers and over the years we've responded to increasing requests for more great books for LEGO fans.

HBM: How many books about LEGO do you currently have in your catalogue?

BP: We have about 25 active LEGO titles in our catalog at the moment, with a few more on the way.

HBM: Approximately what percentage of ideas for LEGO books eventually turn into a product in your catalogue?

BP: I don't know. Maybe 10%?

HBM: Which are more successful, books about LEGO Technic and MINDSTORMS or more visual books that show LEGO models of different themes?



BP: As I write this, the MINDSTORMS and Technic books are the winners, but books like LEGO® Neighborhood are hot on their heels.

HBM: Was it a surprise for No Starch that these books are so successful? Were you aware of the existence of such a large online community around this hobby?

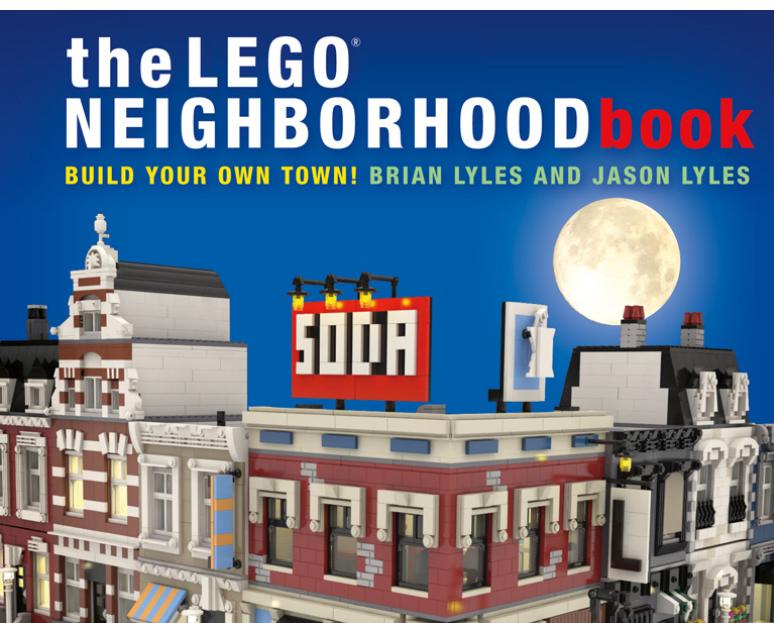
BP: No, this was not a surprise. I've been going to LEGO fan events for about 15 years.

HBM: What are the main characteristics No Starch looks for in new books about LEGO?

BP: We look for people who are really expert in a particular area, who are passionate, and who are able to share that passion with their readers. We read and edit every line of everything that we publish and we will often rewrite if necessary.

It takes us a very long time to produce and edit our LEGO titles so we need to make sure that whatever we publish will lead the market in order to make that investment worthwhile.

#



INCREDIBLE LEGO® TECHNIC
CARS, TRUCKS, ROBOTS & MORE!

Review: MoreToMath

By Jetro

Pictures by LEGO® Education

If you have kids (or nephews) chances are at one time or another you have used LEGO bricks for more than building a set or MOC. I have used bricks as (substitute) counters in a game, as a language learning tool [1], and to build letters, to name but a few alternative "home school" uses.

But probably the most immediate use – whether conscious or not – is related to maths: counting studs, combining brick sizes to fill a gap in a wall, mirroring constructions or even translating 2D instructions into a 3D build are all maths related skills.

Of course none of that is usually meant as a serious sustained effort to teach maths, nor is it a readymade solution that can be deployed in the classroom – in comes MoreToMath.

"MoreToMath is ... a supplemental tool for first and second

grades, aimed at teaching and reinforcing the practices of mathematical problem solving". At least that's what the press release says. So what is it all about?

MoreToMath consists of two parts. The first is a box with 520 mostly standard LEGO bricks. The set contains a large selection of 1x1 and 1x2 bricks in various colours. There are also some 8x8 plates to build on and other parts (cones, plates, longer 1x bricks). The set comes in a handy container with sorting tray and is designed to be used by a pair of students. The brick selection is clearly oriented towards a very specific purpose: when you see the parts you don't immediately feel you would like to own multiples and build who-knows-what with it and the parts in themselves do not immediately evoke maths concepts either. The key to the set is the software/curriculum pack.

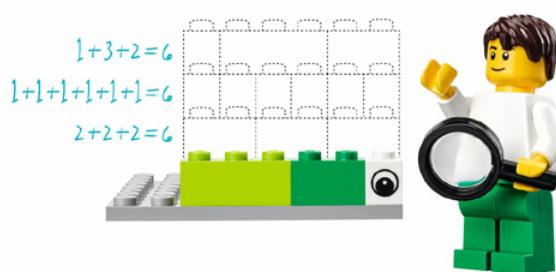
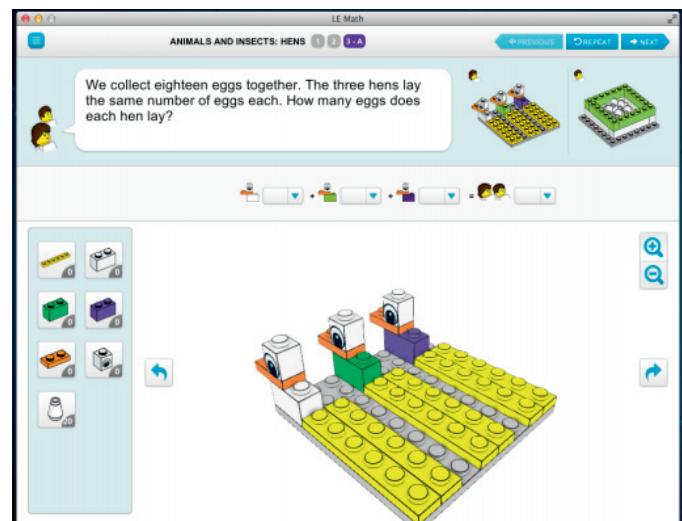




It contains not only a specific on-screen building program that allows students to rebuild their solutions on the board (in a way that is reminiscent of LDD), but also (and probably more importantly) a curriculum pack with 48 activities in 16 concept lessons that deal with different aspects of Maths.

The buzzword for this kind of learning experience is "hands-on minds-on", but a little reflection on why we like to use LEGO® ourselves brings out the reasons behind the success of this approach: children learn best when they are engaged in the learning, when they like what they are doing within a meaningful context and get a chance to try things out for themselves.

In addition to this obvious advantage, using LEGO bricks allows them to see otherwise abstract concepts in a concrete, physical environment, making it much easier to assimilate the concepts they are learning.



Take as an example the lesson you may have already seen in the picture with the classroom. Basically it teaches students to divide 18 into three (not necessarily equal) parts. By doing so physically (taking 18 "eggs" and placing them next to any of the three hens) the students build their solution and learn to "see" how a number can be divided into several parts. Visualising abstract concepts is key.

Finally one or more solutions can be built on the board so the class can see there can be more than one correct answer.

MoreToMaths does not substitute "traditional" learning, but it complements it in a way that draws students' attention and helps them come to terms with abstract concepts by building them. And contrary to other learning experiences, the real added value lies in the curriculum, rather than in the relatively straightforward parts pack.

