

LEGO® Metadata for Reproducibility

ReadMe

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For citation purposes, please use:

Donaldson, M. and Mahon, M. (2019); LEGO® Metadata for Reproducibility. University of Glasgow.
DOI: <http://dx.doi.org/10.36399/gla.pubs.196477>

Overview

The LEGO® Metadata for Reproducibility game is an interactive game for 4-24 players, using LEGO® to help researchers explore the metadata they might need to record to aid reproducibility.

The game addresses issues including planning for metadata, formats of metadata recording, standards and automation. The game also draws multiple parallels between recording and communicating the research process and documenting and the creation of a Lego model.

The process of playing the game draws researchers into discussions on how metadata is captured, recorded and disseminated, which in turn provides an opportunity for signposting to further resources in this area.

What you will need

In order to play the game, you will need:

LEGO® – we bought a LEGO® classic creative box (similar to this one <https://www.lego.com/en-gb/product/lego-medium-creative-brick-box-10696>) and added additional small parts bought from the LEGO® site (<https://www.lego.com/en-gb/page/static/pick-a-brick>). For our version of the game, we decided on small vehicles, so we bought extra wheels, tyres, axles and steering wheels.

The **LEGO® Metadata for Reproducibility game pack** – this contains the following documents and files:

Game_Overview – this gives the facilitator instructions for setting up and running a game session

Discussion_points – this is intended to help the facilitator relate issues in the game to issues in the research process

Instruction_sheets (folder) – this folder contains instructions for game options 1-6 and instructions for the replication phase

Additional_resources (folder) – this folder contains the template document needed by groups playing options 2 and 4, and examples of block lists which could be provided to groups playing options 3 and 4

Print a copy of the instructions and resources needed for each group. Please note that the block lists provided are examples only – these will need to be developed on-site to reflect the LEGO® kits you provide.

The game pack is available in two forms – the first contains PDF files which can be printed and used in their current form. The second pack is editable – it contains the same documents in .docx format so these can be edited to adjust for local arrangements etc.

Small bags or boxes to keep the individual kits separate (we use zip-lock bags).

An appropriate room with smallish tables and chairs. Ideally each group would be at a separate table, but it is possible to run the game with different groups and opposite ends of the same table.

Pens and paper.

Tablet computer or similar – game options 5 and 6 have groups take photographs of their models as a form of instruction for the following group. If you want to offer these options, some way to take and show photographs is needed. We don't use options 5 and 6 as often as the other options, but they can be useful when running larger sessions.

Tablet or phone with camera for facilitator.

Initial preparation

Once you have your LEGO®, a little preparation is needed before you can run the game for the first time to set up the LEGO® kits and related resources.

Kits: Into each bag or box, add approximately 90 bricks. These need to be a good mix of brick types, with wheels and small components added to the mix. The kits do not need to be identical. We have 6 of these kits so that we can run the game for 24 researchers in 6 groups of 4.

Block lists: For each kit prepared, you need to make a block list. To do this, we photographed each different type of block and added these to a document. Beside each photograph, we gave the official LEGO® description of the block (an example of a controlled ontology!). In the game pack, some of our block lists are included as examples, you will need to prepare these for the specific kits you prepare.

Test run

Once you have set up the LEGO® kits and sorted out the additional resources, it can be useful to have a test-run of the game with colleagues, to get a feel for how it works. It's possible to do this with just one other person – take an option each and a LEGO® kit each and follow the instructions, then swap and try again. Don't worry too much about timing during the test run – just get a feel for the game.

Target audiences

We have run this game for researchers in single discipline and single career-stage groups, and in larger mixed groups (across both disciplines and career stages). It appears to work well in all contexts.

There are different benefits to be had in the different contexts: for example, running the game for researchers in a single discipline can be useful in demonstrating to researchers that although they all come from a similar background, they don't necessarily approach a task in the same way (the parallel being that they can't assume that because their data is likely to be re-used by researchers in

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the same discipline, those researchers will automatically understand how they've presented their information).

Mixed groups with a much wider perspective can be useful for opening up discussions on how important thorough, jargonless documentation is for interdisciplinary research.

