



SOUTH AFRICA

WeDo & Spike Essential 2022



Vacation at the Beach Challenge

Official Game Rules for the WRO SA WeDo & Spike Essential Competition: 9th March 2022



Game as played in Canada, courtesy of Zone01 Robotics

Photo credits : [Carrie Gregory](#)

WRO SA Competition Format:

The competition format for this year will be an **inhouse competition** (competition run by coaches in their own school or club) and submit their scores on the WRO SA website during the scheduled event period 24th October 2022 – 30th October 2022. Coaches choose one day during the seven (7) days the scoring system is open to run their own 2–3-hour competition following the rules as laid out in this document. Once teams have completed their runs their highest score for the competition must be submitted before the close of the scoring system at midnight on the 30th of October 2022.

Only one score per team will be accepted.

No late scores and submissions will be allowed.

Teams are required to register on the WRO SA website during the registration period if participating in this event.

There is no physical provincial or national event for this competition category.

Teams will receive a certificate (Diamond, Gold, Silver, Bronze) based on the score submitted for the event.

Category Rules

This category is open to children ages 6-10 years old in the year of the competition 2022, not the child's age at the time.

Teams may consist of 2-3 team members

The coach is not counted as a team member

Only WeDo and Spike Essential robots are allowed to be used in this competition category

Setting the scene

You are a lifeguard, the person responsible for the safety of beach visitors. As soon as you sit on top of your station, you are called from everywhere!

The visitors need you. Can you help them in time?

Overall function of the robot

You need to design a rescue robot that can take care of visitors who each have special requirements.

Description of the robot

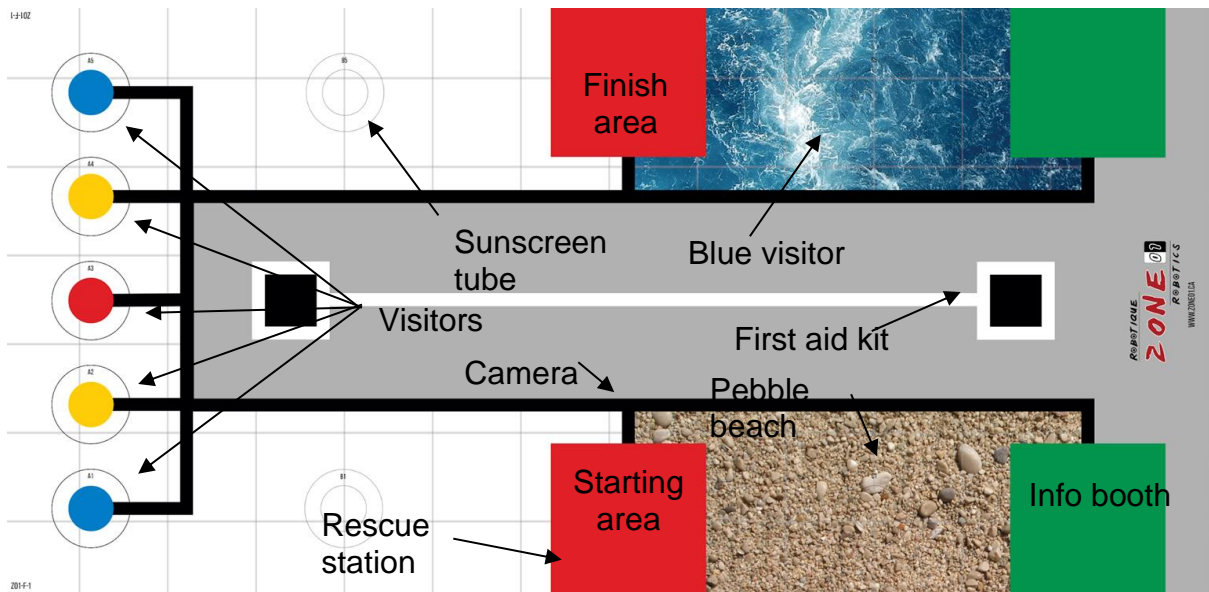
The robots participating in the challenge must respect the following constraints:

1. The robot must fit completely within the red starting area.
2. Only one controller (WeDo hub, Spike Essential hub).
3. Only official LEGO elements are allowed to be used in the construction of the robot.