Acknowledgements: LEGO Education for providing a review copy of the set and the software

[1] See HBM014 for an article on teaching English with LEGO bricks

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Review: 75917, 75918 and 75919

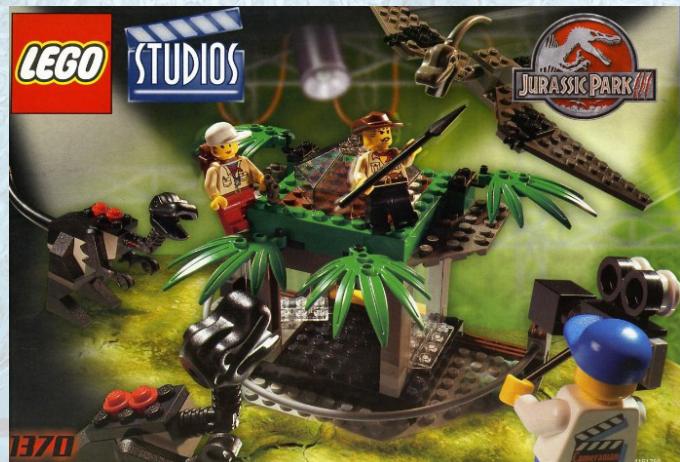
By HispaBrick Magazine®
Pictures by Brickset and The LEGO® Group

Dinosaurs have been on the LEGO catalog on different themes over the years. A quick search of the word "dino" in the fantastic Brickset database gives us a clear idea of the great attraction that dinosaurs have on the smallest of the house.

There are some 90's sets with references to the world of dinosaurs, but it is on year 2000, with the "Adventurers" series, when they take a greater role. The dinosaurs are quite schematic in design and with a fairly simple decoration.



In 2001 there are a number of small boxes and polybags called "Dinosaurs". Each set included a "baby" dinosaur (made of a mixture of building bricks with others special molded bricks for the most characteristic features of each dinosaur) or an adult dinosaur (made entirely with dedicated parts). Each dinosaur could become three other models. Also, within the "Studios" theme, a few sets dedicated to "Jurassic Park III" appeared in the same year.



After some polybags in 2004, in 2005 the "Dino Attack" theme arrived, with vehicles and highly modernized dinosaurs. There was also a limited edition of this theme called "Dino 2010".



In the years 2007 and 2008 Duplo and Creator took advantage of the pull of the dinosaurs, until the "Dino" theme reappeared in 2012.



A collectible minifig in 2014 was the bridge to the new theme launched this year 2015, "Jurassic World".

"Jurassic World" is based on the movie of the same title. This is the fourth movie of the Jurassic Park series and will premiere this coming June. The male protagonist is Chris Pratt, curiously in no time he has managed to have no less than three minifigs, Emmet from The LEGO® Movie, Peter

Quill from The Guardians of the Galaxy and Owen from this dinosaur's movie. As the film is pending release we know little about it, so we will concentrate on some of the sets of this new theme. We should note that although it is based on a movie, and is therefore very likely to be a one year theme, a fifth movie of the saga has been announced, so it could have some continuity.

Thanks to LEGO Iberia we have had access to the 75917, 75918 and 75919 sets.

Review 75917 Raptor Rampage

By car_mp
Pictures by The LEGO Group

Waiting to see the film and to find out if the sets corresponds to a particular scene, it seems to represent a chase in which two Velociraptors, a Unimog type truck and a motorcycle are involved. The set includes three minifigs (Owen, Claire and a security guard) and two Velociraptors (Blue and Delta).



The main build of the set is the truck. Its external form has some similarity to a Unimog and its rear cabin carries a small laboratory. It is also equipped with a small turret that can be placed on top of the truck or stored in its rear. A small technic structure is the basis of the vehicle. After the structure, you build the cabin and finally the laboratory, which can be separated from the rest of the vehicle. The build has no difficulty and the result is visually satisfying. It would have been perfect if the vehicle had some kind of suspension, the cabin allowed two occupants easily and the bottom had a little more detail. The plates on the bottom side give the impression that the designers ran out of parts for detailing them a little better. Inside the lab there are a couple of computers and guides that allows the turret to be fitted inside. The turret includes one of the new shooter systems and also a piece to place on its lower part as a tripod.

The Velociraptors come disassembled and each piece in a single bag. They are beautiful, detailed and can move their legs and jaw. The color and the pattern of the skin is different in both dinosaurs.



The bike is dark green and resembles its counterpart in the film as can be seen in an official photo.

The minifigs include the two main characters of the film (apart of the dinosaurs, of course) which is always a point in favor. The third is a security guard, but I do not know if he is important in the film.

I think the playability of the set is very high. The two vehicles and the two dinosaurs can give countless hours of gameplay. The truck can be modified to create an attractive model for AFOLs, although its size is a bit out of the normal range of CITY. Ultimately I think it is an interesting and set for children due to its playability.

Review 75918 – T-Rex Tracker

*by Jetro
Pictures by Jetro and The LEGO Group*

Parts: 520

Minifigs: 3

Dinosaurs: 1 – T-Rex

The 75918 T-Rex Tracker is the second largest set in the new Jurassic World theme. To be quite honest I liked the first Jurassic Park film, had a good laugh watching the second in a local cinema and never saw the third instalment of the series, so I am not particularly looking forward to the new film. I also didn't find the box art on the front to be very inspiring – it's a poorly executed Photoshop job: a vehicle that size could have never passed between those closely packed trees, let alone follow a large, running dinosaur. But let's put those initial misgivings aside and focus on the contents.

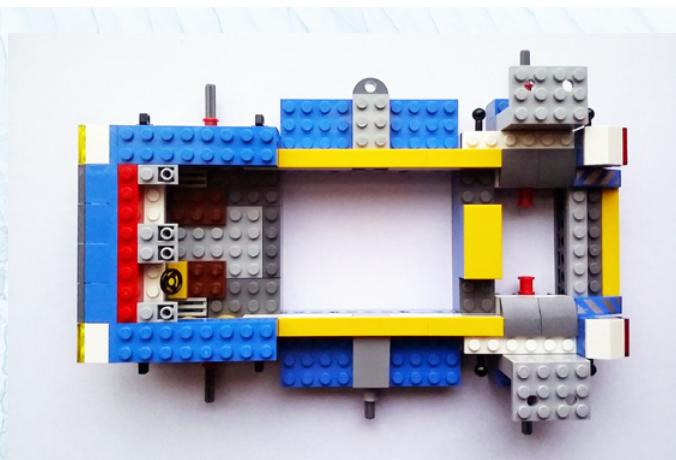
Inside the box you will find 4 numbered bags, 4 large tires, 2 instruction booklets and a bag containing the parts of the

T-Rex, each in its own separate compartment. Independent of what the booklet may or may not say, unless you first get out your white gloves and cover your mouth to avoid sullying the bricks you will likely tear open this last bag and start assembling T-Rex. Despite the fact that it consists of mostly DUPLO-sized parts it is actually a very nicely detailed and posable figure. Its large feet can be easily attached to a plate (or the bottom of the cage it will be held in) and the movement of the head and jaw and even the short arm give it a lot of playability.



In addition to the dinosaur and a blue motorbike, the remainder of the 520 pieces are used to build a single vehicle. If you are going to transport a T-Rex in a cage you are going to need a serious, sturdy vehicle. The start of the build reminded me very much of some of my Technic sets from 20 years ago, with the notable difference that apart from the wheels there are no moving parts. The vehicle is actually quite nice and the large Technic wheels fit very well with the overall size of it. There are only a few stickers and they add some nice details (like a computer screen) without marking too many parts for single use.

On one of the sides of the vehicle there is a ball joint to mount a kind of cannon. This uses a new launch piece that



looks like a 1x4 brick with a through hole on the short sides. This will hold the trans-green harpoon that can be seen on the box. To avoid the harpoon flying too far (and to trap the T-Rex) it is attached to a piece of string that is wound around what looks like a kind of aiming/guidance system (although to me it looked more like an accident waiting to happen). The spring loaded shooter works nicely, but winding the string around the bases is a bit of a nuisance. As a side-effect of using large technic tires, the vehicle appears to have suspension (due to the flexibility of the tires).

On top of the vehicle a cage for the T-Rex can be placed. This cage consists of a plate base to which Technic beams and axles are attached, allowing the cage to be opened and adapted to the shape of the T-Rex. It incorporates a nice mechanism to open the sides, but also the top of the cage, as can be seen in the images on the back of the box.