Playing field description

The playing field is highly recommended for practicing the challenge, as the colors and lines of the mat define the precise location of the game objects. Walls surrounding the game mat are not required.

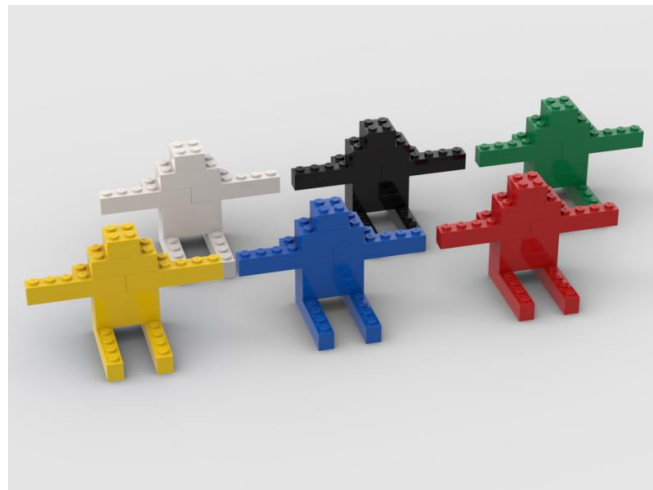
2D view of the playing field



Description of the Game Objects

Visitors

The 6 visitors are made from LEGO pieces. Each visitor is made of 2x2, 2x4 and 1x6 bricks of the same color. The 6 visitors are fragile, do not hurt them!



Accessories for visitors

The first aid kit, the tube of sunscreen and the camera are made of 2x2, 2x4, and 1x6 pieces. The first aid kit also requires a ring.



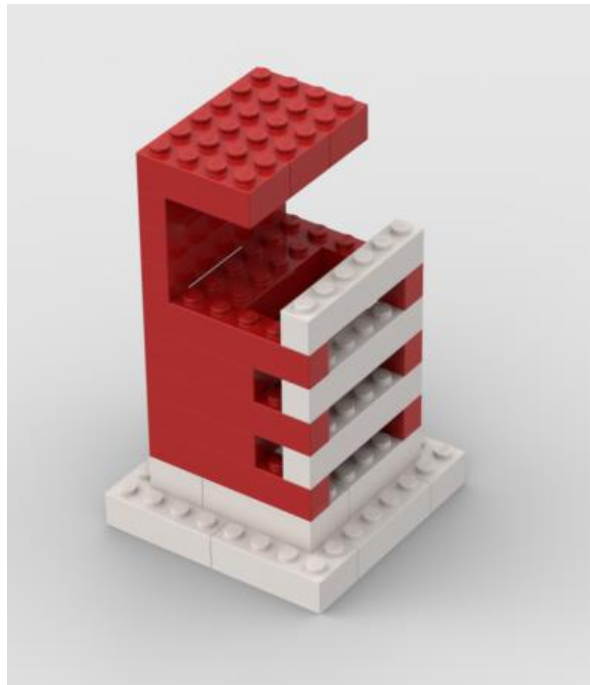
First aid kit

Tube of sunscreen

Camera

Rescue station

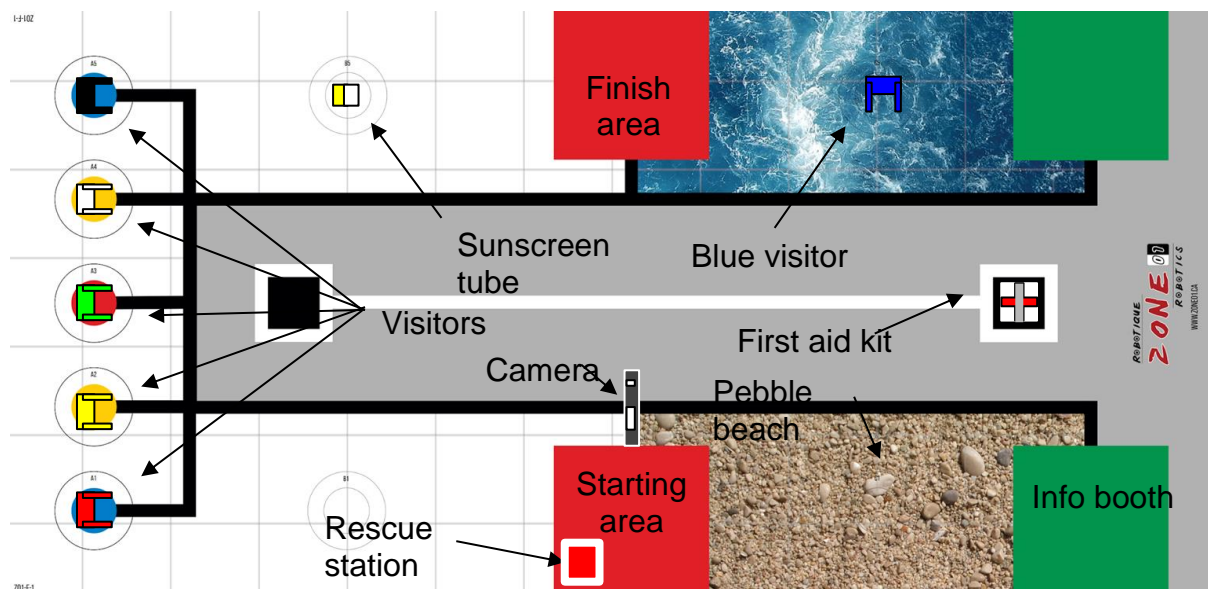
The rescue station is immobile and must not be moved out of the starting area. Composed of 2x4 and 1x6, it is fragile.



Positioning of the Game Objects

- The blue visitor is placed in the circle in the water, facing the pebble beach.
- The green, black, white, red and yellow visitors are placed **randomly** on the 5 coloured circles, facing the center of the playing area. Once the randomization has been decided, this is how all the elements should be set up for all the teams throughout the competition day. I.e., all teams will have to complete the same randomization for their inhouse event.
- The camera is placed on the intersection of the black lines near the red starting area.
- The tube of sunscreen is placed standing up in the circle in the white section on the opposite side of the camera.
- The first aid kit is placed on the black square near the Zone01 logo. The ring faces the center of the playing area.

2D view of the playing field with game objects (possible randomization)



Detailed Description of the Challenge

The robot is set up in its starting position, i.e. it must be completely inside the red zone on the beach side. The rescue station must also be in the red zone.

At the judge's signal, the robot starts its missions in any order.

- The robot must move the blue visitor out of the water to the pebble beach. If the blue visitor is still in the water after 20 seconds, the judge saves the visitor by removing him from the water and no points will be awarded.
- The robot must move the yellow visitor who needs information to the green area identified on the drawing.
- The robot must bring sunscreen to the red visitor who is getting sunburned.
- The robot must bring the camera to the black visitor who has lost it.
- The robot must bring the first aid kit to the green visitor who is not feeling well.
- Visitor elements should not be damaged during the run, 5 points will be deducted for each damaged visitor.

The challenge is completed when a team member says "Stop". WRO SA suggests limiting the teams run time on the table to 4 minutes to allow other teams to also have opportunities to score within the competition time.

Surprise Rule

Coaches are encouraged to come up with their own surprise rule for their competition day. The rule does not need to be complicated but should follow the following criteria:

1. The Surprise rule should allow teams to score 20 extra points on the competition table and should never result in points being lost.
2. The surprise rule does not need to incorporate new build elements but can use existing ones. For example, asking the team to move an existing object to another position on the game mat.