To finish the set off there are some "accessories" in the shape of some tracking equipment and a box with tranquiliser darts – lime green syringes from the Friends theme – and a long pole with a trans blue top that appears to be some kind of tazer/cattle prod.

So what's the final verdict? Well, despite my initial misgivings, the dinosaur is cute, the vehicle and cage combo works and the combination makes for lots of play opportunities.

One final anecdote – my kids helped me build the set and were delighted to see the flesh coloured heads and hands of the minifigs. "Finally LEGO® has realised people are not yellow" – this is the beginning of the end!

Review: 75919 Indominus Rex Breakout

By lluisgib

Pictures by lluisgib and The LEGO Group

Parts: 1156

Minifigs: 4

"Twenty-two years after the events of Jurassic Park, Isla Nublar, an island located off Central America's Pacific Coast, near Costa Rica, now features a fully functioning dinosaur theme park, Jurassic World, as originally envisioned by John Hammond. This new park is owned by the Masrani Global Corporation, but attendance has been declining due to the lack of new attractions. Owen Grady, a member of the park's on-site staff, conducts behavioral research on a group of Velociraptors, known as Blue, Charlie, Delta and Echo. At the corporation's request, the park's geneticists create a genetically modified hybrid dinosaur, known as Indominus Rex, to boost visitor attendance, but it breaks loose and runs wild throughout the park, forcing the staff to consider extreme measures to stop it."

The Indominus Rex Breakout set is the flagship set of the film. It includes the genetically modified dinosaur, the Indominus Rex, a high security fencing, a helicopter, a terrestrial vehicle and 4 minifigures.

There are 12 numbered bags and the dinosaur in a different bag. Once you open the box, you first go to the dinosaur and build it, even if you have not opened the instructions bag.



The Indominus Rex is a dinosaur with the same size of the T-Rex, but its colour is different, as well as the claws, the teeth and some other minor details. The head is fully articulated. The hands, arms, legs and tail also have movement. The dinosaur can catch a minifigure in its hands. I have nothing bad to say about the dinosaur. It's really well done!



The 4 minifigs in the box are Dr. Wu, Zach, Vet and one member of the Acu (Asset Containment Unit). They are 4 of the 10 characters reproduced by LEGO. The torsos have special decoration and the quality of the print is great, as always. Two of them, Dr. Wu and the Acu member, also have print on the legs. Moreover Dr. Wu has gloves on his hands, in a light blue colour. With those gloves he can work in his laboratory, with the test tube and the amber with a mosquito inside, both included. Zach has two expressions on his face. One smiling and the other scared, when he is escaping from the dinosaur.



There are two vehicles: a helicopter and a kind of "ball" with a seat inside. It can roll along the jungle and the character inside is protected against the environment and the dinosaurs.

The helicopter is small. It's only possible to fit one minifig and 2 missiles. Those missiles have a green head. It could mean that it's something to make the dinosaur sleep, like a giant dart.

The "ball" is a very interesting vehicle. It's made with 4 parts, two half spheres (new part) and two radar dishes on the sides. There is a seat inside to place the minifig. With a small number of parts, the seat is attached to the half spheres and it stays horizontal when the ball rolls. You should be careful when building this small seat because if you don't put the technic axles exactly in their place, the seat does not move freely, and then it turns with the ball.



Unfortunately, this is the end of the interesting parts of the set. The rest of the set, the fencing, is boring. In my opinion, it's not a building challenge, even for a kid. I expected some more playability and complexity in that part, because this set is supposed to be the flagship of the franchise. The only interesting part of the fencing is one of the corners, because there is a small launcher for the ball, which gives some playability. Besides this, there's only a small crane, to deliver the food to the dinosaur, a wall which can be "broken" so the Indominus Rex can break out, and the main door. The building is repetitive, although each part is not exactly the same as the others. When you have

finished the second module of the fencing, you know what is coming next. There is a small laboratory in the head of the fencing where Dr. Wu is doing the genetic experiments with dinosaurs. The level of detail is poor. There's only a computer, a cup, a table and a chair. I expected some more stuff inside a high-tech laboratory. On the roof there is a heliport.

To connect all the modules of the fencing, there are some ball joints, and it's easy to attach and separate to store the set without occupying too much space.

Other sets of the same size offer a lot of playability and it has been surprising for me that this one doesn't. I expected some more functionalities and detailed design, but I suppose this would increase the price of the set to an unreachable level.

I have mixed feelings with this set. On the one hand there is some cool stuff, like the dinosaur, the ground transporter, the quality of the minifigs and some small details. On the other hand I found the fencing and the laboratory poor for a set of this level.

Kids love dinosaurs and this is the set with the main "animal character" of the film. This will make the set desirable. I am not sure if they will get bored when building the fencing. Perhaps it's only my feeling as AFOL. Anyway, there's enough stuff to have a nice building and playing time, especially if you combine this set with other sets of the franchise. Then you will have some dinosaurs and you can create your own Jurassic World.

Thanks to LEGO® Iberia and Achim Schwidtal.

#



CLASSIC

By car_mp
Pictures by Brickset and The LEGO® Group

I still remember my first set. It was the set with reference 40. I still have most of the set, including its box. When you play with its parts you realize how the plastic our dreams are made of has changed through these years. That set allowed me to build a variety of models of different topics. They came represented on the box and for me it was a set of inspiration for many years. But let's not get melancholy. LEGO has made a modernization of its classic parts cubes, which has changed both the container and the content. These changes have been accompanied by a new name for the theme, LEGO Classic.

I had the chance to play with two of the new sets (10693 and 10695) and I must say that I find the changes very correct. The boxes are nice and flashy, full of color. The box shape varies in size from roughly standard boxes to brick-shaped or one that opens like a trunk. The decoration however, is similar in all sets, predominantly a photo of



the bricks included inside the box and small photos of the models that can be built with the assortment of parts.

Inside, the parts are distributed in bags by color, or rather colors with similar shades. All shades of blue come together, all shades of green, ... A small instruction book includes several models of inspiration as well as a link to a website where you can download instructions for more models. They can be built all at a time, without taking one apart to build another. The models are simple for any AFOL and can be built mostly without even looking at the instructions, but for kids who are getting started in this world I think they are very successful. There is a wide variety of models of different themes, so any child will find at least





one model that suits him/her. Some models even have simple SNOT techniques that improve the normally square look of the models in this type of sets. Once you have built all the inspiration models, there are still plenty of remaining parts available for building complementary models or building completely new ones.

a wheeled vehicle, something all kids want to do sooner or later. Also in this set the absence of plates drew my attention. The largest set, the 10695, has a pair of axles with wheels, plates and a door and a window included, which makes it a much more comprehensive and flexible set. There are larger sets as the 10696 or 10698 which include more wheels and even hinges.

My final opinion could not be more positive, I think the new Classic sets are a success. The selection of parts can be interesting even for AFOLs, and the selection of models and colors makes it very attractive as set of inspiration and introduction for younger children.

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CLASSIC



The selection of parts has also been revamped, with the presence of the new colors introduced with the Friends theme, and also parts from recent years as new printed tiles with eye patterns, bricks modified with stud on one side ...

But not everything is going to be perfect; of course I missed some things. In the smaller set, the 10693, there are no wheels, so you don't have the possibility of building

Review: 76042 The S.H.I.E.L.D. Helicarrier

Avengers Assembled!!!

By Otum

Pictures by The LEGO® Group

Set: 76042 The SHIELD Helicarrier

Parts: 2996

Minifigs: 5

All LEGO fans know of the existence of the Ultimate Collector Series, the UCS for friends, which includes great sets like The Death Star (10188) or The Millennium Falcon (10179), and even sets that do not belong to Star Wars such as the Batman Tumbler (76023). Well, here comes the Marvel UCS, nothing more and nothing less than the SHIELD Helicarrier, one of the most recognizable vehicles in Marvel comics, and Nick Fury's workplace.