WRO SA will publish some suggested surprise rules on the WRO SA website WeDo and Spike Essential page one (1) week before the competition week:

<https://www.wrosa.co.za/wedo-spike-essential-rules>

General Rules of the Game

During a round, the team is allowed to touch/grab the robot only when any part of the robot touches one of the red square zones.

During a round, the team is also allowed to move a robot from one red zone to another red zone. It is only allowed to move the robot, not the game objects.

The team is allowed to use multiple programs during the round.

Scoring Sheet



Judge Name: _____

Wedo & SPIKE Essential

Team Name: _____

An element is considered completely in if no part of the element is touching the game mat outside of the scoring area. If a part of the element is touching the mat outside of the scoring area the element is considered partially in.

Tasks		Points:	1st Score	2nd Score	3rd Score	4th Score
Blue visitor completely out of the water within 20 seconds	Yes / No	25				
Blue visitor completely in the pebble beach area	Yes / No	10				
Blue visitor partially in the pebble beach area	Yes / No	5				
Yellow visitor completely in the green information area	Yes / No	10				
Yellow visitor partially in the green information area	Yes / No	5				
Sunscreen tube partially in the large circle of the red visitor, standing upright	Yes / No	10				
Sunscreen partially in the large circle of the red visitor, laying down	Yes / No	5				
First aid kit partially in the large circle of the green visitor	Yes / No	10				
Camera partially in the large circle of the black visitor	Yes / No	10				
Rescue station completely in the red starting area during the entire round and undamaged	Yes / No	15				
Robot ends the round completely in the red finish area	Yes / No	10				
Visitor element damaged	0 1 2 3	- 5				
	4 5 6					
each						
Surprise rule	Yes / No	20				
Total:		120 Maximum				

Highest Score

Diamond
100 points

Gold
75 - 95 points

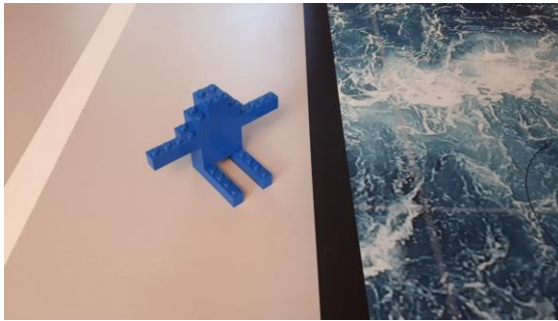
Silver
50 - 70 points

Bronze
25 - 45 points



Scoring Clarifications

Blue visitor water area



Blue (drowning) visitor completely out of the water within 20 seconds
25 points

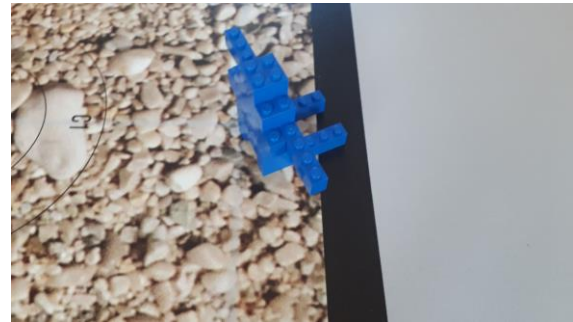


Blue (drowning) visitor partially out of the water within 20 seconds
0 points

Pebble beach area



Blue (drowning) visitor completely inside the pebble beach area
10 points

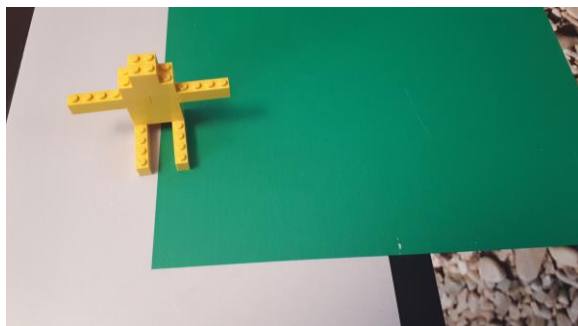


Blue (drowning) visitor partially in the pebble beach area
5 points

Information area

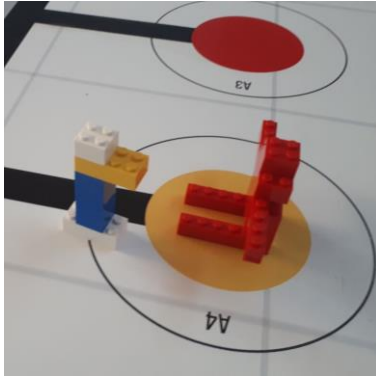


Yellow (lost) visitor completely inside the green information area
10 points

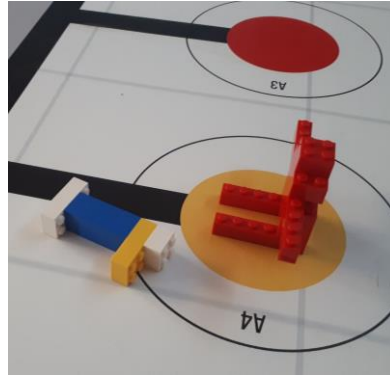


Yellow (lost) visitor partially inside the green information area
5 points

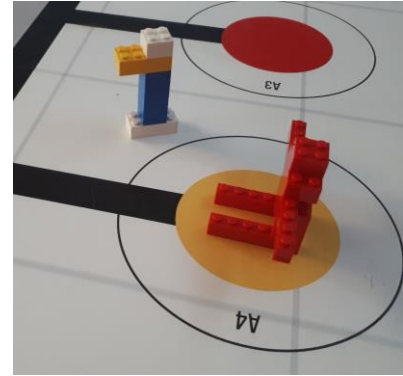
Red visitor area



Tube of sunscreen standing upright touching the inside circle of red (sunburnt) visitor area
10 points

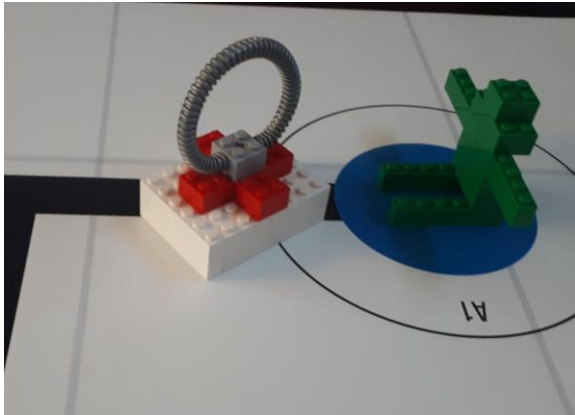


Tube of sunscreen laying down, touching the inside circle of red (sunburnt) visitor area
5 points