The box

The set comes in a quite large, typical UCS box, similar to that of the Batman's Tumbler. The cover features the Helicarrier along with images of the minifigs included in it and the measurements of the set once assembled (80x45 cm.)

The back of the box comes with another image of the Helicarrier from another angle, along with several pictures

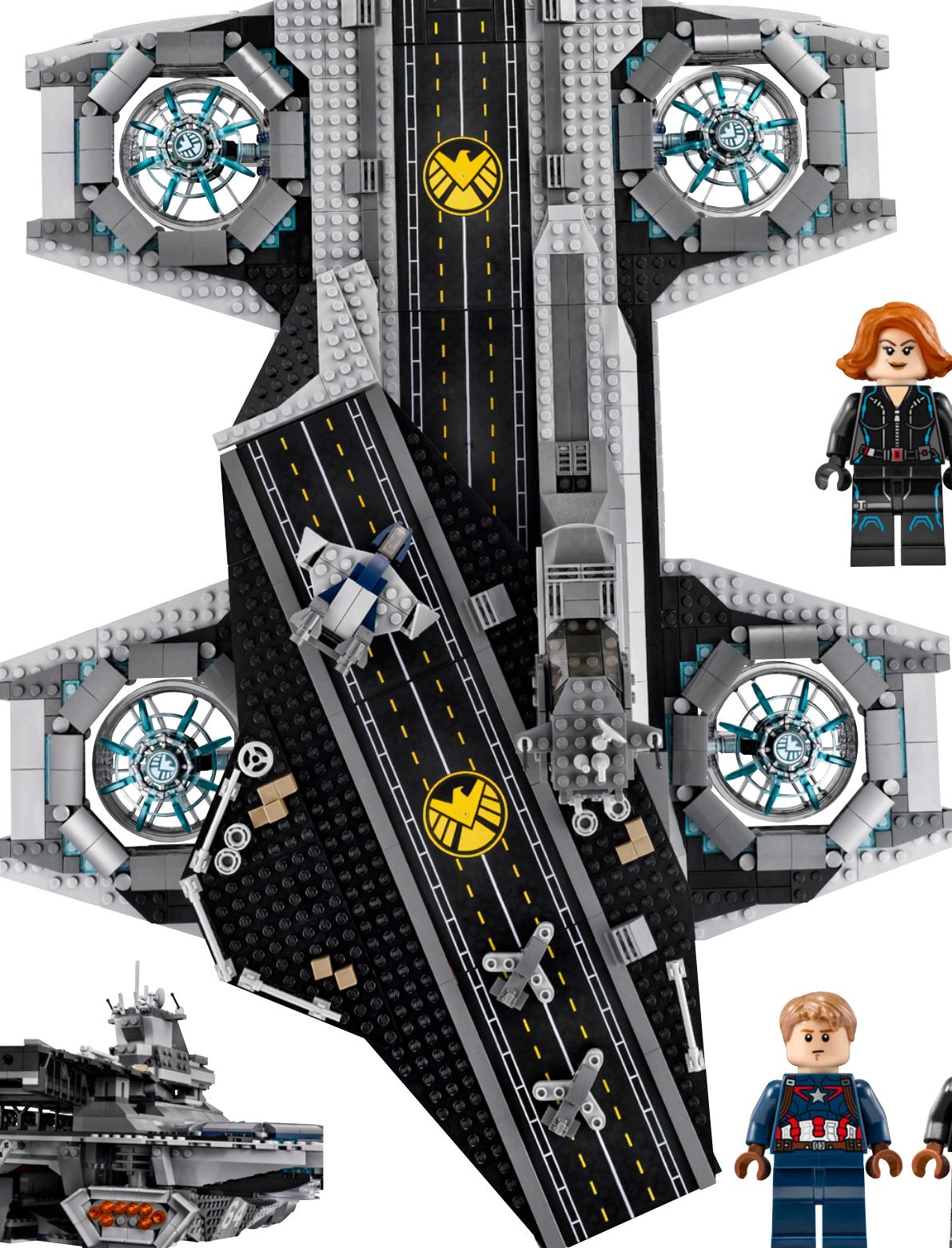
showing details of the set and showing that the set can be motorized with Power Functions.

The contents of the box comes in white cardboard boxes, like the Death Star set, where the parts bags are distributed, numbered from 1 to 12. Also there's another unnumbered bag with specific pieces such as those used to build the Helicarrier's runway. A 443 pages instruction book, glued!! i.e. it is not spiral bound like other sets of this category, and of course, the much desired sticker sheet.

The build

As said above, the nearly 3,000 pieces are spread over several bags, which invites us to return to the essence of building, put them all together in a drawer and start looking and dig out the desired part with the nostalgic rasssss here, and rass there, till you find it, and take the piece and lose it on the way while separate it from her colleagues ... yes, yes, this has happened to all of us at least once, don't hide it now...







Initially the stand where the minifigs go, and representing the SHIELD logo, is mounted, and also the base for the Helicarrier as well as the bridge. This is, honestly, the only place where a sticker should go, the sticker with Helicarrier information. There should not be other stickers, as a UCS in itself, is already a collection set, so the one who acquires it probably would have it on display, not as an assortment of pieces, so it's okay to print the parts instead of using stickers.

Construction continues with the inside of the Helicarrier where space is left to fit a Power Functions motor to motorize the set. It's a quite simple construction without much mystery. After that, construction continues with the reinforcement of the structure, for positioning the rotors, and the assembly of the entire gear system to allow their movement.

Before the construction of the rotors is finished, the bottom of the set is built, and now... yes, rotors and the rear engines are mounted. This part is the most entertaining one and a bit complex, where satisfaction is huge when viewing the four rotors running by moving the handle.

Finally the two air operations tracks are completed, the control turret, which locks the upper track, because it is removable to give it its oblique position, and all the micro

details to complete the set, like the micro Quinjets, micro fighters, etc ...

The set

This is a great set that will delight any collector of Marvel, but to be honest it has a couple of issues. As I mentioned earlier regarding the stickers, it would have been a great cherry on the cake if it had included an exclusive minifig. The set contains 8 microfigs of SHIELD agents, Nick Fury's microfig, Captain America, the Hawkeye and Iron Man. It also includes minifigs for Nick Fury, Captain America, Hawkeye, Black Widow and Maria Hill, but not for Cobie Smulders (buaaa...), what a great list for movies!! You will recognize that it would have been so much better... if they had included an Agent Coulson minifig, which is missing and much more so after the success of the Marvel's Agents of S.H.I.E.L.D. series...

Conclusion

Do not be fooled by the two or three bad things commented about the set, it's a great set that you must have in your living room if you are a genuine marvelite, or just love great sets with countless pieces, and if you add a Power Functions motors you top off it for unending enjoyment.

#

REVIEW: 75095 TIE FIGHTER

By Satanspoet

Pictures by Satanspoet and The LEGO® Group



Set: 75095 TIE Fighter™

Parts: 1685

Minifigs: 1

After the UCS version of the 10240 Red Five X-wing Starfighter which appeared in 2013, a review of which you can read in HBM017, it was clear that LEGO would soon release a worthy rival for this ship. And here we are, the latest Star Wars™ UCS model, the 75095 TIE Fighter™, the mythical fighter with twin ion motors and a single pilot at the service of the Galactic Empire.