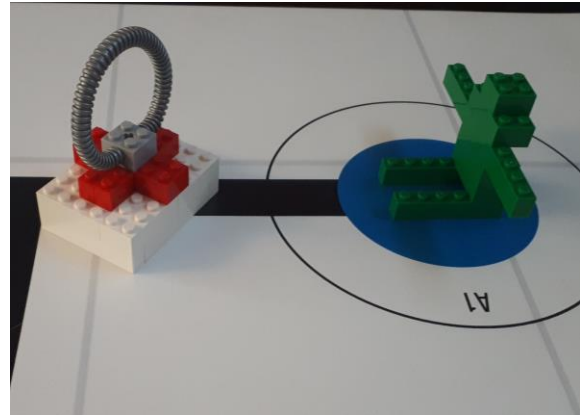


Sunscreen not touching the inside circle of red (sunburnt) visitor area
0 points

First aid kit area

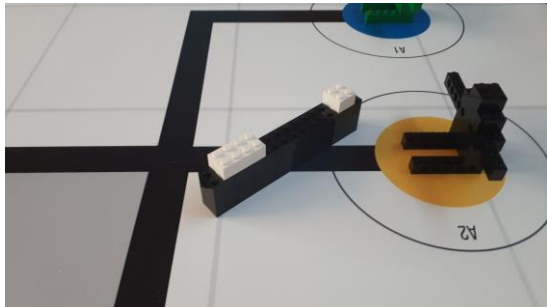


First aid kit touching the inside circle of green (sick) visitor area
10 points

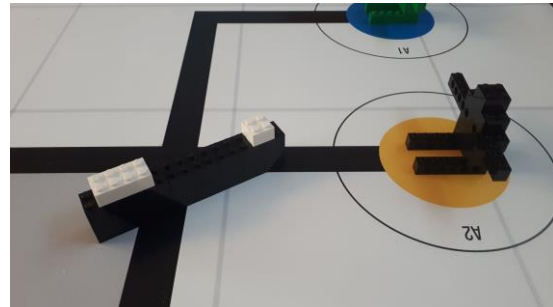


First aid kit not touching the inside circle of green (sick) visitor area
0 points

Camera area

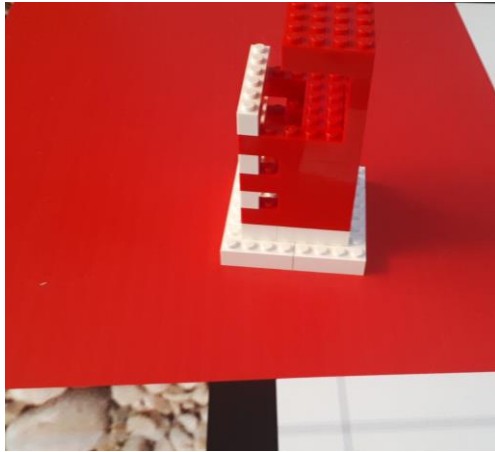


Camera touching the inside circle of black (lost camera) visitor area
10 points

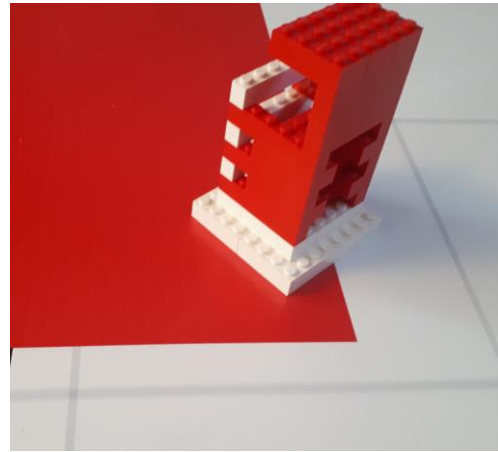


Camera not touching the inside circle of the black (lost camera) visitor area
0 points

Rescue station area



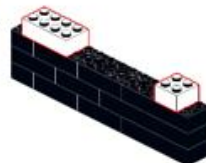
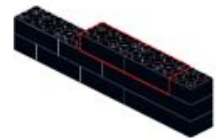
Rescue station completely inside of the red zone
15 points



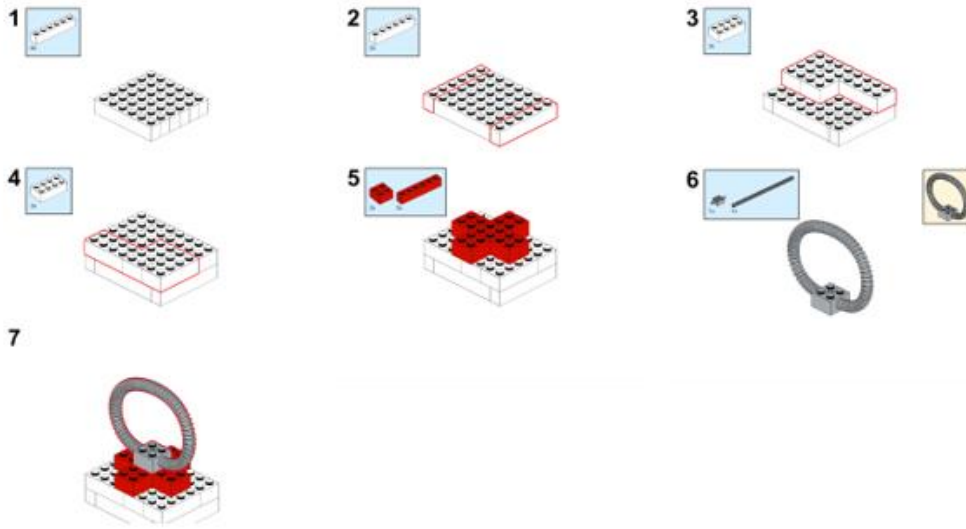
Rescue station moved outside of the red zone
0 points

Assembly instructions

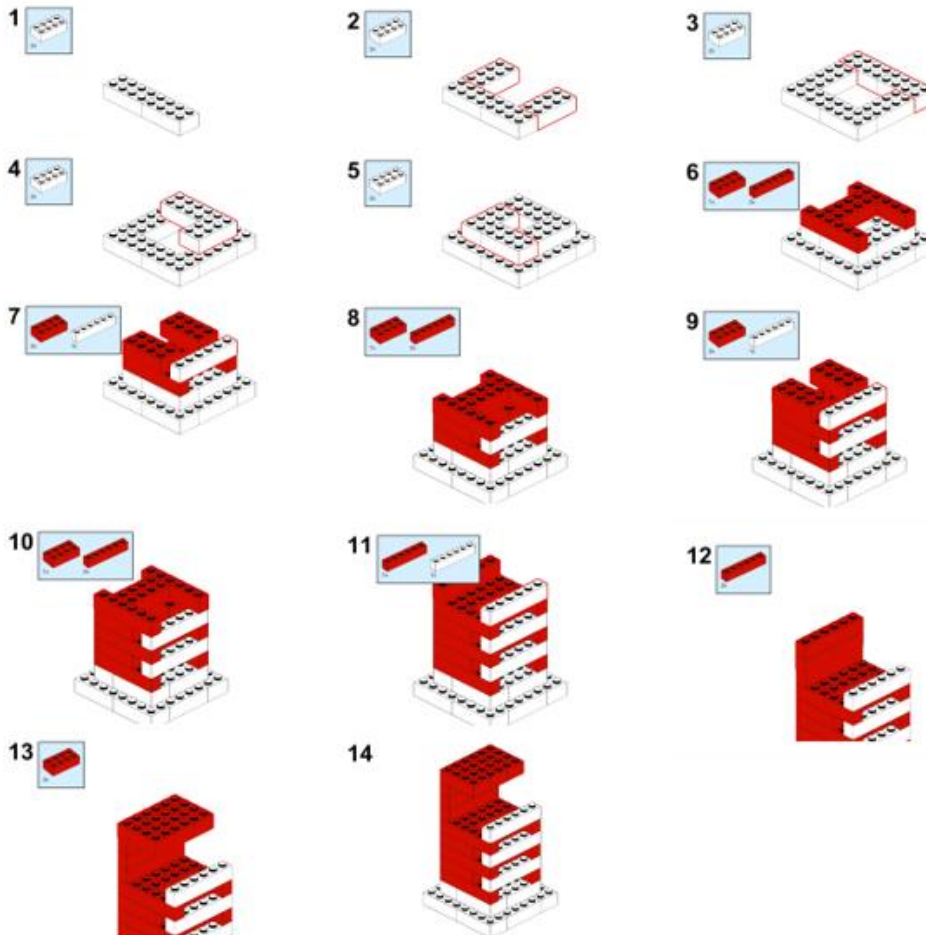
Camera (x1)



First aid kit (x1)



Rescue station (x1)



Tube of sunscreen (x1)



Visitors, total 6 (Red, Green, Black, White, Yellow and Blue)