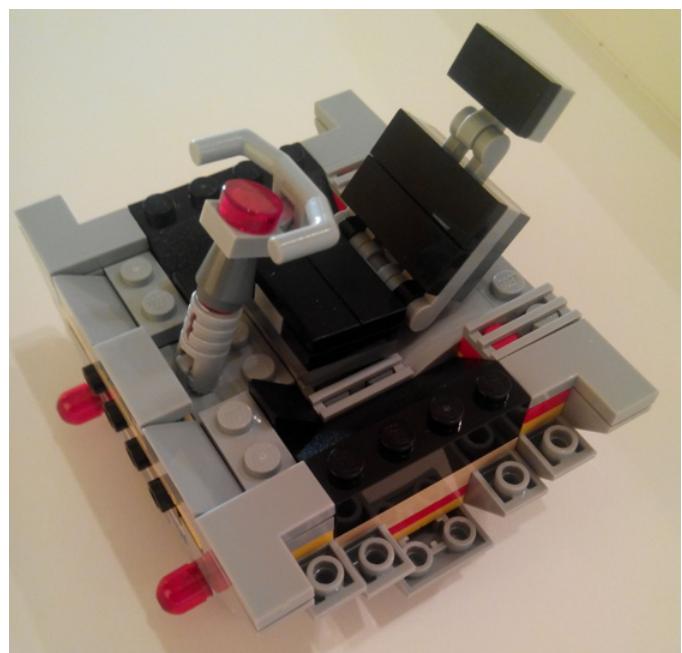


Upon opening the box you find numbered bags from 1 to 12. Some numbers consist of two bags. There is also a sticker sheet and an instruction manual. In addition to building instructions, the manual contains some historical background information and characteristics of the TIE Fighter, as well as an interview with the designer of the model, Olav Krøigaard.

The set includes a TIE Fighter pilot minifig, with blaster gun and silk printed chest, back, arms, hips, legs and helmet, a support to display the ship and a plaque with information.



Construction of the ship begins with the cockpit, which consists of a seat and steering bars. This step also includes the construction of two small laser cannons which are part of the TIE Fighter.



Next, you build the arms that will connect the cockpit to the large wings.

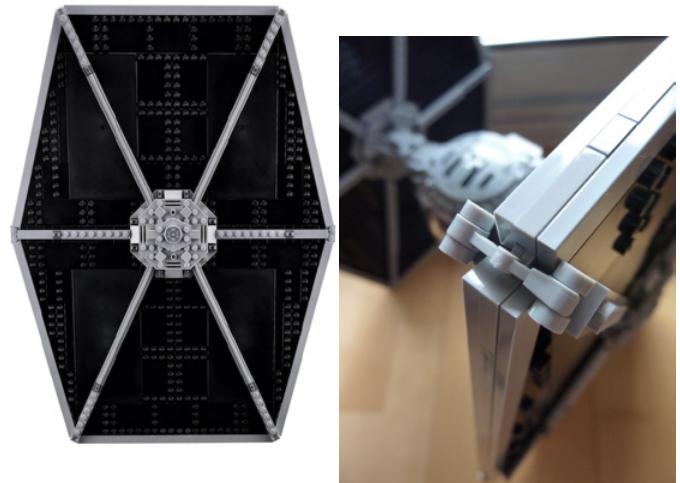
Then you build the top hatchet which can open and will provide access to the cockpit in order to place the pilot inside.

After that you build the front and back which is where the ion engines are located.





The wing construction may at first look quite fragile, but they are certainly not.



Once you have the ship with its two arms you move on to building the two big black hexagonal wings that are characteristic of the TIE Fighter.

This stage of the building process is quite repetitive since you need to build 4 identical modules that make up the wings, two for each.

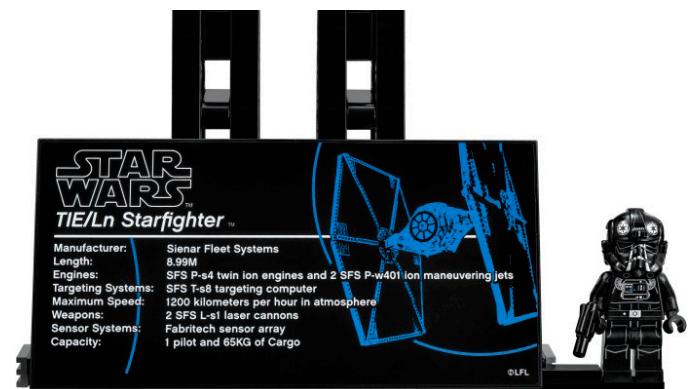
The main characteristic of the wings is the grey line that goes around the border and the diagonals, both on the inside and the outside, starting from the centre of the wings and extending to the corners and they are connected with a mechanical Battle Droid arm.

After building the wings we just need to connect them to the ship.

The arm of the cockpit is strongly anchored to the wing, which adds strength to the model and with the addition of a 2x2 tile a 2 small wedges the connection becomes really stable, giving the whole build a lot of stability.



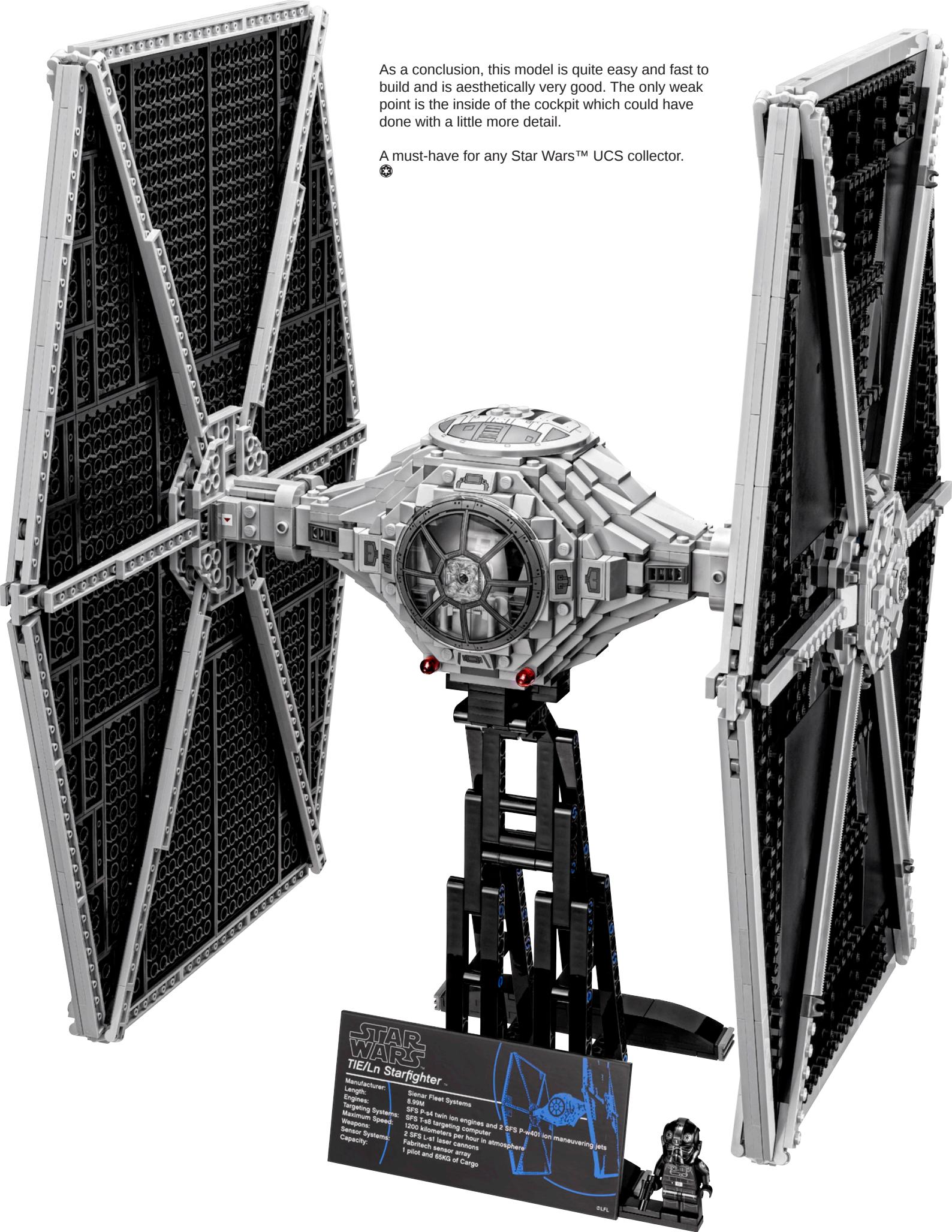
Finally, only the display stand is left, which is built mainly with Technic parts. The support has a studless base so after placing the ship on it, you can rotate it 360°



After finishing the build, the ship is 47 cm high, 30,6 cm long and 31 cm wide.

As a conclusion, this model is quite easy and fast to build and is aesthetically very good. The only weak point is the inside of the cockpit which could have done with a little more detail.

A must-have for any Star Wars™ UCS collector.



Review: 71016 THE KWIK-E-MART

By car_mp

Pictures by The LEGO® Group

Who needs a Kwik E-Mart?

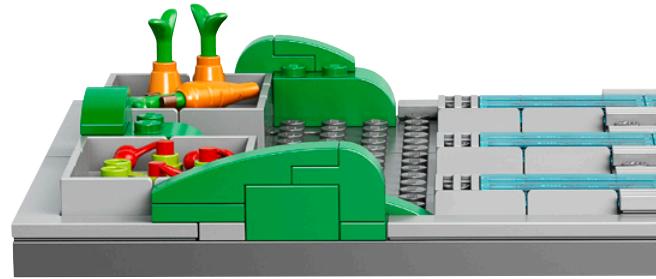
When LEGO launched The Simpsons in 2014 LEGO there were different opinions as to the possible success of a theme based on an animation series for adults. The first set was the house that plays a primary role in the series The Simpsons. Although the price was in the high range, it has managed to get into the top 10 of the most sold sets in 2014. The question many fans asked themselves was "now what?".

The answer has come in the shape of the 71016 Kwik-E-Mart. The famous E-Mart run by Apu Nahasapeemapetilon has become the new set for this theme.

I have had the opportunity to build the set and I must say it is fantastic. The only reason why it isn't perfect for me is the 50 stickers you need to stick to make the set complete. And although some are dispensable and you can easily do without them, there are others that are fundamental for the final look of the set, like the sign on the storefront. I know it would have been economically unviable to print all those parts and I must say there are already quite a number of printed parts in the

set, but when you see two sticker sheets you can't help but feel a little demoralised. Leaving aside that little inconvenience (which I'm sure many share with me), the set is incredible.

Regarding the build, I built it in one go and didn't feel tired of building afterwards. There are some slightly repetitive parts, like the roof and the shelves, but nothing boring.





The minifigs that are included in the set are very appropriate. In addition to the compulsory Apu the set includes chief Wiggum and Snake the thief, as well as three members of the Simpsons family, Marge, Homer and Bart. The set also includes chief Wiggum's police car. The vehicle has room for two police officers in the front and a detainee in the back, although putting a handcuffed Snake in the back seat is more than tricky. In any case, the design of the car is very good.

The building is designed in such a way that you can access the interior easily. The roof can be removed and the back of the building is divided into two parts that open on hinges. This means the interior is completely playable. And when you go inside you get to the best part of the set. The level of detail that has been achieved is remarkable, including winks to fans of the series who will certainly find a multitude of references to different episodes (the frozen man, the sausage on the floor,...). Without a doubt LEGO® has decided that if the outside of the building isn't much to write home about, the inside had to be really worth it and it absolutely is. Shelves full of products, surveillance cameras, arcade games, ... a credible and life-like representation of Apu's Kwik E-Mart.

After building the set I once again think "what now. Maybe Moe's tavern?

So remembering the song "Who needs the Kwik E-Mart???" ... "I dooo".
#



Great creators of the world: Paul Vermeesch

By HispaBrick Magazine®
Pictures by Paul Vermeesch



Today we bring you a young American artist who is a clear example of that age has nothing to do with the skill to build. Also we will know a little more about one of the most original projects combining LEGO® and art and in which he participates.

HispaBrick Magazine: Name?

My name is **Paul Vermeesch**.

HBM: Age?

PV: I'm 18 years old.

HBM: Nationality?

PV: I'm a U.S. citizen from Michigan.

HBM: What do you do normally?

PV: I'm currently a student at Wheaton College, a small Christian liberal arts school in the suburbs of Chicago. I do freelance photography and videography in addition to LEGO commission jobs.

HBM: When did you first start building with LEGO?

PV: Like most builders, I started out building as a kid, dropped the hobby for a time, and drifted back in 2008 after buying the 7658 Y-wing Starfighter set. In addition to being an amazing LEGO set, it opened the door to the world of modding, Brickarms, and eventually the broader online LEGO building community.

HBM: When did you start posting your models online?

PV: After I discovered the world of MOCs and builders who shared their work online, I started posting pictures of minifigures and vignettes to MOCpages in 2009. Greatly inspired by the work of Mark Kelso, Jordan Schwartz, Alex Eylar, Tyler Clites, and Nannan Zhang among others, I started exploring a little bit more, trying new genres and styles. I attended Brickworld Chicago for the first time in 2012 and got to meet a lot of the builders I really admired. That experience really added a new dimension to the community side of the LEGO building hobby, and it's been cool to see how those connections have developed into friendships and collaborations.







HBM: What is the last set you have purchased?

PV: I think the last set that I purchased was the ten dollar 70123 Chima Lion set for a parts draft at Brickworld 2014. Because so much of what I now do with LEGO® involves specific bulk purchases from Bricklink, I don't often purchase sets. I was, however, very lucky to get a large number of the new ball joint elements from that parts draft of the Lion set. It was well worth my ten dollars.

HBM: What is your favorite commercial LEGO building theme?

PV: I've always been a fan of the Star Wars franchise. It's not the most useful for custom building, but I've got fond memories of making sprawling dioramas and battles with my various Star Wars sets.

HBM: What is your favorite theme for building?

PV: I can't say I have a particular theme that I really enjoy building in over other themes. I started out building a lot of vignettes, most of which were in historical genres. More recently, I've really liked working with characters, abstract science fiction, and some surrealism. As my building style has matured over the past couple years, I've begun treating the hobby a little bit more like an artform. I think my creations have followed that trend, at least to some degree. I've begun to focus more on things like texture, color, and composition than actual representation.

HBM: What is your favorite LEGO element and why?

PV: I have a particular affinity for olive green cheese wedges. They truly are beautiful elements. I keep a case of several hundred of them on my dorm room desk here at college just to brighten my days. My passionate—if not obsessive—love of olive cheese has become more of a joke than anything, but I try to use the element in my builds as frequently as I can.

HBM: Which part would you like LEGO to produce?

PV: I would love to see The LEGO Company produce a 1x1 plate with a stud on the top and the bottom for easy stud reversals. Part of me feels, though, that that would make some things too easy, and I do appreciate the challenge of the medium.

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

PV: College has definitely had an impact on the time I have to spend building. Unfortunately, I haven't had more than a couple hours of building time for the past several months. I'm waiting for that perfect assignment where I can break out the LEGOs and call it homework.

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

PV: Thankfully, two of my closest friends are also LEGO geeks, so I have a lot of common ground with them. And though my friends and family are supportive of my unique attraction to plastic bricks, I still get the occasional raised eyebrow when I tell people I do "LEGO art."



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

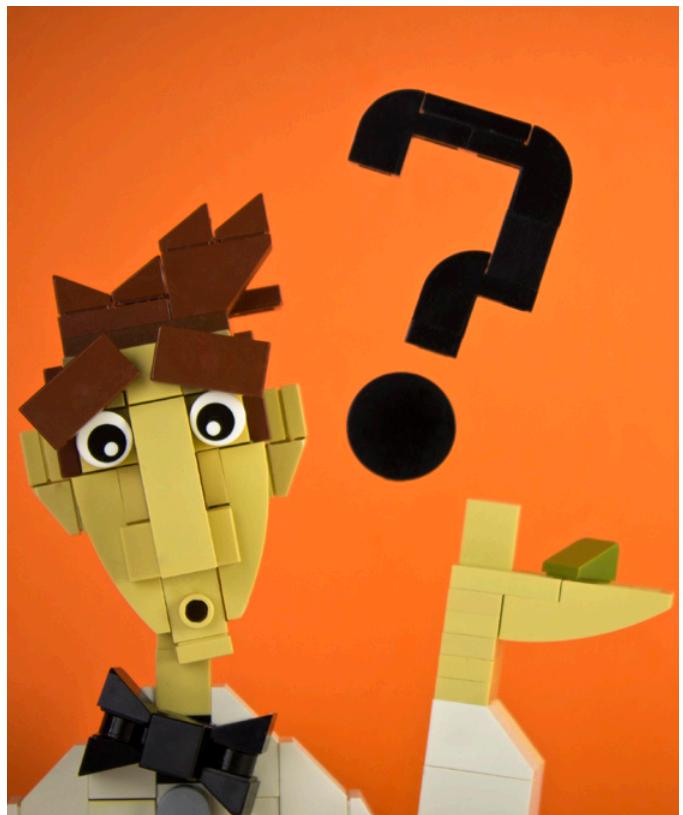
PV: It depends heavily on the project. I rarely pre-plan my small, personal projects. "Star Wars Relativity" was one of the few personal projects that I drew out on paper several times before I started fitting the bricks together. For my commissioned builds, I will do extensive drawings or parts estimates, often building the creation in LEGO® Digital Designer so I have an idea of how much the build will cost. My "Cair Paravel" castle creation, for example, was built digitally in its entirety before I placed the first order for parts. In other instances, like my model of the Charlevoix Public Library, I had the blueprints for the library and grounds printed out at the scale I was building and built the model right on top of the blueprints. For the collaborative projects I've participated in, we do a lot of drawings and sketches before we start, and measurements are critical so that our sections fit together.

HBM: You build models at different scales, which is the more difficult for you to create at?

PV: I really love building at the smaller end of the scale spectrum. I love the challenges of microscale, but I've somewhat neglected macro and miniland scales. Those would certainly be scales to explore in the future.

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

PV: I've had the chance to build some really fun, large-scale projects like "Cair Paravel," "Charlevoix Public Library," and





"Star Wars™ Relativity." As far as the process goes, these larger projects and commissions are definitely my favorites. That said, if I had to choose one favorite from my own creations, I would probably choose "Parenthesis," a small, surrealist piece that I admire as a product, not for its process. "Parenthesis" is the sort of creation that I would like to build more of. It's simple, natural, balanced, and a little visually arresting.

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

PV: I sympathize with both sides of the argument. If you're treating the process of building MOCs as more of an art form, I really have no problem with the use of 3rd party accessories, stickers, or modified parts. I have grown, though, to appreciate the challenge that the limitation of the LEGO system naturally imposes, so I tend to lean more in the purist direction. That said, I have a growing appreciation for multimedia art pieces that incorporate LEGO. This was the motive behind the Symphony of Construction experiment and the motive behind a collaborative project that I'm working on with my good friends Max Pointner and Ian Spacek that is a synthesis of sound design, LEGO sculpture, and a unique visual-manipulation technique called projection mapping.

HBM: Tell us something about the Symphony of Construction project. How did the idea come about, what does it consist in and what does it mean to you?





PV: Symphony of Construction is a seven turn game of artistic telephone that alternates between two mediums: LEGO® sculpture and music. It's an experiment in intermedia interpretation. A LEGO creation inspires a piece of music, which in turn inspires a LEGO creation, which inspires another piece of music, and so on. Each round lasts around four months and features the music and sculpture of some of the best names in the LEGO building community. I wanted to find a way to merge LEGO composition and music, and the idea of using music to inspire LEGO artwork was intriguing to me. After talking with several other builders at Brickworld 2013 who were equally intrigued by the idea, we started the first round. I continue to find it remarkable how, in each round, there is a certain mood that carries through all of the artwork. The experiment teases out the line between subjective interpretation and objective motifs, even across mediums. I'm looking forward to exploring more places in the future where mediums, community members, and styles intersect.

You can view the past three rounds of Symphony of Construction at [#](http://www.paulvermeesch.com/symphonyofconstruction)

Interview: Marcos Bessa

By HispaBrick Magazine®
Pictures by the LEGO Group

Since a few years ago, LEGO designers are increasingly known by the general public. The videos by the LEGO Group, usually made public on YouTube with each new major release, where the set designer talks about his/her design, have become very popular among AFOLs. In addition many of these designers were known in the AFOL world before they started designing for the LEGO Group. Today we bring you one of the designers that has grown in popularity in recent months, Marcos Bessa.

HBM: Name?

Marcos Bessa

HBM: Age?

MB: 26 years old

HBM: Nationality?

MB: Portuguese.





HBM: Tell us how you ended up working for the LEGO Group.

MB: Ever since I was a kid, LEGO bricks have always been my number one toy. I used to build every day, for hours, and I dreamt of one day being able to make a living of “playing with LEGO bricks”. But then I went through my “dark ages”, like most fans, from 13 till when I was 18 years old. Around that time I came across the – until then unknown for me – AFOL online community and joined the Portuguese LUG Comunidade 0937. Three years later, after building up a portfolio of LEGO creations, I saw a job offer posted online and decided to apply. It all went great and I ended up being offered a position as a Junior Designer.

HBM: What is your position at the LEGO Group?

MB: Currently I am a Senior Designer.

HBM: How long have you been working for the LEGO Group?

MB: I have been working for the LEGO Group for almost 4.5 years. I'll celebrate my 5th year anniversary later this October.

HBM: Can you describe how your department is organized?

MB: I'm part of the Product Group 2, which is in charge of the development of lines like LEGO City, LEGO Star Wars, LEGO Super Heroes and many other themes. And I'm part of the LEGO Super Heroes team, which currently has 6 model designers, 2 graphic designers and one Creative Lead, among many other professionals in other fields, like marketing, engineering, etc...

HBM: What are the main starting parameters a designer gets before starting to work on a set?

MB: It varies a bit according to the project you're working on and also the product specifically, but in general we get an idea of the size we want the model to have (defined by a price point and the size of the box it will be packed in), a brief description of what it should include and reference images or an illustration if it applies.

HBM: What main stages does a set go through?

MB: - Sketch phase, where we explore different approaches, design languages, play features, color schemes...

- Testing. The main purpose is here to ensure our products offer children great play experiences that are difficult enough to challenge the child but within reasonable limits to keep the experience fun and exiting for the child.
- Optimization, where we focus on ensuring the best play and building experience for the final consumer.
- Review, where a team of experts make sure our product lives up to the highest global standards before it hits production.



- BI development, where a Building Instructions developer designs the book and steps that will guide our builders through their LEGO® experience.
- Packaging design and model photos, where we focus on getting the best looking packaging.
- Production, where the bricks get sorted into the bags and boxes, ready to hit the shelves all around the world.
- Some of these phases overlap each other and even get more than one round.

HBM: What is harder to design, a set based on a license which means you need to adjust it to an existing model, or a free set without an existing reference to work from?

MB: Both offer great and different challenges: on one hand, when designing a model based on existing reference, you have to make sure you get the most accurate LEGO version possible, without forgetting all the other parameters we always focus on when developing a LEGO model, and often compromises have to be done in order to get the best out of both ends. On the other hand, creating something from scratch puts the pressure on creating something new and awesome, but here we have more freedom to readjust the concept within our own storytelling. So both design tasks force us [designers] to think creatively when designing, and the main purpose to create fun, safe and high-quality LEGO play experiences for children worldwide is the same, but the means by which we acquire inspiration to the final product varies somewhat..

HBM: How many designs do you work on at the same time?

MB: It varies as well, but often I have about 3 products of different sizes and at different stages of development in my hands.

HBM: Do the designers choose the minifigs that come with each set?

MB: That decision comes from a pool of different people and based on many different questions. So, I would say we have the chance to give input on what characters to have, but often the final decision comes from the Creative Leads.

HBM: What possibilities do you have for requesting new parts or parts in new colors?

MB: We do have some restrictions to how much we can expand our library of LEGO elements, in order to keep the company's production complexity level in a healthy place. Having said that, we do always try to put our resources into everything we believe is going to add up to a greater experience and better product for our final consumer. As a designer being restricted can also be an exciting challenge to use current elements in new creative ways. At the moment we have more than 3,500 different elements to choose from, based on a colour palette counting more than 60 different colours.

HBM: Which of the models you have designed is your favorite and why?

MB: It's always hard to answer to this question, because it's often the latest one I've been working on. It's the dearest at this time, it's the one I've been so passionately working on for weeks or months now, and I get to develop a deep connection with it. But, if I really should name a set that is out now, I'd probably say the Milano ship, from the Guardians of the Galaxy movie. I love the original design of the ship and I'm very happy with how the final model turned out to be so close to the reference material. It's always a big question mark in these cases, because we are developing our products at the same time that the movie productions are happening and things can always drastically change on their end, leaving us with no option other than releasing whatever we have agreed upon back when we had to finalize our products in order for it to hit the markets in time with the movie. And by the way, that movie was amazing!

HBM: Which of the sets you have designed has posed the biggest challenge for you?

MB: The S.H.I.E.L.D. Helicarrier most certainly, for many reasons. First of all, for its size. If taking a small LEGO® model through all phases is hard and demanding, taking an almost 3000-brick-sized model is certainly a huge task. But I loved every single bit of it. Even the frustrating late evenings where I couldn't go home without solving that issue that was bugging me for days. I had to really work hard to make it the most interesting built ever, with each and every brick serving a purpose, making the main function work the smoothest possible, allowing a motorization to happen the easiest possible, getting it as accurate to the reference as possible, and yet making it a fun experience building without wasting hours searching for that one brick in that one color...

HBM: Has "building with LEGO bricks" gone from being a hobby to a means to earn a living?

MB: In a way, you could say so, but I prefer to look at it in another way: I'm one of those few lucky ones that doesn't even have to work to earn a living. I get to do what I love and that happens to – amazingly – pay my bills.

HBM: Do you design your own MOCs when you are not working?

MB: No, only very rarely. I spend on average 8 hours a day at work and that's enough LEGO time in my life. I have many other interests, like music, movies, writing, cooking, so I try to use my spare time as much as I can on those others interests I have. That way I keep myself always excited and inspired to go back to work the day after.

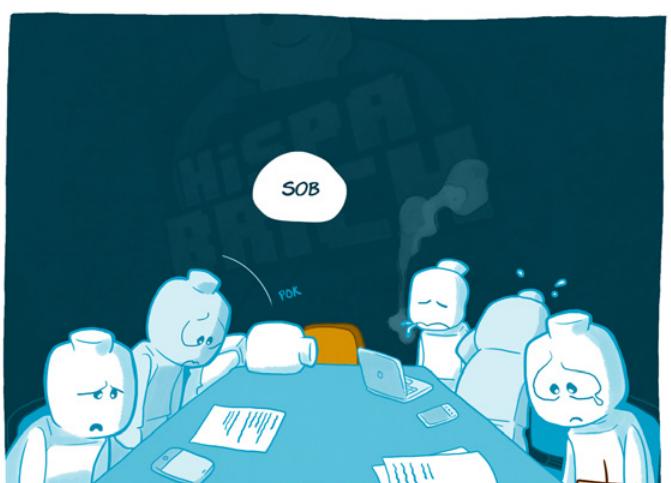
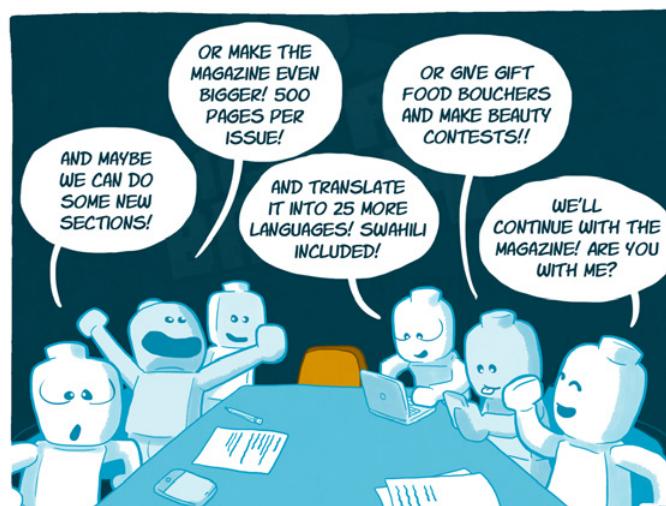
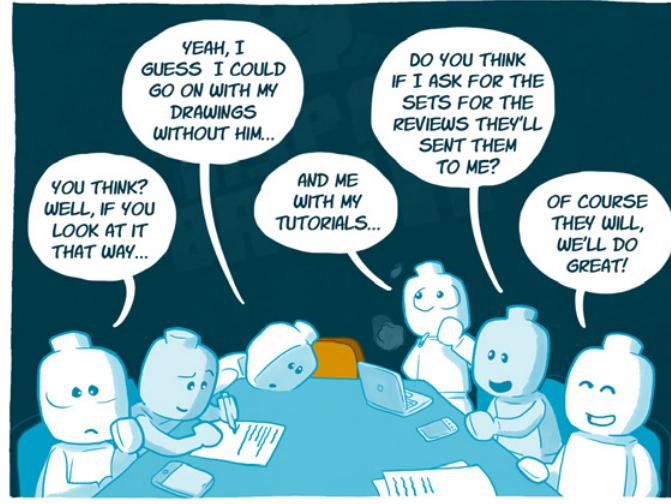
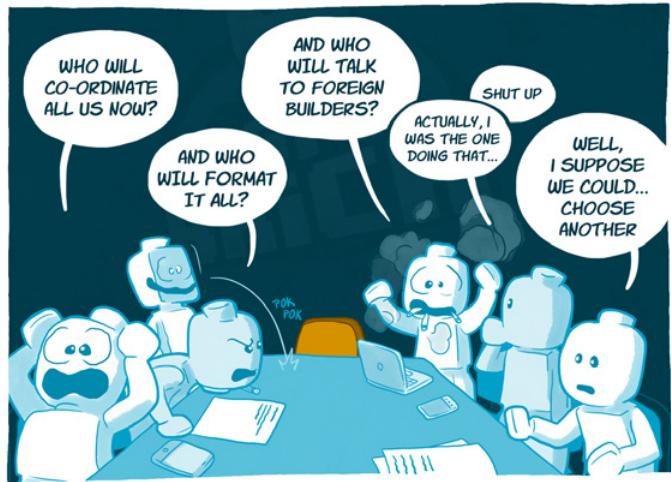
HBM: What advice would you give someone who dreams of becoming a LEGO designer?

MB: Don't ever give up on your dreams, but don't just sit around and wait for things to happen. Make it happen!
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by Arqu medes



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